



**North Dakota Public Service Commission  
Consolidated Application**

**Certificate of Corridor Compatibility and  
Route Permit**

**Highway 1804 Re-Route North**

Prepared for:

**Plains Pipeline, L.P.**

Prepared by:

**E3 Environmental, L.L.C.**

July 2015



**E3 ENVIRONMENTAL**  
*Enhancing Execution with Experience*





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## **INTRODUCTION**

Plains Pipeline, L.P. (Plains) or its affiliates owns and operates crude oil assets in the United States. Plains is proposing the Highway 1804 Pipeline Re-Route North (Project), located in Williams County, North Dakota. The Project is associated with the Highway 1804 Re-Route South Project which will be filed with the PSC under a Certification Statement. The Project scope includes approximately 8.5 miles of new, 10-inch outside diameter crude oil pipeline that would replace the northern portion of the existing Fort Buford to Highway 1804 6-inch Pipeline that originates at the McCreary Junction Block Valve (MJ) and extends northeast to terminate at the Side Hill Junction Block Valve (SHJ). The Project would originate at the Highway 1804 Re-Route South Tie-in and terminate at the SHJ. Refer to the maps in Appendix B for an overview of the Project.

The Project is needed to update and upgrade the existing Fort Buford to Highway 1804 6-inch Pipeline to address the transportation of growing volumes of crude oil from the Bakken Formation to numerous refining centers across the United States. Additionally, the Project would increase the distance between the pipeline and Lake Trenton as well as the town of Trenton. The existing Fort Buford to Highway 1804 6-inch Pipeline is 0.07 miles from the center of Trenton, and the Project would be located 0.70 miles from the center of Trenton.

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, Chapter 49-22-08; and,
- PCS Administrative Code, Chapter 69-06-05, Certificate of Site or Corridor Compatibility.

## **SECTION 1: DESCRIPTION**

### **1.1 TYPE AND SIZE OF FACILITY**

#### **1.1.1 TYPE**

The Project would result in a new crude oil transmission pipeline. The steel pipeline would meet U.S. Department of Transportation (DOT) regulations, specifically the design criteria outlined in 49 C.F.R. part 195 subpart C, 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:

- 10-inch outside diameter steel pipe
- 0.250-inch wall thickness
- Normal Operating Pressure: 1,440 pounds per square inch gauge (psig)
- Maximum Operating Pressure: 1,440 psig
- Normal Throughput: approximately 15,000 barrels per day (bpd)
- Maximum Throughput: approximately 40,000 bpd
- Maximum Operating Temperature: 100 degrees Fahrenheit

#### **1.1.3 LENGTH**

The Project is approximately 8.5 miles in length.

### **1.2 PURPOSE OF FACILITY**

The purpose of the Project is to increase the distance of the existing Fort Buford to Highway 1804 6-inch Pipeline from Lake Trenton and the city of Trenton and to transport crude oil from the Highway 1804 Re-Route South Tie-in to the SHJ for distribution to refineries across the United States.

### **1.3 LOCATION**

The Project would be located in Williams County, North Dakota and result in a transmission pipeline originating at the Highway 1804 Re-Route South Tie-in and terminate at the SHJ. The Project would extend to the northeast to its terminus at the SHJ, located approximately two miles northeast of Trenton, North Dakota. Refer to the Project maps provided in Appendix B.

### **1.4 ABOVEGROUND FACILITIES**

It is not anticipated the Project would include additional above ground facilities. Refer to Appendix A for engineering documents related to typical pipeline installation.

## **1.5 PROJECT SCHEDULE**

### **1.5.1 CERTIFICATE OF CORRIDOR COMPATIBILITY**

Plains seeks a Certificate of Corridor Compatibility by or before November 2015.

### **1.5.2 ROUTE PERMIT**

Plains seeks a Route Permit by or before November 2015.

### **1.5.3 CONSTRUCTION SCHEDULE**

Plains has scheduled construction activities to commence during the fourth quarter of 2015. The construction activities would take approximately three (3) months to complete. Commissioning and restoration activities would commence immediately after construction is complete.

## **SECTION 2: STUDIES**

### **2.1 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. Plain'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. Agency consultations were initiated identifying the Fort Buford to Highway 1804 Pipeline Project as an approximately fourteen (14) mile alignment. The alignment has been separated into two (2) pipeline projects (Highway 1804 Re-Route North and Highway 1804 Re-Route South). The Project, and this consolidated application encompasses the northern, approximately 8.5 miles. 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 Preservation Office (NDSHPO)
- North Dakota Department of Health (NDDoH)

### **2.2 ENVIRONMENTAL DESKTOP ANALYSIS**

#### **2.2.1 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 complete record of agency consultations.

### **2.2.2 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. Desktop analysis identified thirteen (13) waterbodies, sixteen (16) waterways, and approximately thirty-six (36) 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.

### **2.2.3 TREE/SAPLING/SHRUB ANALYSIS**

The density of the woody cover in this region is generally sparse, and typically associated with significant topographic relief such as defined banks or incised drainage channels or agricultural windrows. Plains commissioned field studies to inventory the Project survey corridor for woody vegetation. The Survey Corridor was typically a 200 foot corridor centered upon the pipeline alignment (Survey Corridor). The results of these studies are documented in Appendix D and proposed mitigation measures are detailed in the associated Route Permit Application.

## **2.3 AGENCY CONSULTATIONS**

### **2.3.1 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 May 22, 2015. A response from the USFWS is pending. Refer to Appendix C for a record of this consultation.

#### **2.3.1.1 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 the 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
- Northern long-eared bat (*Myotis septentrionalis*) - 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 whooping crane and potential foraging habitat exists within the Corridor.

**Least tern:** The interior populations of the least tern have historically been associated with large river systems for breeding and migratory habitats. Breeding birds are known to congregate in colonies, utilizing sandbar habitat common to larger rivers. Regionally, the Missouri River is known to host remnant breeding populations of terns. The Project is approximately two (2) miles from the Missouri River, and no suitable habitat is present within the Corridor; therefore, impacts to the 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 microhabitat diversity. Portions of the Missouri River are thought to provide the required habitat for the pallid sturgeon though much of the habitat has been compromised due to channelization, installation of impoundments and altered flow regimes. The confluence of the Missouri and Yellowstone Rivers, which included the pallid sturgeon Great Plains Management Unit is approximately 4.5 miles from the nearest southern end of the Project. In addition, the Project is approximately two miles from the Missouri River at its closest location. However, the Corridor does not intersect with these areas. A suitable habitat is not located within the Corridor; therefore the Project is not likely to impact the species.

**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 known Minnesota and Manitoba populations. This species is not tolerant of human disturbance and would tend to avoid interaction with humans. The activities associated with construction and later operations would likely serve as a deterrent to this species. Therefore, impacts to the gray wolf are not anticipated.

**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 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. Potential habitat is located approximately two (2) miles from the Missouri River at its closest location. No suitable habitat is 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 Sakakewea provide suitable habitat for breeding and nesting, however the shoreline of the Missouri River is located approximately two (2) miles from the Project, and the Project would not intersect any prairie pothole wetlands which may provide suitable alkali wetland habitat. Thus, impacts to the piping plover 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. 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.

On May 22, 2015, E3, on behalf of Plains, submitted project consultation to the USFWS providing a comprehensive project description and environmental analysis. A response from the USFWS is pending. See Appendix C for a copy of the correspondence.

### **2.3.1.2 MIGRATORY BIRD TREATY ACT CONSULTATION**

On May 22, 2015, E3, on behalf of Plains, initiated consultations with the USFWS; the consultation addressed several topics which fall under the purview of the USFWS including the Migratory Bird Treaty Act (MBTA). The management of MBTA concerns correspond with the regional timing associated with annual phenology of migratory species. In North Dakota, generally it is acknowledged MBTA species of concern may be present and active in North Dakota from February 1<sup>st</sup> through July 15<sup>th</sup> annually. The Project construction is scheduled to commence the fourth quarter of 2015 and take approximately three (3) months to reach completion. According to the Project schedule, MBTA mitigation is not anticipated. Should MBTA mitigation be required, Plains would continue to consult with agencies as necessary and would develop MBTA mitigation as appropriate.

### **2.3.1.3 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.

On May 22, 2015, E3, on behalf of Plains, sent a Project consultation letter with maps of the Corridor to the USFWS, which addressed the topic of BGEA. To date, no response has been received from the USFWS regarding the BGEA. Refer to Appendix C for a copy of the correspondence.

### **2.3.1.4 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. Desktop analysis indicates no USFWS managed lands are located within the Corridor.

A notification was provided to the USFWS providing opportunity for the Agency to identify any additional USFWS managed lands which may be impacted by the Project. A response from the USFWS is pending. Refer to Appendix C for a copy of the correspondence.

### **2.3.2 NORTH DAKOTA GAME AND FISH DEPARTMENT**

The NDGFD has oversight of the State’s game species. On May 22, 2015, 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 June 18, 2015 stating the Project would not have significant adverse effects on wildlife or wildlife habitat. Refer to Appendix C for a copy of this correspondence.

### **2.3.3 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 May 22, 2015, 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. The NDPRD responded on June 18, 2015 and confirmed there have been documented occurrences

of species or ecological communities of concern within the Corridor. See Appendix C for a copy of the correspondence.

#### **2.3.4 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 review of publically available information, state trust land is crossed by the Corridor.

On May 22, 2015, 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 May 26, 2015 confirming the presence of state trust land tracts within the Corridor as depicted in the consultation map. Refer to Appendix C for a copy of this correspondence.

Also on May 22, 2015, 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 May 26, 2015 confirming the presence of Mineral Trust land tracts within the Corridor as depicted in the consultation map. The response also indicated the State of North Dakota owns the bed of navigable river up to the ordinary high water mark and therefore Section 14, Township 152N, Range 104W also falls within the Corridor. See Appendix C for a copy of the correspondence.

#### **2.3.5 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.

On March 3, 2015 and April 22, 2015, 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 (1) mile of the Corridor. The Class I cultural resources inventory identified twenty-two (22) recorded cultural resources within the Corridor. The cultural resources consist of three historic homesteads (32WI29, 32WI45, and 32WI47); one historic dam (32WI46); one historic school (32WI28); one historic dump (32WI124); the Buford-Trenton Pumping Station (32WI156); one historic bridge (32WI325); one historic church (32WI483); one historic canal gate (32WI1140); one historic well (32WI1360); the Buford-Trenton Irrigation District (32WI1367); one historic foundation (32WI1407); one historic cultural material scatter (32WI1623); two historic box culverts (32WI1651 and 32WI1652); one historic railroad bridge (32WI1653); one historic railroad mile marker (32WI1654); one prehistoric stone circle site (32WI204); one historic foundation site lead (32WIX25); one prehistoric chipped stone isolated find (32WIX616); and one isolated piece of farm equipment (32WIX652). 32WI156, 23WI325, 32WI1367, 32WI1651, 32WI1652, and 32WI1654 have been recommended eligible for listing on the National Register of Historic Places (NRHP).

32WI124, 32WI1360, 32WI1407, 32WI1623, 32WIX616, and 32WIX652 are not eligible for the NRHP. The remaining resources are unevaluated regarding their eligibility for the NRHP.

To augment this Class I, a Class III field investigation was conducted and the details of this effort are 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 Abstract.

### **2.3.6 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.

#### **2.3.6.1 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 would procure the following NDPDES permits from the NDDoH as described below.

**Construction Stormwater:** Plains would seek coverage under NDR10-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit for construction activities. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared and maintained on-site for the duration of the Project. Plains would properly implement the SWPPP, which would be designed to manage run-off and trench dewatering discharges in a manner that would minimize exposure to chemicals, waste and petroleum products, and to describe erosion control measures designed to minimize off-site transfer of sediments.

**Hydrostatic test water discharges:** Plains would seek coverage under NDG07-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit for various temporary discharges including both construction site dewatering and hydrostatic test water discharges.

### **SECTION 3: NEED FOR FACILITY**

#### **3.1 ANALYSIS OF NEED BASED ON PRESENT AND PROJECTED DEMAND, INCLUDING SYSTEM STUDIES**

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. From March of 2007 to March of 2013, oil production in North Dakota has surged by 564 percent. In March of 2007, North Dakota produced 118,000 barrels of oil per day. That figure has increased to 783,000 barrels per day in March of 2013. In 2007, North Dakota accounted for roughly 2.5 percent of all the oil produced in the United States. In 2013, North Dakota accounted for roughly eleven percent (11%) of all the oil produced in the country.

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 would provide firm, reliable transport of 15,000 bpd of crude oil between the Highway 1804 Re-Route South Tie-in and the SHJ. From the SHJ, the product would continue through Plain's gathering lines and shipped via rail to refineries across the United States.

## **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.

### **4.1 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 the field studies are discussed in detail in the associated Route Permit Application.

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

#### **4.2.1 FEASIBLE ALTERNATIVES TO THE PROPOSED CORRIDOR OR ROUTE**

Construction of the Project would provide firm, reliable service for 15,000 barrels of crude oil per day from the Highway 1804 Re-Route South Tie-in to the SHJ. From the SHJ, the product would continue through Plains' gathering lines and become available for transport 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 15,000 barrels or 630,000 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 eighty-five (85) trucks per day, an average of 3.5 trucks every hour for twenty-four (24) hours a day to transport the volume of product the pipeline would transport to the SHJ. 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**

Rail transport was also evaluated as a surface transportation alternative. However, the Project would replace a portion of the existing Fort Buford to Highway 1804 6-inch Pipeline, which is a component of a larger gathering system that connects to the Savage Rail Facility near Trenton, North Dakota. The Project will replace a portion of pipeline that is part of a gathering system connecting to Plains' existing rail facility; therefore, this alternative is not desirable and Plains rejected the *Rail Alternative*.

#### **4.2.2 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 would result from the requested approvals.

#### **4.2.3 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.

#### **4.2.4 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.

### 4.3 EXCLUSION AREAS (NAC 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 fifty (50) percent 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.

<b>Exclusion Area</b>	<b>Within Corridor</b>
<b>Federal</b>	
National Parks or Memorial Parks	No
Historic Sites, or Landmarks	Yes
Natural Landmarks or Monuments	No
Wilderness Areas	No
<b>State</b>	
Historic Sites, Monuments, or Historical Markers	No
Archaeological Sites	Yes
Parks	No
Nature Preserves	No
<b>County</b>	
Parks	No
Recreation Areas	No
Municipal Parks	No
<b>Other</b>	
Areas critical to the life stages of Threatened and Endangered animal or plant species	No
Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged	No
Areas within 1,200 feet of a geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	No
Areas within thirty (30) feet on either side of a direct line between ICBM launch or launch control facilities to avoid microwave interference.	No

#### 4.3.1 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 would be crossed or affected by the Project.

Plains commissioned a Class I inventory of the Corridor. These efforts identified previously recorded historic properties and cultural resources. Plains confirmed the presence of sixteen (16) historic sites within the Corridor (cultural resources

considered eligible and unevaluated for inclusion into the NRHP). Refer to Section 2.3.5 for more information on these resources, Section 2 for a comprehensive discussion of Plains agency consultations, and Appendix C for a record of the consultations. Mitigation details are discussed in the associated Route Permit Application.

#### **4.3.2 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, or nature preserves within the proposed Corridor.

Plains commissioned a Class I inventory of the Corridor. These efforts identified previously recorded historic properties and cultural resources. Plains confirmed the presence of six previously recorded archaeological sites within the Corridor (cultural resources determined to be not eligible for inclusion into the NRHP). Refer to Section 2.3.5 for more information on these resources, Section 2 for a comprehensive discussion of Plains agency consultations, and Appendix C for a record of the consultations. Mitigation details are discussed in the associated Route Permit Application.

#### **4.3.3 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.

#### **4.3.4 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.

#### **4.3.5 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.

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

Based upon information compiled by the University of Wyoming regarding current and historic missile site locations, which was comprised of both tabular data describing these sites and supported with additional aerial imagery for each Minot Air Force Base ICBM site, Plains has confirmed the absence of ICBM launch or launch control facilities located within 1,200 feet of the Corridor.

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

Based upon information compiled by the University of Wyoming regarding current and historic missile site locations, which was comprised of both tabular data describing these sites and supported with additional aerial imagery for each Minot Air Force Base ICBM site, Plains has confirmed the absence of areas within thirty (30) feet on either side of a direct line between ICBM launch or launch control facilities.

**4.4 AVOIDANCE AREAS (NAC 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 fifty (50) percent 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.

<b>Avoidance Area</b>	<b>Within Corridor</b>
<b>Federal</b>	
Historic Districts	No
Wildlife Areas	No
Wild, Scenic or Recreational Rivers	No
Wildlife Refuges	No
Grasslands	No
<b>State</b>	
Wild, Scenic, or Recreational Rivers	No
Game Refuges or Game Management Areas	No
Forests or Forest Management Areas	No
Grasslands	No
<b>Other</b>	
Other Historic Resources not meeting Exclusion Areas criteria	No
Areas of Known Geologic Instability	Yes
Areas within 500 Feet of a Residence, School, or Place of Business	Yes
Reservoirs and Municipal Water Supplies	Yes

<b>Avoidance Area</b>	<b>Within Corridor</b>
Water Sources for Organized Rural Water Districts	Yes
Irrigated Land (not applicable to underground facilities)	N/A
Areas of Recreational Significance which are not designated as Exclusion Areas	No

#### **4.4.1 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.

#### **4.4.2 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.

#### **4.4.3 HISTORICAL RESOURCES NOT MEETING EXCLUSION AREA CRITERIA**

Plains conducted a review of publicly available information, initiated project specific agency consultations, and augmented agency review with field studies. Through these efforts, Plains has concluded there are no historic resources not meeting exclusion areas criteria 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 Abstract. The full cultural resources report is privileged and not included in this Application.

#### **4.4.4 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 *Areas of Landslides, Watford City 100K and Willison 100K Quad, North Dakota* indicated the presence of landslide deposits within the 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 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.

#### **4.4.5 AREAS WITHIN 500 FEET OF A RESIDENCE, SCHOOL OR PLACE OF BUSINESS**

Aerial photography was utilized to identify structures located within the Corridor. Approximately 171 potentially occupied structures were identified within the Corridor. Refer to the associated Route Permit Application regarding potentially occupied structures within 500 feet of the route.

#### **4.4.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES**

Plains has confirmed the City of Williston Wellhead Protection Area Community, the Northwestern Area Water Supply, and the Western Area Water Supply are located within the Corridor. Six (6) wells were identified within the Corridor; these wells are used for domestic, stock or observation purposes and none are crossed by the route. Refer to the maps in Appendix B for the location of the wells.

#### **4.4.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS**

Plains has confirmed the City of Williston Wellhead Protection Area Community is located within the Survey Corridor. In addition, the Survey Corridor crosses the Williams Rural Water District, however the route does not intersect with source waters inside the district boundaries.

#### **4.4.8 IRRIGATED LAND**

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

#### **4.4.9 AREAS OF RECREATIONAL SIGNIFICANCE WHICH ARE NOT DESIGNATED AS EXCLUSION AREAS**

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

### **4.5 SELECTION CRITERIA (NAC 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 would successfully avoid or minimize these effects to the maximum extent practicable.

#### **4.5.1 AGRICULTURAL IMPACT**

**Agricultural Production:** The Project would temporarily affect approximately 102 acres of private land in North Dakota. Of the 102 acres, approximately thirty-five (35) acres are located on privately owned cropland. Once construction is complete, the land would be restored to its pre-construction contours and land use. Plains would provide settlements to landowners for crop loss resulting from Project construction.

**Family Farms and Ranches:** The Project would temporarily affect approximately 102 acres of private land in North Dakota. Of the 102 acres, approximately thirty-five (35) acres are located on privately owned cropland. Once construction is complete, the land

would be restored to its pre-construction contours and land use. Plains would negotiate easements with all affected landowners. The Project would have no permanent impacts to lifestyle or farm/ranch operations once construction is completed.

**Lands Suitable for Irrigation:** This section is not applicable to buried pipelines (69-06-08-02.2h).

**Surface Drainage:** Standard construction techniques would be employed; significant modifications to surface drainage patterns are not anticipated. Care would be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction would be restored, the local topography would be restored to its original contours, vegetation would be reestablished and impacts shall be minimal and temporary. BMPs would be implemented in accordance with the project-specific SWPPP, which would comply with the NDDoH Construction Stormwater General Permit requirements.

**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 between 20-50 feet below the surface. Typical subsurface excavations associated with the Project would not extend to more than ten (10) feet below the ground surface. At that depth, the Project would not intersect the groundwater table, nor would the Project alter recharge rates or the infiltration, permeability, or percolation of water into the groundwater reservoir. Additionally, construction would not affect the lateral movement and groundwater quality.

#### **4.5.2 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 would 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 would 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 would 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:** Above ground facilities that would have a visual effect for the Project area are not anticipated for the Project.

**Extractive and Storage Resources:** This Project would 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 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 would affect radio, television, or other electronic control facilities.

**Human Health and Safety:** Plains's Environmental, Health and Safety Policy meets or exceeds 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 would 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 would not be displaced by the Project and no measurable impact to the viability of these populations would occur. Plains does not anticipate species of special concern to experience direct impacts due to construction or operation of the Project.

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

## **4.6 POLICY CRITERIA**

### **4.6.1 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 would 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, and would be held accountable for their actions in that regard.

### **4.6.2 LOCATION AND DESIGN**

The proposed pipeline would be located in Williams County, North Dakota. The Project would result in a transmission pipeline originating at the Highway 1804 Re-Route South Tie-in, located approximately four (4) miles northeast of Trenton, North Dakota.

The Project would extend to the northeast to its terminus at the SHJ, located approximately three (3) miles northeast of Trenton, North Dakota. Refer to the Project maps provided in Appendix B.

The Project would be approximately 8.5 miles in length constructed of steel, and would be a nominal 10-inch outside diameter pipe. The pipe installed would have a nominal wall thickness of 0.250 inches denoted as API Code 5L specification GR B pipeline pipe. The maximum operating pressure of the pipeline would be 1,440 psig.

The proposed pipeline would meet US Department of Transportation regulations, specifically the design criteria outlined in 49 C.F.R. part 195 subpart C, constructed per 49 C.F.R. part 195 subpart D, and operated and maintained per 49 C.F.R. part 195 subpart F.

#### **4.6.3 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 would be primarily comprised of a specialized workforce. The primary contractor would be a contractor, supplying specialized skilled labor. The workforce is anticipated to reach a peak of approximately 100 personnel.

#### **4.6.4 ECONOMIES OF CONSTRUCTION AND OPERATION**

Plains would invest approximately \$7 million in North Dakota to develop this Project, generating approximately \$42,500 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.

#### **4.6.5 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.

#### **4.6.6 COMMITMENT OF A PORTION OF THE TRANSMITTED PRODUCT FOR USE IN THIS STATE**

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

#### **4.6.7 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.

#### **4.6.8 THE COORDINATION OF FACILITIES**

Plains or its affiliates own and operate all of the affected facilities; thus, coordination would be seamless and executed from within Plains's internal management systems.

#### **4.6.9 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 would monitor landowner concerns through its right-of-way (ROW) department and would respond to all reasonable requests. In a similar manner, Plains would monitor community concerns and would respond to all reasonable concerns brought to its attention by local community leaders. Plains would select a contractor for construction of the Project and would coordinate the oversight responsibilities for construction activities with this contractor throughout the Project. Environmental responsibilities would be coordinated in the same manner.

#### **4.6.10 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 16% (1.3 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.

#### **4.6.11 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 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 citing 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 would further minimize individual impacts to current land practices. All affected landowners would 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 would allow routing options that would 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 would effectively mitigate the impacts of construction along with the final approved route. Standard pipeline construction techniques would involve temporary impacts, but long term or permanent impacts would 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 would allow Plains to draw upon existing pipeline and facility assets in the region.

### **5.2 CONSTRUCTION**

The proposed construction of the Project would 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 three months to complete. Construction techniques would 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 would immediately follow pipeline construction. Final grading would restore the original contours of the land. Disturbed areas would be prepared for re-seeding and restoration would be coordinated to meet landowner specifications.

### **5.3 OPERATION**

Once put into service, the Project would operate continuously, delivering crude oil from the Highway 1804 Re-Route South Tie-in to the SHJ. 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 would conform to applicable DOT requirements, which include regular pipeline monitoring and periodic inspection; additionally, routine maintenance of the ROW would likely be required to remain in compliance.

## **SECTION 6: LIST OF PREPARERS**

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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 15 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.

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B.S. Civil Engineering with an emphasis in Environmental Engineering-Iowa State University. Ms. Schmidt is a Senior Environmental Consultant with eight 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.

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B.A. in Environmental Studies and Geography, Gustavus Adolphus College; and J.D., Hamline University School of Law. Ms. Schmit has over six years of environmental consulting experience. Ms. Schmit has pursued a career focused on regulatory compliance and supports energy clients by providing regulatory review and permitting services. Ms. Schmit's experience includes authoring technical reports in compliance with NEPA requirements for a variety of infrastructure projects across the Midwest and coordination with federal, state, and local agencies.



**E3 ENVIRONMENTAL**  
*Enhancing Execution with Experience*

**North Dakota Public Service Commission**  
**Application for Route Permit**

**Plains Pipeline, L.P.**  
**Highway 1804 Re-Route North**

Prepared by:

**E3 Environmental, L.L.C.**

July 2015

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Appendix A: Engineering Documents

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Appendix D: Natural Resources Report

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Appendix G: Landowner Waivers

## **INTRODUCTION**

Plains Pipeline, L.P. (Plains) or its affiliates owns and operates crude oil assets in the United States. Plains is proposing the Highway 1804 Pipeline Re-Route North (Project), located in Williams County, North Dakota. The Project is associated with the Highway 1804 Re-Route South Project which will be filed with the PSC under a Certification Statement. The Project scope includes approximately 8.5 miles of new, 10-inch outside diameter crude oil pipeline that would replace the northern portion of the existing Fort Buford to Highway 1804 6-inch Pipeline that originates at the McCreary Junction Block Valve (MJ) and extends northeast to terminate at the Side Hill Junction Block Valve (SHJ). The Project would originate at the Highway 1804 Re-Route South Tie-in and terminate at the SHJ. Refer to the maps in Appendix B for an overview of the Project.

The Project is needed to update and upgrade the Fort Buford to Highway 1804 6-inch Pipeline to address transportation of growing volumes of crude oil from the Bakken Formation to numerous refining centers across the United States. Additionally, the Project would increase the distance between the pipeline and Lake Trenton as well as the town of Trenton. The existing Fort Buford to Highway 1804 6-inch Pipeline is 0.07 miles from the center of Trenton, and the Project would be located 0.70 miles from the center of Trenton.

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, Chapter 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 would result in a new crude oil transmission pipeline. The steel pipeline would meet U.S. Department of Transportation (DOT) regulations, specifically the design criteria outlined in 49 C.F.R. part 195 subpart C, 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 increase the distance of the existing Fort Buford to Highway 1804 6-inch Pipeline from Lake Trenton and the city of Trenton and to transport crude oil from the Highway 1804 Re-Route South Tie-in to the SHJ for distribution to refineries across the United States.

Plains estimates the Project would cost approximately \$7 million to develop.

### **1.3 LENGTH, SIZE AND DESIGN OF PIPELINE FACILITY**

#### **1.3.1 LENGTH OF FACILITY**

The Project is approximately 8.5 miles in length.

#### **1.3.2 PIPE SIZE**

The Project pipeline specifications are detailed below:

- 10-inch outside diameter steel pipe
- 0.250-inch 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: 1,440 psig
- Normal Throughput: approximately 15,000 barrels per day (bpd)
- Maximum Throughput: approximately 40,000 bpd
- Maximum Operating Temperature: 100 degrees Fahrenheit

### **1.4 ABOVEGROUND FACILITIES**

It is not anticipated the Project would include additional above ground facilities. Refer to Appendix A for engineering documents related to typical pipeline installation.

### **1.5 WIDTH OF RIGHT-OF-WAY**

The Project would be constructed utilizing a 100-foot construction right-of-way (ROW). Plains would maintain an average 50-foot permanent ROW along the entire length of the pipeline.

## **1.6 LOCATION**

The Project would be located in Williams County, North Dakota and result in a transmission pipeline originating at the Highway 1804 Re-Route South Tie-in and terminate at the SHJ. The Project would extend to the northeast to its terminus at the SHJ, located approximately two miles northeast of Trenton, North Dakota. 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 November 2015.

### **1.7.2 CERTIFICATE OF CORRIDOR COMPATIBILITY**

Plains seeks a Certificate of Corridor Compatibility by or before November 2015.

### **1.7.3 CONSTRUCTION SCHEDULE**

Plains has scheduled construction activities to commence during the fourth quarter of 2015. The construction activities would take approximately three (3) months to complete. Commissioning and restoration activities would commence immediately after construction is complete.

## **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 was to confirm the Project corridor is suitable and would 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 on May 12-15 and June 24 of 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 200 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, and guidance from the NDSHPO on cultural resource report submittal and the Cultural Resources Report Abstract can be found in Appendix E. The Survey Corridor is depicted on the maps in Appendix B. The full cultural resources report is privileged and not included in this Application.

### **2.2 ROUTE ALTERNATIVES**

Construction of the Project would provide firm, reliable service for 15,000 barrels of crude oil per day from the Highway 1804 Re-Route South Tie-in to the SHJ. From the SHJ, the product would continue through Plains's gathering lines and become available for transport 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 would be approximately 15,000 barrels or 630,000 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 eighty-five (85) trucks per day, an average of 3.5 trucks every hour for twenty-four (24) hours a day to transport this volume of product. 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:**

Rail transport was also evaluated as a surface transportation alternative. However, the Project would replace a portion of the existing Fort Buford to Highway 1804 6-inch Pipeline, which is a component of a larger gathering system that connects to the Savage Rail Facility near Trenton, North Dakota. The Project will replace a portion of pipeline that is part of a gathering system connecting to Plains's existing rail facility; therefore, this alternative is not desirable and Plains rejected the *Rail Alternative*.

## **2.3 ENVIRONMENTAL SURVEY.**

Field surveys were conducted on May 12-15 and June 24 of 2015. The Survey Corridor was typically a 200-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. No 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 would be implemented in the event that noxious weeds are encountered during construction activities.

### **2.3.2 TREE/SAPLING/SHRUB SURVEY**

During field survey, crews performed a detailed tree/shrub inventory. This inventory recorded the pre-construction status of these resources, which would form the baseline for restoration and mitigation reconciliation. Based on this effort, sixteen (16) tree and shrub areas were located within the Survey Corridor. In total, 297 trees were identified within the 200-foot wide Survey Corridor; 98 of these features were located within the 50-foot-wide tree mitigation corridor as stipulated by the PSC. 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) features. 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 field surveys. Should features be identified during construction, Plains would implement appropriate mitigation measures at the feature, which may include avoidance (*e.g.*, workspace modification or horizontal directional drill) or use of construction mats and other best management practices (BMPs), to minimize impacts. Refer to Appendix D for the Natural Resources Report.

#### **2.3.3.2 WATERBODIES SURVEY**

Field surveys identified five (5) streams within the Survey Corridor. Four (4) of the streams were determined to be likely jurisdictional. Refer to Appendix B for the mapped location of each feature, Appendix D for the Natural Resources Report and Section 5 for proposed 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 May 22, 2015, 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. Suitable foraging habitat (*i.e.*, cultivated cropland and wetlands) was observed within the Survey Corridor. Additionally the Project is located within the migratory corridor for the whooping crane. The Project may affect but 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. The nearest habitat occurs approximately two (2) miles from the Project near the Missouri River. It is unlikely, but possible, that terns would visit the upland or wetland habitats present in the Survey Corridor. Impacts to the least terns as a result of the Project are not anticipated.

**Pallid sturgeon:** The preferred habitat of the pallid sturgeon does not occur in the Survey Corridor. The nearest habitat occurs approximately two (2) miles from of the Project near the Missouri River. Therefore, impacts to the pallid sturgeon are not anticipated.

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

**Red knot:** Suitable habitat is not present within the Survey Corridor; therefore impacts to the red knot are not anticipated.

**Piping plover:** Suitable shoreline habitat for breeding and nesting does not occur in the Survey Corridor. The nearest habitat occurs approximately two (2) miles from the Project near the Missouri River. Adverse impacts to the least terns as a result of the Project are not anticipated.

**Northern long-eared bat:** Suitable habitat winter habitat does not occur in Survey Corridor, however nearby trees and rock outcrops can act as suitable summer day roosts. Refer to Appendix D for the Natural Resources Report and Section 5 for proposed mitigation measures.

**Bald Eagle:** Field studies confirmed the absence of nesting or roosting habitat within 0.5 miles of the centerline of the Survey Corridor. Refer to Section 5 for mitigation measures should a bald eagle be observed during construction.

**Golden Eagle:** Field studies confirmed the absence of nesting or roosting habitat within 0.5 miles of the centerline of the Survey Corridor. Refer to Section 5 for mitigation measures should a golden eagle be observed 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.

On March 3, 2015 and April 22, 2015, 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 22 recorded cultural resources within the Corridor. The cultural resources consist of three historic homesteads (32WI29, 32WI45, and 32WI47); one historic dam (32WI46); one historic school (32WI28); one historic dump (32WI124); the Buford-Trenton Pumping Station (32WI156); one historic bridge (32WI325); one historic church (32WI483); one historic canal gate (32WI1140); one historic well (32WI1360); the Buford-Trenton Irrigation District (32WI1367); one historic foundation (32WI1407); one historic cultural material scatter (32WI1623); two historic box culverts (32WI1651 and 32WI1652); one historic railroad bridge (32WI1653); one historic railroad mile marker (32WI1654); one prehistoric stone circle site (32WI204); one historic foundation site lead (32WIX25); one prehistoric chipped stone isolated find (32WIX616); and one isolated piece of farm equipment (32WIX652). 32WI156, 23WI325, 32WI1367, 32WI1651, 32WI1652, and 32WI1654 have been recommended eligible for listing on the National Register of Historic Places (NRHP). 32WI124, 32WI1360, 32WI1407, 32WI1623, 32WIX616, and 32WIX652 are not eligible for the NRHP. The remaining resources are unevaluated regarding their eligibility for the NRHP. Two (2) of the previously recorded cultural resources are identified within the Survey Corridor.

The ensuing Class III cultural resource inventory of the Survey Corridor was completed on May 13-15 and June 24, 2015. During the inventory, archaeologists revisited two (2) previously recorded cultural resources (32WI325 and 32WIX652); and recorded two (2) new resources (32WI1750 and 32WI1752). 32WI325 is a historic bridge recommended eligible for the NRHP and will not be impacted by the Project as the bridge was previously relocated outside of the Project area; therefore, no further work is recommended. 32WIX652 is a piece of historic farm equipment recommended as not eligible for the NRHP, and no further work is recommended. 32WI1750 is a prehistoric stone circle site and 32WI1752 is a cairn of unknown age or cultural affiliation. 32WI1750 and 32WI1752 are unevaluated for listing on the NRHP and avoidance is recommended. As proposed, the Project will avoid 32WI1750 and 32WI1752 by more than fifty (50) feet; therefore, no further work is recommended.

Based on the inventory results, SWCA recommended that a determination of *No Significant Sites Affected* be granted for the Project to proceed as planned.

Plains submitted the Cultural Resources Report to the NDSHPO requesting concurrence with the recommendation of *No Significant Sites Affected* for the Project. A response from the NDSHPO is pending. 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 Abstract. 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 May 22, 2015, 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 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. From March of 2007 to March of 2013, oil production in North Dakota has surged by 564 percent. In March of 2007, North Dakota produced 118,000 barrels of oil per day. That figure has increased to 783,000 barrels per day in March of 2013. In 2007, North Dakota accounted for roughly 2.5 percent of all the oil produced in the United States. In 2013, North Dakota accounted for roughly eleven percent (11%) of all the oil produced in the country.

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 would provide firm, reliable transport of 15,000 bpd of crude oil between the Highway 1804 Re-Route South Tie-in and the SHJ. From the SHJ, the product would continue through Plains's gathering lines and shipped via rail to refineries across the United States.

## **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 Highway 1804 Re-Route South Tie-in to the SHJ and continue through Plains's gathering lines from which the product would be distributed to market hubs/centers markets nationwide. Plains or its affiliates own and operate the existing Fort Buford to Highway 1804 6-inch Pipeline that is currently in operation. Plains's decision to replace the 6-inch pipeline with 10-inch piping and move the alignment further away from the town of Trenton and Lake Trenton was determined to be the preferred action. Doing so would increase the pipeline integrity and capacity while minimizing environmental impacts to populated and natural resource areas.

Route planning between the Highway 1804 Re-Route South Tie-in and the SHJ 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 on landowners and the environment. The key logistical considerations included the location of the SHJ, 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. 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 Abstract. 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 would 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 would 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 would mitigate these temporary impacts to the maximum extent possible.

The Project would 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 would fully participate in the hearing process and would 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 irretreivable commitments of natural resources that would result from the requested approvals.

**4.1.6 DIRECT AND INDIRECT ECONOMIC IMPACTS OF THE PROPOSED FACILITY:**

Plains would invest approximately \$7 million in North Dakota to develop this Project, generating approximately \$42,500 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 would 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. Plains developed mitigation plans for registered or eligible sites that encroach on the proposed construction corridor. The proposed mitigation measures are detailed in Section 5 of this document. 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 within 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 within 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 would 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 consultations process, these agencies had the opportunity to identify possible sensitive environmental resources within the Route and any related agency concerns. Agency consultations were initiated identifying the Fort Buford to Highway 1804 Pipeline Project as an approximately fourteen (14) mile alignment. The alignment has been separated into two (2) pipeline projects (Highway 1804 Re-Route North and Highway 1804 Re-Route South). The Project, and this consolidated application encompasses the northern, approximately 8.5 miles. 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.

- NDPRD: The Department indicated there have been documented occurrences of animal species or ecological communities of concern within the Corridor and recommends the Project be accomplished with minimal impacts and that all efforts be made to ensure that critical habitats not be disturbed to help secure

rare species conservation in North Dakota. The Department also recommends any impacted areas be revegetated with species native to the Project area.

- NDGFD: The Department’s primary concern is with the disturbance to native prairie and wooded draws associated with construction of the pipeline and associated access roads. Avoidance of these areas is recommended, if avoidance cannot be achieved areas should be reclaimed to pre-project conditions. The Department recommended steps be taken to protect any wetlands that cannot be avoided and that no alterations should be made to existing drainage patterns. In addition, the Department indicated possible golden eagle nests are located in the Project area and recommend a half mile construction buffer be implemented around active eagle nest sites.

Plains incorporated this feedback into the Route selection process, and as appropriate, into field survey protocols. If field studies confirmed the presence of these items, Plains refined the proposed alignment or developed mitigation strategies to avoid or minimize direct impacts. Further discussion on agency coordination can be found in Section 2 of the associated Certificate of Corridor Compatibility application and discussions of avoidance and mitigation measures are found in Section 5 of this document. See Appendix C for complete federal and state agency consultations. Detailed natural resource survey results can be found in Appendix D. 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 Abstract.

#### **4.2 EXCLUSION AREAS (NAC 69-06-08-02.1)**

Exclusion areas are geographical areas that must be excluded in the consideration of a route for a transmission facility. The following table and text identify and discuss exclusion areas within the Survey Corridor.

<b>Exclusion Area</b>	<b>Within Survey Corridor</b>
<b>Federal</b>	
National Parks or Memorial Parks	No
Historic Sites or Landmarks	Yes
Natural Landmarks or Monuments	No
Wilderness Areas	No
<b>State</b>	
Historic Sites, Monuments, or Historical Markers;	No
Archaeological Sites	Yes
Parks	No

<b>Exclusion Area</b>	<b>Within Survey Corridor</b>
Nature Preserves	No
<b>County</b>	
Parks	No
Recreation Areas	No
Municipal Parks	No
<b>Other</b>	
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	No
Areas where Animal or Plant Species that are Unique or Rare to this State would be Irreversibly Damaged	No
Areas within 1,200 feet of a geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	No
Areas within thirty (30) feet on either side of a direct line between (ICBM) launch or launch control facilities to avoid microwave interference.	No

#### **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, landmarks, natural landmarks, historic sites, monuments, or wilderness areas within the Survey Corridor.

Plains confirmed the presence of three previously recorded historic site within the Survey Corridor (cultural resource considered eligible or unevaluated for inclusion into the NRHP). Refer to Section 2.3.5 for more information on this resource, Appendix C for a record of agency consultation, Appendix E for the Cultural Resources Report Abstract, and Section 5 for proposed mitigation. The full cultural resources report is privileged and not included in this Application.

#### **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, or nature preserves within the Survey Corridor.

Plains confirmed the presence of one previously recorded archaeological site within the Survey Corridor (cultural resource determined to be not eligible for inclusion into the NRHP). Refer to Section 2.3.5 for more information on this resource, Appendix C for a record of agency consultation, Appendix E for the Cultural Resources Report Abstract, and Section 5 for proposed mitigation. The full cultural resources report is privileged and not included in this Application.

#### **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 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 would 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**

Based upon information compiled by the University of Wyoming regarding current and historic missile site locations, which was comprised of both tabular data describing these sites and supported with additional aerial imagery for each Minot Air Force Base Minuteman Intercontinental Ballistic Missile (ICBM) site, Plains has confirmed the absence of ICBM launch or launch control facility is located within 1,200 feet of 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**

Based upon information compiled by the University of Wyoming regarding current and historic missile site locations, which was comprised of both tabular data describing these sites and supported with additional aerial imagery for each Minot Air Force Base ICBM site, Plains has confirmed the absence of areas within thirty (30) feet on either side of a direct line between ICBM launch or launch control facilities.

### 4.3 AVOIDANCE AREAS (NAC 69-06-08-02.2)

Avoidance areas are geographical areas that must not be considered in the routing of a transmission facility unless, under the circumstances, it is shown there is no reasonable alternative. The following table and text identify and discuss avoidance areas within the Survey Corridor.

Avoidance Area	Within Survey Corridor
<b>Federal</b>	
Historic Districts	No
Wildlife Areas	No
Wild, Scenic or Recreational Rivers	No
Wildlife Refuges	No
Grasslands	No
<b>State</b>	
Wild, Scenic or Recreational Rivers	No
Game Refuges or Game Management Areas	No
Forests or Forest Management Lands	No
Grasslands	No
<b>Other</b>	
Historic Resources not meeting Exclusion Areas criteria	No
Areas of Known Geologic Instability	No
Areas within 500 Feet of a Residence, School, or Place of Business	Yes
Reservoirs and Municipal Water Supplies	Yes
Water Sources for Organized Rural Water Districts	Yes
Irrigated Land (not applicable to underground facilities)	N/A
Areas of Recreational Significance which are not designated as Exclusion Areas	No

#### 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 MEETING EXCLUSION AREA CRITERIA**

Plains conducted a review of publicly available information, initiated project specific agency consultations, and augmented agency review with field studies. Through these efforts, Plains has concluded there are no historic resources not meeting exclusion areas criteria within the Survey Corridor. Refer to Appendix C for documentation of agency consultations and Appendix E for the Cultural Resources Report Abstract. 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 *Areas of Landslides, Watford City 100K and Williston 100K Quad, North Dakota* indicated the absence of landslide 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 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. Seven (7) potentially occupied structures were identified within 500 feet of the Route. Plains is in the process of obtaining landowner waivers from those residences within 500 feet of the Project. Executed landowner waivers can be found in Appendix G.

#### **4.3.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES**

Plains has confirmed the City of Williston Wellhead Protection Area Community, the Northwestern Area Water Supply, and the Western Area Water Supply are located within the Survey Corridor. Six (6) wells were identified within the Corridor; these wells are used for domestic, stock or observation purposes. No wells were identified within the Survey Corridor. Refer to the maps in Appendix B for the location of the wells.

#### **4.3.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS**

Plains has confirmed the City of Williston Wellhead Protection Area Community is located within the Survey Corridor. In addition, the Survey Corridor crosses the Williams Rural Water District, however the route does not intersect with source waters inside the district boundaries.

#### **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 (NAC 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 would successfully avoid or minimize these effects to the maximum extent practicable.

##### **4.4.1 AGRICULTURAL IMPACTS**

**Agricultural Production:** The Project would temporarily affect approximately 102 acres of private land in North Dakota. Of the 102 acres, approximately thirty-five (35) acres are located on privately owned cropland. Once construction is complete, the land would be restored to its pre-construction contours and land use. Plains would provide settlements to landowners for crop loss resulting from Project construction.

**Family Farms and Ranches:** The Project would temporarily affect approximately 102 acres of private land in North Dakota. Of the 102 acres, approximately thirty-five (35) acres are located on privately owned cropland. Once construction is complete, the land would be restored to its pre-construction contours and land use. Plains would negotiate easements with all affected landowners. The Project would 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 for pipelines. 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 (69-06-08-02.2h).

**Surface Drainage:** Standard construction techniques would be employed; significant modifications to surface drainage patterns are not anticipated. Care would be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction would be restored, the local topography shall be restored to its original contours, vegetation shall be reestablished, and impacts shall be minimal and temporary. BMPs would be implemented in accordance with the project-specific Stormwater Pollution Prevention Plan (SWPPP), which would comply with the North

Dakota Department of Health (NDDoH) Construction Stormwater General Permit requirements. Permanent impacts to surface drainage would 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 between 20-50 feet below the surface. Typical subsurface excavations associated with the Project would not extend to more than ten (10) feet below the ground surface. At that depth, the Project would not intersect the groundwater table, nor would the Project alter recharge rates or the infiltration, permeability, or percolation of water into the groundwater reservoir. Additionally, construction would 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 would 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 would 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 would 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:** Above ground facilities that would have a visual effect for the Project area are not anticipated for the Project.

**Extractive and Storage Resources:** This Project would 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 correspondence, and Section 5 for proposed mitigation.

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

**Human Health and Safety:** Plains's Environmental, Health and Safety Policy meets or exceeds 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 would 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 would not be permanently displaced by the Project and no measurable impact to the viability of these populations would occur. Plains does not anticipate species of special concern to experience direct impacts due to construction or operation of the Project.

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

#### **4.5 POLICY CRITERIA (NAC 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 would 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, and would be held accountable for their actions in that regard.

##### **4.5.2 LOCATION AND DESIGN**

The Project, in conjunction with the Highway 1804 Re-Route South Project is designed to provide delivery throughput from the Highway 1804 Re-Route South Tie-in to the SHJ. From the SHJ, the product would continue through Plains's gathering lines and shipped via rail to refineries across the United States. Plains or its affiliates own and operate the existing Fort Buford to Highway 1804 6-inch Pipeline that will be replaced and the associated gathering lines that currently handles crude oil products produced in the region. The Project would increase the pipeline integrity and capacity while minimizing environmental impacts to the Trenton area.

The proposed pipeline would be approximately 8.5 miles in length, constructed of steel, and would be a nominal 10-inch outside diameter pipe. The pipe installed would have a nominal wall thickness of 0.250 inches denoted as API Code 5L specification GR B pipeline pipe. The maximum operating pressure of the pipeline would be 1,440 psig.

The proposed pipeline would meet US Department of Transportation regulations, specifically the design criteria outlined in 49 C.F.R. part 195 subpart C, 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 would be supplying specialized skilled labor. Plains would draw upon the local labor force to supply as appropriate. The workforce is anticipated to reach a peak of approximately 100 personnel.

#### **4.5.4 ECONOMIES OF CONSTRUCTION AND OPERATION**

Plains would invest approximately \$7 million in North Dakota to develop this Project, generating approximately \$42,500 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 would 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 would continue to maintain contact with local government officials. Through this contact, project related information would be exchanged and should concerns arise, Plains would 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 would interconnect with existing facilities. The products currently handled, transferred, and shipped at these facilities are currently delivered to markets located in and out 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 affected facilities, and operations would 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 would monitor landowner

concerns, if any, through its Land Department and would respond to all reasonable concerns. Similarly, Plains would monitor community concerns and would 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 16% (1.3 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 8.5 mile, 10-inch diameter crude pipeline originating at the Highway 1804 Re-Route South Tie-in, located approximately four miles northeast of Trenton, North Dakota. The pipeline would extend in a northeastern direction to its terminus at the SHJ, located approximately three (3) miles northeast of Trenton, North Dakota. Refer to the project maps provided in Appendix B.

**Trees and shrubs:** Plains would 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 would 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 would be based upon actual impacts due to construction, shall meet the 2:1 ratio specified, and shall be fully documented.

**Wetlands and Waterbodies:** Plains would 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 would conduct all regulated crossings in compliance with the U.S. Army Corps of Engineers (USACE) Nationwide Permit #12. Features would 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, 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 May. Construction activities for the Project are scheduled to begin as early as the third quarter of 2015, which should largely mitigate impacts to this species. Additionally, to mitigate potential impacts to migratory cranes, Plains would suspend heavy equipment operations if whooping cranes are found within 0.5 miles (line of sight) from active construction activities. Suspended activities would resume in the absence of whooping cranes. See Appendix C for Plains's consultation with the USFWS.

**Northern long-eared bat:** Northern long-eared bats are not known to occur in the Project area and suitable winter habitat is not present within the Survey Corridor. Trees and rocky outcrops can act as suitable summer habitat and the field survey indicated suitable summer habitat is present within the Project area. To mitigate any

adverse effects, if construction occurs between April and September, surveys would be conducted to confirm the presence or absence of the species.

**Bald and Golden Eagle:** Field surveys conducted May 12-14 and June 24, 2015 confirmed the absence of nests or nesting activities where habitat was suitable along the Route. To mitigate potential adverse effects on nesting and breeding eagles, the USFWS generally recommends maintaining a nest buffer of at least 0.5 miles for any eagles nesting in the area.

**Migratory Bird Treaty Act:** The commonly observed timeframe for migration of protected species in North Dakota is February 15<sup>th</sup> to July 15<sup>th</sup>. Construction activities for the propose project are planned to be the fourth quarter of 2015 and take approximately three months to complete. Based on the Project schedule, construction activities are not anticipated to occur during the recognized migration/breeding season. If necessary, Plains would develop and implement a mitigation plan which may include conducting survey for nesting birds prior to the commencement of ground disturbing activities and implementing avoidance and monitoring measures of any active nests.

**Cultural Resources:** Plains submitted the Cultural Resources Report to the NDSHPO requesting concurrence with the recommendation of *No Significant Sites Affected* for the Project. A response from the NDSHPO is pending. Resources identified during field surveys are summarized below. Refer to Appendix C for a complete record of this correspondence.

32WI325: This is a previously recorded historic bridge recommended eligible for the NRHP. The site will not be impacted by the Project as the bridge was previously relocated outside of the Project area; therefore, no further work is recommended.

32WIX652: This is a previously recorded site lead consisting of a piece of historic farm equipment is recommended not eligible for the NRHP and no further work is recommended.

32WI1750: This newly recorded site consists of a prehistoric stone circle that is unevaluated for the NRHP and avoidance of fifty (50) feet is recommended. As proposed, the Project would avoid the site by more than fifty (50) feet; therefore no further work is recommended.

32WI1752: This newly recorded site consists of a cairn of unknown age or cultural affiliation that is unevaluated for the NRHP and avoidance of fifty (50) feet is recommended. As proposed, the Project would avoid the site by more than fifty (50) feet; therefore no further work is recommended.

**Noxious Weeds:** No noxious weeds were identified within the Survey Corridor during field surveys. If noxious weeds are later discovered, equipment leaving infested areas would be inspected visually prior to leaving the area, vegetation and soils shall be cleaned from vehicles and equipment. 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 would 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 three months. Construction techniques would 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 would immediately follow pipeline construction. Final grading would restore the original contours of the land. Disturbed areas would be prepared for re-seeding and restoration would be coordinated to meet landowner specifications.

## **5.3 OPERATION**

Once put into service, the Project would operate continuously, delivering crude oil from the Highway 1804 Re-Route South Tie-in to the SHJ. 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 would conform to applicable DOT requirements, which include regular pipeline monitoring and periodic inspection; additionally, routine maintenance of the ROW would likely be required to remain in compliance.

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

### **6.1 PIPELINE CONSTRUCTION**

Construction would be an assembly-line process and would 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 would require approximately three (3) months to complete from start to finish, except when weather-related delays affect the schedule. However, construction activity at any location would 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 would 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 would be marked or fenced for protection at this time.

**Clearing and Grading:** Prior to clearing, landowner fences would be braced and cut, and temporary gates and fences would be installed to control livestock where necessary. A clearing crew would 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 would be graded, where necessary, to provide a reasonably level work surface and to segregate topsoil. Topsoil would 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 two (2) and nine (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 would be determined in the field; upon completion of pipeline construction, the trench would be backfilled and topsoil would 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 would 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 would be returned to the original location and preconstruction contours reestablished during restoration.

Concurrent with grading, erosion and sediment control devices would 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 would be placed such that adequate cover from the bottom of the waterbody would be in place. This would be individual to the waterbody but would be no closer than five (5) feet to the bottom of the waterbody. Construction mats would 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, would 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 would be returned to the original grade and the topsoil would be redistributed over the work area.

**Trenching:** The trench would be excavated by using backhoes to a depth that provides sufficient cover over the pipeline after backfilling. The bottom width of the trench would be sufficient to accommodate the 10-inch diameter pipeline. Typically, the trench would be excavated to a depth of about five (5) feet deep to allow for a minimum of four (4) feet of cover after construction. In cultivated areas, the depth of cover would be sufficient and safely below the maximum tillage depth. Additional cover requirements may be applicable at public road crossings.

Trench spoil would be stored adjacent to but would not be mixed with topsoil on the non-working side of the ROW. In some cases, however, where sufficient space would 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 60-foot long (*e.g.*, joints) would 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” would be used.

After the pipe sections are bent, the joints would be welded together into sections and placed on temporary supports. Welding would comply with requirements listed in Title 49 C.F.R. Part 195 and API Standard 1104 *Welding of Pipelines and Related Facilities*. Each weld would 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 would be removed and/or repaired.

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

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

If the trench bottom were obscured by water, the trench would be dewatered. Where dewatering may be required, Plains would 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 would be installed to prevent 'piping' from occurring along the pipe in the trench after the area was backfilled.

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

**Hydrostatic Testing:** Plains would hydrostatically test the pipeline. Hydrostatic testing would conform to DOT standards and would establish the maximum operating pressure (MOP) for the pipeline when it was operational. Testing involves installation of test headers, which control the pressure applied. The test headers would 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 was completed, the test water would be evacuated; the line is dried, and prepared for commissioning. Plains would either procure discharge permit(s) from the NDDoH and the ensuing discharge would conform 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 would be removed and the final pipeline tie-ins would be made. After final tie-ins were complete, the tie-in welds were inspected and the line was sufficiently dried, the pipeline would 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 would be

cleaned and dried using mechanical devices; the line would be purged of air and then loaded with product.

**Cleanup and Restoration:** Final cleanup would begin after backfilling as soon as weather and site conditions permitted. During cleanup, construction debris remaining on the ROW would be collected and disposed of properly. Work areas would be graded and restored to preconstruction contours as closely as practical.

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

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

Every reasonable effort would 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 would 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 would also be installed.

The horizontal directional drilling method involves setting a horizontal drill rig at one or both ends of the drill area. If the drill rig was located on or near the stream bank, erosion countermeasures would be installed to minimize bank disturbance and prevent further erosion during the drilling operation. The drill advances underneath the waterbody and the main pipe, known as the string pipe, would be pulled into place once the drill has been completed. The string pipe would then be connected to the main pipeline.

Following installation of the pipeline crossing, the stream bank would be restored as necessary. Plains would compact the banks and install erosion and sediment control blankets on the banks after seeding to prevent scour and a discharge of sediment to the waterbody. In addition, sediment control barriers would be installed on the top of the banks to prevent sediment generated from the ROW from entering the waterbody. These barriers would remain in place until the ROW approaches were adequately vegetated.

The Project is not anticipated to cross waterbodies. However, if flowing waterbodies would need to be crossed, Plains would do so using methods, which would minimize the length of time necessary to install the pipes and restore the stream bank, as well

as to prevent sediment from entering the waterbody during construction to reduce the impacts on the waterbody. For all ephemeral, intermittent and perennial crossings, Plains would implement the following mitigative measures:

- Temporary extra workspaces would 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 would be limited to the minimum size needed to construct the waterbody crossing.
- Riparian vegetation would be preserved by limiting clearing of vegetation between temporary extra workspace areas and waterbody edges.
- Temporary sediment and erosion control devices would be installed across the width of the ROW after clearing but before ground disturbance. These devices would remain in place throughout construction until stream banks and adjacent upland areas were stabilized.
- Trench spoil placement would be restricted to at least ten (10) feet from the water's edge on the ROW, or in temporary extra workspace areas.
- Waterbody buffers would be maintained (*e.g.*, temporary extra workspace area setbacks, refueling restrictions) in the field with signs until construction, related ground-disturbing activities were complete.
- The use of equipment operating in the waterbody would be limited to that needed to construct the crossing.
- Construction would be completed across minor waterbodies (*i.e.*, less than or equal to ten feet wide) within a single twenty-four (24) hour time period.
- Storage and refueling activities would be restricted near surface waters and procedures in the Spill Prevention, Containment and Countermeasure (SPCC) Plan would be promptly implemented if a spill or leak occurs during construction.
- Bank stabilization and re-establishment of streambed and bank contours would be required after construction.
- A permanent slope breaker would be installed across the ROW at the base of slopes greater than five percent that are less than fifty (50) feet from the water's edge.

**Wetland Restoration:** No wetlands were identified in the Survey Corridor. In the event a wetland feature is identified, and following pipeline installation, the trench would be backfilled with the material excavated and, to the maximum extent possible, restored to pre-construction contours. Replacing the wetland soil and restoring pre-construction hydrology would promote the rapid re-establishment of hydrophytic vegetation.

Plains would also take precautionary measures outside wetland boundaries to prevent construction in uplands from having an impact on wetlands. These measures include:

- Installing sediment barriers across the entire construction ROW immediately upslope of the wetland boundary where necessary to prevent sediment flow into the wetlands.
- Installing sediment barriers along the edge of the construction work area where wetlands are adjacent to the construction ROW and the ground surface slopes toward the wetland.

Following backfilling, topsoil segregated before trenching would be returned to the area from which it was stripped. If timber mats or riprap were used, Plains would remove the supports from the wetland. No lime, mulch or fertilizer would be used in wetlands, but Plains would apply annual ryegrass in wetlands without standing water.

All materials used for equipment crossings in wetlands would be removed in their entirety following construction, and the area would be restored and stabilized according to the relevant permit authorizations.

**Agricultural Land Restoration:** Extensive portions of the Project would involve heavy construction through 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 used for livestock production. Plains would utilize the following general construction methods in agricultural areas, consistent with the requirements of landowners:

- Prior to construction, landowners would be contacted and irrigation facilities, and wells, waterlines and other and livestock watering systems would be located.
- Water flow would be maintained in supply systems unless shutoff was coordinated with the affected parties.
- Existing fences would be cut and braced along the ROW, and temporary gates and fences, if necessary, would 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 would remove the topsoil removal and segregate the soil from subsoil.
- Plains would decompact the travel lane on the ROW if requested by the landowner.
- On all actively cultivated lands free of shallow bedrock, the trench would 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) would comply with the requirements outlined in the landowner line list.

- Plains would not plant an annual cover crop on actively cultivated land unless requested by the landowner.
- Weed-free mulch would be used on steep slopes to control erosion unless the landowner requests mulch not be applied. Mulch would be crimped into the soil.
- Earthen diversion berms would be constructed to reduce runoff on steep slopes only when the landowner approves.
- No erosion control fabric would be used in rangeland without having landowner approval.
- Fences and gates would be replaced in accordance with landowner agreements.
- Private roads would be restored to equal pre-construction condition.
- Plains would respond promptly to landowner concerns following construction to mitigate areas of subsidence and erosion problems should they occur.
- Plains would require the contractor to clean thoroughly the equipment and materials (*e.g.*, timber mates, 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 would be 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, at all times, negotiates in good faith and necessary easement conditions and restrictions are presented and discussed. All fee land easements for the proposed Route have 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 15 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 eight 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.

### **Melissa Schmit**

Consultant

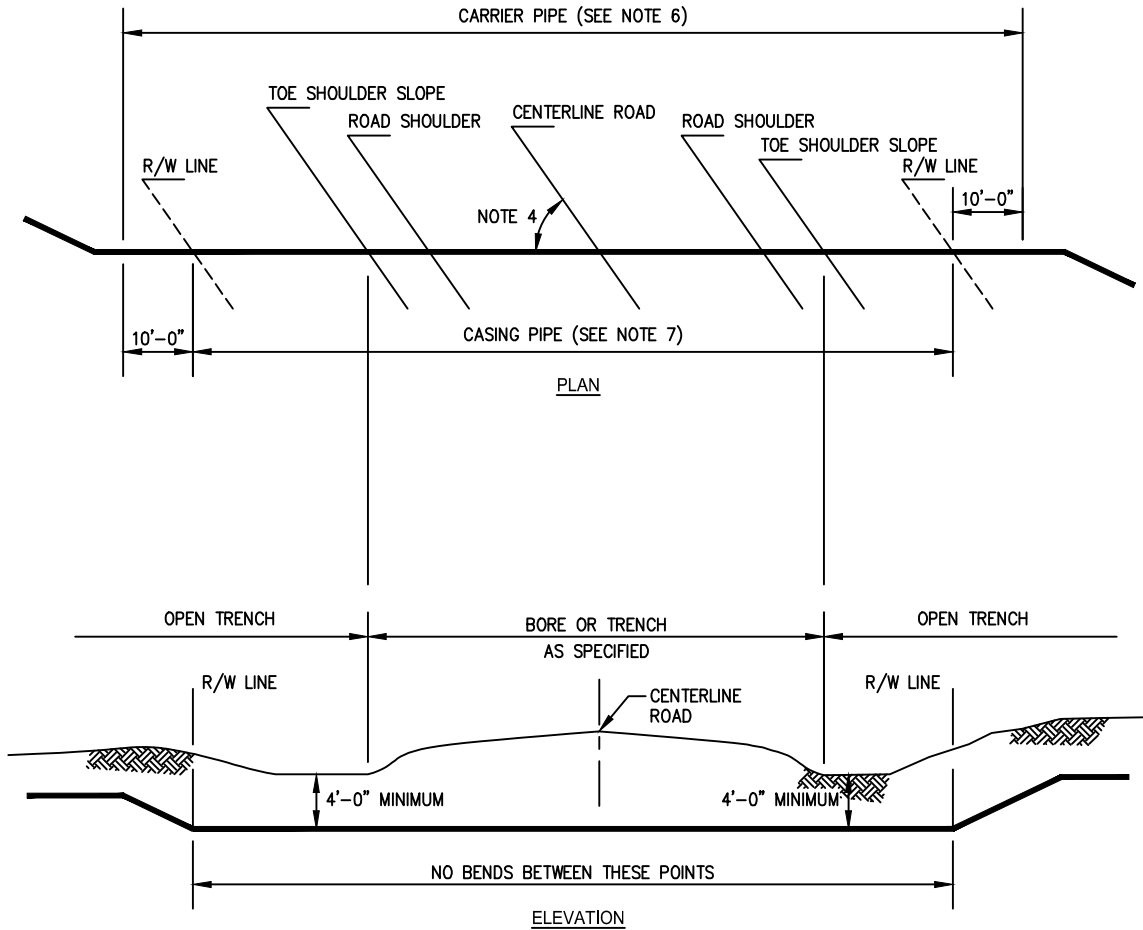
E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

B.A. in Environmental Studies and Geography, Gustavus Adolphus College; and J.D., Hamline University School of Law. Ms. Schmit has over six years of environmental consulting experience. Ms. Schmit has pursued a career focused on regulatory compliance and supports energy clients by providing regulatory review and permitting services. Ms. Schmit's experience includes authoring technical reports in compliance with NEPA requirements for a variety of infrastructure projects across the Midwest and coordination with federal, state, and local agencies.

# **Appendix A**

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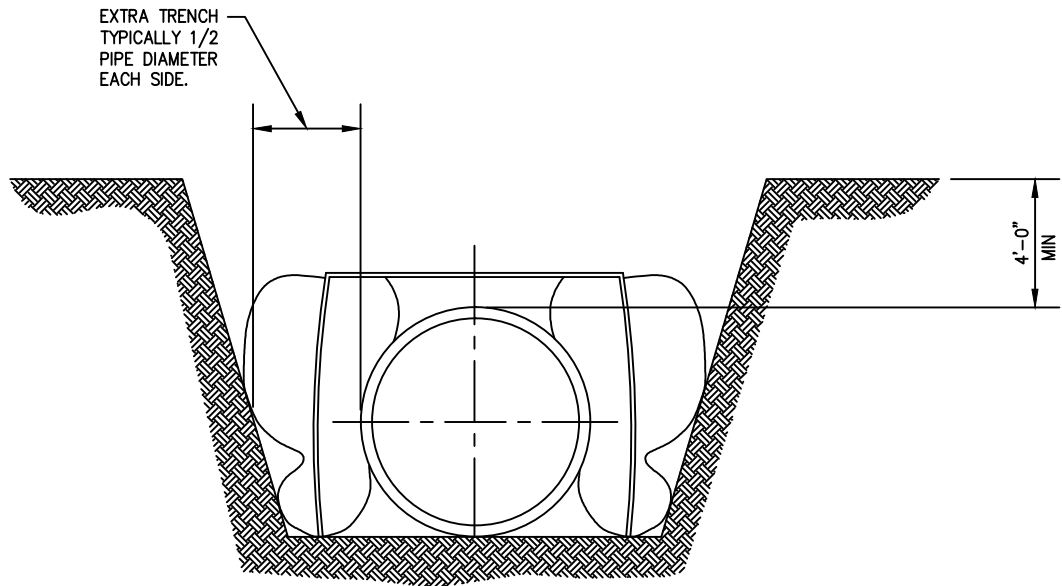
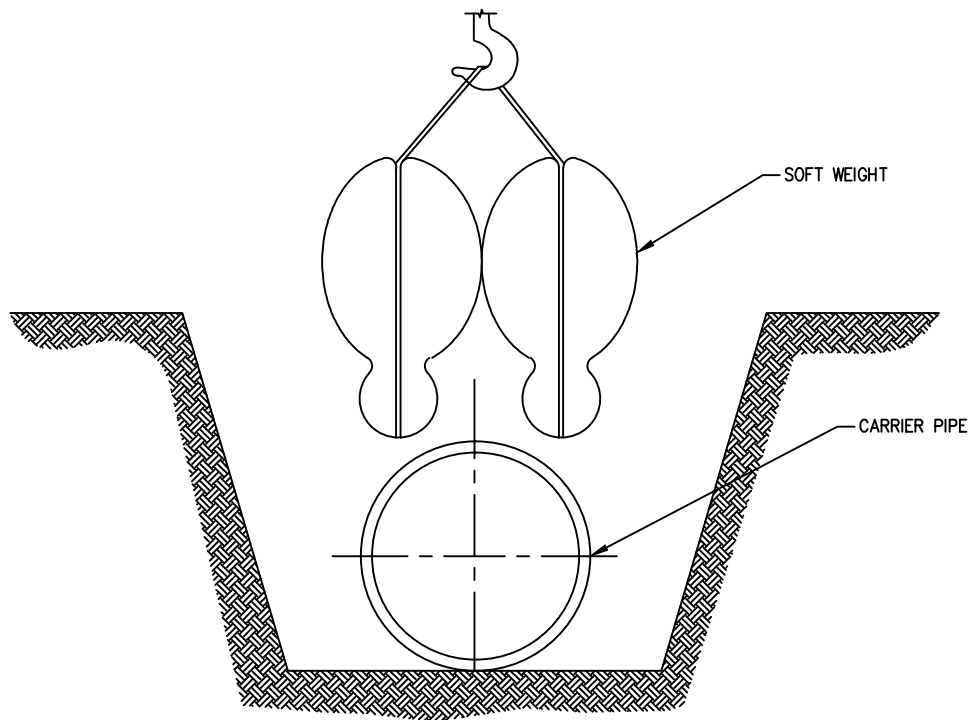
## Engineering Documents



**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 UNCASSED ROAD CROSSINGS, THE DESIGN FACTOR 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 CASSED ROAD CROSSINGS SHALL MEET THE DOT DESIGN REQUIREMENTS.
8. ALL UNDERCROSSINGS SHALL BE BORED UNLESS SPECIFIED OTHERWISE IN THE CONSTRUCTION DRAWINGS OR SPECIFICATIONS.

-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
A	ISSUED FOR CLIENT REVIEW	XXX	XXX	XX/XX/XX
NO.	DESCRIPTION	BY	APPR	DATE
REVISIONS				
<b>HWY 1804 Reroute AFE#19897</b>				
TYPICAL UNDERCROSSING ALL ROADS				
CHKD. -	DRWN. XXX	PROJECT NO. -		
APPR. -	DATE XX/XX/XX	DWG. NO.	REV.	
SCALE N.T.S.		A19897-A-0001	A	



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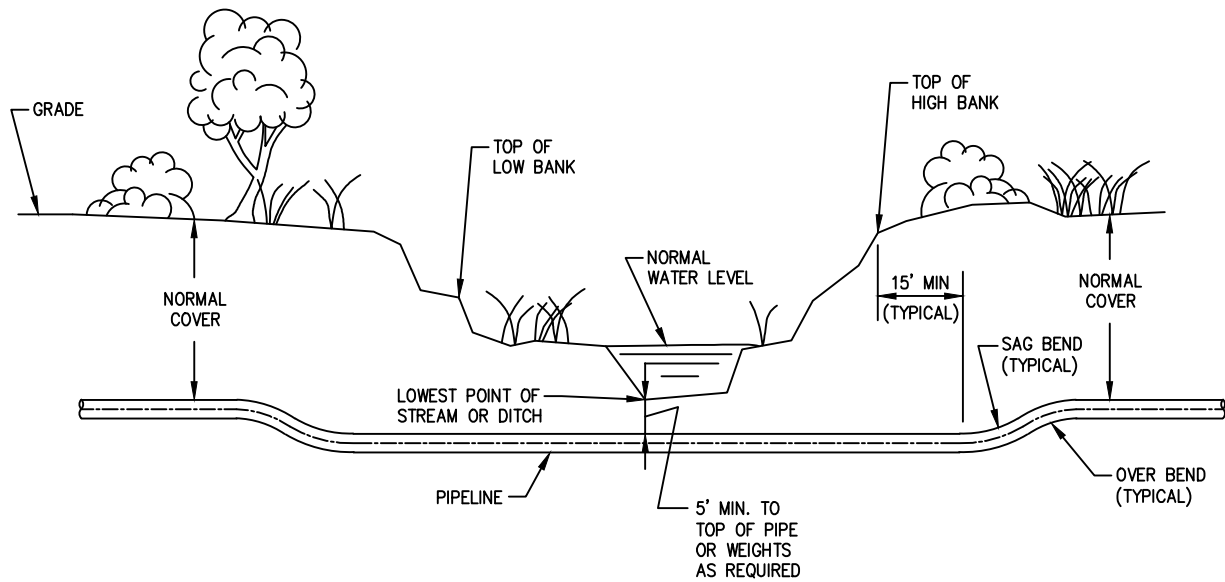
REVISIONS

 **PLAINS ALL AMERICAN PIPELINE L.P.**

**HWY 1804 Reroute AFE#19897**

TYPICAL INSTALLATION DRAWING

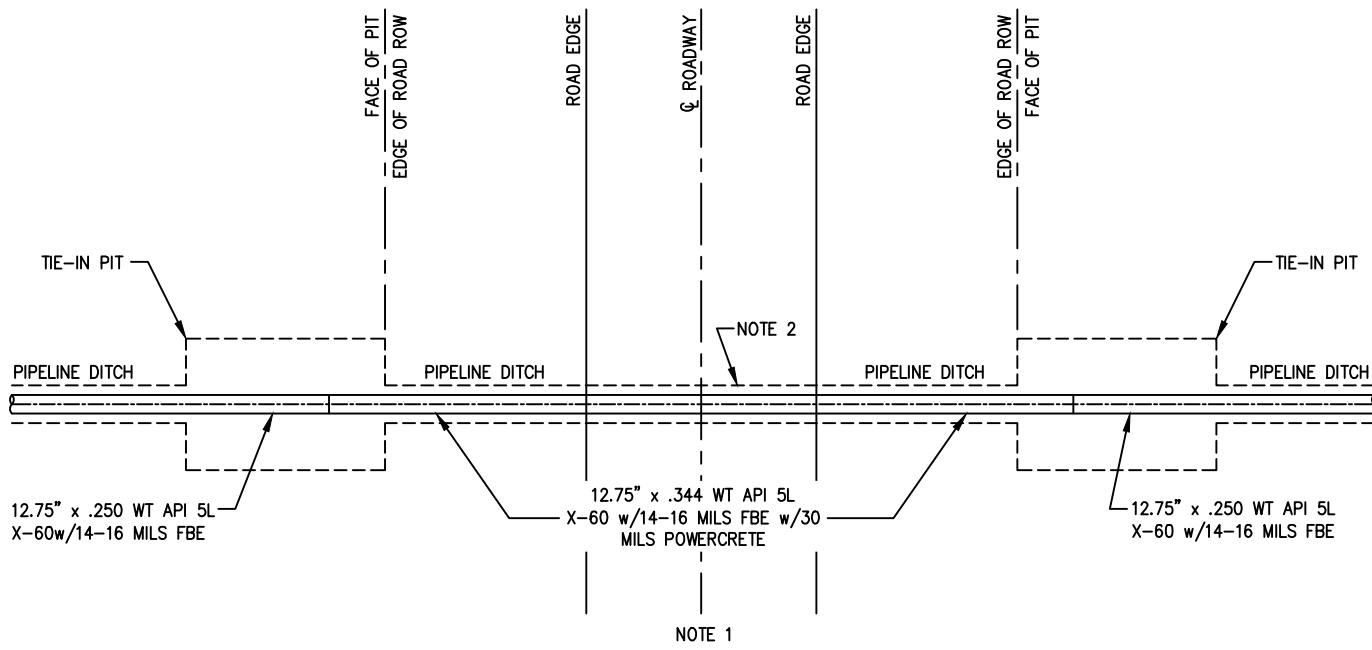
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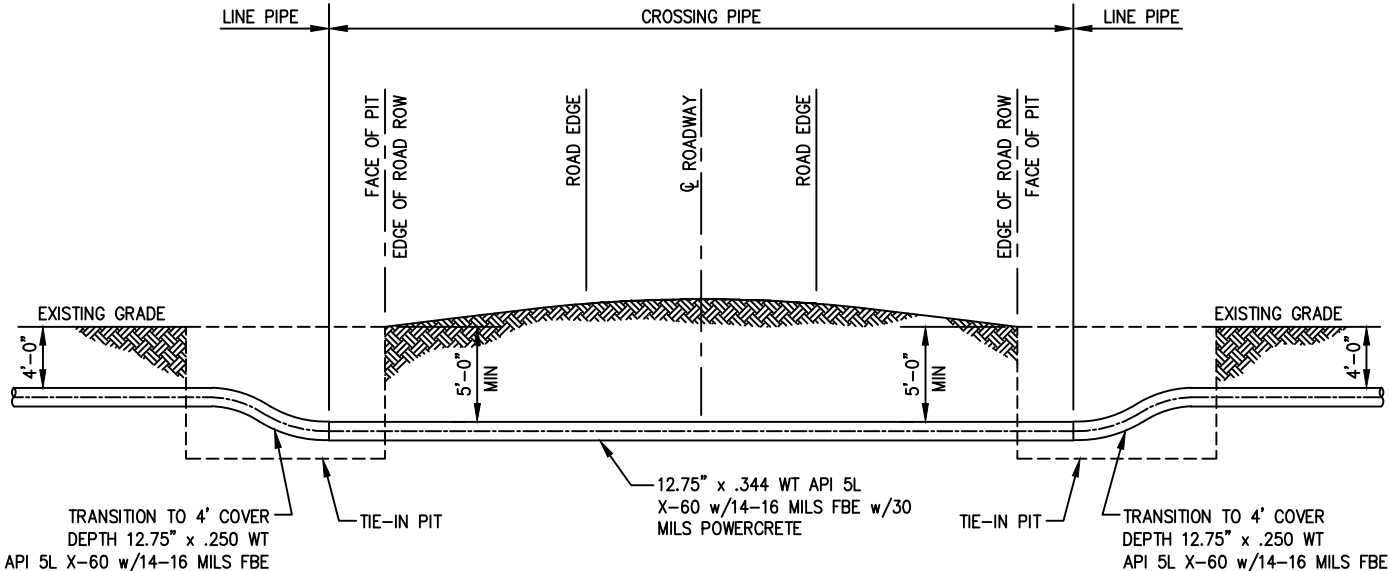
**NOTES:**

1. THIS DRAWING IS APPLICABLE TO ALL STREAM OR DITCH CROSSINGS NOT SHOWN INDIVIDUALLY DESIGNED ON OTHER CONSTRUCTION DRAWINGS.
2. ALL NEW CONSTRUCTION TO BE DONE BY CONTRACTOR.
3. WEIGHTS OR ANCHORS TO BE INSTALLED AS DIRECTED BY THE COMPANY.

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A	ISSUED FOR CLIENT REVIEW	XXX	XXX	XX/XX/XX
NO.	DESCRIPTION	BY	APPR	DATE
REVISIONS				
<b>HWY 1804 Reroute AFE#19897</b>				
STREAM OR DITCH PIPELINE UNDERCROSSING				
CHKD. -	DRWN. XXX	PROJECT NO. -		
APPR. -	DATE XX/XX/XX	DWG. NO.	REV.	
SCALE N.T.S.		A19897-A-0003	A	



TYPICAL OPEN CUT CROSSING  
(PLAN)

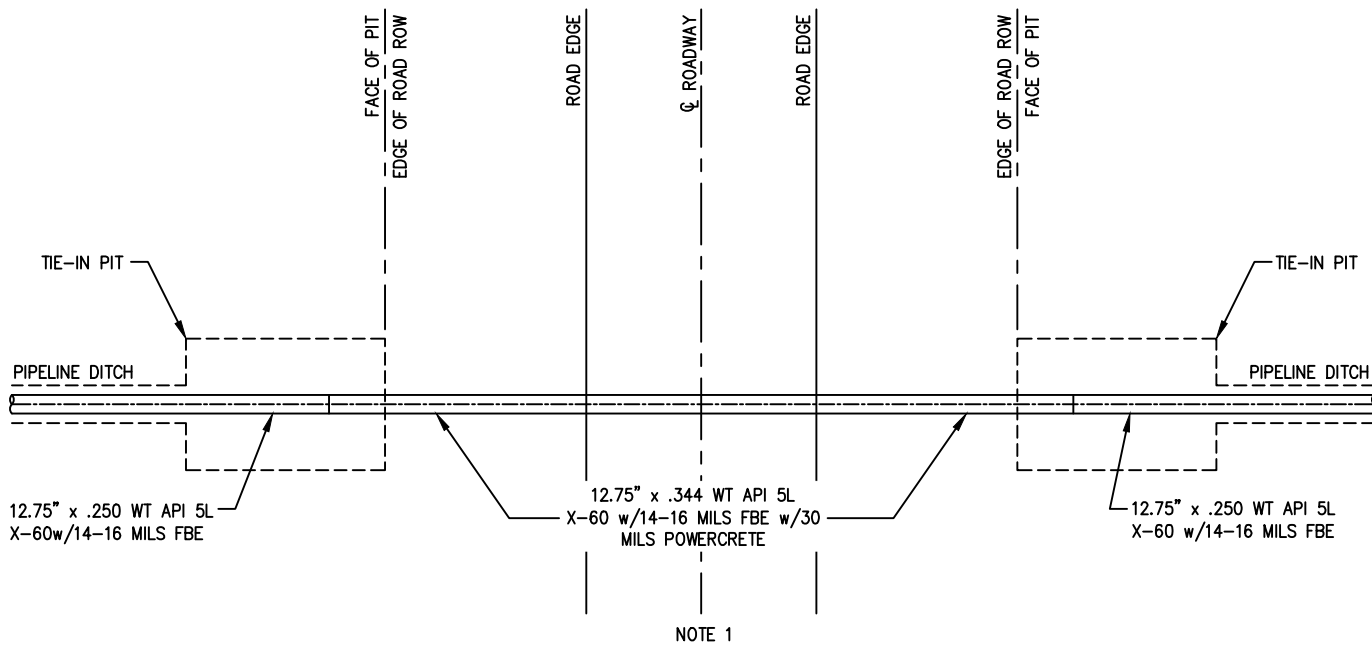


TYPICAL OPEN CUT CROSSING  
(ELEVATION)

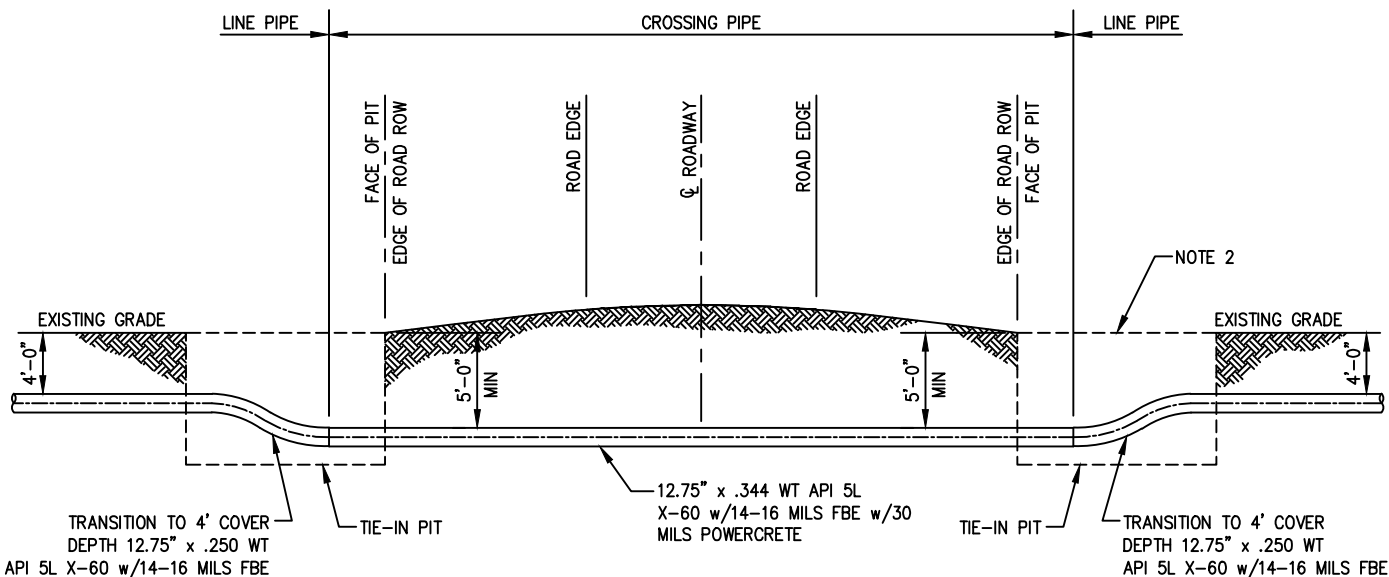
**NOTES:**

1. TRAFFIC CONTROL PLAN BY CONTRACTOR AS REQUIRED BY CROSSING PERMIT.
2. ROAD SHALL BE RESTORED AS REQUIRED BY CROSSING PERMIT.

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NO.	DESCRIPTION	BY	APPR DATE
REVISIONS			
<b>HWY 1804 Reroute AFE#19897</b>			
OPEN CUT CROSSING FOR UNIMPROVED ROADS			
CHKD. --	DRWN. XXX	PROJECT NO. --	
APPR. --	DATE XX/XX/XX	DWG. NO.	REV.
SCALE N.T.S.		A19897-A-0004	A



NOTE 1  
TYPICAL BORED CROSSING  
(PLAN)



NOTE 2  
TYPICAL BORED CROSSING  
(ELEVATION)

**NOTES:**

1. TRAFFIC CONTROL PLAN BY CONTRACTOR AS REQUIRED BY CROSSING PERMIT.
2. DISTURBED AREA SHALL BE RESTORED AS REQUIRED BY CROSSING PERMIT.

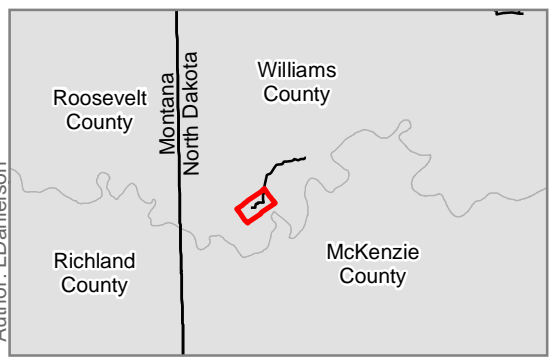
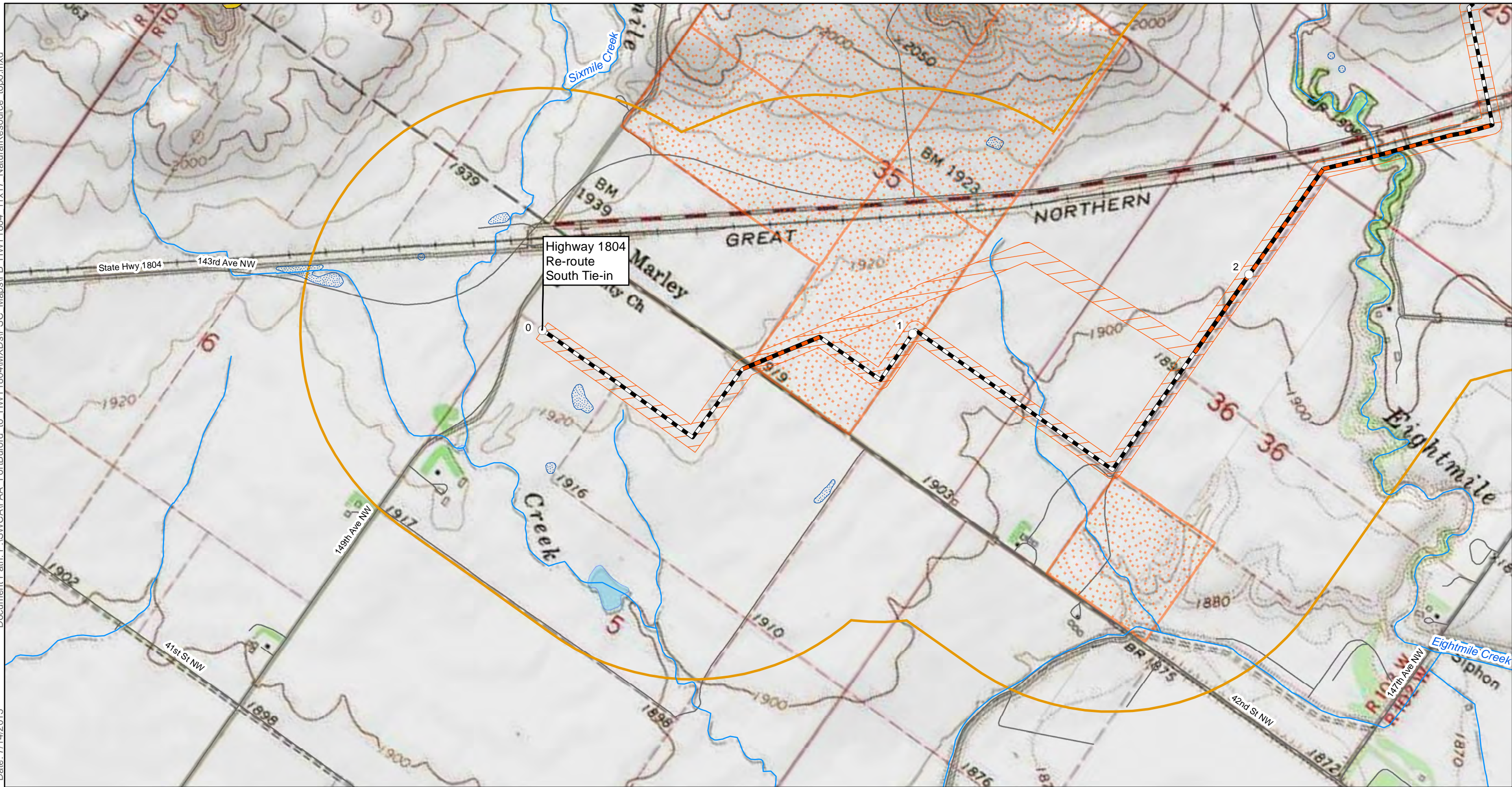
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NO.	DESCRIPTION	BY	APPR DATE
REVISIONS			
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BORED CROSSING FOR UNIMPROVED ROADS			
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# **Appendix B**

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## Project Maps

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 Author: LDanielson

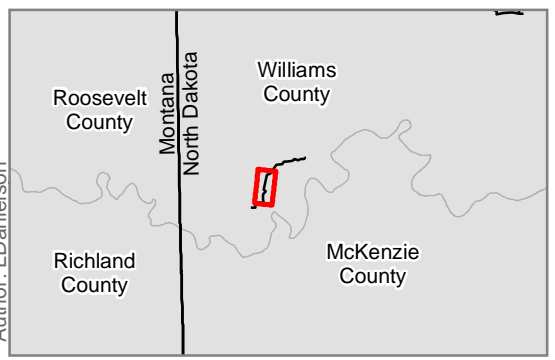
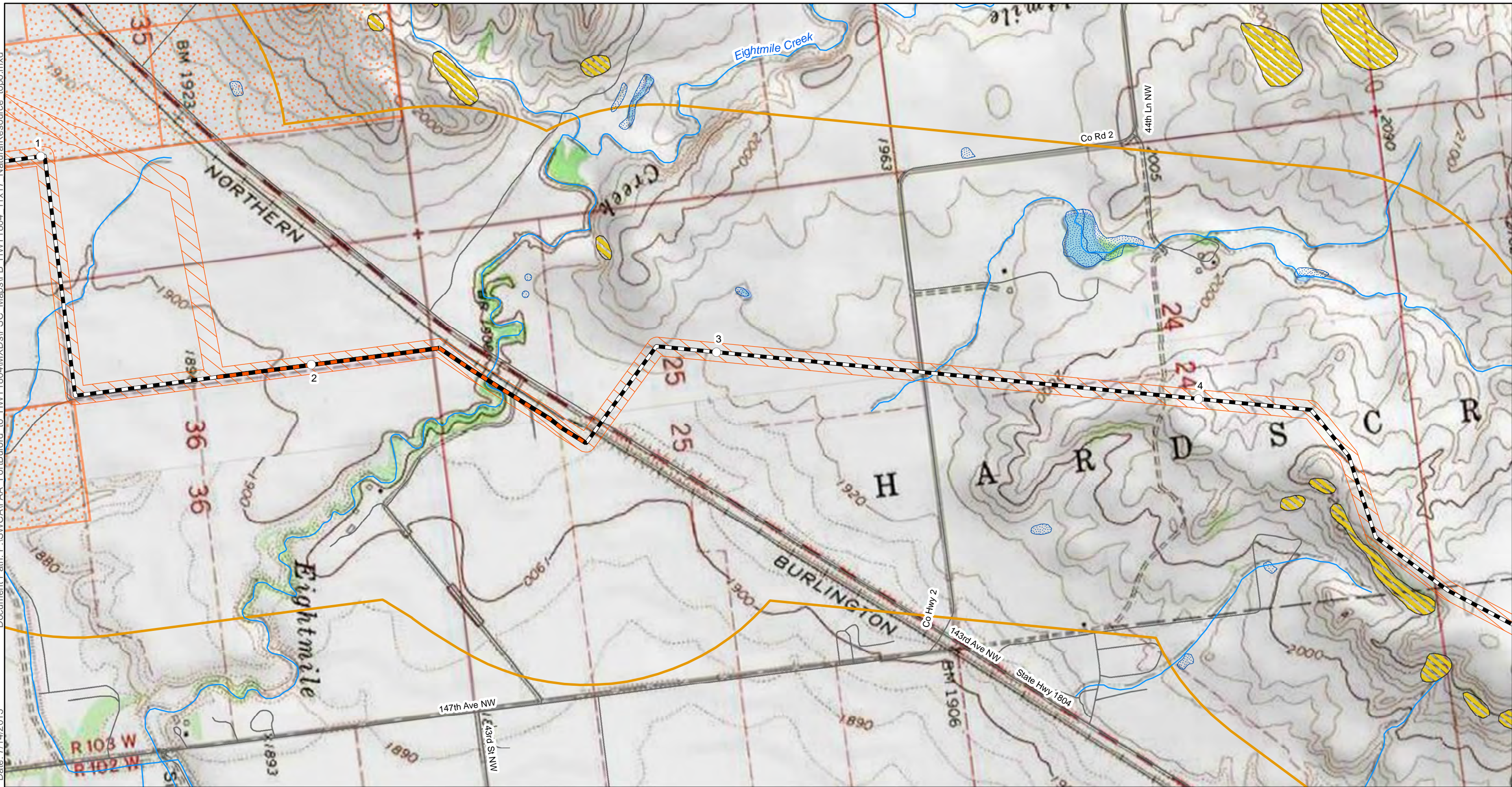


○ Milepost	NHD Waterbody	Local Land
—+—+—+— Centerline	<b>Criteria Data</b>	Native American Land
—+—+—+— Co-location	Abandoned Mine	Private Conservation Land
Survey Corridor	NDGS Landslide Deposits	State Land
Corridor (1 mile)	North Dakota Mineral Trust Lands	PLOTS Land
NHD Waterway	Federal Land	Joint Ownership
NWI Wetland		

**1:12,000**  
 Map not to scale, for environmental review purposes only.

**Plains Pipeline, L.P.**  
**Highway 1804 Re-route North**  
 Siting Criteria  
 Natural Resource - Topo Map  
**Page 1 of 4**  
 Williams County, North Dakota

Date: 7/14/2015  
 Author: LDanielson  
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Milepost	NHD Waterbody	Local Land
Centerline	<b>Criteria Data</b>	Native American Land
Co-location	Abandoned Mine	Private Conservation Land
Survey Corridor	NDGS Landslide Deposits	State Land
Corridor (1 mile)	North Dakota Mineral Trust Lands	PLOTS Land
NHD Waterway	Federal Land	
NWI Wetland	Joint Ownership	

**E3 ENVIRONMENTAL**  
Enhancing Execution with Experience

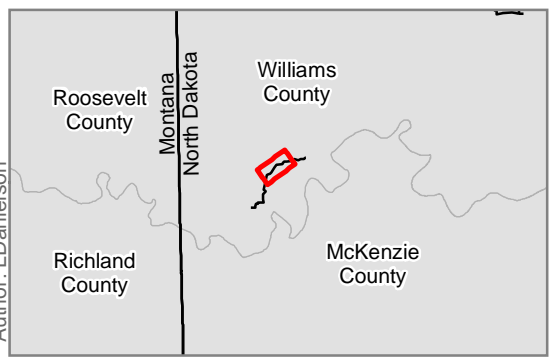
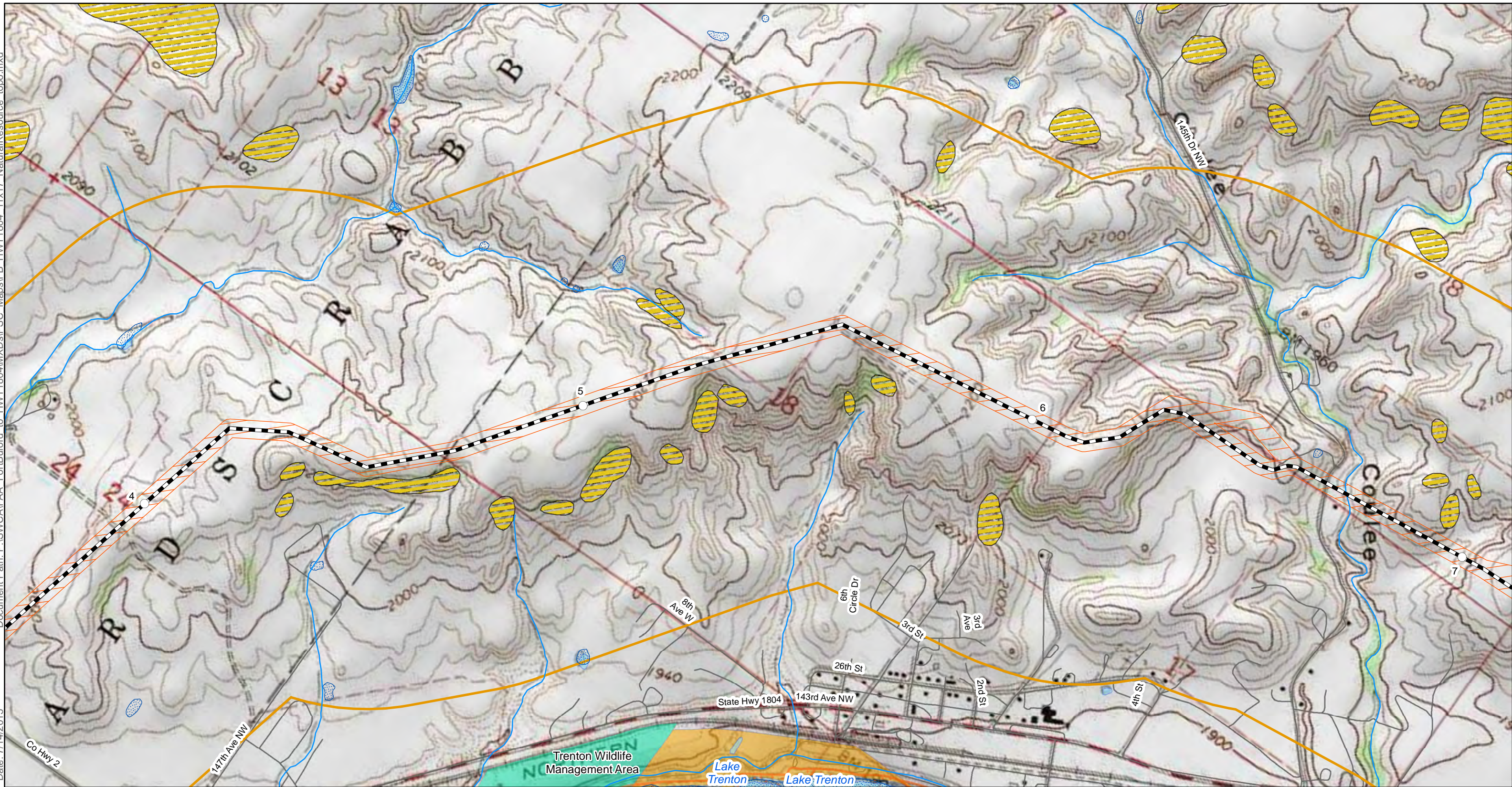
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Map not to scale, for environmental review purposes only.

**Plains Pipeline, L.P.**  
 Highway 1804 Re-route North  
 Siting Criteria  
 Natural Resource - Topo Map  
**Page 2 of 4**  
 Williams County, North Dakota

Date: 7/14/2015  
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○ Milepost	■ NHD Waterbody	■ Local Land
— Centerline	<b>Criteria Data</b>	■ Native American Land
— Co-location	■ Abandoned Mine	■ Private Conservation Land
— Survey Corridor	■ NDGS Landslide Deposits	■ State Land
— Corridor (1 mile)	■ North Dakota Mineral Trust Lands	■ PLOTS Land
— NHD Waterway	■ Federal Land	
■ NWI Wetland	■ Joint Ownership	

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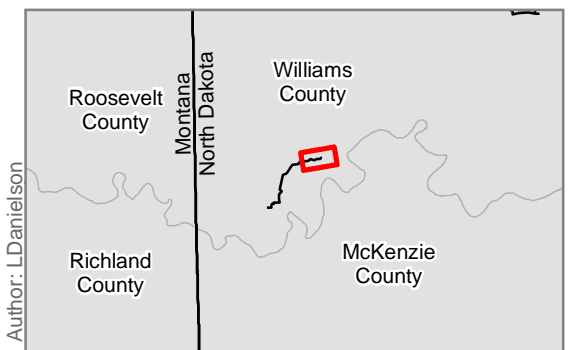
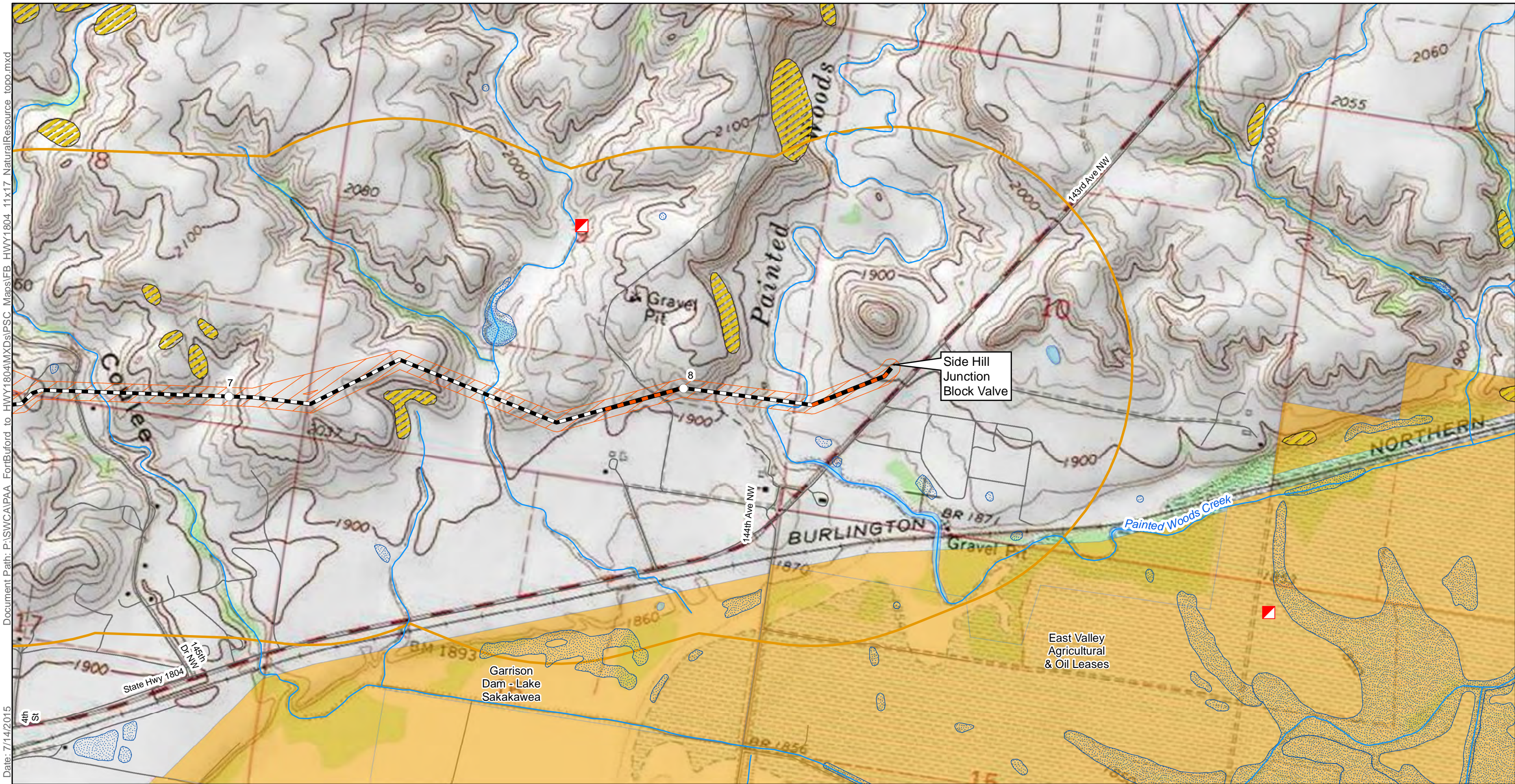
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Enhancing Execution with Experience


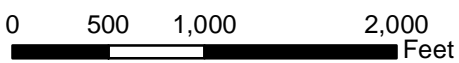
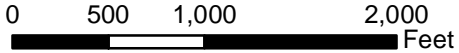
**Plains Pipeline, L.P.**  
 Highway 1804 Re-route North  
 Siting Criteria  
 Natural Resource - Topo Map  
**Page 3 of 4**  
 Williams County, North Dakota

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 Date: 7/14/2015

Author: LDanielson



○ Milepost	■ NHD Waterbody	■ Local Land
— Centerline	<b>Criteria Data</b>	■ Native American Land
— Co-location	■ Abandoned Mine	■ Private Conservation Land
▨ Survey Corridor	▨ NDGS Landslide Deposits	■ State Land
▨ Corridor (1 mile)	▨ North Dakota Mineral Trust Lands	■ PLOTS Land
— NHD Waterway	■ Federal Land	
■ NWI Wetland	■ Joint Ownership	

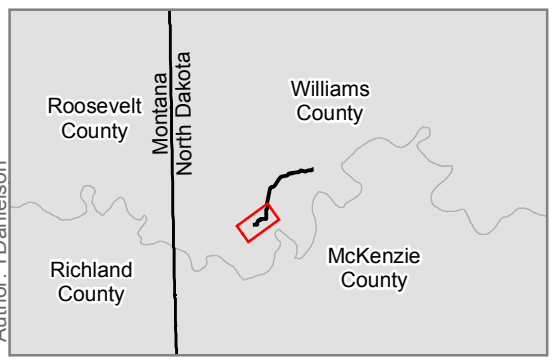




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**Plains Pipeline, L.P.**  
 Highway 1804 Re-route North  
 Siting Criteria  
 Natural Resource - Topo Map  
**Page 4 of 4**  
 Williams County, North Dakota

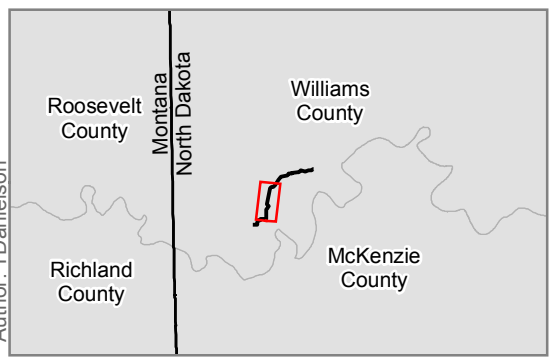
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○ Milepost	— NHD Waterway	<b>Natural Resource Survey</b>	  1:12,000
— Centerline	▨ NWI Wetland	— Stream	
— Co-location	■ NHD Waterbody	▨ Stream	
▨ Survey Corridor	▲ Potentially Occupied Structure	▨ Woody Vegetation	
■ Corridor (1 mile)	▲ Potentially Occupied Structure (w/in 500ft)		
● NDWC Well			

Map not to scale, for environmental review purposes only.

**Plains Pipeline, L.P.**  
 Highway 1804 Re-route North  
 Siting Criteria  
 Natural Resource - Aerial Map  
**Page 1 of 4**  
 Williams County, North Dakota



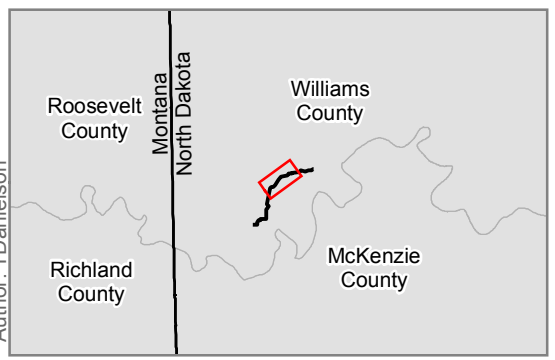
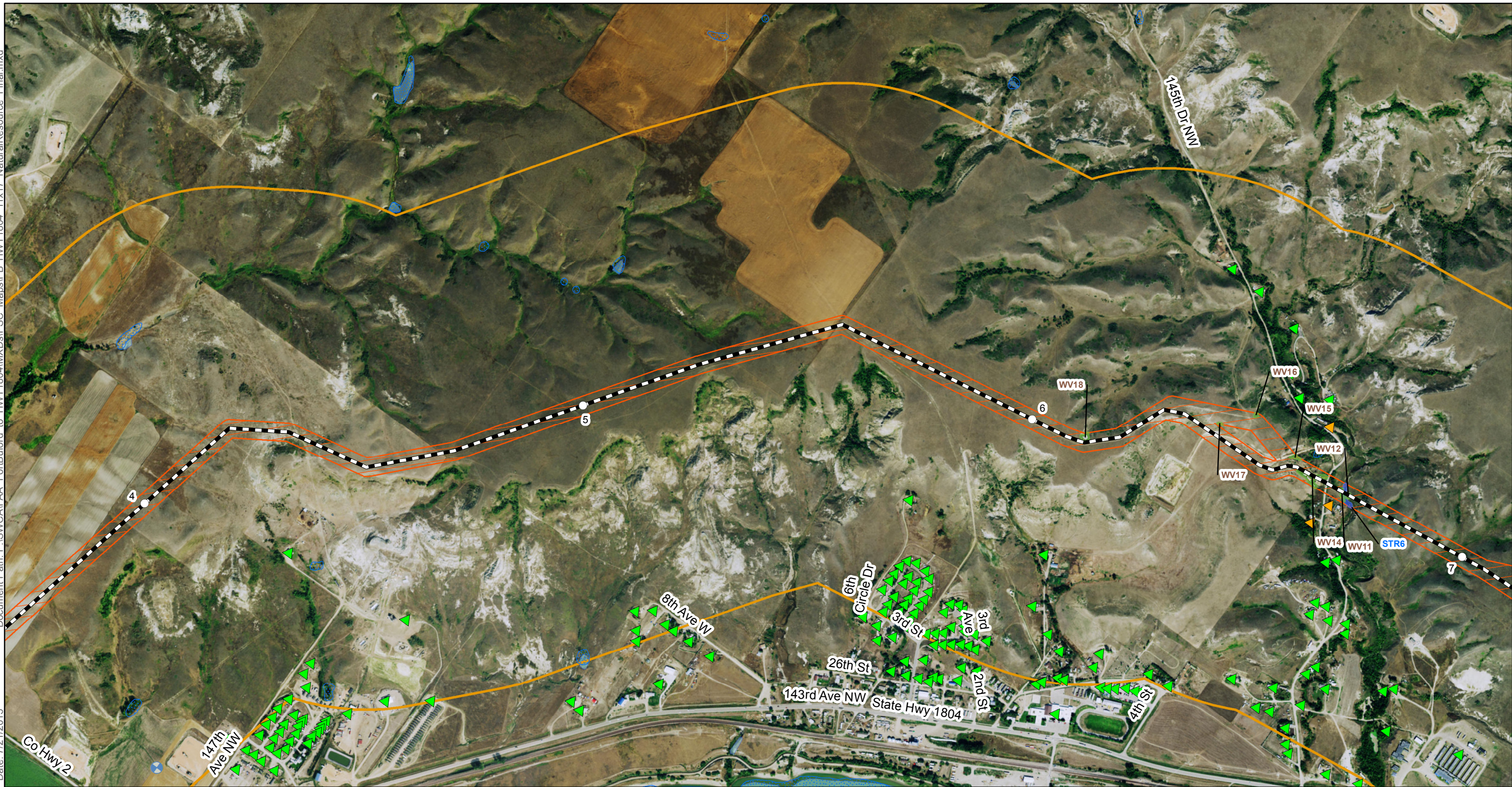
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— Centerline	■ NWI Wetland	■ Stream	■ Woody Vegetation
— Co-location	■ NHD Waterbody	▲ Potentially Occupied Structure	
■ Survey Corridor	▲ Potentially Occupied Structure (w/in 500ft)		
■ Corridor (1 mile)			
● NDWC Well			

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Map not to scale, for environmental review purposes only.



**Plains Pipeline, L.P.**  
 Highway 1804 Re-route North  
 Siting Criteria  
 Natural Resource - Aerial Map  
**Page 2 of 4**  
 Williams County, North Dakota

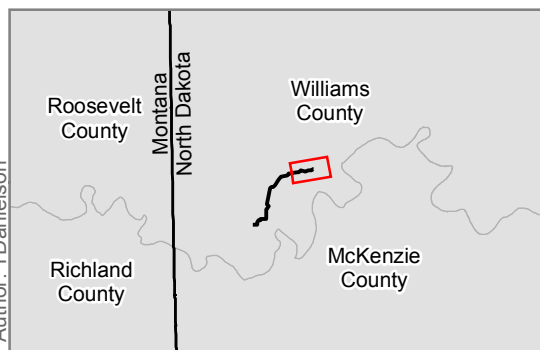
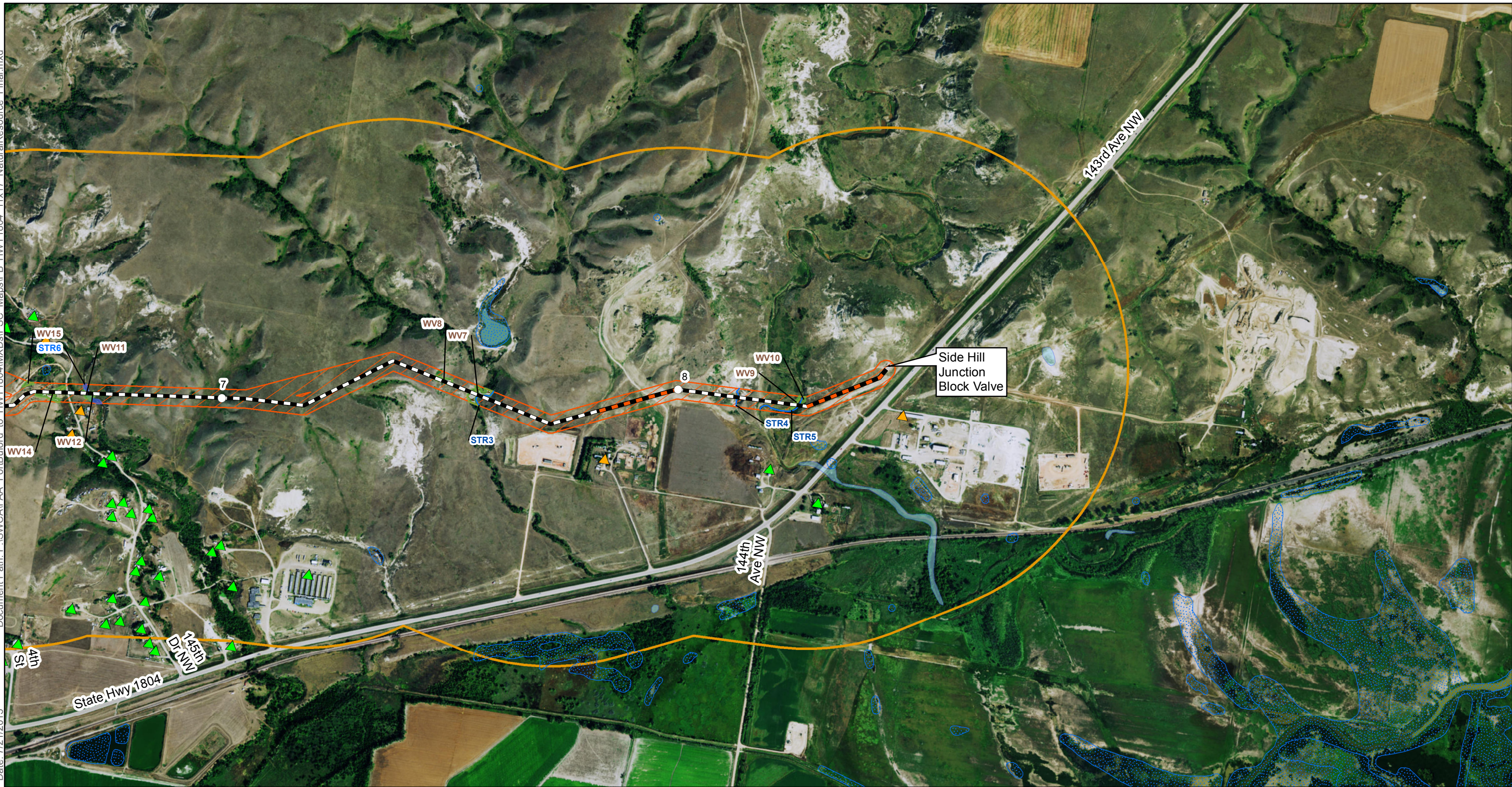


○ Milepost	— NHD Waterway	<b>Natural Resource Survey</b>	
— Centerline	NWI Wetland	Stream	
— Co-location	NHD Waterbody	Stream	
Survey Corridor	Potentially Occupied Structure	Woody Vegetation	 1:12,000
Corridor (1 mile)	Potentially Occupied Structure (w/in 500ft)		
NDWC Well			Map not to scale, for environmental review purposes only.



**Plains Pipeline, L.P.**  
 Highway 1804 Re-route North  
 Siting Criteria  
 Natural Resource - Aerial Map  
**Page 3 of 4**  
 Williams County, North Dakota

Document Path: P:\SWCA\PAAP\_FortBulford to HWY1804\MXDs\PSC\_Maps\FB\_HWY1804\_11x17\_NaturalResource\_Final.mxd

Date: 7/21/2015  
Author: TDanielson



○ Milepost	— NHD Waterway	<b>Natural Resource Survey</b>	▲ Potentially Occupied Structure
— Centerline	▨ NWI Wetland	— Stream	▲ Potentially Occupied Structure (w/in 500ft)
— Co-location	■ NHD Waterbody	▨ Stream	
▨ Survey Corridor	▲ Potentially Occupied Structure	▨ Woody Vegetation	
■ Corridor (1 mile)	▲ Potentially Occupied Structure (w/in 500ft)		
● NDWC Well			

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

**Plains Pipeline, L.P.**  
**Highway 1804 Re-route North**  
 Siting Criteria  
 Natural Resource - Aerial Map  
**Page 4 of 4**  
 Williams County, North Dakota

# **Appendix C**

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## Agency Consultations

U.S. Fish and Wildlife Service  
Consultation



May 22<sup>nd</sup>, 2015

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

**Plains All American Pipeline, LP – Fort Buford to Highway 1804 Pipeline Project  
Threatened and Endangered Species, Migratory Bird, and Managed Lands Review**

Plains All American Pipeline, LP (Plains) has proposed the construction of the Fort Buford to Highway 1804 Pipeline (Project). The Project will result in an approximately 14-mile, 10-inch outside diameter crude oil pipeline.

The proposed Project is described below and depicted on the attached maps.

In Williams County, North Dakota the pipeline crosses:

- T152N R103W Sections 5 & 6
- T152N R104W Sections 1, 9, 10, 11, 12, & 16
- T153N R102W Sections 8, 9, 10, 17, & 18
- T153N R103W Sections 13, 24, 25, 35, & 36

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 May 22, 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  
Gray wolf (*Canis lupus*) – Endangered  
Red Knot (*Calidris canutus rufa*)-Threatened  
Piping plover (*Charadrius melodus*) – Threatened  
Piping plover Designated Critical Habitat – Missouri River  
Northern Long-eared Bat (*Myotis septentrionalis*)-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:

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 0.5 mile north of 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.

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 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. Desktop analysis has concluded that no suitable habitat is present within the Project Area; therefore, impacts to the piping plover or its 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 in North Dakota, the breeding season is typically defined as occurring annually from February 1 through July 15.

Plains All American Pipeline, LP  
Fort Buford to Highway 1804 Project  
May 22<sup>nd</sup>, 2015



**E3 ENVIRONMENTAL**  
**871 Jefferson Avenue**  
**St. Paul, MN 55102**

E3 Environmental, LLC (E3) has been retained by SWCA Environmental Consultants 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](mailto:kschmidt@go2e3.com).

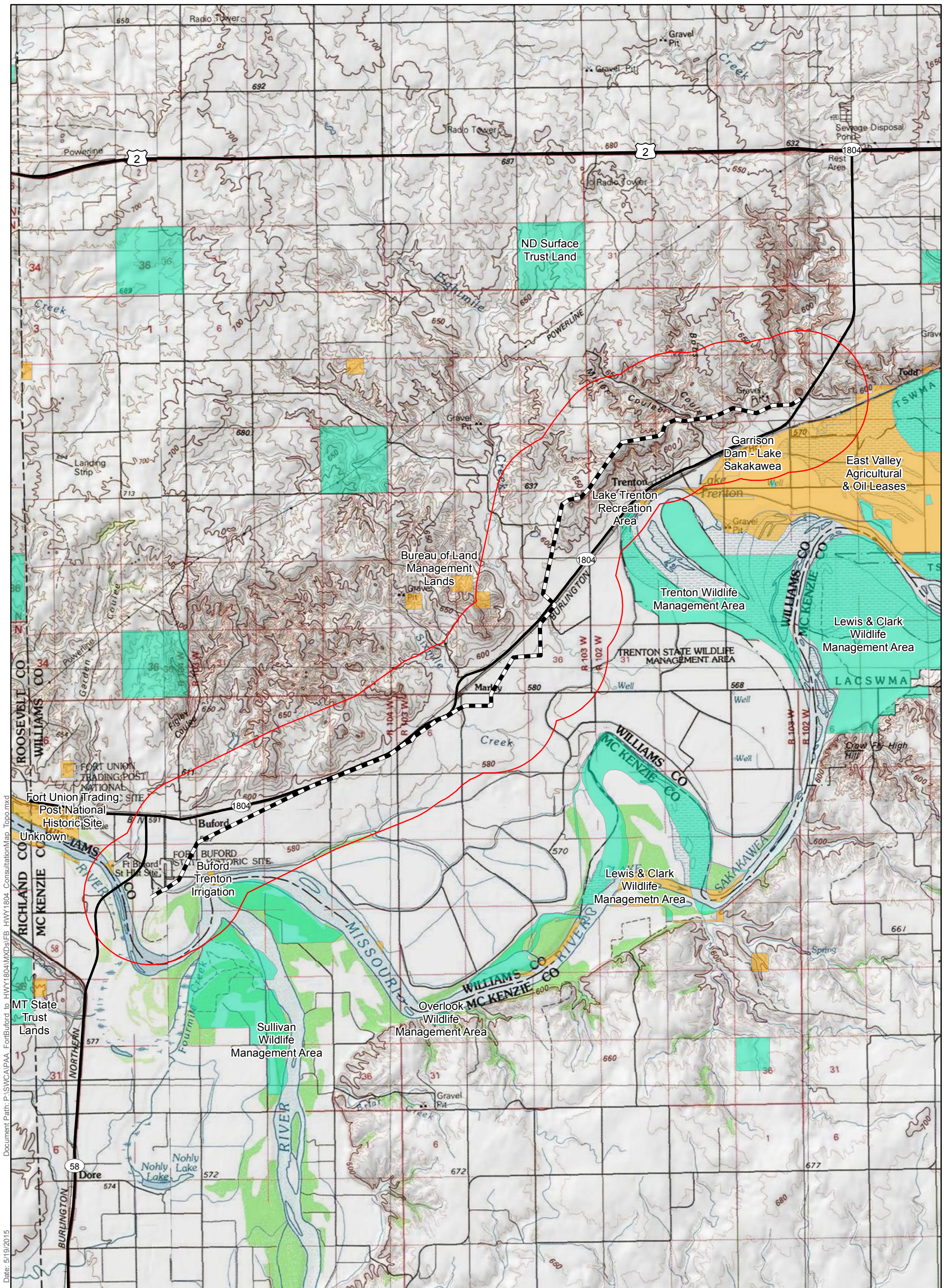
Sincerely,

A handwritten signature in purple ink that reads "Chris Schmidt" with "for" written below it.

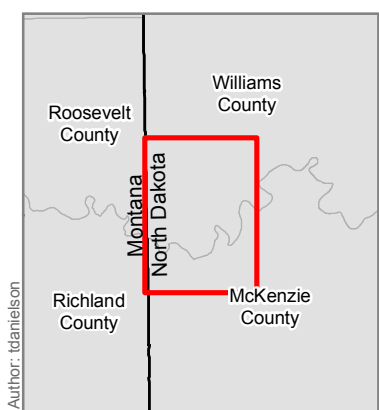
Katie Schmidt, Senior Consultant  
E3 Environmental, LLC  
871 Jefferson Ave  
St. Paul, MN 55102

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

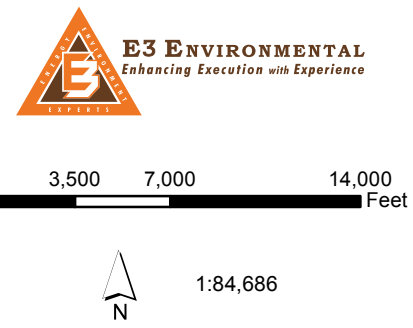
cc: E3 Project Files



Date: 5/19/2015  
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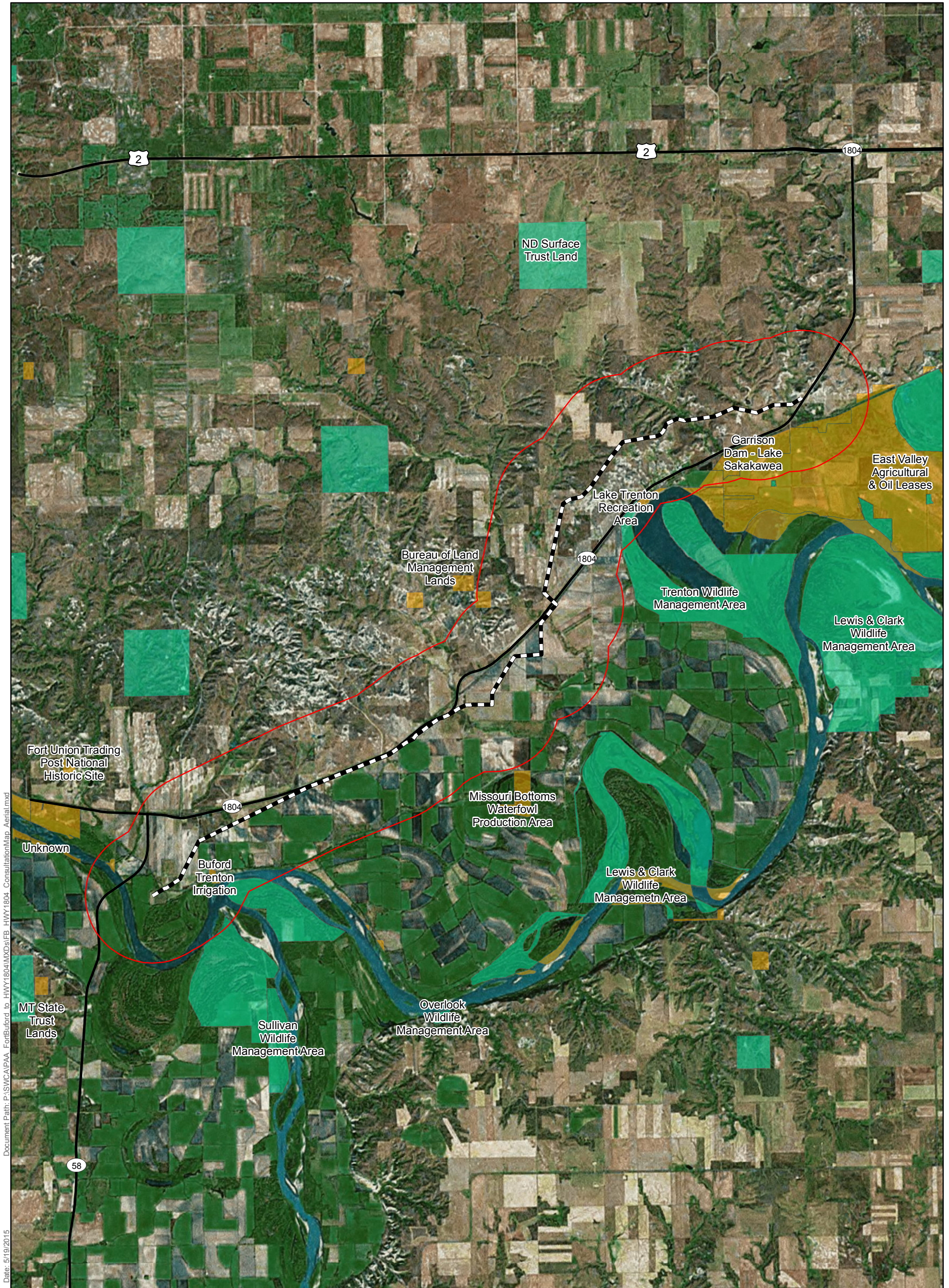


- Legend**
- Centerline
  - Corridor (1 Mile)
  - Federal Land
  - Native American Land
  - State Land

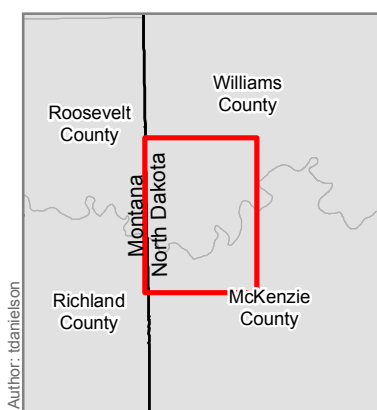


**Plains All American Pipeline, L.P.**  
 Fort Buford to Hwy 1804 Pipeline Project  
 Consultation Map - Topo  
 Williams County, North Dakota

Map not to scale, for environmental review purposes only.

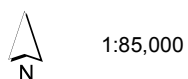
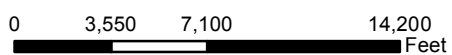


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- Centerline
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- Federal Land
- Native American Land
- State Land



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**Plains All American Pipeline, L.P.**  
 Fort Buford to Hwy 1804 Pipeline Project  
 Consultation Map - Aerial  
 Williams County, North Dakota

North Dakota Game and Fish Department

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Consultation



May 22<sup>nd</sup>, 2015

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

**Plains All American Pipeline, LP – Fort Buford to Highway 1804 Pipeline Project  
State Conservation Priority Species Consultation, State Plots Land Review**

Plains All American Pipeline, LP (Plains) has proposed the construction of the Fort Buford to Highway 1804 Pipeline (Project). The Project will result in an approximately 14-mile, 10-inch outside diameter crude oil pipeline.

The purpose of this correspondence is twofold: 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; and to assess the Project and associated Study Area for the presence or absence of Department managed PLOTS Lands.

The location of the proposed Project is described below and depicted on the attached maps. 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 Williams County, North Dakota the pipeline crosses:

- T152N R103W Sections 5 & 6
- T152N R104W Sections 1, 9, 10, 11, 12, & 16
- T153N R102W Sections 8, 9, 10, 17, & 18
- T153N R103W Sections 13, 24, 25, 35, & 36

Plains All American Pipeline, LP  
Fort Buford to Highway 1804 Pipeline Project  
May 22<sup>nd</sup>, 2015



**E3 ENVIRONMENTAL**  
**871 Jefferson Avenue**  
**St. Paul, MN 55102**

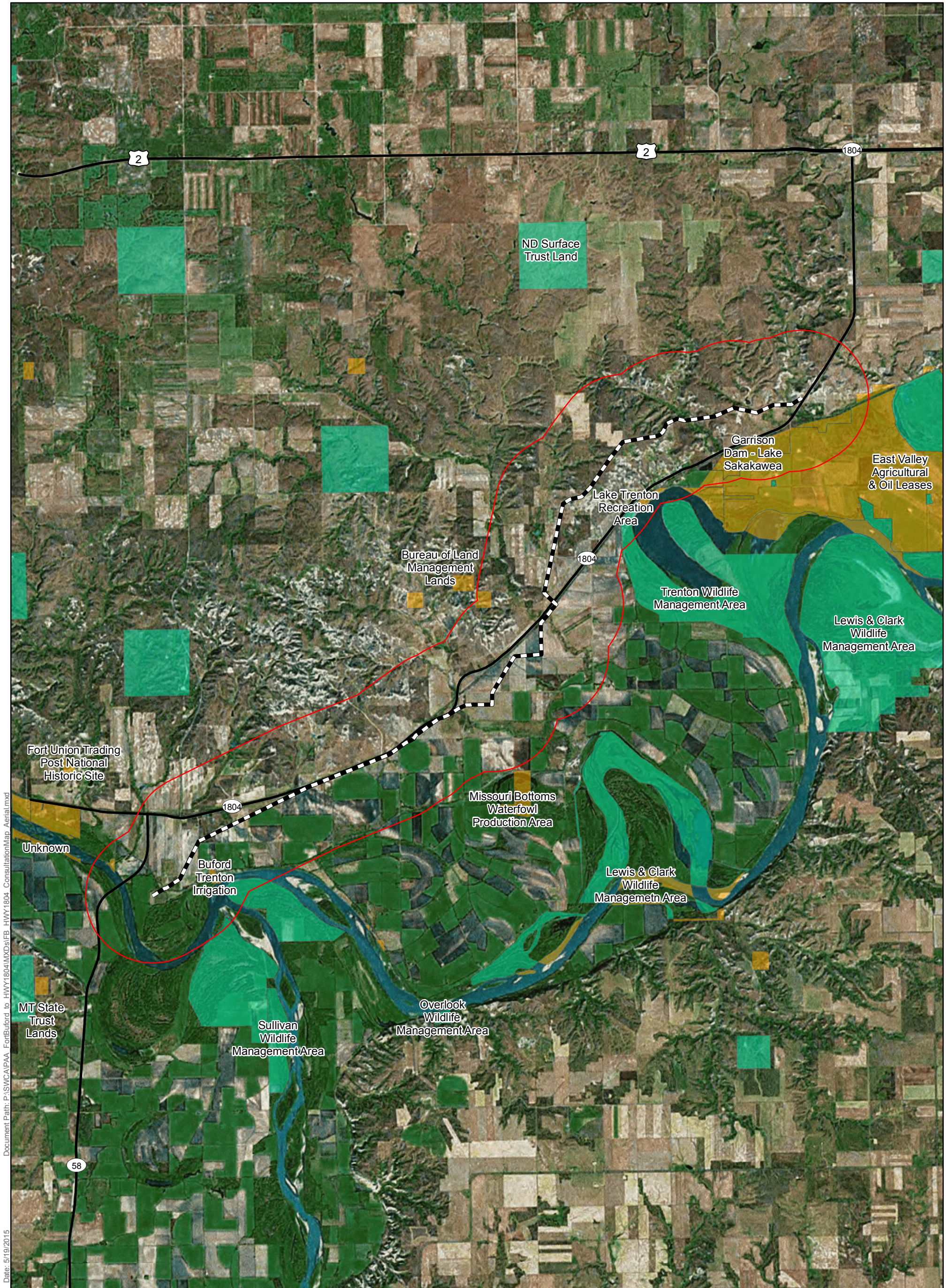
In closing, E3 Environmental, LLC (E3) has been retained by SWCA Environmental Consultants to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or [kschmidt@go2e3.com](mailto:kschmidt@go2e3.com).

Sincerely,

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

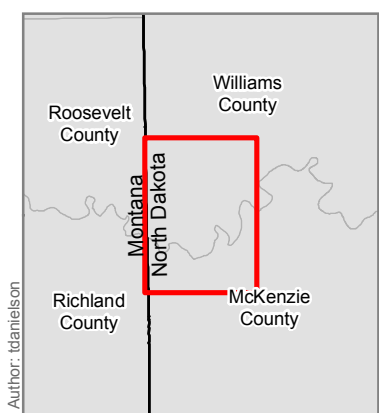
Enclosures: Project map – USGS topographic  
Project map – Aerial photograph

cc: E3 Project Files



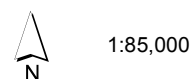
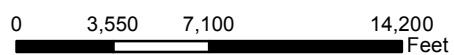
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Author: tdanielson



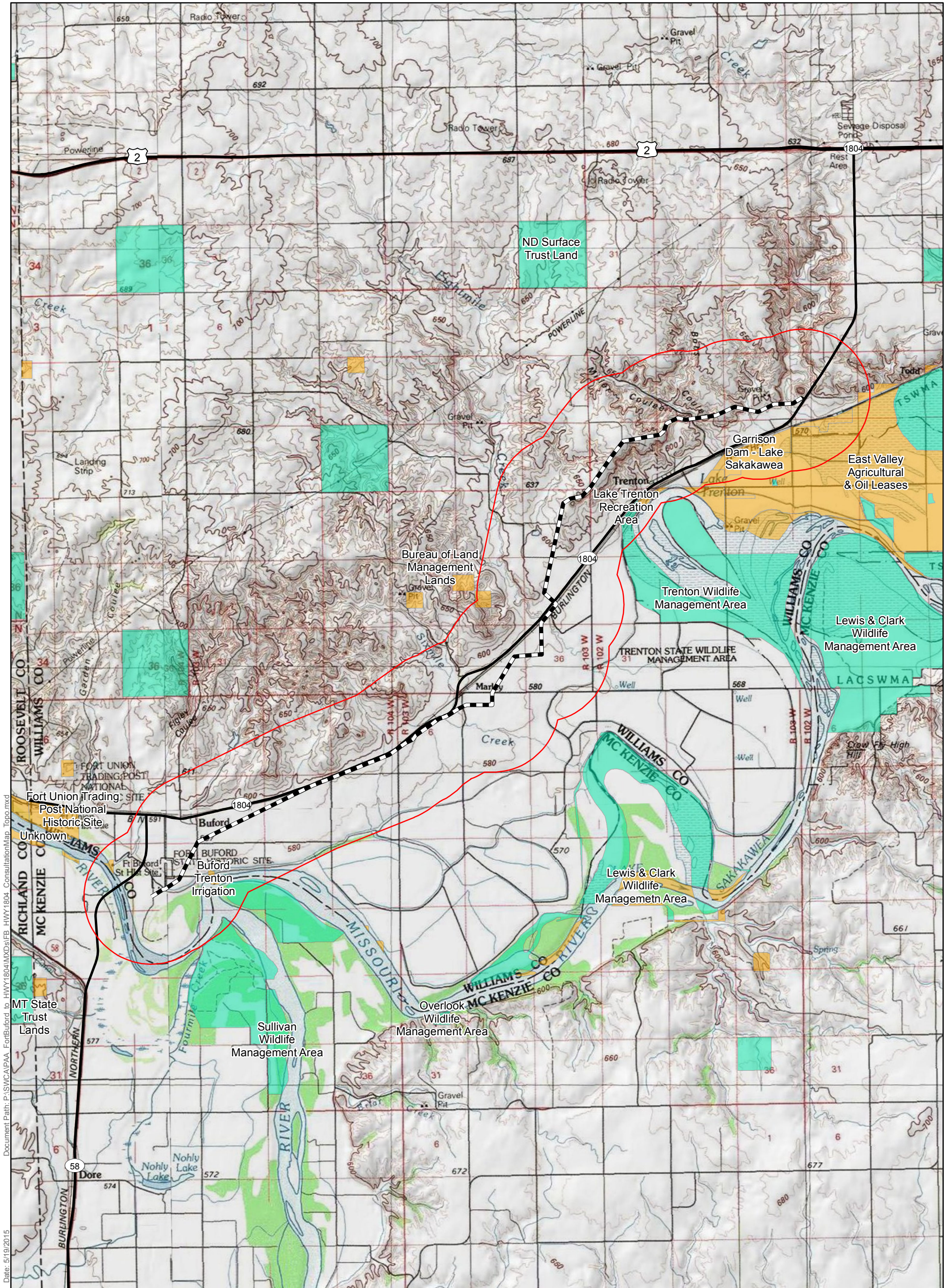
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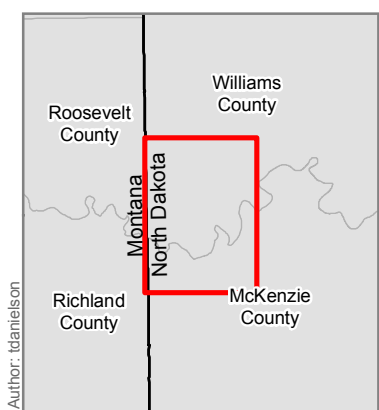


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**Plains All American Pipeline, L.P.**  
 Fort Buford to Hwy 1804 Pipeline Project  
 Consultation Map - Aerial  
 Williams County, North Dakota



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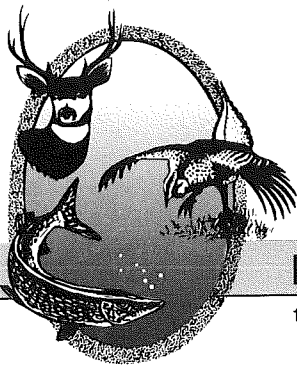
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**Plains All American Pipeline, L.P.**

Fort Buford to Hwy 1804 Pipeline Project

Consultation Map - Topo

Williams County, North Dakota



"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

June 18, 2015

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

Dear Ms. Schmidt:

RE: Fort Buford to Highway 1804 Pipeline Project

Plains All American Pipeline, LP is proposing to construct an approximately 14-mile, 10-inch outside diameter crude oil pipeline in Williams County, North Dakota. The North Dakota Game and Fish Department has reviewed this project for wildlife concerns.

The department manages several Wildlife Management Areas (WMA's) adjacent to the proposed project corridor. A special use permit would be required to cross these lands. Information regarding WMA locations is available in various formats at <http://gf.nd.gov/maps/>. Mr. Kent Luttschwager, Wildlife Resource Management Supervisor, should be contacted at 701-774-4320 for information on permissible activities and permit requirements.

A primary concern with this project is the possible disturbance of native prairie and wooded draws associated with construction of the pipeline and access roads. We ask that work within these areas be avoided to the extent possible, every effort be made to prevent destruction of woody vegetation, and disturbed areas be reclaimed to pre-project conditions.

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.

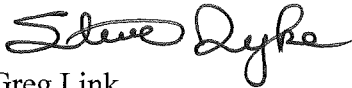
We recommend that aerial surveys be conducted for raptor nests before construction begins. Our records indicate several possible golden eagle nests located in close proximity to the project area. We recommend that a ½-mile construction buffer be implemented around active eagle nest sites

(known occupied within the past 5 years). Ms. Sandra Johnson, Conservation Biologist, can be contacted at 701-328-6327 for additional information on golden eagle nests in the state.

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.

Private Lands Open to Sportsmen (PLOTS) is a public access program which cost-shares with private landowners to help conserve fish and wildlife habitat. PLOTS lands are not owned or managed by the ND Game and Fish Department. Information regarding PLOTS locations is available at: <http://gf.nd.gov/hunting/private-land-open-sportsmen>. This page is updated to reflect changes as tracts are added or removed.

Sincerely,



(for)

Greg Link  
Chief

Conservation & Communication Division

js

North Dakota Parks and Recreation Department  

---

Consultation



May 22<sup>nd</sup>, 2015

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

**Plains All American Pipeline, LP – Fort Buford to Highway 1804 Pipeline Project  
Natural Heritage Inventory Review  
State Park Lands; and Land and Water Conservation Fund Review**

Plains All American Pipeline, LP (Plains) has proposed the construction of the Fort Buford to Highway 1804 Pipeline (Project). The Project will result in an approximately 14-mile, 10-inch outside diameter crude oil pipeline.

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 administered 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 location of the proposed Project is described below and depicted on the attached maps. 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 Williams County, North Dakota the pipeline crosses:

- T152N R103W Sections 5 & 6
- T152N R104W Sections 1, 9, 10, 11, 12, & 16
- T153N R102W Sections 8, 9, 10, 17, & 18
- T153N R103W Sections 13, 24, 25, 35, & 36

Plains All American Pipeline, LP  
Fort Buford to Highway 1804 Pipeline Project  
May 22<sup>nd</sup>, 2015



**E3 ENVIRONMENTAL**  
**871 Jefferson Avenue**  
**St. Paul, MN 55102**

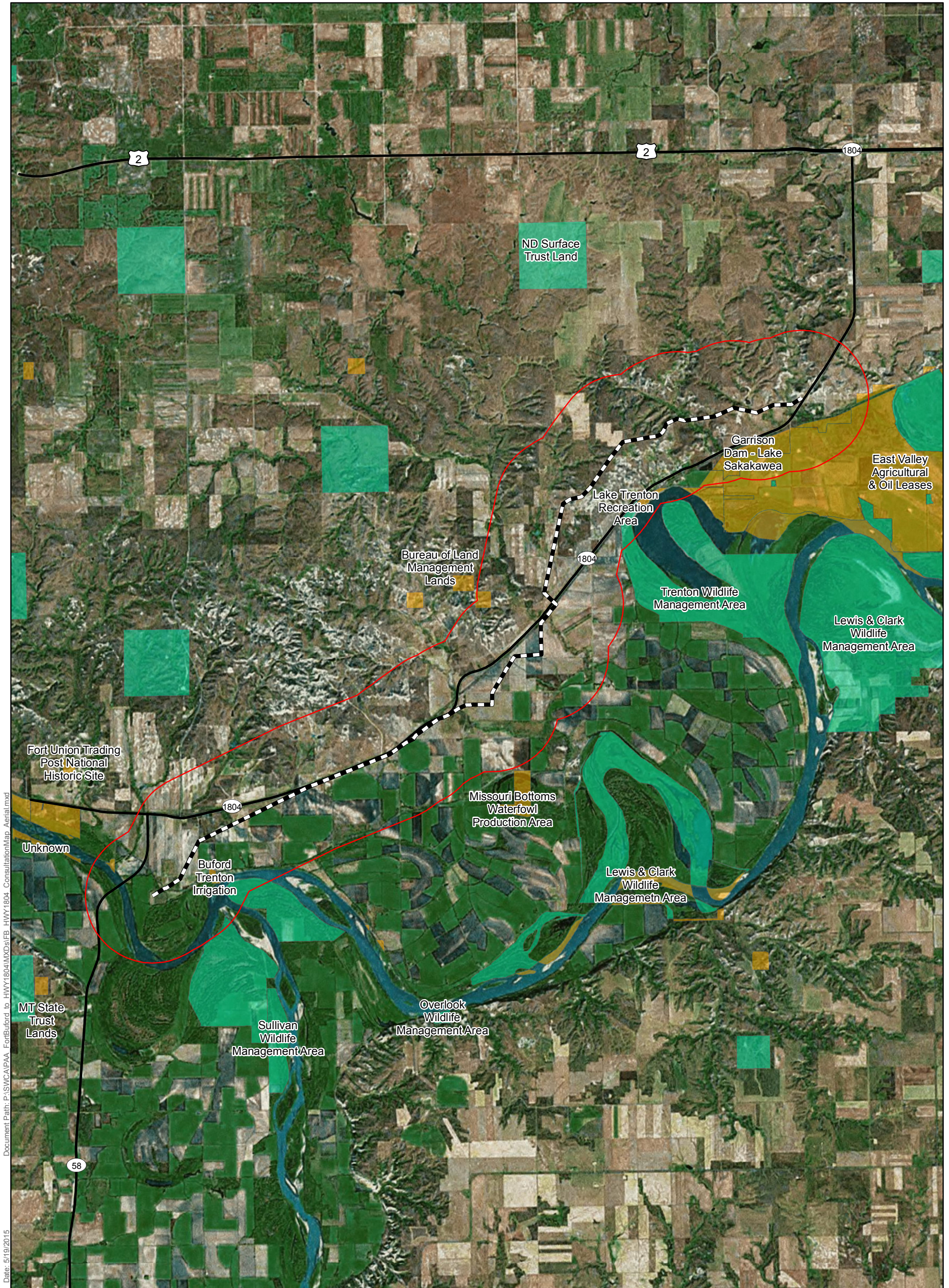
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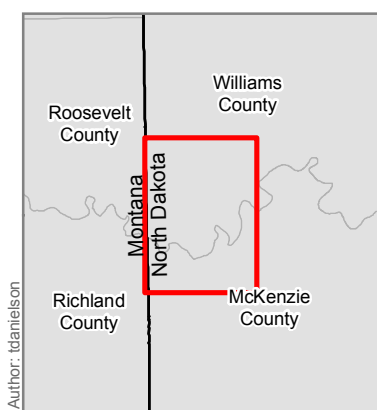
*Katie*  
Katie Schmidt, Senior Consultant  
E3 Environmental, LLC  
871 Jefferson Ave  
St. Paul, MN 55102

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

cc: E3 Project Files

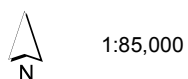
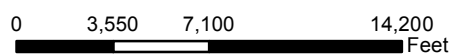


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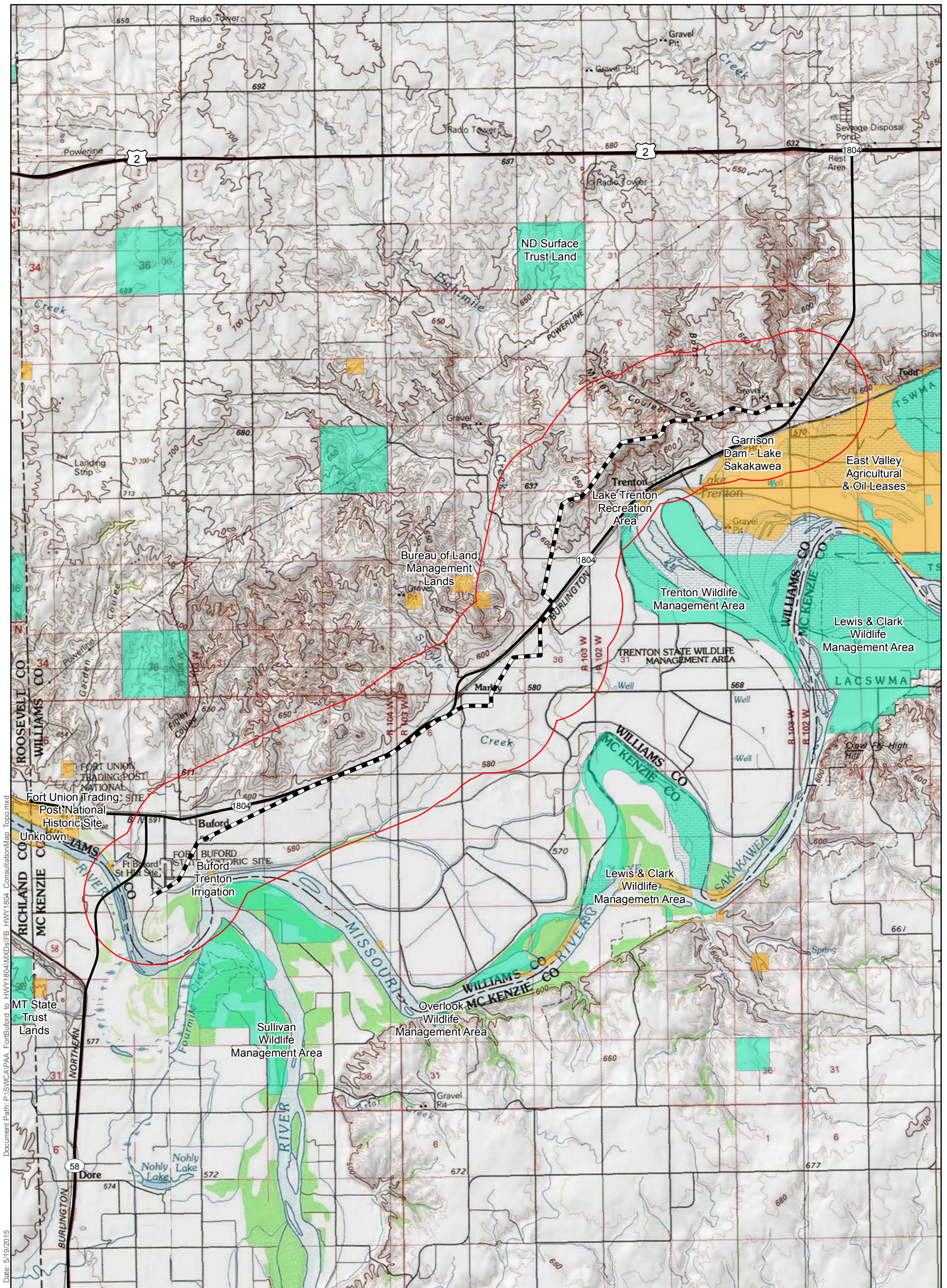
**Legend**

- Centerline
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- Federal Land
- Native American Land
- State Land

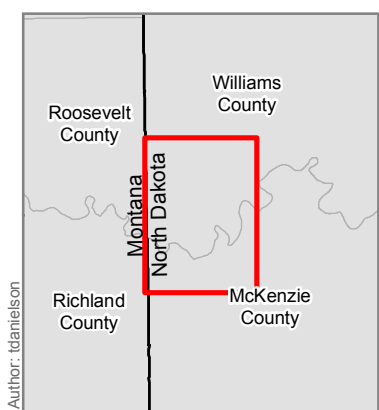


Map not to scale, for environmental review purposes only.

**Plains All American Pipeline, L.P.**  
 Fort Buford to Hwy 1804 Pipeline Project  
 Consultation Map - Aerial  
 Williams County, North Dakota



Date: 5/19/2015  
 Document Path: P:\SWCA\PAAP\_FortBuford to HWY1804\MXD\B\FB\_HWY1804\_ConsultationMap\_Topo.mxd



**Legend**

- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
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**E3 ENVIRONMENTAL**  
 Enhancing Execution with Experience

0 3,500 7,000 14,000 Feet

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Map not to scale, for environmental review purposes only.

**Plains All American Pipeline, L.P.**

**Fort Buford to Hwy 1804 Pipeline Project**

**Consultation Map - Topo**

Williams County, North Dakota



Jack Dalrymple, Governor  
Mark A. Zimmerman, Director

1600 East Century Avenue, Suite 3  
Bismarck, ND 58503-0649  
Phone 701-328-5357  
Fax 701-328-5363  
E-mail [parkrec@nd.gov](mailto:parkrec@nd.gov)  
[www.parkrec.nd.gov](http://www.parkrec.nd.gov)

June 18, 2015

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

Re: Plains all American Pipeline

Dear Ms. Schmidt:

The North Dakota Parks and Recreation Department (the Department) has reviewed the above referenced project for the construction of the Fort Bufford to Highway 1804 Pipeline Project in Williams County.

Our agency scope of authority and expertise covers recreation and biological resources (in particular rare plants and ecological communities). The project as defined does not affect state park lands that we manage or Land and Water Conservation Fund recreation projects that we coordinate.

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, there are several documented animal species of concern and significant ecological communities documented occurrences in our database adjacent to project area. Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

The Department recommends that the project be accomplished with minimal impacts and that all efforts be made to ensure that critical habitats not be disturbed in the project area to help secure rare species conservation in North Dakota. Regarding any reclamation efforts, we recommend that any impacted areas be revegetated with species native to the project area.

It is our policy to charge for data services including data retrieval, data analysis, manual and computer searches, packaging and collection of data. An invoice for services provided has been enclosed.

We appreciate your commitment to rare plant, animal and ecological community conservation, management and inter-agency cooperation to date. For additional information please contact me at (701-328-5370 or [kgduttonhefner@nd.gov](mailto:kgduttonhefner@nd.gov)). Thank you for the opportunity to comment on this proposed project.

Sincerely,

Kathy Duttonhefner, Coordinator  
Natural Resources Division

R.USNDNHI\*2015\_043KD6/18/2015DL6.18.2015

.....  
*Play in our backyard!*

# ND Parks and Recreation Department

*ND Natural Heritage Inventory*  
 1600 East Century Ave., Suite 3  
 Bismarck, ND 58503-0649  
 (701) 328-5370 FAX: (701) 328-5363

# INVOICE

**INVOICE NO: 503**  
**DATE: 6/18/2015**

Katie Schmidt  
 E2 Environmental  
 871 Jefferson Ave.  
 St Paul MN 55102

CONTACT	REFERENCE NO.	DATE SHIPPED	SHIPPED VIA	F.O.B. POINT	TERMS
K.Duttenhefner	NHI_201_043	6/18/2015	email		

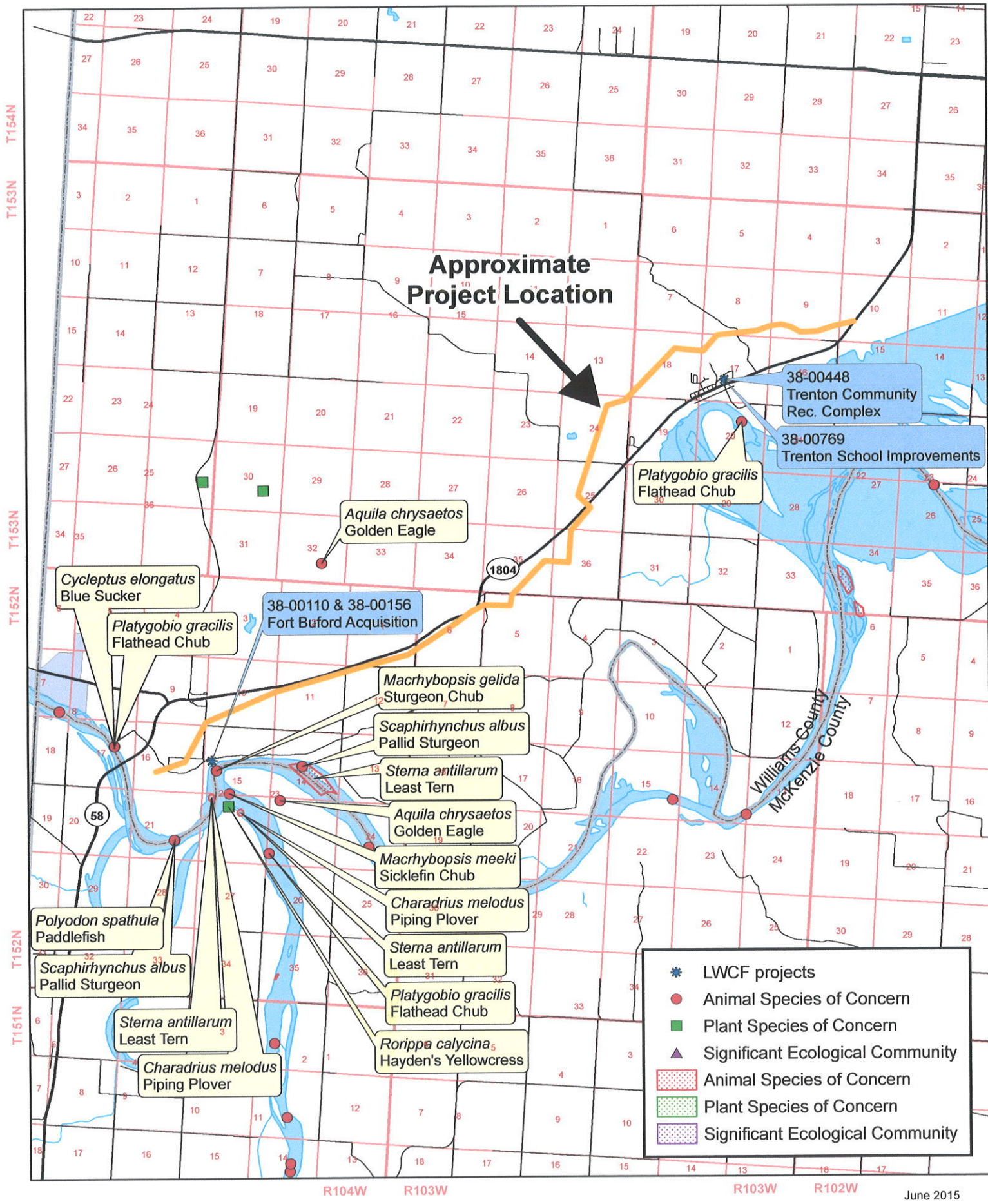
QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
1	Data retrieval, data analysis, manual and computer searches, packaging and collection of data.  Project: Plains All American Pipeline LP	\$ 60.00	\$ 60.00
SUBTOTAL			\$ 60.00
SALES TAX			
SHIPPING & HANDLING			
<b>TOTAL DUE</b>			<b>\$ 60.00</b>

Make all checks payable to: ND Parks and Recreation Department  
 If you have any questions concerning this invoice, call: Kathy Duttenhefner, (701) 328-5370

**THANK YOU FOR YOUR INTEREST IN RARE SPECIES CONSERVATION.**

Entry Event	Fund	Dept.	Project	Activity
463021	398	1508	OR15082	15082

# North Dakota Parks and Recreation Department North Dakota Natural Heritage Inventory



**Approximate  
Project Location**

**38-00448**  
Trenton Community  
Rec. Complex

**38-00769**  
Trenton School Improvements

*Platygobio gracilis*  
Flathead Chub

*Aquila chrysaetos*  
Golden Eagle

*Cycleptus elongatus*  
Blue Sucker

*Platygobio gracilis*  
Flathead Chub

**38-00110 & 38-00156**  
Fort Buford Acquisition

*Machybopsis gelida*  
Sturgeon Chub

*Scaphirhynchus albus*  
Pallid Sturgeon

*Sterna antillarum*  
Least Tern

*Aquila chrysaetos*  
Golden Eagle

*Machybopsis meeki*  
Sicklefin Chub

*Charadrius melodus*  
Piping Plover

*Sterna antillarum*  
Least Tern

*Platygobio gracilis*  
Flathead Chub

*Rorippa calycina*  
Hayden's Yellowcress

*Polyodon spathula*  
Paddlefish

*Scaphirhynchus albus*  
Pallid Sturgeon

*Sterna antillarum*  
Least Tern

*Charadrius melodus*  
Piping Plover

- ✳ LWCF projects
- Animal Species of Concern
- Plant Species of Concern
- ▲ Significant Ecological Community
- Animal Species of Concern
- Plant Species of Concern
- Significant Ecological Community

North Dakota Natural Heritage Inventory  
Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
<i>Aquila chrysaetos</i>	Golden Eagle	S3	G5		152N104W - 23; 151N103W - 05; 152N104W - 18; 151N103W - 04; 153N103W - 28; 152N104W - 05; 152N104W - 30; 152N103W - 31; 151N103W - 08; 152N103W - 18; 153N104W - 26; 153N103W - 35; 152N104W - 04; 152N104W - 10; 152N103W - 30; 151N104W - 06; 151N104W - 14	McKenzie, Williams	1982-08-06		G
<i>Aquila chrysaetos</i>	Golden Eagle	S3	G5		153N103W - 32	Williams	1982-06-17		S
<i>Charadrius melodus</i>	Piping Plover	S1S2	G3	LE,LT	152N104W - 22	Williams	1987	Medium	S
<i>Charadrius melodus</i>	Piping Plover	S1S2	G3	LE,LT	152N104W - 22	McKenzie	1989	Medium	S
<i>Cycleptus elongatus</i>	Blue Sucker	S3	G3G4		152N104W - 17	McKenzie, Williams	1994-04-29		S
<i>Macrhybopsis geida</i>	Sturgeon Chub	S2	G3		152N104W - 15	McKenzie, Williams	1994-07-07		S
<i>Macrhybopsis meeki</i>	Sicklefin Chub	S2	G3		152N104W - 15; 152N104W - 22	McKenzie	1994-08-04		S
<i>Platygobio gracilis</i>	Flathead Chub	SNR	G5		152N104W - 17	McKenzie, Williams	1994-08-04		S
<i>Platygobio gracilis</i>	Flathead Chub	SNR	G5		152N104W - 22; 152N104W - 23	McKenzie	1994-08-04		S
<i>Platygobio gracilis</i>	Flathead Chub	SNR	G5		153N102W - 20	Williams	1994-09-20		S
<i>Polyodon spathula</i>	Paddlefish	SNR	G4		152N104W - 21	McKenzie, Williams	1994-09-28		S
					152N104W - 22; 151N103W - 05; 152N104W - 18; 151N104W - 05; 153N103W - 29; 152N103W - 31; 153N103W - 32; 152N104W - 19; 153N103W - 35; 153N104W - 34; 152N104W - 10; 152N104W - 23; 152N104W - 31; 151N103W - 07; 152N103W - 05; 152N103W - 07; 151N104W - 01				
<i>Rorippa calycina</i>	Hayden's Yellowcress	SH	G3			McKenzie, Williams	1858		G
					152N104W - 14; 152N104W - 24; 152N104W - 11; 152N104W - 23; 152N104W - 15; 152N104W - 13; 152N104W - 12; 152N104W - 22; 152N104W - 10	McKenzie, Williams	1994-09-28	Low	M
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	S1	G2	LE					
					152N104W - 21; 152N104W - 16; 152N104W - 22; 152N104W - 29; 152N104W - 20; 152N104W - 27; 152N104W - 15; 152N104W - 28; 152N104W - 17	McKenzie, Williams	1994-09-28	Low	M
<i>Sterna antillarum</i>	Least Tern	S1	G4	PS:LE	152N104W - 14	McKenzie, Williams	1999-07-12	Medium	
<i>Sterna antillarum</i>	Least Tern	S1	G4	PS:LE	152N104W - 22	Williams	1987-07	Medium	S
<i>Sterna antillarum</i>	Least Tern	S1	G4	PS:LE	152N104W - 22	McKenzie	1990-07	Medium	S

## Land and Water Conservation Fund Projects

<b>Project Name</b>	<b>Project Number</b>
Fort Buford Acquisition	38-00110
Fort Buford Acquisition	38-00156
Trenton Community Rec. Complex	38-00448
Trenton School Improvements	38-00769

## North Dakota Natural Heritage Inventory Biological and Conservation Data Disclaimer

The quantity and quality of data collected by the North Dakota Natural Heritage Inventory are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in North Dakota have never been thoroughly surveyed, and new species are still being discovered. For these reasons, the Natural Heritage Inventory cannot provide a definite statement on the presence, absence, or condition of biological elements in any part of North Dakota. Natural Heritage data summarize the existing information known at the time of the request. Our data are continually upgraded and information is continually being added to the database. This data should never be regarded as final statements on the elements or areas that are being considered, nor should they be substituted for on-site surveys.

### Estimated Representation Accuracy

Value that indicates the approximate percentage of the Element Occurrence Representation (EO Rep) that was observed to be occupied by the species or community (versus buffer area added for locational uncertainty). Use of estimated representation accuracy provides a common index for the consistent comparison of EO reps, thus helping to ensure that aggregated data are correctly analyzed and interpreted.

Very high (>95%)

High (>80%, <= 95%)

Medium (>20%, <= 80%)

Low (>0%, <= 20%)

Unknown

(null) - Not assessed

### Precision

A single-letter code for the precision used to map the Element Occurrence (EO) on a U.S. Geological Survey (USGS) 7.5' (or 15') topographic quadrangle map, based on the previous Heritage methodology in which EOs were located on paper maps using dots.

S - Seconds: accuracy of locality mappable within a three-second radius; 100 meters from the centerpoint

M - Minute: accuracy of locality mappable within a one-minute radius; 2 km from the centerpoint

G - General: accuracy of locality mappable to map or place name precision only; 8 km from centerpoint

U - Unmappable

North Dakota Department of Trust Lands – Minerals Management

---

Consultation



May 22<sup>nd</sup>, 2015

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

**Plains All American Pipeline, LP – Fort Buford to Highway 1804 Pipeline Project  
State Mineral Trust Lands Consultation**

Plains All American Pipeline, LP (Plains) has proposed the construction of the Fort Buford to Highway 1804 Pipeline (Project). The Project will result in an approximately 14-mile, 10-inch outside diameter crude oil pipeline.

The proposed Project is described below and depicted on the attached maps.

In Williams County, North Dakota the pipeline crosses:

- T152N R103W Sections 5 & 6
- T152N R104W Sections 1, 9, 10, 11, 12, & 16
- T153N R102W Sections 8, 9, 10, 17, & 18
- T153N R103W Sections 13, 24, 25, 35, & 36

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](http://www.land.nd.gov). The results of this search concluded that Township 152N, Range 104W, Sections 1, 12, 15, 16, 17, 20, 21 and 22, Township 153N, Range 103W, Sections 26, 35 and 36 and Township 153N, Range 102W, Sections 19 and 20 intersect State Lands in Williams 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.

Plains All American Pipeline, LP  
Fort Buford to Highway 1804 Pipeline Project  
May 22<sup>nd</sup>, 2015



**E3 ENVIRONMENTAL**  
**871 Jefferson Avenue**  
**St. Paul, MN 55102**

In closing, E3 Environmental, LLC has been retained by SWCA Environmental Consultants 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](mailto:kschmidt@go2e3.com).

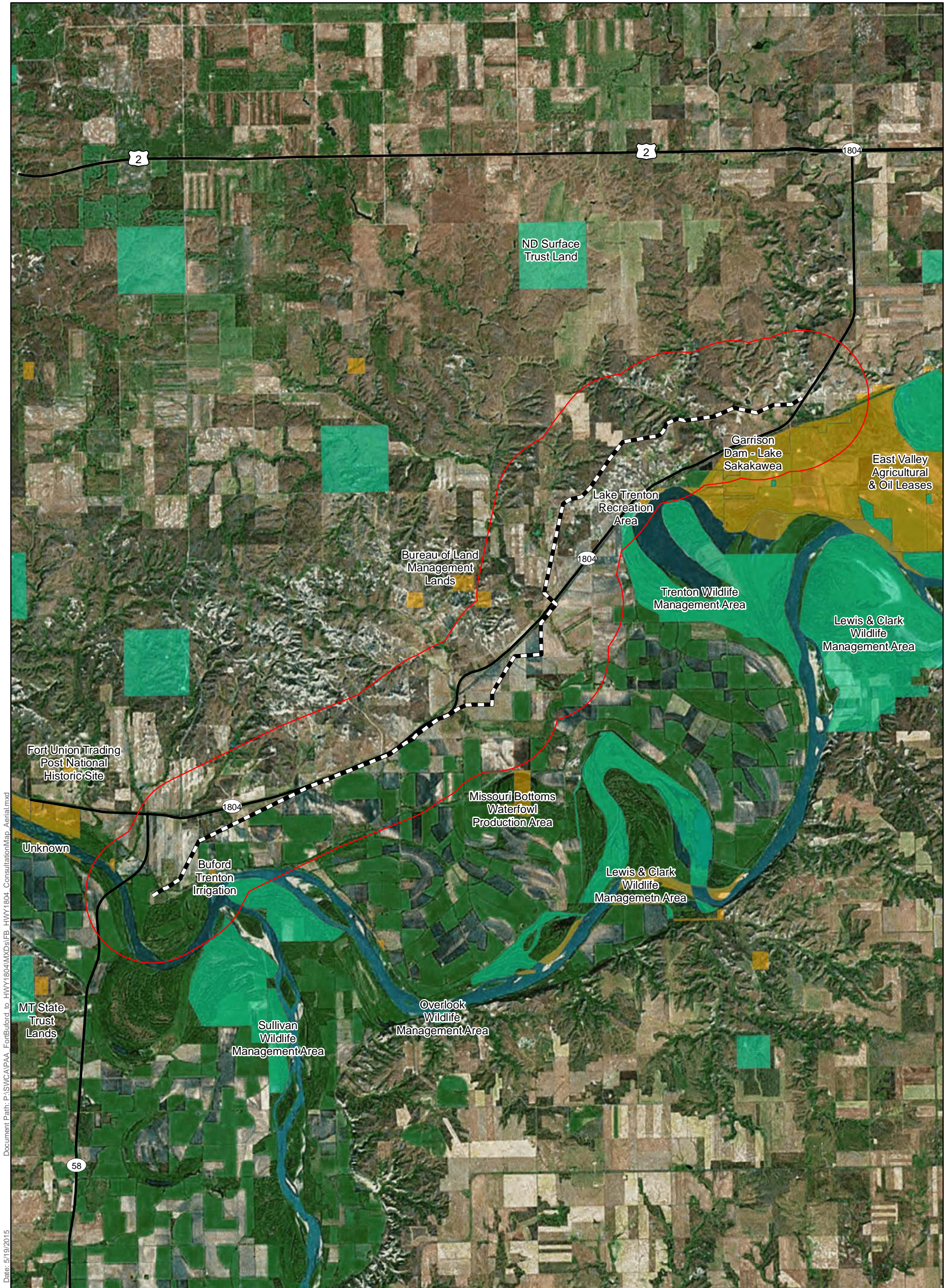
Sincerely,

A handwritten signature in blue ink that reads "Katie Schmidt". Below the signature, the word "for" is written in a smaller, cursive script.

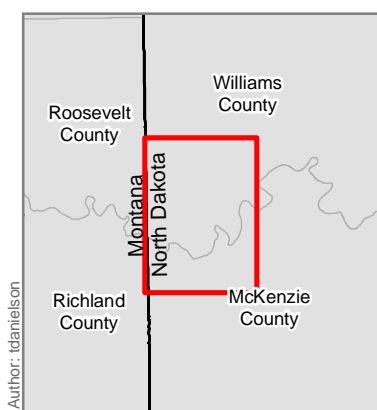
Katie Schmidt, Senior Consultant  
E3 Environmental, LLC  
871 Jefferson Ave  
St. Paul, MN 55102

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

cc: E3 Project Files

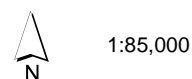
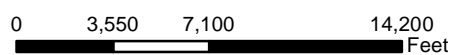


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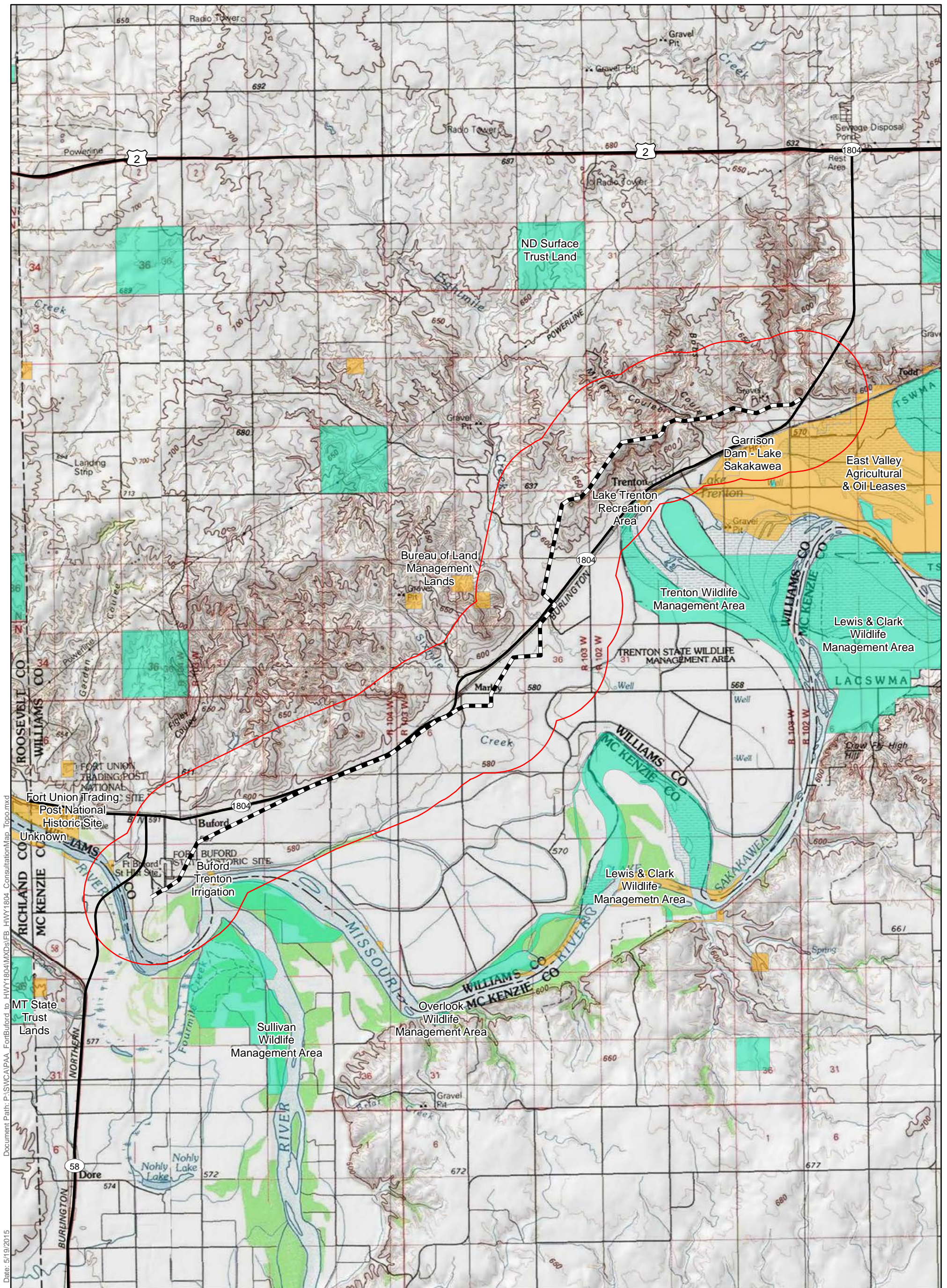
**Legend**

- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
- State Land

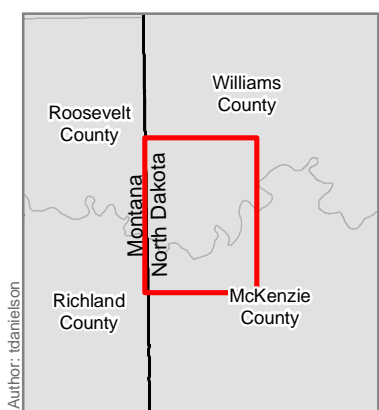


Map not to scale, for environmental review purposes only.

**Plains All American Pipeline, L.P.**  
 Fort Buford to Hwy 1804 Pipeline Project  
 Consultation Map - Aerial  
 Williams County, North Dakota



Date: 5/19/2015  
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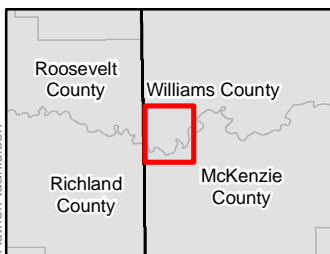
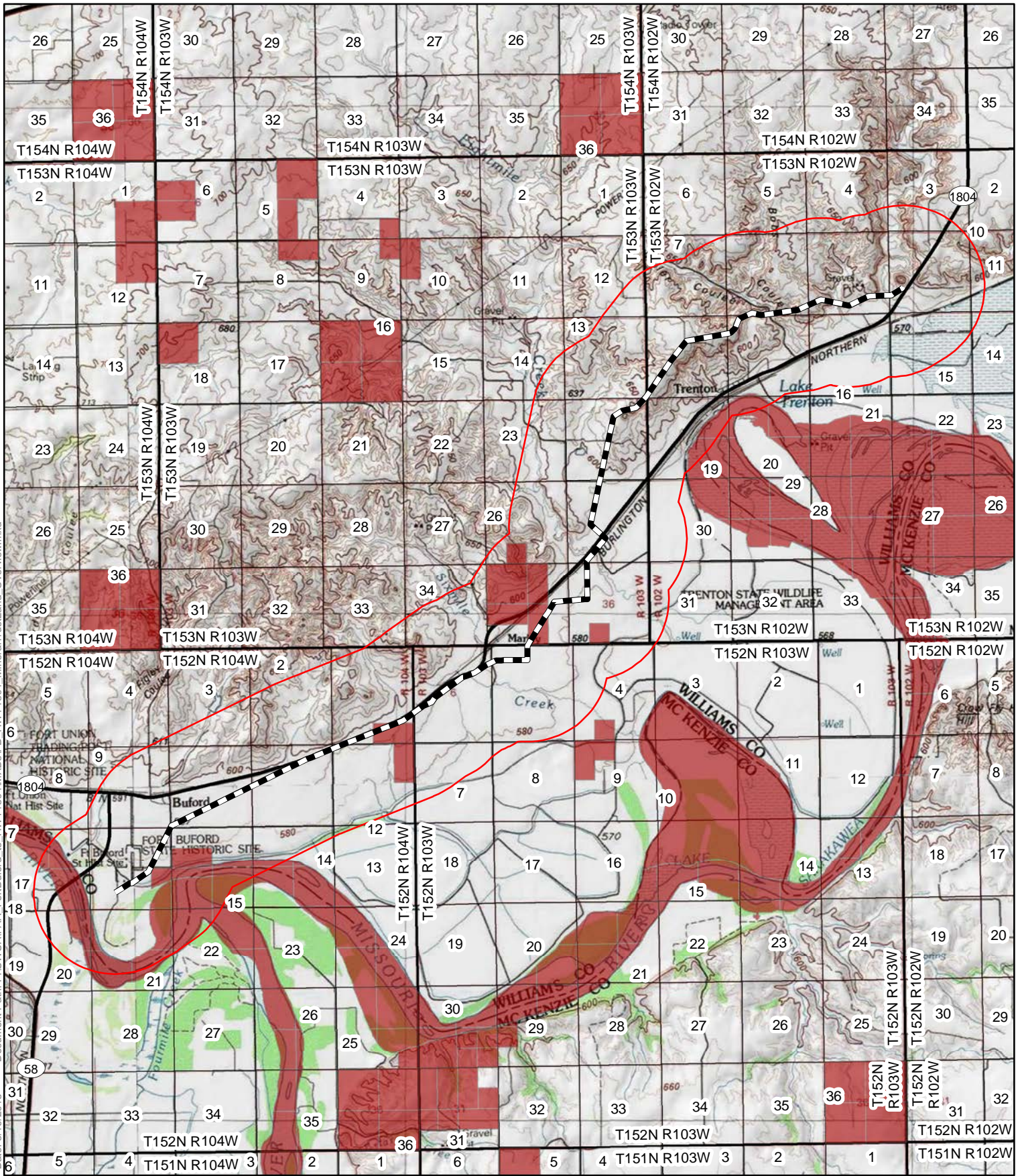
**Legend**

- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
- State Land

0 3,500 7,000 14,000 Feet  
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 Map not to scale, for environmental review purposes only.

**Plains All American Pipeline, L.P.**  
 Fort Buford to Hwy 1804 Pipeline Project  
 Consultation Map - Topo  
 Williams County, North Dakota

Document Path: P:\SWCA\PAAP\_FortBuford to Hwy1804\MXD\05\FB\_Hwy1804\_MineralTrustLand\_Overview.mxd  
Date: 5/19/2015  
Author: tdanielson



— — — Proposed Pipeline  
▭ Corridor (1 mile)  
▭ Mineral Trust Lands

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0 0.5 1 2 Miles  
1:100,000

Map not to scale, for environmental review purposes only

**Plains All American Pipeline, LP**  
Fort Buford to Hwy 1804 Pipeline Project  
Mineral Trust Lands Overview  
Williams County, North Dakota

## Katie Schmidt

---

**From:** Bement, Allisen C. <abement@nd.gov>  
**Sent:** Tuesday, May 26, 2015 8:17 AM  
**To:** Chris Schmidt  
**Cc:** Katie Schmidt  
**Subject:** RE: Plains All American Pipeline, LP: Fort Buford to Highway 1804 Pipeline Project & Mineral Trust Lands Consultation

Chris,

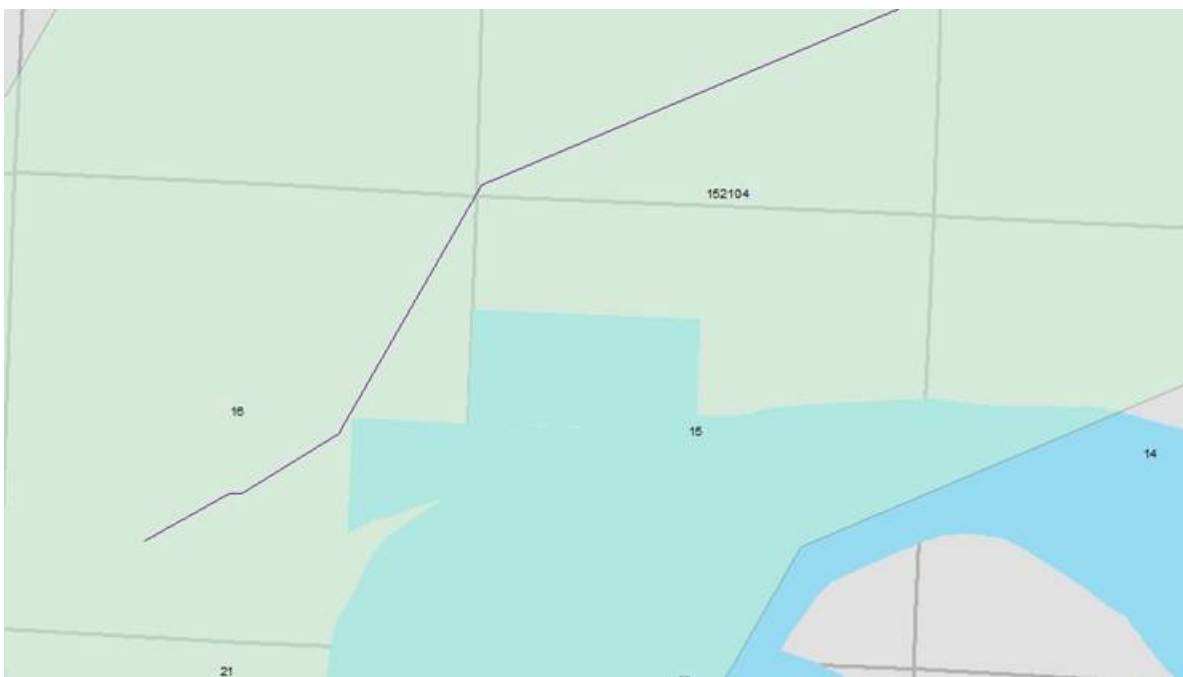
We agree that the data provided fairly represents the approximate location of the Fort Buford to Highway 1804 Pipeline Project as indicated by E3 Environmental and the proximity of mineral interests managed by this office, for use in a filing with the PSC in the state of North Dakota.

In addition to the lands lists, the State of North Dakota owns the beds of navigable river up to the ordinary high water mark (OHWM); therefore, 152-104 14 falls within the corridor of this project. See below snip.

Thank you,

*Allisen Bement*

Land Professional  
ND Department of Trust Lands  
701.328.1952  
[abement@nd.gov](mailto:abement@nd.gov)



---

**From:** Chris Schmidt [mailto:CSchmidt@go2e3.com]  
**Sent:** Friday, May 22, 2015 3:59 PM

**To:** Bement, Allisen C.

**Cc:** Bayley, Keith W.; Katie Schmidt

**Subject:** Plains All American Pipeline, LP: Fort Buford to Highway 1804 Pipeline Project & Mineral Trust Lands Consultation

Dear Ms. Allisen,

E3 Environmental, LLC has been retained by SWCA Environmental Consultants to provide environmental consulting support for the Fort Buford to Highway 1804 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,

**Chris Schmidt, GIT  
Consultant**

E3 Environmental, LLC  
cschmidt@go2e3.com  
O: 651.282.0654  
M: 651.315.6066  
871 Jefferson Avenue  
St. Paul, MN 55102  
www.go2e3.com



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North Dakota Department of Trust Lands – Surface Management

---

Consultation



May 22<sup>nd</sup>, 2015

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

**Plains All American Pipeline, LP – Fort Buford to Highway 1804 Pipeline Project  
School Trust Lands Consultation**

Plains All American Pipeline, LP (Plains) has proposed the construction of the Fort Buford to Highway 1804 Pipeline (Project). The Project will result in an approximately 14-mile, 10-inch outside diameter crude oil pipeline.

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 location of the proposed Project is described below and depicted on the attached maps. 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 Williams County, North Dakota the pipeline crosses:

- T152N R103W Sections 5 & 6
- T152N R104W Sections 1, 9, 10, 11, 12, & 16
- T153N R102W Sections 8, 9, 10, 17, & 18
- T153N R103W Sections 13, 24, 25, 35, & 36

Plains All American Pipeline, LP  
Fort Buford to Highway 1804 Pipeline Project  
May 22<sup>nd</sup>, 2015



**E3 ENVIRONMENTAL**  
**871 Jefferson Avenue**  
**St. Paul, MN 55102**

In closing, E3 Environmental, LLC has been retained by SWCA Environmental Consultants 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](mailto:kschmidt@go2e3.com).

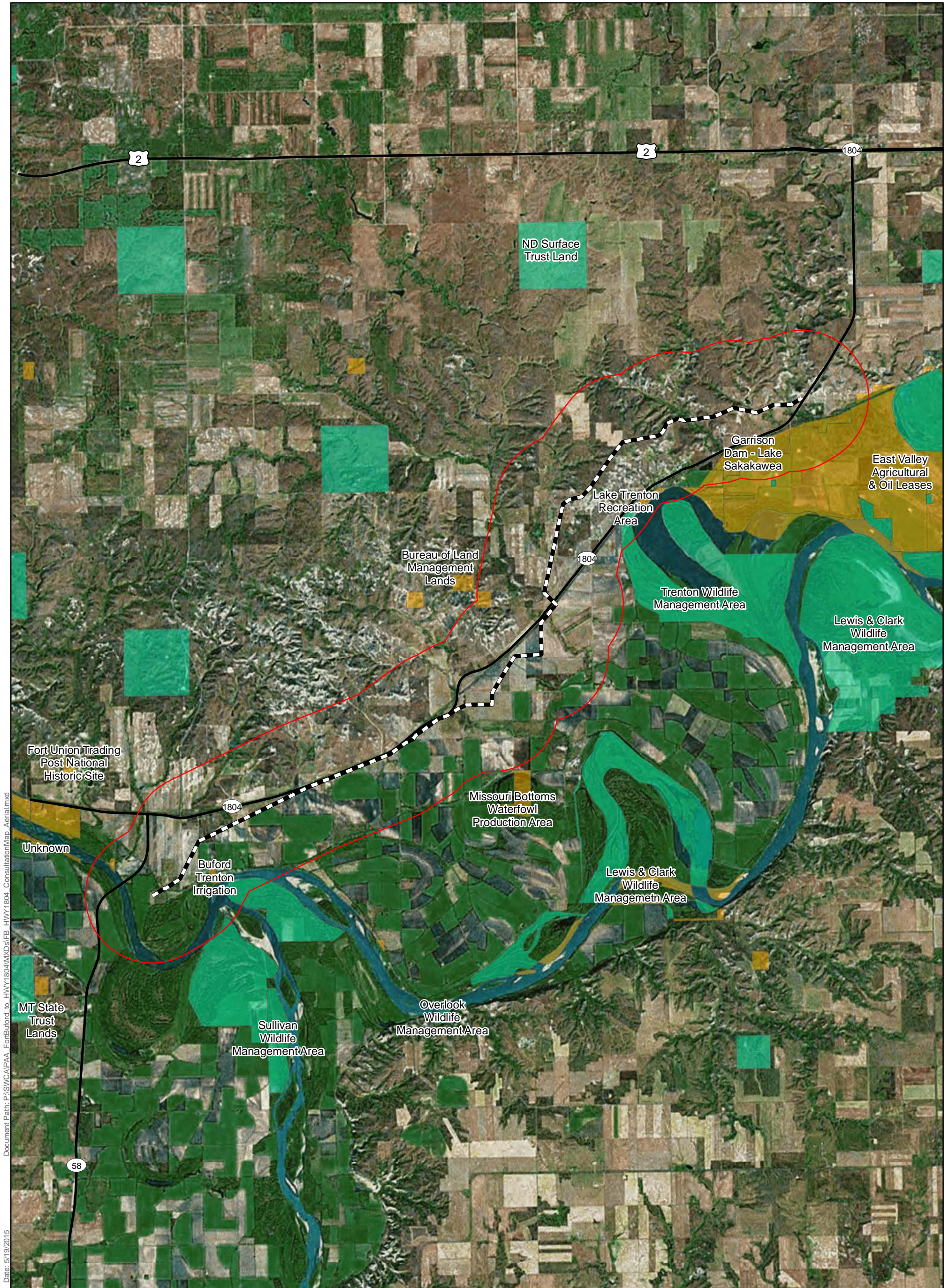
Sincerely,

A handwritten signature in purple ink that reads "Katie Schmidt".

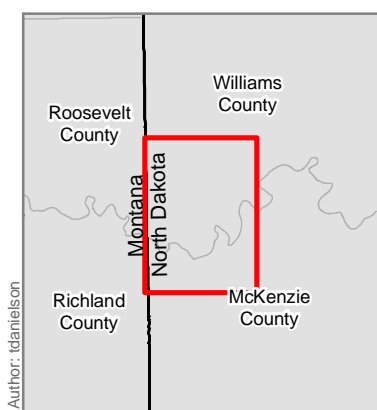
*Katie*  
Katie Schmidt, Senior Consultant  
E3 Environmental, LLC  
871 Jefferson Ave  
St. Paul, MN 55102

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

cc: E3 Project Files

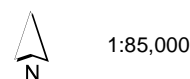
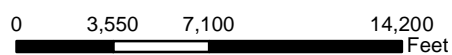


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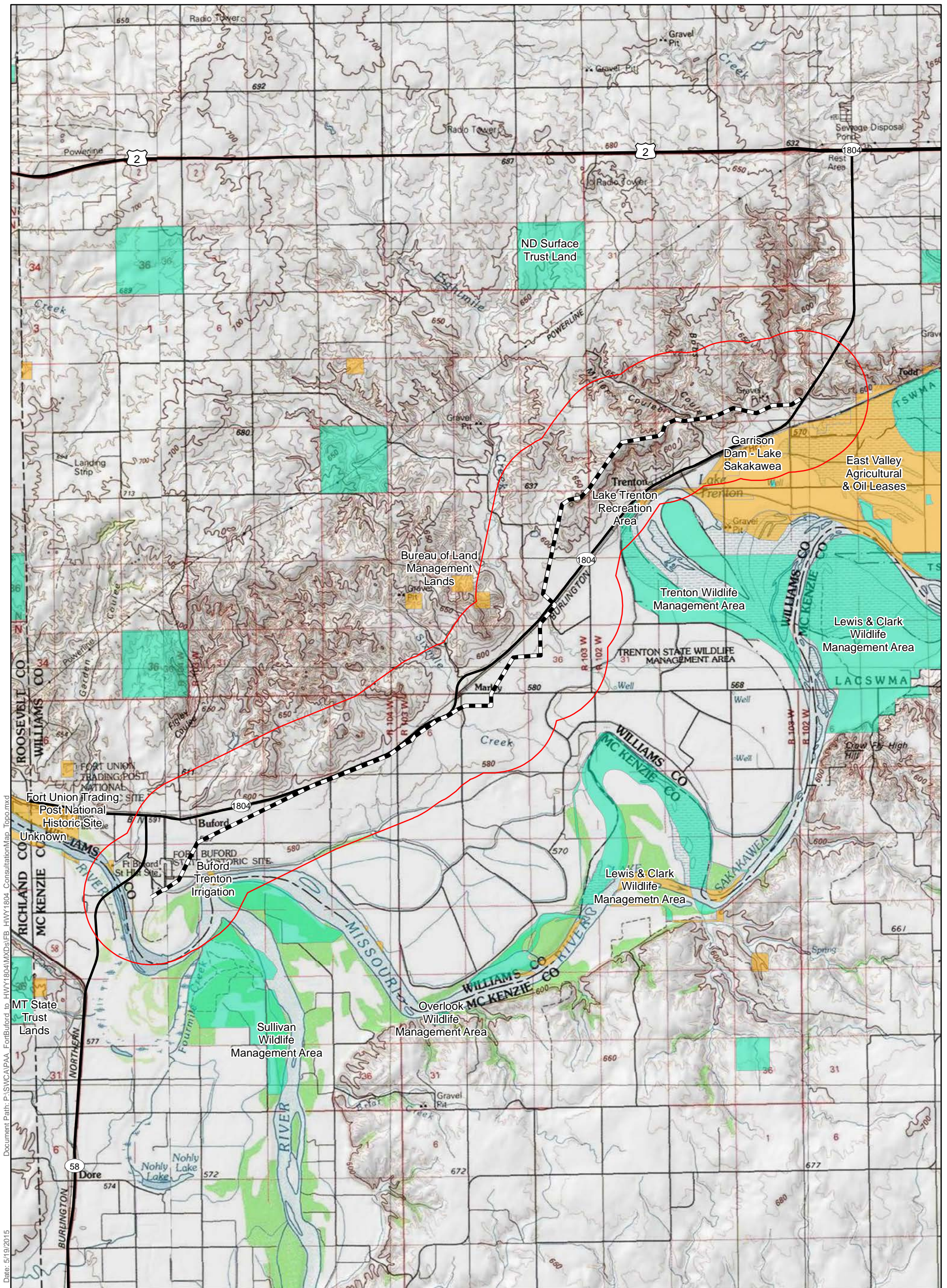
**Legend**

- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
- State Land

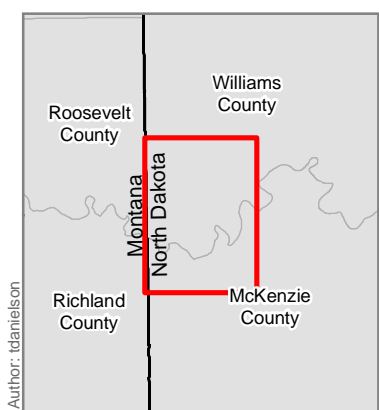


Map not to scale, for environmental review purposes only.

**Plains All American Pipeline, L.P.**  
 Fort Buford to Hwy 1804 Pipeline Project  
 Consultation Map - Aerial  
 Williams County, North Dakota



Date: 5/19/2015  
 Document Path: P:\SWCA\PAAP\_FortBuford to HWY1804\MXD\da\FB\_HWY1804\_ConsultationMap\_Topo.mxd



**Legend**

- Centerline
- Corridor (1 Mile)
- Federal Land
- Native American Land
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1:84,686

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**Plains All American Pipeline, L.P.**

**Fort Buford to Hwy 1804 Pipeline Project**

**Consultation Map - Topo**

Williams County, North Dakota

## Katie Schmidt

---

**From:** Haupt, Michael L. <mhaupt@nd.gov>  
**Sent:** Tuesday, May 26, 2015 7:29 AM  
**To:** Chris Schmidt  
**Cc:** Katie Schmidt  
**Subject:** RE: Plains All American Pipeline, LP: Fort Buford to Highway 1804 Pipeline Project & School Trust Lands Consultation

Chris,

Good morning! There is no ND School Trust land 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](mailto:mhaupt@nd.gov)

Note: You can track the real time status of your right-of-way application 24/7 at <http://www.land.nd.gov/surface/right-of-way.aspx> using either the ROW number or by entering at least the first three letters of the company name. By checking this site you can find the name, telephone number and email address of the person working on the application as well as its current status in real time.

---

**From:** Chris Schmidt [mailto:CSchmidt@go2e3.com]  
**Sent:** Friday, May 22, 2015 3:58 PM  
**To:** Haupt, Michael L.  
**Cc:** Katie Schmidt  
**Subject:** Plains All American Pipeline, LP: Fort Buford to Highway 1804 Pipeline Project & School Trust Lands Consultation

Dear Mr. Haupt,

E3 Environmental, LLC has been retained by SWCA Environmental Consultants to provide environmental consulting support for the Fort Buford to Highway 1804 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 files.

Thank you for your time and consideration.

Sincerely,

**Chris Schmidt, GIT  
Consultant**

E3 Environmental, LLC  
[cschmidt@go2e3.com](mailto:cschmidt@go2e3.com)  
O: 651.282.0654  
M: 651.315.6066  
871 Jefferson Avenue  
St. Paul, MN 55102



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North Dakota State Historic Preservation Office

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Consultation

SHPO Concurrence Pending

# **Appendix D**

---

## Natural Resource Report

**SWCA**<sup>®</sup>

ENVIRONMENTAL CONSULTANTS

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# Natural Resources and Wetland Delineation Report for the North Segment of the Highway 1804 Reroute Pipeline Project, Williams County, North Dakota

Prepared for

**Plains All American, L.P.**

Prepared by

**SWCA Environmental Consultants**

July 2015

**Natural Resources and Wetland Determination Report  
for the North Segment of the Highway 1804 Reroute Pipeline Project,  
Williams County, North Dakota**

Prepared for:

**Plains All American, L.P.**  
333 Clay Street  
Suite 1600  
Houston, Texas 77002

Prepared by:

**Ashley C. Persinger, B.S.**  
**Natural Resource Specialist**

Reviewed by:

**Richard Wadleigh, M.S.**  
**Senior Environmental Analyst**

**SWCA Environmental Consultants**  
**116 North 4th Street, Suite 200**  
**Bismarck, North Dakota 58501**  
**Phone (701) 258-6622, Fax (701) 258-5957**

SWCA Project No. 32369

**July 9, 2015**

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B Survey Area Soil Series Map
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## **1.0 INTRODUCTION**

### **1.1 BACKGROUND**

Plains All American, L.P. (Plains) proposes to construct an approximately 8.5-mile long pipeline located entirely within Williams County, North Dakota. SWCA Environmental Consultants (SWCA) conducted natural resources field surveys to identify exclusion and avoidance areas as specified in North Dakota Administrative Code 69-06-08-02 for the proposed North Segment of the Highway 1804 Reroute Pipeline Project.

As proposed, the 10-inch-diameter Plains North Segment of the Highway 1804 Reroute Pipeline is approximately 8.5 miles long, spanning private lands in North Dakota (Appendix A). The project falls under the jurisdiction of the North Dakota Public Service Commission (NDPSC). E3 Environmental, LLC, is assisting Plains with their application to the NDPSC for a certificate of corridor compatibility and route permit for the project.

SWCA conducted field surveys of a 200-foot-wide survey corridor (100-foot-wide construction right-of-way [ROW]) on May 12 through 14, 2015 and June 24, 2015 (reroutes), to determine the potential presence and extent of wetlands and waterbodies, including potentially jurisdictional waters of the U.S., within the proposed survey area. Concurrently with the wetland/waterbody determinations, SWCA conducted a cursory wildlife surveys including threatened and endangered species survey and habitat assessment; a tree, sapling, and shrub enumeration survey; and a noxious weed survey. Site layout maps of the survey area and natural resource features identified during the field surveys are provided in Appendix A.

This report outlines the methodology used by SWCA's ecologists to complete each of the aforementioned surveys. Additionally, this report presents the results of the completed field surveys and regulatory recommendations to facilitate compliance with the NDPSC and the U.S. Army Corps of Engineers (USACE) Nationwide Permit 12.

### **1.2 REGULATORY BACKGROUND**

#### **1.2.1 Clean Water Act, Section 404**

Section 404 of the Clean Water Act prohibits the discharge of fill material into waters of the U.S., also known as jurisdictional waters, without a permit from the USACE.

#### **1.2.2 USACE Nationwide Permit 12**

The USACE Nationwide Permit 12 authorizes the construction of utility lines and associated facilities in waters of the U.S., provided that the activity does not result in the permanent loss of greater than 0.5 acre of waters of the U.S., including wetlands, and meets the Nationwide Permit General Conditions.

Nationwide Permit 12 requires that the permittee submit a pre-construction notification prior to commencing construction if any of the following criteria are met.

- The activity involves mechanized land clearing in a forested wetland.

- A Section 10 permit is required to cross a navigable waterbody (Rivers and Harbors Act).
- The utility line exceeds 500 feet in length through any single crossing of a water of the U.S.
- The utility line is placed within a jurisdictional area (i.e., water of the U.S.) and it runs parallel to a stream bed that is within that jurisdictional area.
- Discharges result in the permanent loss of greater than 0.1 acre of waters of the U.S.
- Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet.
- Permanent access roads are constructed in waters of the U.S. with impervious materials.

### **1.2.3 U.S. Army Corps of Engineer Regional Conditions**

The USACE has published several regional conditions for projects operating under Nationwide Permits in North Dakota (USACE 2013). The regional conditions apply to wetlands classified as “fens,” waters adjacent to natural springs, the Missouri River, historic properties, and fish spawning areas.

## **2.0 METHODS**

### **2.1 SURVEY AREA**

Overall, northwest North Dakota is characterized by a moderate to cool climate, with cold, dry winters and mild to warm summers. Mean annual precipitation for the area is 14 to 16 inches (Bryce et al. 1998).

The proposed project is located in the Great Plains (level I) ecoregion. Further, the proposed project is located in the Northwestern Great Plains (level III) ecoregion, and the River Breaks (level IV) ecoregion. The Northwestern Great Plains ecoregion is a semiarid rolling plain of shale, siltstone, and sandstone punctuated by occasional buttes and badlands. Native grasslands persist in areas of steep or broken topography, but they have been largely replaced by spring wheat (*Triticum* spp.) and alfalfa (*Medicago sativa*) over most of the ecoregion. The River Breaks ecoregion forms broken terraces and uplands that descend to the Missouri River and its major tributaries. Primary land uses in the ecoregion are grazing, small grain agriculture, and recreation (Bryce et al. 1998). Located in the Missouri River floodplain, the elevation of the survey area varies between 1,858 and 2,254 feet above sea level. Figures 1 and 2 provide an overview of the project area topography.



**Figure 1. Project area overview depicting general topography toward northeast end of pipeline corridor (DP4U), facing south (photo taken May 13, 2015).**



**Figure 2. Project area overview depicting general topography toward southwest end of pipeline corridor (DP1U), facing south (photo taken May 12, 2015).**

The inventoried area discussed herein is situated on the U.S. Geological Survey Dore (1991) and Buford (1976), North Dakota, quadrangles. The proposed project corridor that was surveyed on May 12 through 14, 2015, encompasses portions of 18 sections within four townships and ranges.

- Section 6, Township (T) 152 North (N), Range (R) 103 West (W)
- Sections 1, 2, 10, 11, 15, and 16, T152N, R104W
- Sections 8, 9, 10, 17, and 18, T153N, R102W
- Sections 13, 24, 25, 34, 35, and 36, T153N, R103W

## **2.2 WETLANDS**

National Wetlands Inventory (NWI) mapping for the region indicates the presence of wetlands within the project area (U.S. Fish and Wildlife Service [USFWS] 2012a). SWCA ecologists conducted wetland determinations within the survey area based on the principles and guidelines provided in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Determination Manual: Great Plains Region Version 2.0* (Supplement) (USACE 2010). According to the Manual, an area is a wetland if three mandatory wetland indicators are present in a given area, with special exceptions. These criteria include the presence of hydrophytic vegetation, wetland hydrology, and hydric soils. All wetlands and waterbodies geographically referenced within the survey area during field survey are depicted on the site layout maps in Appendix A.

### **2.2.1 Hydrophytic Vegetation**

Ecologists recorded all plants within the vegetative community based on the respective stratum each species occupied. A tree is defined by the Supplement to be a woody-stemmed plant with a trunk diameter at breast height (DBH) of equal to or greater than 3 inches, regardless of height. The sapling and shrub stratum is defined by the Supplement to be composed of woody-stemmed plants with a trunk DBH of less than 3 inches, regardless of height. The herbaceous stratum includes all non-woody-stemmed plants, regardless of height. Finally, the woody vine stratum includes all woody-stemmed vines, regardless of diameter.

SWCA recorded the binomial scientific name and percent cover of all plants within a 30-foot radius for the tree stratum, a 15-foot radius for the sapling/shrub stratum, a 5-foot radius for the herbaceous stratum, and a 30-foot radius for the woody vine stratum. SWCA ecologists noted each plant species' respective USFWS indicator status (i.e., upland [UPL], facultative upland [FACU], facultative [FAC], facultative wetland [FACW], and obligate [OBL]). In some instances the size and shape of the vegetative sampling plot was manipulated to better encompass each wetland or upland area, though the overall area assessed remained unchanged. Vegetation communities met the hydrophytic vegetation criterion for wetlands if more than 50% of dominant species had an indicator status of FAC, FACW, or OBL. SWCA also noted and geospatially referenced all populations of North Dakota state- or county-listed noxious weeds identified within the survey area.

### **2.2.2 Wetland Hydrology**

A wetland was determined to contain wetland hydrology if at least one primary indicator or at least two secondary indicators of wetland hydrology were present, as defined by the Manual and Supplement. Common hydrologic indicators include the presence of surface water, high water table, soil saturation, water marks on trees or other objects, sediment deposits, water-stained leaves, and oxidized rhizospheres on living roots.

### **2.2.3 Hydric Soil**

Ecologists recorded detailed notes regarding soil profiles including the hue, value, and chroma (i.e., color) of the soil (using Munsell Soil Color Charts), the depth and extent of that soil color within the entire soil profile, the concentration of any redoximorphic concentrations or depletions, and the texture of the soil at each depth where a color change was observed. Soil pits were excavated to a minimum depth of 20 inches at each data point. Common hydric soil indicators of the Northern Great Plains subregion include the presence of hydrogen sulfide gas within the soil pit, redox depressions, redox dark surfaces, and depleted matrix.

## **2.3 WATERBODIES**

Waterbodies (i.e., ponds, creeks, streams, rivers) were identified by the presence of an ordinary high water mark (OHWM). Common identifiable indicators of an OHWM include open water or evidence of a clear, natural line visible on the bank; shelving; changes in soil characteristics; the destruction of terrestrial vegetation; the presence of litter and debris; and water marks on structures that are inundated during normal high water conditions. The OHWM typically represents the potential limits of the USACE jurisdiction. The USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies.

SWCA classified streams as perennial, intermittent, or ephemeral based on field observations. During a typical year, a perennial stream contains flowing water year-round and the water table is located above the stream bed. Groundwater is the primary water source for stream flow, whereas precipitation runoff is supplemental. Ecologists classified streams that showed significant flow during the field survey as perennial. Additionally, the U.S. Geological Survey topographic maps were used as reference.

An intermittent stream has flowing water for only portions of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

## **2.4 NOXIOUS WEED SURVEYS**

SWCA conducted a noxious weed survey of all populations of North Dakota state- or county-listed noxious weeds within the project area.

## **2.5 TREE, SAPLING, AND SHRUB COUNT**

SWCA ecologists determined the total number of trees, saplings, and shrubs present within the survey area using several different techniques, depending on the type of woody vegetation habitat (i.e., forested upland, shrubland, or shelterbelt) encountered and the overall extent of each habitat within the ROW. The boundary of all forested upland, shrubland, and shelterbelt habitat was geographically referenced using a Trimble GeoXT series handheld global positioning system (GPS) unit. In forested upland and shrubland habitat, SWCA counted or estimated the number of all woody-stemmed vegetation with a DBH of  $\geq 1$  inch. In shelterbelt areas, all woody-stemmed vegetation, regardless of DBH, was inventoried via direct count. Ecologists taxonomically identified all recorded individuals to the species level within each habitat type.

## **2.6 WILDLIFE, INCLUDING THREATENED AND ENDANGERED SPECIES**

Prior to conducting field surveys, SWCA reviewed information obtained from the USFWS list of threatened and endangered species by North Dakota county (USFWS 2015) regarding the threatened or endangered species that may occur within the survey area. This document does not represent a comprehensive survey, but rather acknowledges the past and/or current presence of listed species. The lack of discovery of threatened or endangered species does not signify their non-existence within the area, but only that no primary or secondary indications of these species were recorded. SWCA completed a survey for all listed species and suitable habitat.

A line-of-sight binocular survey for raptor species was also conducted for a distance of approximately 0.5 mile. SWCA ecologists noted all wildlife observed during the field survey. Wildlife sightings can involve primary observations (i.e., actual sighting of an animal) or secondary observations (i.e., observation of scat, tracks, or fur deposits).

## **2.7 MAPPING**

The boundaries of each wetland, waterbody, woody vegetation habitat, and noxious weed assemblage were geographically recorded using a Trimble GeoXT GPS unit. The aforementioned GPS unit is capable of recording geographic data with sub-meter accuracy. SWCA used Universal Transverse Mercator Zone 13 North as the projected coordinate system and North American Datum 1983 as the datum. ArcGIS v10.0 (ESRI Redlands, California) was used to analyze recorded features, calculate areas, and generate the maps provided in Appendix A and Appendix B. All data collected using the GPS unit, and displayed on the attached maps, are for review purposes only and do not represent a professional civil survey.

# **3.0 RESULTS**

## **3.1 VEGETATION**

During the field survey, SWCA ecologists identified four general types of vegetative communities within the survey area. These vegetative communities were classified as

herbaceous upland, shrubland and upland woody vegetation, cropland, and palustrine emergent (PEM) wetland. PEM wetlands are characterized by the presence of herbaceous hydrophytic or submergent aquatic macrophytes. Photographs of the survey area are provided in Appendix C.

Vegetation communities met the hydrophytic vegetation criterion for wetlands if more than 50% of dominant species had an indicator status of FAC, FACW, or OBL. The upland communities failed to meet at least one of the three assessed wetland criteria.

### **3.1.1 Herbaceous Upland**

The herbaceous upland community consists of areas dominated by non-woody vegetation such as grasses and forbs. Herbaceous upland species observed consisted of smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), Kentucky bluegrass (*Poa pratensis*), western snowberry (*Symphoricarpos accidentalis*), buffalograss (*Bouteloua dactyloides*), wand panic grass (*Panicum virgatum*), side-oats grama (*Bouteloua curtipendula*), blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), little bluestem (*Schizachyrium scoparium*), gayfeather (*Liatris* spp.), old-man's-whiskers (*Geum triflorum*), prickly-pear (*Opuntia* spp.), field pussytoes (*Antennaria neglecta*), common yarrow (*Achillea millefolium*), fringed sagewort (*Artemisia frigida*), and soapweed yucca (*Yucca glauca*).

### **3.1.2 Shrubland and Woody Vegetation**

Shrubland communities occurring throughout the survey area consisted of upland areas dominated by woody-stemmed vegetation, including western snowberry, chokecherry (*Prunus virginiana*), American plum (*Prunus americana*), coaltown sagebrush (*Artemesia cana*), Siberian peashrub (*Caragana arborescens*), creeping juniper (*Juniperus horizontalis*), prairie rose (*Rosa arkansana*), and silver buffaloberry (*Sheperdia argentea*).

Forested upland vegetation consisted of green ash (*Fraxinus pennsylvanica*), Siberian elm (*Ulmus pumila*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoids*), Russian olive (*Elaeagnus angustifolia*), Rocky Mountain juniper (*Juniperus scopulorum*), ponderosa pine (*Pinus ponderosa*), box elder (*Acer negundo*), northern bush-honeysuckle (*Diervilla lonicera*), four-line honeysuckle (*Lonicera involucrata*), and chokecherry.

### **3.1.3 Cropland**

Croplands confirmed in the survey area were planted with hard red spring wheat (*Triticum aestivum*) and field peas (*Pisum* spp.).

### **3.1.4 Hydrophytic Vegetation**

Aquatic vegetation species confirmed during the survey included reed canarygrass (*Phalaris arundinacea*), narrow-leaf willow (*Salix exigua*), common reed (*Phragmites australis*), freshwater cordgrass (*Spartina pectinata*), baltic rush (*Juncus balticus*), and saltgrass (*Distichlis spicata*).

### **3.2 HYDROLOGY**

Wetland communities observed during the determination effort displayed at least one primary or two secondary indicators of wetland hydrology, as defined by the Manual and Supplement. Upland communities either failed to display hydrologic indicators or failed to meet the hydrophytic vegetation criterion, as defined by the Manual and Supplement. Common indicators of wetland hydrology observed during field surveys include Surface Water (A1), Drift Deposits (B3), Inundation Visible on Aerial Imagery (B7), Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9), and Geomorphic Position (D2).

According to National Weather Service preliminary climatological data for Williston, North Dakota (approximately 1 mile east of the project area), 4.46 inches of precipitation were recorded from March 1 through June 24, 2015 (Table 1). This amount is 1.69 inches below normal for this time period.

**Table 1. Monthly Recorded Rainfall at National Weather Service Station in Williston, North Dakota**

<b>Month</b>	<b>Recorded Precipitation (inches)</b>	<b>Normal Precipitation (inches)</b>	<b>Difference (inches)</b>
March 2015	0.47	0.71	-0.24
April 2015	0.27	1.00	-0.73
May 2015	1.82	1.92	-0.10
June 2015	1.90	2.52	-0.62
<b>Total</b>	<b>4.46</b>	<b>6.15</b>	<b>-1.69</b>

Source: National Oceanic and Atmospheric Administration (2014).

### **3.3 WETLANDS**

No wetlands were identified by SWCA ecologists within the survey area. Several upland data points were taken at low lying areas that exhibited one or two of the wetland criteria, however were determined to be within the upland (Appendix A).

### **3.4 WATERBODIES**

SWCA recorded five streams within the survey area, totaling approximately 0.232 acre (Table 2). Contingent on the time of construction and water flow, Plains would either directionally bore streams or trench and cover as soon as practical. A maximum of approximately 0.098 acre of stream is proposed to be temporarily impacted in the 100-foot-wide construction ROW. In addition to the recorded waterbodies, SWCA also recorded one upland swale (Appendix A). These areas did not show indicators of OWHM and UPL or FACU vegetation species were dominant in the plant communities. The USACE has the final authority to determine jurisdictional status of any stream.

**Table 2. Waterbody Acreage within the Survey Area**

<b>Feature ID</b>	<b>Waterbody Type</b>	<b>USACE Jurisdiction*</b>	<b>Total Size (acres)</b>	<b>Temporarily Impacted Area within 100-foot-wide ROW (acres)</b>	<b>Length of Required Crossing (feet)</b>
Stream 1	Perennial Stream – Eight-Mile Creek	Jurisdictional	0.034	0.020	3 and 180
Stream 3	Ephemeral Stream	Jurisdictional	0.025	0.012	3
Stream 4	Ephemeral Stream	Isolated	0.014	0.007	3
Stream 5	Perennial Stream – Painted Woods Creek	Jurisdictional	0.015	0.010	3
Stream 6	Intermittent Stream	Jurisdictional	0.144	0.049	3
<b>Total</b>			<b>0.232</b>	<b>0.098</b>	<b>195</b>

\* The USACE has the final authority on the jurisdictional status of a waterbody.

ROW = right-of-way

USACE = U.S. Army Corps of Engineers

### 3.5 SOILS

Based on Natural Resources Conservation Service (NRCS) mapping (NRCS 2014) (Appendix B), 24 soil types are present in the project construction corridor. The project area analyzed for soils covers the 100 to 75-foot-wide construction corridor. Table 3 lists all soil units within the project area. The following soil component descriptions represent the most prevalent soil series found within the survey area (NRCS 2014).

**Table 3. NRCS Derived Soil Series Present within the 100-foot-wide ROW**

<b>Soil Types</b>	<b>Slopes (%)</b>	<b>Acres within Construction ROW</b>	<b>Percent within Map Unit</b>
Zahl-Cabba-Maschetah complex	6 to 70	14.50	14.17
Williams-Bowbells loams	3 to 6	13.72	13.40
Lawther silty clay	0 to 2	13.45	13.14
Shambo loam	0 to 2	12.64	12.35
Korchea loam, occasionally flooded	0 to 2	7.10	6.94
Williams-Zahl loams	6 to 9	6.81	6.65
Amor-Zahl-Cabba loams	9 to 25	5.41	5.29
Cabba-Badland complex	6 to 70	4.73	4.62
Williams-Zahl loams	6 to 9	3.72	3.63
Savage silty clay loam	2 to 6	2.75	2.68
Korchea-Fluvaquents complex, channeled, frequently flooded	0 to 2	2.18	2.13
Savage-Grail silty clay loams	0 to 2	2.08	2.04
Zahl-Williams loams	9 to 15	1.96	1.91

Soil Types	Slopes (%)	Acres within Construction ROW	Percent within Map Unit
Livona fine sandy loam	0 to 6	1.82	1.78
Farland silt loam	2 to 6	1.78	1.74
Cherry silt loam	6 to 9	1.62	1.58
Wabek-Appam sandy loams	6 to 25	1.58	1.54
Vebar-Cohagen-Zahl Complex	9 to 25	1.07	1.05
Daglun-Rhodes complex	0 to 6	0.96	0.95
Tally-Parshall fine sandy loams	2 to 6	0.82	0.80
Amor-Williams-Zahl loams	3 to 9	0.49	0.48
Cherry silt loam	0 to 6	0.44	0.42
Appam sandy loam	0 to 2	0.43	0.41
Williams-Bowbells loams	3 to 6	0.31	0.30
<b>Total</b>		<b>102.37</b>	<b>100.00</b>

Source: Natural Resources Conservation Service (2014).

ROW = right-of-way

### **3.5.1 Zahl**

The Zahl series consists of very deep, slowly permeable, well-drained soils found on glacial till plains, moraines, and valley side slopes at approximately 1 to 60 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 40°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass, little bluestem, and needle and thread (*Hesperostipa comata*) (NRCS 2014).

### **3.5.2 Cabba**

The Cabba series consists of shallow, well-drained, moderately permeable soils found on hills, escarpments, and sedimentary plains. The soil slopes broadly range between 2 and 70 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches and mean annual air temperature is approximately 43°F. The most common vegetation species found on this soil type are little bluestem, green needlegrass (*Nasella viridula*), and other various herbs, forbs, and shrub species (NRCS 2014).

### **3.5.3 Maschetah**

The Maschetah series consists of very deep, well-drained soils found on sedimentary plains and hills. Slopes range from approximately 0 to 45 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 17 inches and mean annual air temperature is approximately 43°F. This soil type is used for rangeland foraging and cultivation of small grains. Native vegetation species common to this soil type include western wheatgrass, blue grama, green needlegrass, and fringed sagewort (NRCS 2014).

### **3.5.4 Williams**

The Williams series consists of very deep, slowly permeable, well-drained soils found on glacial till plains and moraines with slopes at approximately 0 to 35 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 42°F. This soil type is largely used for cultivation. Native vegetation species common to this soil type include western wheatgrass, needle and thread, blue grama, and green needlegrass (NRCS 2014).

### **3.5.5 Bowbells**

The Bowbells series consists of very deep, well- and moderately well-drained soils found on glacial till plains and moraines. Permeability is moderate in the upper portions and moderately slow to slow in the substratum. Slopes range from approximately 0 to 9 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 42°F. This soil type is used for cultivation of small grains. Native vegetation species historically common to this soil type include western wheatgrass, green needlegrass, and big bluestem (*Andropogon gerardii*) (NRCS 2014).

### **3.5.6 Lawther**

The Lawther series consists of very deep, somewhat excessively or well-drained soils that formed in sandy alluvium, glaciofluvial, and eolian deposits that are in places over till or sedimentary bedrock. These soils are on stream terraces, dunes, sedimentary plains, and till plains. Slopes are 0 to 45 percent. The mean annual precipitation found throughout the spatial extent of this soil type is about 13 inches, and mean annual temperature is about 43 degrees Fahrenheit (°F). Native vegetation species common to this soil type include needle and thread, prairie sandreed (*Calamovilfa longifolia*), Indian ricegrass (*Achnatherum hymenoides*), and little bluestem (NRCS 2014).

### **3.5.7 Shambo**

The Shambo series consists of deep and very deep, well-drained, moderately permeable soils that formed in calcareous alluvium mainly from soft sandstone, mudstone, and shale. These soils are on terraces and fans along stream valleys and are on fans on uplands. Slope ranges from 0 to 35 percent. The mean annual precipitation found throughout the spatial extent of this soil type is 15 inches and mean annual air temperature is 42°F. Soils are cropped to small grains, hay, and pasture; some areas are irrigated and some are in native rangeland. Native vegetation includes green needlegrass, needle and thread, western wheatgrass, prairie Junegrass (*Koeleria macrantha*), blue grama, and a variety of forbs (NRCS 2014).

## **3.6 NOXIOUS WEEDS**

“Noxious weeds” is a general term used to describe plant species that are not native to a given area, spread rapidly, and have adverse ecological and economic impacts. These species may have high reproduction rates and are usually adapted to occupy a diverse range of habitats otherwise occupied by native species. These species may subsequently out-compete native plant species for resources, causing a reduction in native plant populations.

Noxious weeds have the potential to detrimentally affect public health, ecological stability, and agricultural practices. North Dakota Century Code (Chapter 63-01.1) and the North Dakota Department of Agriculture recognize 11 species as noxious, as shown in Table 4 (North Dakota Department of Agriculture 2013). In 2012, five noxious weed species were found on 39,192 acres in Williams County.

**Table 4. Documented Noxious Weed-Occupied Area in Williams County, North Dakota**

Common Name	Scientific Name	Williams County (acres)
Absinth wormwood	<i>Artemisia absinthium</i>	0
Canada thistle	<i>Cirsium arvense</i>	9,400
Diffuse knapweed	<i>Centaurea diffusa</i>	0
Leafy spurge	<i>Euphorbia esula</i>	10,190
Musk thistle	<i>Carduus nutans</i>	0
Purple loosestrife	<i>Lythrum salicaria</i>	1
Russian knapweed	<i>Acroptilon repens</i>	0
Spotted knapweed	<i>Centaurea stoebe</i>	5
Yellow toadflax	<i>Linaria vulgaris</i>	0
Dalmatian toadflax	<i>Linaria dalmatica</i>	0
Salt cedar	<i>Tamarix ramosissima</i>	19,596

Source: North Dakota Department of Agriculture (2013).

No noxious weeds were noted during the survey for the proposed North Segment of the Highway 1804 Reroute Pipeline Project.

### **3.7 TREE, SAPLING, AND SHRUB COUNT**

During SWCA’s field survey, 16 upland tree and shrubland areas were geographically referenced within the survey area. SWCA recorded all trees and shrubs with a DBH of greater than 1 inch. Table 5 summarizes the number of trees estimated to be impacted by the project as currently proposed. The NDPSC requires a 2:1 post- to pre-construction mitigation for all trees, saplings, and shrubs impacted during the construction of the proposed pipeline. Therefore, SWCA estimates that approximately 196 2-year-old sapling individuals would need to be replanted in order to fulfill the 2:1 mitigation requirement.

**Table 5. Tree, Sapling, and Shrub Count**

Woody Vegetation (WV) ID	Species	Type	Number of Trees		Estimated Mitigation Commitment *
			Survey Corridor	50-foot-wide Tree Mitigation Corridor	
WV1	Chokecherry ( <i>Prunus virginiana</i> )	Natural	20	0	0
WV2	Green ash ( <i>Fraxinus pennsylvanica</i> )	Natural	1	1	2
WV3	Green ash	Natural	1	0	0
WV7	Green ash	Natural	60	16	32
	Silver buffaloberry ( <i>Shepherdia argentea</i> )	Natural	30	8	16
	Chokecherry	Natural	5	1	2
	Northern bush-honeysuckle ( <i>Diervilla lonicera</i> )	Natural	15	4	8
WV8	Green ash	Natural	3	2	4
	Chokecherry	Natural	5	3	6
	Silver buffaloberry	Natural	5	3	6
WV9	Chokecherry	Natural	10	5	10
	Silver buffaloberry	Natural	20	9	18
	Green ash	Natural	3	1	2
WV10	Green ash	Natural	3	0	0
	Silver buffaloberry	Natural	10	0	0
WV11	Green ash	Natural	8	4	8
	Silver buffaloberry	Natural	1	1	2
	Chokecherry	Natural	2	1	2
WV12	Green ash	Natural	8	7	14
	Silver buffaloberry	Natural	12	11	22
	Northern bush-honeysuckle	Natural	5	5	10
	Four-line honeysuckle ( <i>Lonicera involucrata</i> )	Natural	1	1	2
WV13	Green ash	Natural	1	1	2
	Silver buffaloberry	Natural	10	3	6

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Woody Vegetation (WV) ID	Species	Type	Number of Trees		Estimated Mitigation Commitment *
			Survey Corridor	50-foot-wide Tree Mitigation Corridor	
WV14	Green ash	Natural	4	1	2
	Eastern cottonwood	Natural	15	5	10
	Siberian elm	Natural	1	0	0
	Silver buffaloberry	Natural	3	1	2
WV15	Green ash	Natural	5	0	0
	Chokecherry	Natural	2	0	0
	Eastern cottonwood	Natural	2	0	0
	Silver buffaloberry	Natural	8	0	0
	Siberian elm	Natural	2	0	0
WV16 **	Silver buffaloberry	Natural	2	0	0
	Chokecherry	Natural	1	0	0
WV17 **	Silver buffaloberry	Natural	2	0	0
WV18	Silver buffaloberry	Natural	5	0	0
WV19	Chokecherry	Natural	1	1	2
	American plum ( <i>Prunus americana</i> )	Natural	5	3	6
<b>Total</b>			<b>297</b>	<b>98</b>	<b>196</b>

\* Estimated value based on the observed density of trees.

\*\* Located within abandoned survey corridor.

### 3.8 WILDLIFE

Several wildlife species that may exist in Williams County are listed as threatened or endangered under the Endangered Species Act (ESA) (16 United States Code 1531 et seq.). According to the USFWS, listed species in Williams County, North Dakota, include the gray wolf (*Canis lupus*), whooping crane (*Grus americana*), pallid sturgeon (*Scaphirhynchus albus*), rufa red knot (*Calidris canutus rufa*), northern long-eared bat (*Myotis septentrionalis*), interior least tern (*Sterna antillarum*), and piping plover (*Charadrius melodus*) and its designated critical habitat. One additional species has USFWS designations: Sprague's pipit (*Anthus spragueii*) is a candidate species (USFWS 2015). SWCA conducted a cursory threatened and endangered species survey concurrently with the wetland determination. Ecologists did not observe any primary (i.e., actual sighting) or secondary (i.e., tracks, scat, fur) indication of the presence of threatened or endangered species.

#### 3.8.1 Gray Wolf

**Federal Status:** Endangered

The gray wolf, listed as endangered in the United States in 1978, was believed extirpated from North Dakota in the 1920s and 1930s, with only sporadic reports from the 1930s to present (Licht and Huffman 1996; USFWS 1978). The presence of wolves in most of North Dakota consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts 1994; Licht and Huffman 1996). Most documented gray wolf sightings within western North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). The Turtle Mountain region of north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population located approximately 17 miles (28 kilometers [km]) from the northeast corner of North Dakota.

The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2013a). Due to a lack of forested habitat and distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and their vulnerability to being shot in open habitats (Licht and Huffman 1996), the re-establishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation may further act as a barrier against wolf recolonization in western North Dakota. The gray wolf is not expected to be impacted by the proposed project.

#### 3.8.2 Whooping Crane

**Federal Status:** Endangered

The whooping crane was listed as endangered in 1970 in the United States by the USFWS and in 1978 in Canada. Historically, population declines were caused by shooting and destruction of nesting habitat in the prairies from agricultural development. Current threats to the species include habitat destruction, especially suitable wetland habitats that support breeding and nesting, as well as feeding and roosting during their fall and spring migration (Canadian Wildlife Service and USFWS 2007).

The July 2010 total wild population was estimated at 383 (USFWS 2013b). There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, where approximately 83% of the wild nesting sites occur (Canadian Wildlife Service and USFWS 2007; USFWS 2013b). Williams County, including the project area, is within the primary migratory flyway of whooping cranes.

Whooping cranes probe the soil subsurface with their bills for foods on the soil or vegetation substrate (Canadian Wildlife Service and USFWS 2007). Whooping cranes are omnivores, and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers. The largest amount of time during migration is spent feeding in harvested grain fields (Canadian Wildlife Service and USFWS 2007). Studies indicate that whooping cranes use a variety of habitats during migration, in addition to cultivated croplands, and generally roost in small palustrine (marshy) wetlands within 0.6 mile (1 km) of suitable feeding areas (Howe 1987, 1989). Whooping cranes have been recorded in riverine habitats during their migration, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and USFWS 2007:18). In these cases, they roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

Suitable whooping crane foraging habitat (i.e., cultivated cropland and wetlands >0.04 hectare) was observed within the survey area. In addition, the project area is located within the migratory corridor for the whooping crane, with the nearest sighting approximately 6.3 miles southwest of the proposed alignment (unpublished data, M. Tarcha, USFWS). The surface disturbance and changes to native vegetation due to the project are unlikely to adversely affect whooping cranes. The USFWS should be contacted if any whooping cranes are observed within one mile of the construction right-of-way. If the proposed activity follows these recommendations, the whooping crane is not expected to be impacted by the proposed project.

### **3.8.3 Piping Plover**

#### **Federal Status:** Threatened

The piping plover is a small shorebird which breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. Piping plover populations were federally listed as threatened and endangered in 1985, with the Northern Great Plains and Atlantic Coast populations listed as threatened, and the Great Lakes population listed as endangered (USFWS 1985a).

Plovers in the Great Plains make their 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 (USFWS 2002, 2012b). The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird. Piping plovers nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2012b). The birds fly south by mid- to late August to areas

along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988, 2012b).

Suitable shoreline habitat for breeding and nesting plovers does not occur within the project area; however, the shoreline of the Missouri River is approximately 10,150 feet or 1.93 miles, at its closest, from the disturbance corridor. Potential pollution occurring as a result of construction activities, hydrostatic testing, and pipeline operations is a concern for downstream populations of piping plovers. Continuous monitoring of input and output volumes and pressures would detect leaks in the pipeline. Given standard protective measures and BMPs, the potential for disturbance or adverse effects from construction, operation, and reclamation of the project is extremely small. Construction crews will be instructed to ensure no activity within 0.5-mile line-of-sight of the shoreline of the Missouri River during the nesting period (April 1–August 31), although a smaller distance may be acceptable if there is a visual barrier between the construction site and the shoreline. Potential nesting habitat was avoided during the site selection/on-site process. The piping plover is not expected to be impacted by the proposed project.

#### **3.8.4 Designated Critical Habitat of Piping Plover**

The USFWS has designated critical habitat for the Great Lakes and Northern Great Plains populations of piping plover (USFWS 2002). Designated critical habitat for the piping plover includes 183,422 acres and 1,207.5 river miles of habitat, including areas near the proposed project, along the shoreline of the Missouri River (USFWS 2002).

The proposed project will not modify, alter, disturb, or affect the shoreline of the Missouri River, or designated alkaline lakes. The Missouri River is approximately 10,150 feet at its closest to the disturbance corridor. Several small tributaries will be crossed by the proposed pipeline. Potential pollution occurring as a result of construction activities, hydrostatic testing, and pipeline operations is a concern for designated critical habitat. Continuous monitoring of input and output volumes and pressures would detect leaks in the pipeline. Given standard protective measures and BMPs, the potential for disturbance or adverse effects from construction, operation, and reclamation of the project is extremely small. The proposed project would not modify, alter, disturb, or affect the shoreline of Lake Sakakawea or the Missouri River, but is within the same watershed as the Missouri River.

#### **3.8.5 Interior Least Tern**

##### **Federal Status:** Endangered

The interior population of the least tern is listed as endangered by the USFWS (1985b). This bird is the smallest member of the gull and tern family, measuring approximately 9 inches in length. Terns remain near flowing water, where they feed by hovering over and diving into standing or flowing water to catch small fish (USFWS 2013c).

The interior population of least terns breeds in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems, where they nest in small colonies. From late April to August, terns nest in a shallow hole scraped in an open sandy area, gravel patch, or exposed flat and bare sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. The adults continue to care for chicks after they hatch. Least terns in North Dakota will often be found sharing sandbars with the piping plover, a threatened species (USFWS 2013c).

Census data indicate over 8,000 least terns in the interior population. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe, and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea (USFWS 1990a, 2013c). Approximately 100 pairs breed in North Dakota (USFWS 2013c). Details of their migration are not known, but their winter range is reported to include the Gulf of Mexico and Caribbean Islands (USFWS 1990a, 2013c).

Loss of suitable breeding and nesting habitat for terns has resulted from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande river systems. River and reservoir changes have led to reduced sandbar formation and other shoreline habitats for breeding, resulting in population declines. In addition, other human shoreline disturbances affect the species (USFWS 1990a). Critical habitat has not been designated for the species (USFWS 2013c). Current conservation strategies include identification and avoidance of known nesting areas, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 2013c).

Suitable shoreline habitat for breeding and nesting terns occurs along the Missouri River, approximately 1.93 straight-line mile from the project area. It is unlikely, but possible, that terns would visit the upland or wetland habitats present in the disturbance area. Given standard protective measures and BMPs, the potential for disturbance or adverse effects from construction, operation, and reclamation of the project is extremely small. The interior least tern is not expected to be impacted by the proposed project.

### **3.8.6 Pallid Sturgeon**

#### **Federal Status:** Endangered

The pallid sturgeon was listed as endangered in 1990 in the United States by the USFWS (1990b). The primary factor leading to the decline of this species is the alteration of habitat through river channelization, creation of impoundments, and alteration of flow regimes (USFWS 1990b). These alterations within the Missouri River have blocked movements to spawning, feeding, and rearing areas; destroyed spawning habitat; altered flow conditions, which can delay spawning cues; and reduced food sources by lowering productivity (USFWS 2007). The fundamental elements of pallid sturgeon habitat are defined as the bottom of swift waters of large, turbid, free-flowing rivers with braided channels, dynamic flow patterns, flooding of terrestrial habitats, and extensive microhabitat diversity (USFWS 1990b).

The pallid sturgeon populations occur in the Missouri River below Fort Peck Dam to the headwaters of Lake Sakakawea and the lower Yellowstone River up the confluence of the Tongue River, Montana (USFWS 2007a). This population consists of approximately 136 wild adult pallid sturgeon (USFWS 2007a). Hatchery-reared sturgeon have also been stocked since

1998. The pallid sturgeon has been found to use the 15.5 miles (25 km) of riverine habitat that would be inundated by Lake Sakakawea at full pool (Bramblett 1996, cited in USFWS 2007a). Larval pallid sturgeons have also been found to drift into Lake Sakakawea. While the majority of pallid sturgeons are found in the headwaters of Lake Sakakawea, the North Dakota Game and Fish Department has caught and released pallid sturgeon in nets set in 80 to 90 feet of water between the New Town and Van Hook areas. Based on this information, pallid sturgeon could be found throughout Lake Sakakawea (personal communication, email from Steve Krentz, Pallid Sturgeon Project Lead, USFWS, to SWCA, September 3, 2010).

Suitable habitat for pallid sturgeon does not occur within the disturbance area. However, the confluence of the Missouri and Yellowstone Rivers, which includes the pallid sturgeon Great Plains Management Unit, is approximately 24,500 feet from the nearest southern end of the disturbance corridor. In addition, the project area is 1.93 mile from the Missouri River floodplain and some tributary streams will be crossed by the proposed pipeline. Potential pollution occurring as a result of construction activities, hydrostatic testing, and pipeline operations is a concern for downstream populations of endangered pallid sturgeon. Continuous monitoring of input and output volumes and pressures would detect leaks in the pipeline. Given standard protective measures and BMPs, the potential for disturbance or adverse effects from construction, operation, and reclamation of the project is extremely small. Activities associated with the proposed project are not anticipated to adversely affect water quality. The pallid sturgeon is not expected to be impacted by the proposed project.

### **3.8.7 Rufa Red Knot**

#### **Federal Status:** Threatened

The rufa red knot is a robin-sized shorebird that migrates long distances annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the southeast United States, the northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego at the southern tip of South America (USFWS 2013d). During migration, rufa red knots use key staging and stopover areas to rest and feed. In North Dakota, the red knot is a very rare migrant (USFWS 2013d). There are no known records of rufa red knot in the project vicinity; however, this species could use habitat along Lake Sakakawea as a stopover during migration.

Potential habitat along the river is approximately 1.93 straight-line mile from the proposed project. Potential spills and sedimentation occurring within the project area are concerns for downstream water quality and could indirectly affect suitable stopover habitat for the rufa red knot. Given standard protective measures and BMPs, activities associated with the construction, production, or reclamation of the proposed project are not anticipated to adversely affect suitable stopover habitat for the rufa red knot. The rufa red knot is not expected to be impacted by the proposed project.

### **3.8.8 Sprague's Pipit**

#### **Federal Status:** Candidate

The Sprague's pipit is a small passerine, 4 to 6 inches in length, endemic to the Northern Great Plains (USFWS 2011). The Sprague's pipit requires large tracts of native prairie habitat, unplowed, throughout its life cycle. Because native grasslands are disturbance-dependent, Sprague's pipit prefers grassland habitats that are regularly disturbed. The frequency of

disturbance required for habitat maintenance depends on how quickly grasses grow to an intermediate height (4 to 12 inches) following a disturbance event.

In North Dakota, Sprague's pipit has been found in areas of moderate grazing. Sprague's pipits are sensitive to patch size and avoid edges between grasslands and other habitat features (USFWS 2011). They may avoid non-grassland features, including roads, trails, oil wells, croplands, woody vegetation, and wetlands. The Sprague's pipit is reported to stay up to 350 meters away from anthropogenic features such as roads, oil wells, and wind turbines (USFWS 2011). The USFWS has estimated that each new oil well and associated road in North Dakota results in potential impacts to approximately 51 acres of pipit habitat due to avoidance and habitat fragmentation (USFWS 2011). Because of increasing habitat fragmentation, especially by energy development, throughout the Sprague's pipit range, combined with the loss of native prairie habitat, the Sprague's pipit was listed as a Candidate Species under the ESA in 2010 (USFWS 2011).

In North Dakota, Sprague's pipit breeds throughout the state except for the easternmost counties. During the breeding season, they prefer large patches of well-drained, open native grassland with a minimum size of 358.3 acres (range = 170 to 776 acres). They have not been observed in areas smaller than 71.6 acres on their breeding grounds (USFWS 2011).

Native prairie habitat with grasses of intermediate height does occur within the project area. However, the project area is heavily fragmented by agriculture, roads, and oil and gas development. The proposed project is unlikely to directly affect habitat due to the lack of adequate patch sizes required by the Sprague's pipit for breeding grounds in the immediate project area, but it may indirectly contribute to reduced use of any nearby suitable grassland habitat patches within 350 meters of the proposed project. Sprague's pipit is not expected to be impacted by the proposed project.

### **3.8.9 Northern Long-eared Bat**

#### **Federal Status:** Threatened

On October 2, 2013, the USFWS proposed the northern long-eared bat for listing as threatened under the ESA (USFWS 2013e). This medium-sized bat ranges across the eastern and north-central United States and all of the Canadian provinces (USFWS 2013f). Throughout most of this species' range, populations are patchily distributed. They emerge at dusk to fly through the understory of forested hillsides and ridges, feeding on moths, flies, leafhoppers, caddisflies, and beetles.

Most records of northern long-eared bats are from winter hibernacula surveys, with more than 780 hibernacula identified within the United States. No known hibernacula are located in North Dakota, due either to a lack of suitable hibernacula present or to a lack of survey efforts (USFWS 2013f). This bat species occupies a wide range of rocky and forested habitats. Suitable winter habitat contains large caves and mines (USFWS 2013e). Summer day roosts include abandoned buildings, bridges, hollow trees, stumps, under loose bark, and rock fissures (Jones and Choate 1978). The summer roosting period is from May through October. If woody vegetation is cleared during this period, a qualified biologist should identify any

potential roost trees. If potential roost trees are identified further site investigations are recommended.

Northern long-eared bats are not known to occur in the survey area. Suitable winter habitat for northern long-eared bats does not occur within the project area. Nearby trees and rocky outcrops can act as suitable summer day roosts. If these recommendations are followed, the northern long-eared bat is not expected to be impacted by the proposed project.

### **3.8.10 Migratory Birds**

Suitable habitat for migratory birds exists in the entire project area. Specifically, grassland nesting birds have the potential to occur and nest in the project area, especially during the migratory bird breeding season between February 1 and July 15. Suitable woodland nesting habitat occurs in the project area, but it is minimal. To minimize or reduce potential impacts of the proposed project on migratory birds one or a combination of the following should be completed by Plains.

1. Construction would be conducted to avoid the breeding season (February 1 – July 15);
2. Regularly mow vegetation in the ROW prior to February 1 and maintain through July 15;
3. Conduct a field survey for nesting migratory birds within 5 days of construction commencement.

If any active nests of migratory birds are discovered, construction should halt and the USFWS would be contacted for further direction. If these recommendations are followed, then migratory birds are not expected to be impacted by the proposed project.

### **3.8.11 Bald Eagle**

**Federal Status:** Delisted in 2007; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

The bald eagle (*Haliaeetus leucocephalus*) feeds on fish and carrion and typically roosts in large trees near a water source. Bald eagle nesting habitat is typically any mature stands of conifer (*Pinophyta* sp.) or cottonwood (*Populus* sp.) trees in association with rivers, streams, reservoirs, lakes, or any significant body of water. Bald eagles in North Dakota are usually observed along the Missouri River (Gomes n.d.) and Yellowstone River. Bald eagles frequently migrate through the grassland habitats. The nearest known eagle nest is approximately 4.42 miles southeast to the closest portion of the proposed project (North Dakota Game and Fish Department 2015). The USFWS generally recommends a nest buffer of 0.5 mile for any eagles. If any active nests are discovered within 0.5 mile of the proposed pipeline route, construction would halt and the USFWS would be contacted for further direction. Bald eagles are not expected to be impacted by the proposed project.

### **3.8.12 Golden Eagle**

**Federal Status:** Unlisted; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

The golden eagle (*Aquila chrysaetos*) prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs which

provide suitable nesting habitat. Golden eagles may occur within or near the survey area; however, no golden eagles or nests were observed during the field surveys. The USFWS generally recommends a nest buffer of 0.5 mile for any eagles. If any active nests are discovered within 0.5 mile of the proposed pipeline route, construction would halt and the USFWS would be contacted for further direction. Golden eagles are not expected to be impacted by the proposed project.

### **3.8.13 Wildlife Observed**

During the field survey, SWCA ecologists observed various wildlife species that use wetlands and other habitat within the survey area (Table 6). Common wildlife species may be affected both directly through incidents with construction equipment or indirectly through the temporary fragmentation of habitat as a result of construction activities.

**Table 6. Wildlife Observed during Field Surveys of the Proposed Pipeline Route**

Common Name	Scientific Name	Observation Type
Ring-necked pheasant	<i>Phasianus colchicus</i>	Primary
Mallard duck	<i>Anas platyrhynchos</i>	Primary
Red-winged blackbird	<i>Agelaius phoeniceus</i>	Primary
Canada goose	<i>Branta canadensis</i>	Primary
American robin	<i>Turdus migratorius</i>	Primary
Common garter snake	<i>Thamnosis sirtalis</i>	Primary
Thirteen-lined ground squirrel	<i>Ictidomys tridecemlineatus</i>	Primary
White-tailed deer	<i>Odocoileus virginianus</i>	Secondary

## **4.0 CONCLUSIONS AND RECOMMENDATIONS**

1. No wetlands were recorded within the survey corridor for the North Segment of the Highway 1804 Reroute Pipeline. Upland data points were taken at low lying areas that displayed some of the wetland characteristics, however these areas did not meet the three wetland criteria parameters.
2. SWCA ecologists recorded five streams within the survey area. Contingent on the time of construction and water flow, Plains would either directionally bore streams or trench and cover as soon as practical. A maximum of approximately 0.098 acre of stream is proposed to be temporarily impacted in the 100-foot-wide construction ROW.
3. SWCA estimates 98 trees, saplings, and shrubs may be impacted. Therefore, approximately 196 2-year-old saplings may need to be replanted to fulfill the 2:1 mitigation requirement.

According to the recommendations of the North Dakota Forest Service, tree species selection for replacement should be accomplished through collaboration with a

reputable area nursery. This will allow for species to be selected based on various factors, including species hardiness and area soil type.

4. No threatened or endangered species were observed during the field survey. Suitable roosting and foraging habitat exists within the project area for the whooping crane. SWCA recommends that if construction is to occur within whooping crane spring and fall migration periods, and a whooping crane is observed within 0.5 mile of the project, to stop construction and notify the USFWS.

It is unlikely, but possible, that piping plover and least tern could find the area suitable for nesting or foraging. SWCA recommends that if construction is to occur during the spring and summer nesting season, and a plover or tern is observed in the project area, to stop construction and notify the USFWS.

The other listed threatened and endangered species that occur in Williams County are not likely to be detrimentally impacted by construction activities.

5. Migratory birds and habitat were observed throughout the entire project area. A 0.5-mile line-of-sight survey was conducted throughout the survey area. No raptor nests were observed during the survey.

In order to reduce impacts to migratory birds, SWCA recommends conducting all construction outside the migratory bird breeding season. If construction occurs during the bird breeding season, SWCA recommends to either mow, maintain, or completely remove vegetation within the project construction area, or conduct an avian survey of the project area no more than 5 days before construction begins. If active nests are discovered, notify the USFWS.

6. No areas of noxious weeds were identified in the survey area. If noxious weeds are confirmed during construction activities, actions should be taken to reduce the potential to spread any state listed noxious weed species, especially to native areas, undisturbed areas, or areas planted with native species.

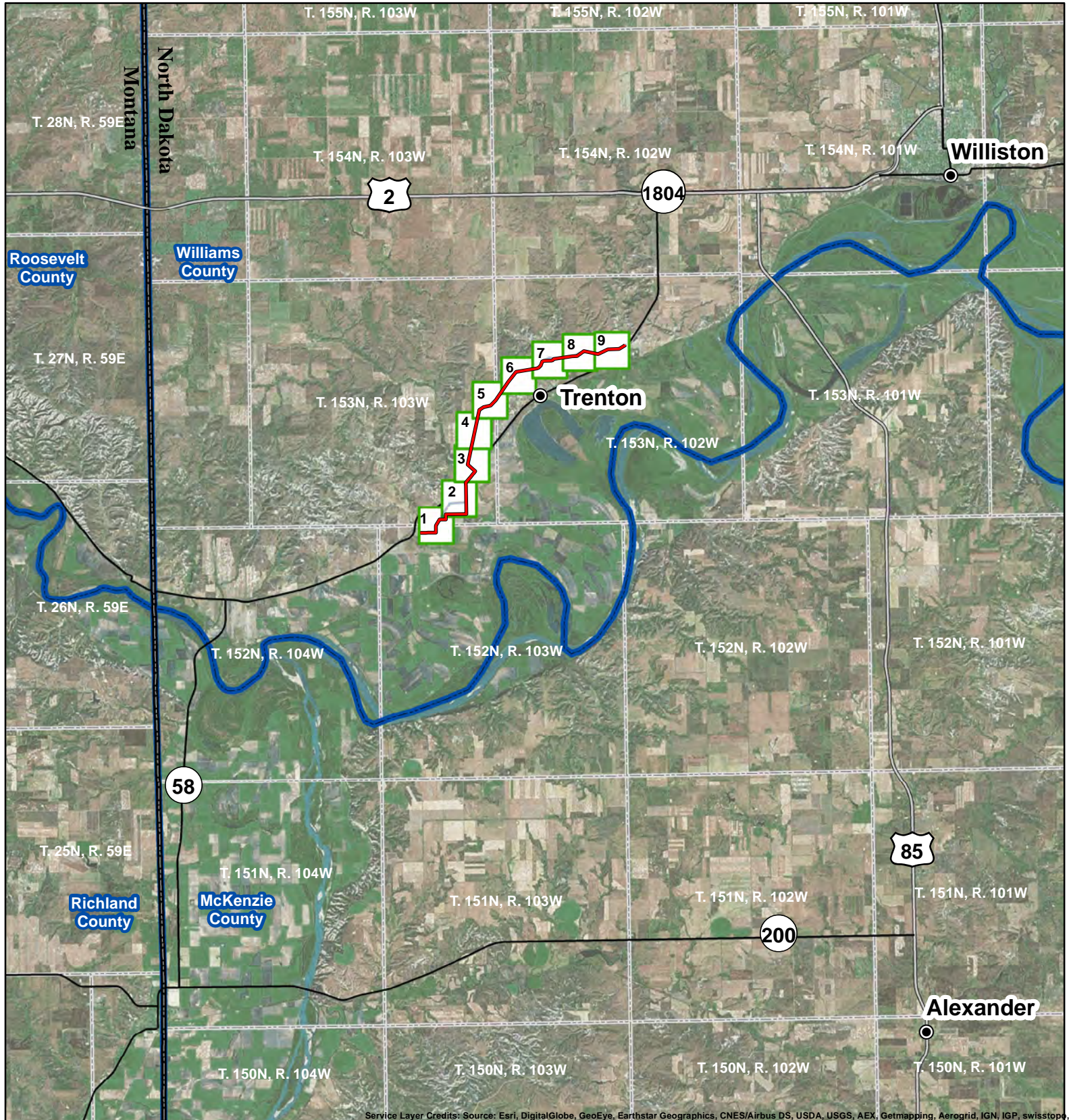
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**APPENDIX A**  
**Vicinity and Site Layout Maps**



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo,

**North Segment - Highway 1804 Reroute**

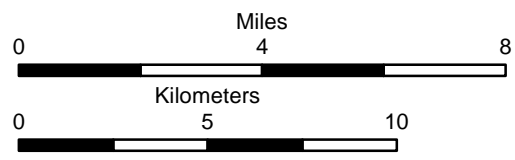
- City
- Proposed Pipeline System
- U.S Highway
- State Highway
- Map Layout
- ▭ State Boundary
- ▭ County Boundary
- ▭ Township/Range Boundary



116 North 4th Street  
Suite 200  
Bismarck, ND 58501

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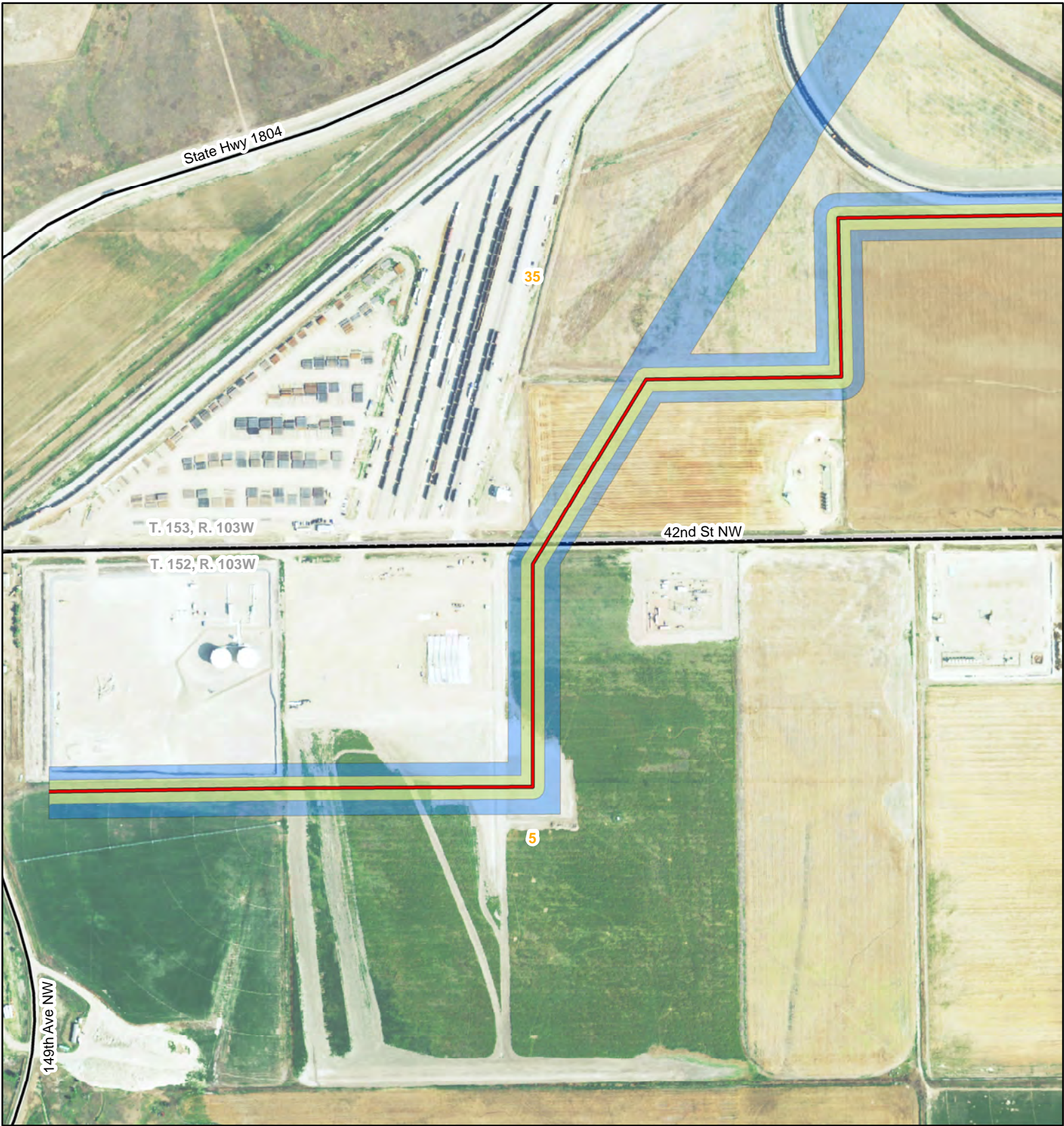
www.swca.com



Base Map: Aerial Imagery  
Source: ESRI ArcGIS online service  
Quadrangle: Trenton SW (1991), Trenton (1976)  
Township/Range: T. 152N, R. 103W, T. 153N, R. 103W,  
and T. 153N, R. 102W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





**North Segment - Highway 1804 Reroute**

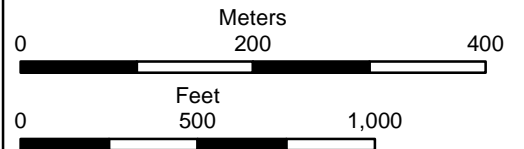
- ▲ Upland Data Point
- Proposed Pipeline System
- Stream
- Upland Swale
- Existing Road
- Survey Area
- 100-foot Right-of-Way
- Stream
- Woody Vegetation
- Township/Range Boundary
- Section Boundary



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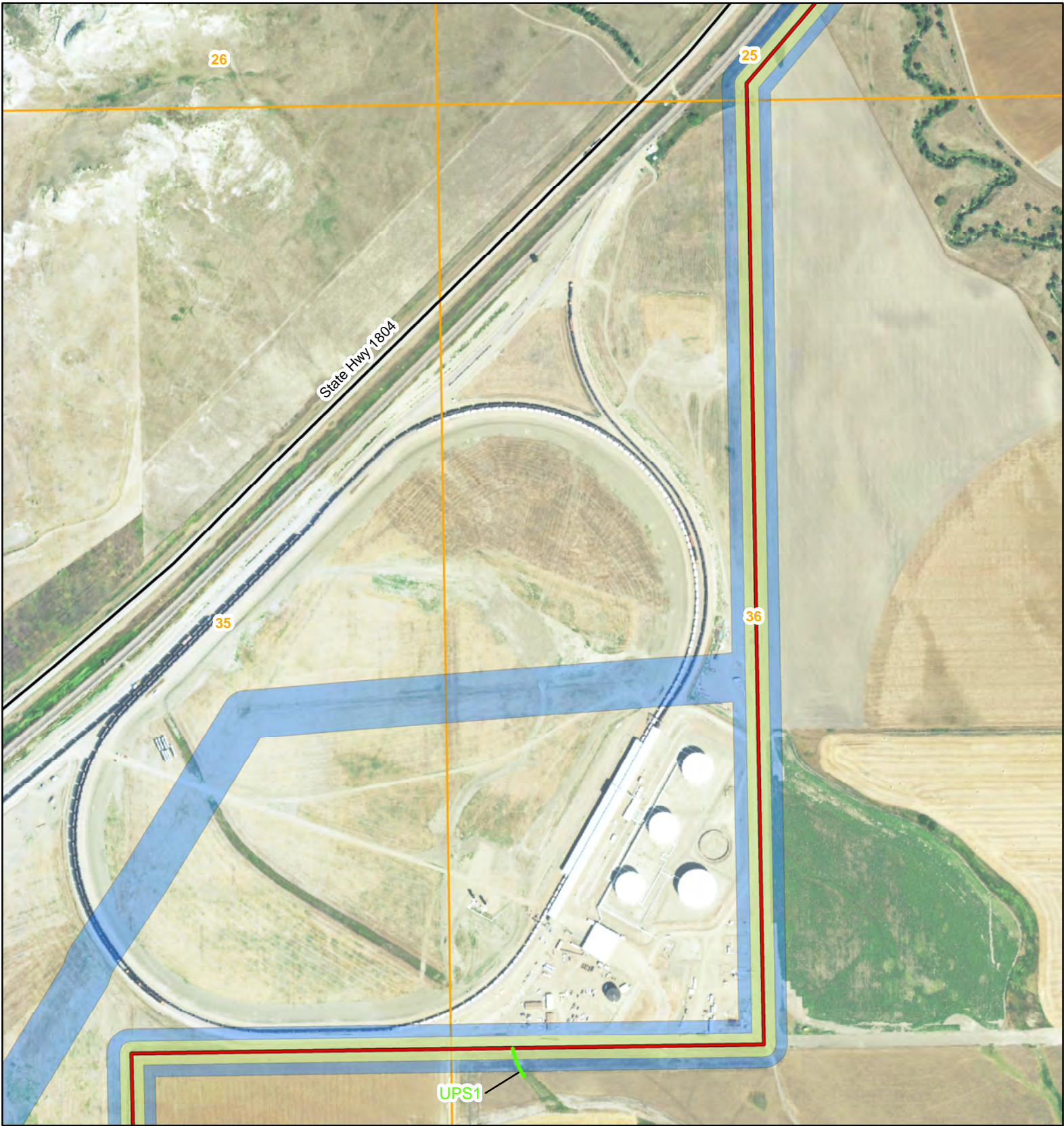
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


Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton SW (1991)  
T. 152N, R. 103W and T. 153N, R. 103W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





### North Segment - Highway 1804 Reroute

- |   |                          |   |                         |
|---|--------------------------|---|-------------------------|
|  | Upland Data Point        |  | Stream                  |
|  | Proposed Pipeline System |  | Woody Vegetation        |
|  | Stream                   |  | Township/Range Boundary |
|  | Upland Swale             |  | Section Boundary        |
|  | Existing Road            |   |                         |
|  | Survey Area              |   |                         |
|  | 100-foot Right-of-Way    |   |                         |

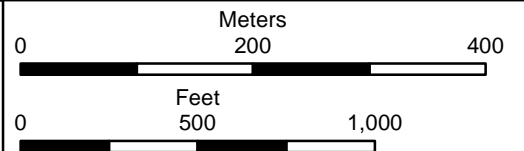


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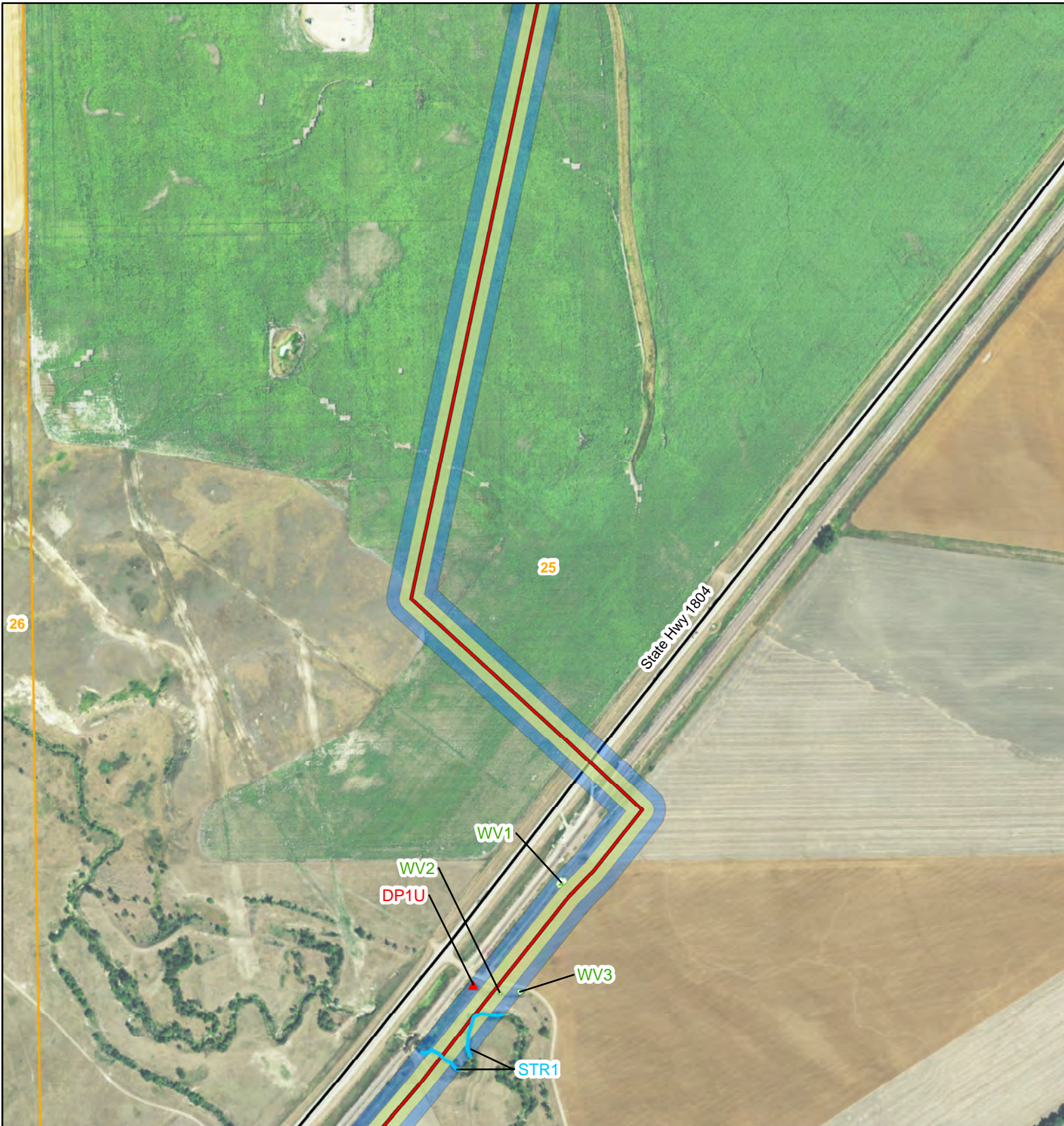
Page 2 of 9














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Source: USDA/FSA  
Aerial Photography Field Office  
Trenton SW (1991)  
T. 153N, R. 103W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





### North Segment - Highway 1804 Reroute

- |   |                          |   |                         |
|---|--------------------------|---|-------------------------|
|  | Upland Data Point        |  | Stream                  |
|  | Proposed Pipeline System |  | Woody Vegetation        |
|  | Stream                   |  | Township/Range Boundary |
|  | Upland Swale             |  | Section Boundary        |
|  | Existing Road            |   |                         |
|  | Survey Area              |   |                         |
|  | 100-foot Right-of-Way    |   |                         |

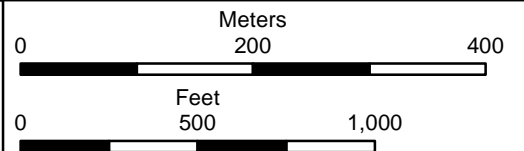


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Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA












Aerial Photography Field Office  
Trenton SW (1991) and Trenton (1976)  
T. 153N, R. 103W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





### North Segment - Highway 1804 Reroute

- |   |                          |   |                         |
|---|--------------------------|---|-------------------------|
|  | Upland Data Point        |  | Stream                  |
|  | Proposed Pipeline System |  | Woody Vegetation        |
|  | Stream                   |  | Township/Range Boundary |
|  | Upland Swale             |  | Section Boundary        |
|  | Existing Road            |   |                         |
|  | Survey Area              |   |                         |
|  | 100-foot Right-of-Way    |   |                         |

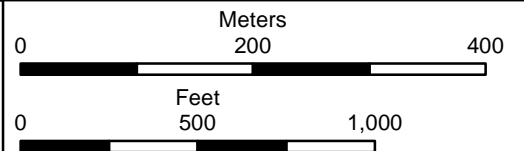


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Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA












Aerial Photography Field Office  
Trenton SW (1991) and Trenton (1976)  
T. 153N, R. 103W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





**North Segment - Highway 1804 Reroute**

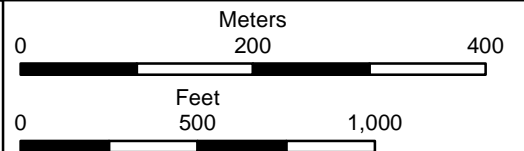
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|---|--------------------------|---|-------------------------|
|  | Upland Data Point        |  | Stream                  |
|  | Proposed Pipeline System |  | Woody Vegetation        |
|  | Stream                   |  | Township/Range Boundary |
|  | Upland Swale             |  | Section Boundary        |
|  | Existing Road            |   |                         |
|  | Survey Area              |   |                         |
|  | 100-foot Right-of-Way    |   |                         |



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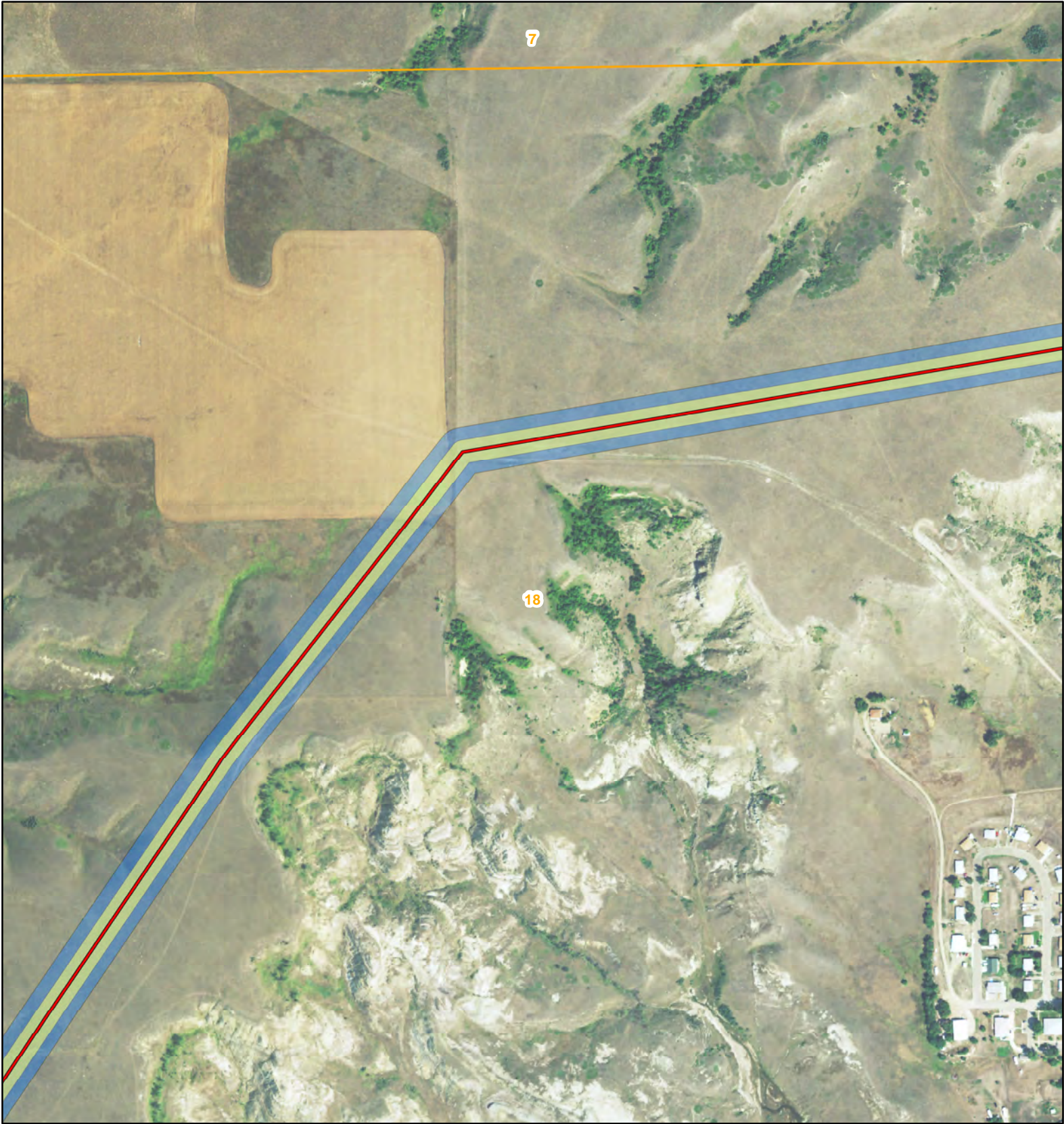
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Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton (1976)  
T. 153N, R. 103W and T. 153N, R. 102W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





**North Segment - Highway 1804 Reroute**

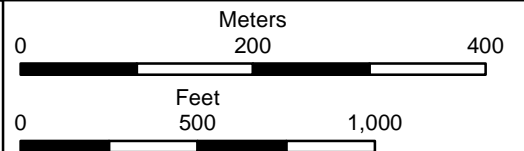
- ▲ Upland Data Point
- Proposed Pipeline System
- Stream
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Williams County, North Dakota  
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**North Segment - Highway 1804 Reroute**

- ▲ Upland Data Point
- Proposed Pipeline System
- Stream
- Upland Swale
- Existing Road
- Survey Area
- 100-foot Right-of-Way
- Stream
- Woody Vegetation
- Township/Range Boundary
- Section Boundary

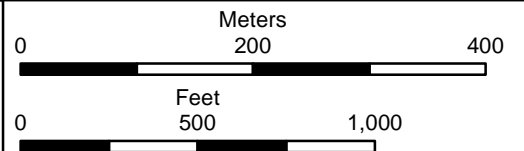


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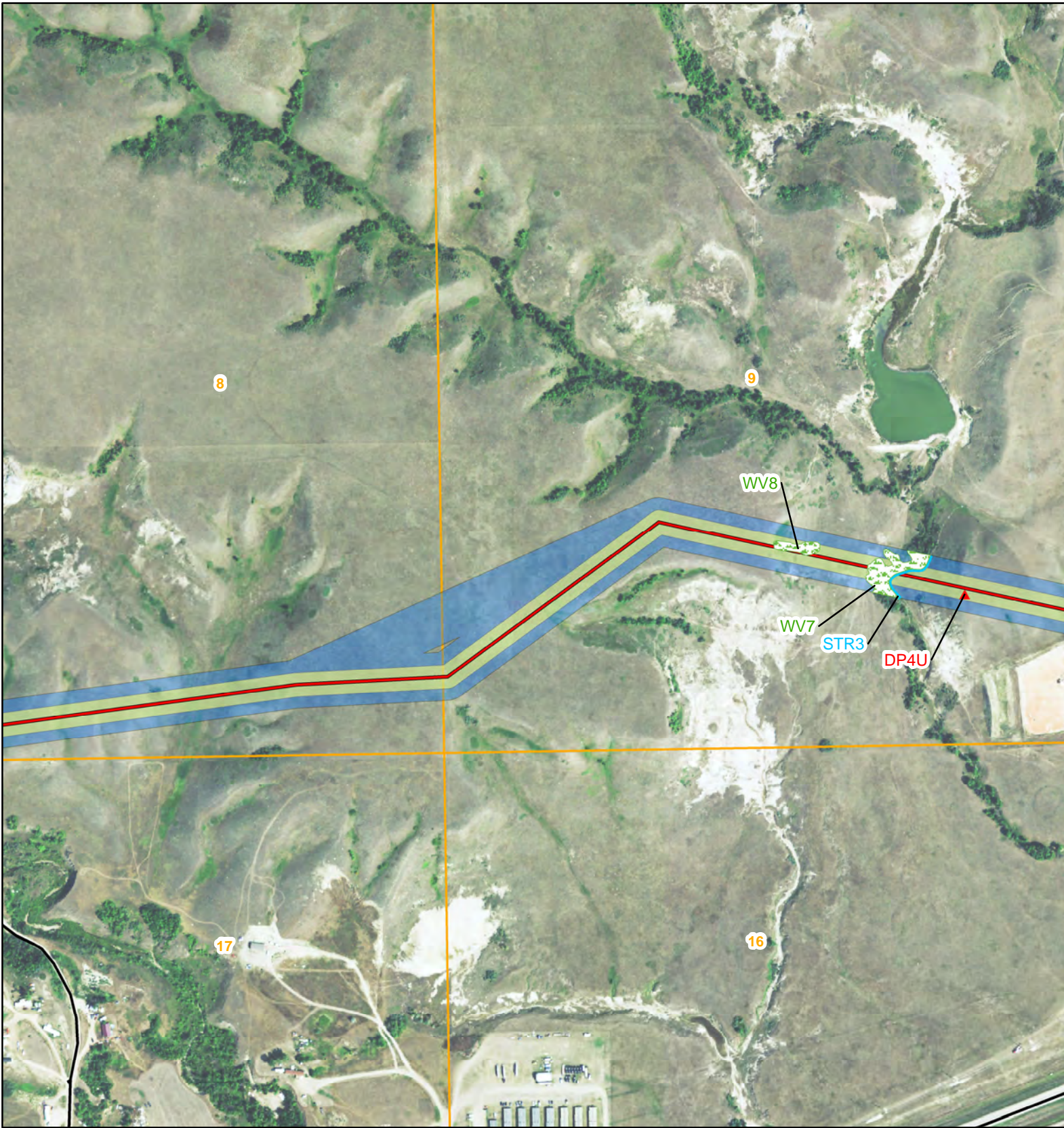
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Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton (1976)  
T. 153N, R. 102W  
Williams County, North Dakota  
Projection: NAD 1983 UTM Zone 13N





**North Segment - Highway 1804 Reroute**

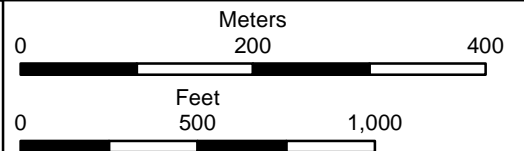
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




Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton (1976)  
T. 153N, R. 102W  
Williams County, North Dakota  
Projection: NAD 1983 UTM Zone 13N





**North Segment - Highway 1804 Reroute**

- |   |                          |   |                         |
|---|--------------------------|---|-------------------------|
|  | Upland Data Point        |  | Stream                  |
|  | Proposed Pipeline System |  | Woody Vegetation        |
|  | Stream                   |  | Township/Range Boundary |
|  | Upland Swale             |  | Section Boundary        |
|  | Existing Road            |   |                         |
|  | Survey Area              |   |                         |
|  | 100-foot Right-of-Way    |   |                         |

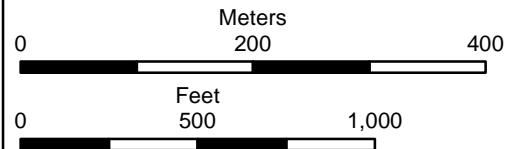


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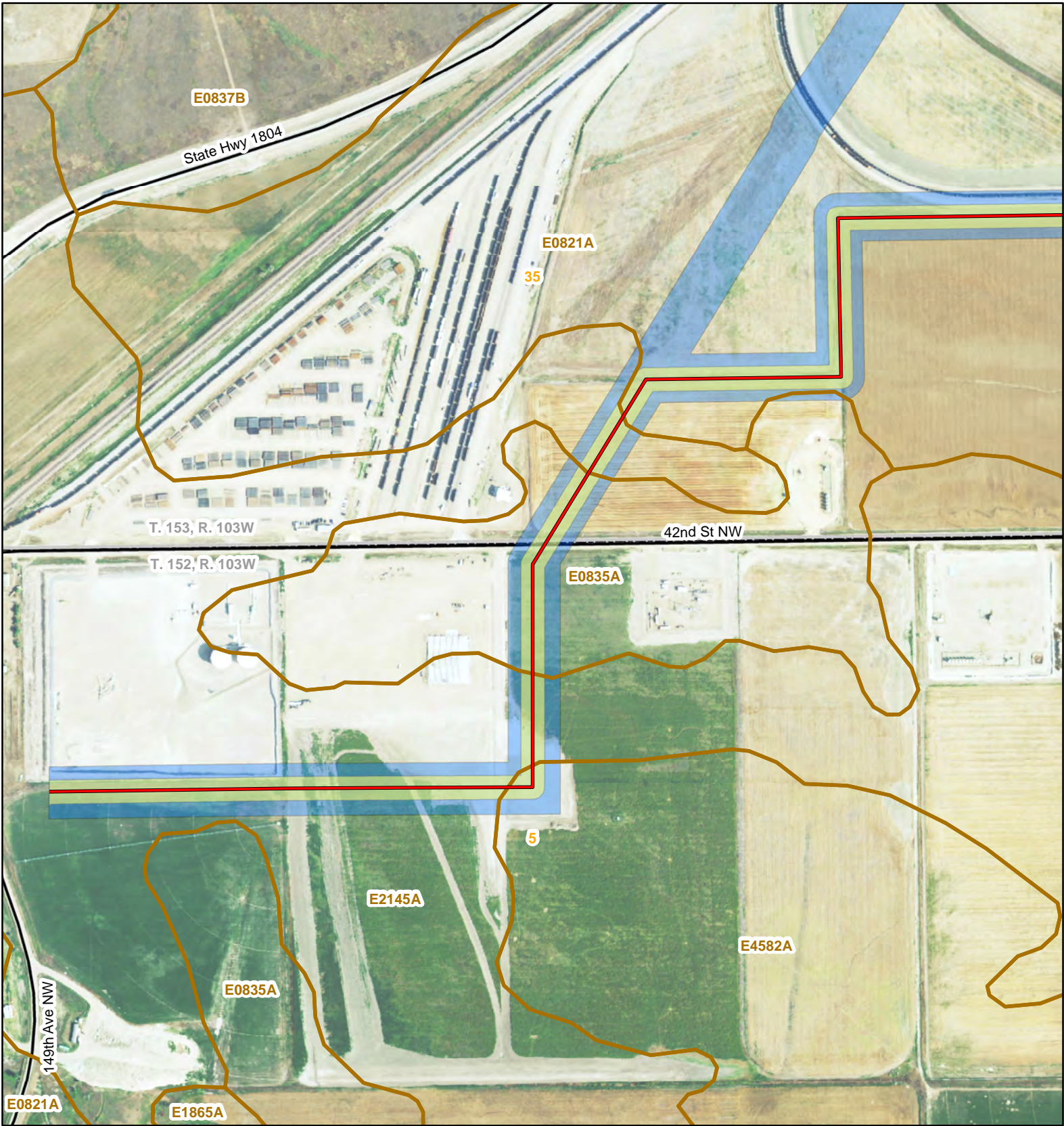


Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton (1976)  
T. 153N, R. 102W  
Williams County, North Dakota  
Projection: NAD 1983 UTM Zone 13N





**APPENDIX B**  
**Survey Area Soil Series Map**



**North Segment - Highway 1804 Reroute**

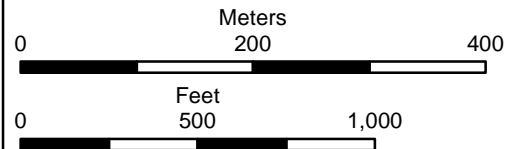
- Proposed Pipeline System
- Existing Road
- Survey Area
- 100-foot Right-of-Way
- Williams County Soil Unit
- Township/Range Boundary
- Section Boundary



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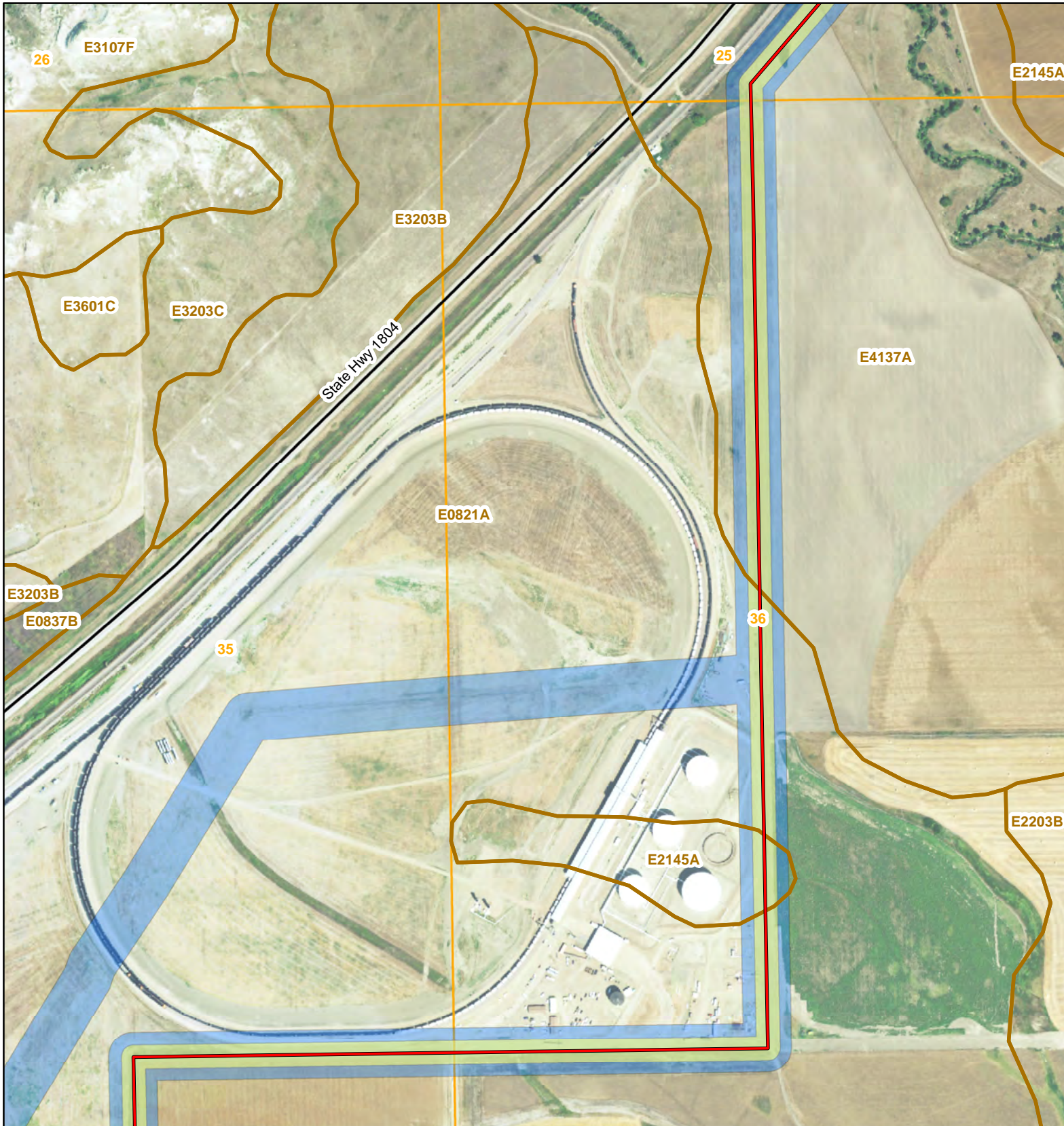
[www.swca.com](http://www.swca.com)



Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton SW (1991)  
T. 152N, R. 103W and T. 153N, R. 103W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





**North Segment - Highway 1804 Reroute**

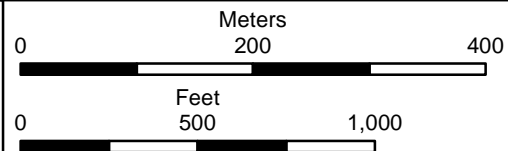
- Proposed Pipeline System
- Township/Range Boundary
- Existing Road
- Section Boundary
- Survey Area
- 100-foot Right-of-Way
- Williams County Soil Unit



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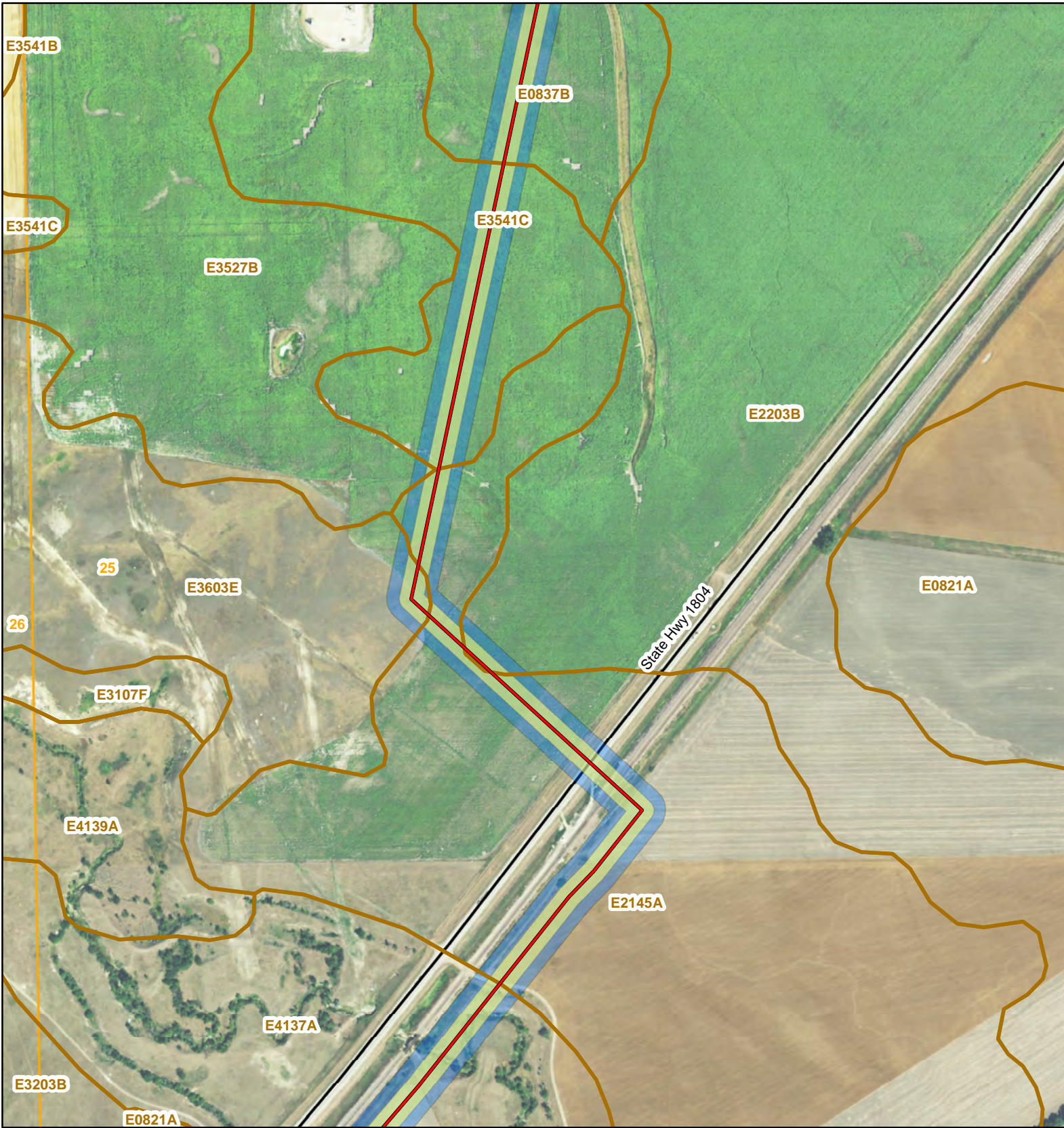
[www.swca.com](http://www.swca.com)










Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton SW (1991)  
T. 153N, R. 103W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





### North Segment - Highway 1804 Reroute

-  Proposed Pipeline System
-  Existing Road
-  Survey Area
-  100-foot Right-of-Way
-  Williams County Soil Unit
-  Township/Range Boundary
-  Section Boundary

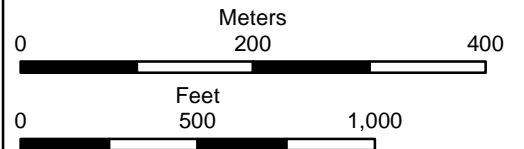


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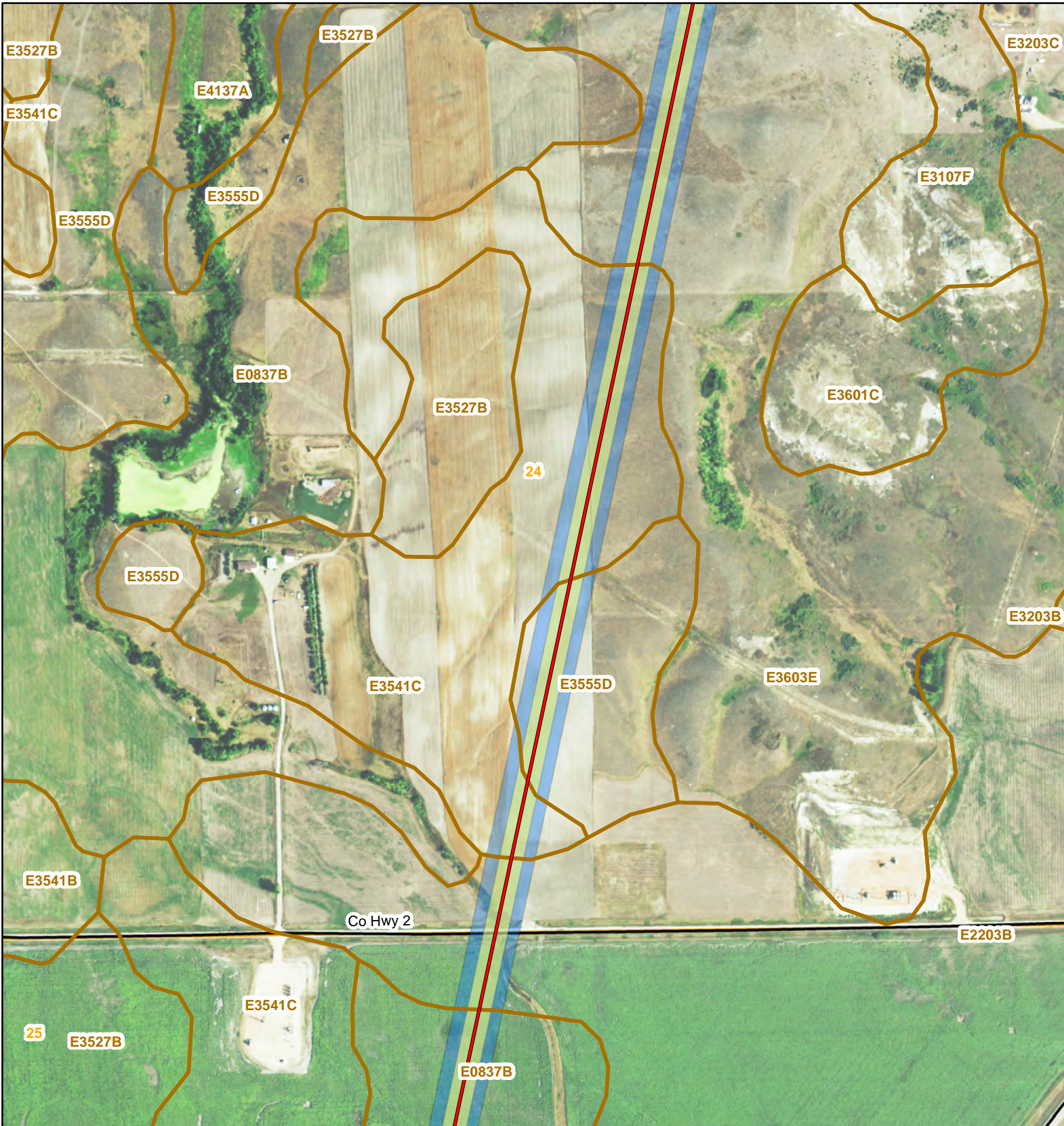
Page 3 of 9










Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton SW (1991) and Trenton (1976)  
T. 153N, R. 103W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





**North Segment - Highway 1804 Reroute**

-  Proposed Pipeline System
-  Existing Road
-  Survey Area
-  100-foot Right-of-Way
-  Williams County Soil Unit
-  Township/Range Boundary
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



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Source: USDA/FSA  
Aerial Photography Field Office  
Trenton SW (1991) and Trenton (1976)  
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### North Segment - Highway 1804 Reroute

-  Proposed Pipeline System
-  Existing Road
-  Survey Area
-  100-foot Right-of-Way
-  Williams County Soil Unit
-  Township/Range Boundary
-  Section Boundary

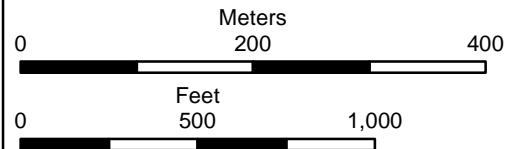


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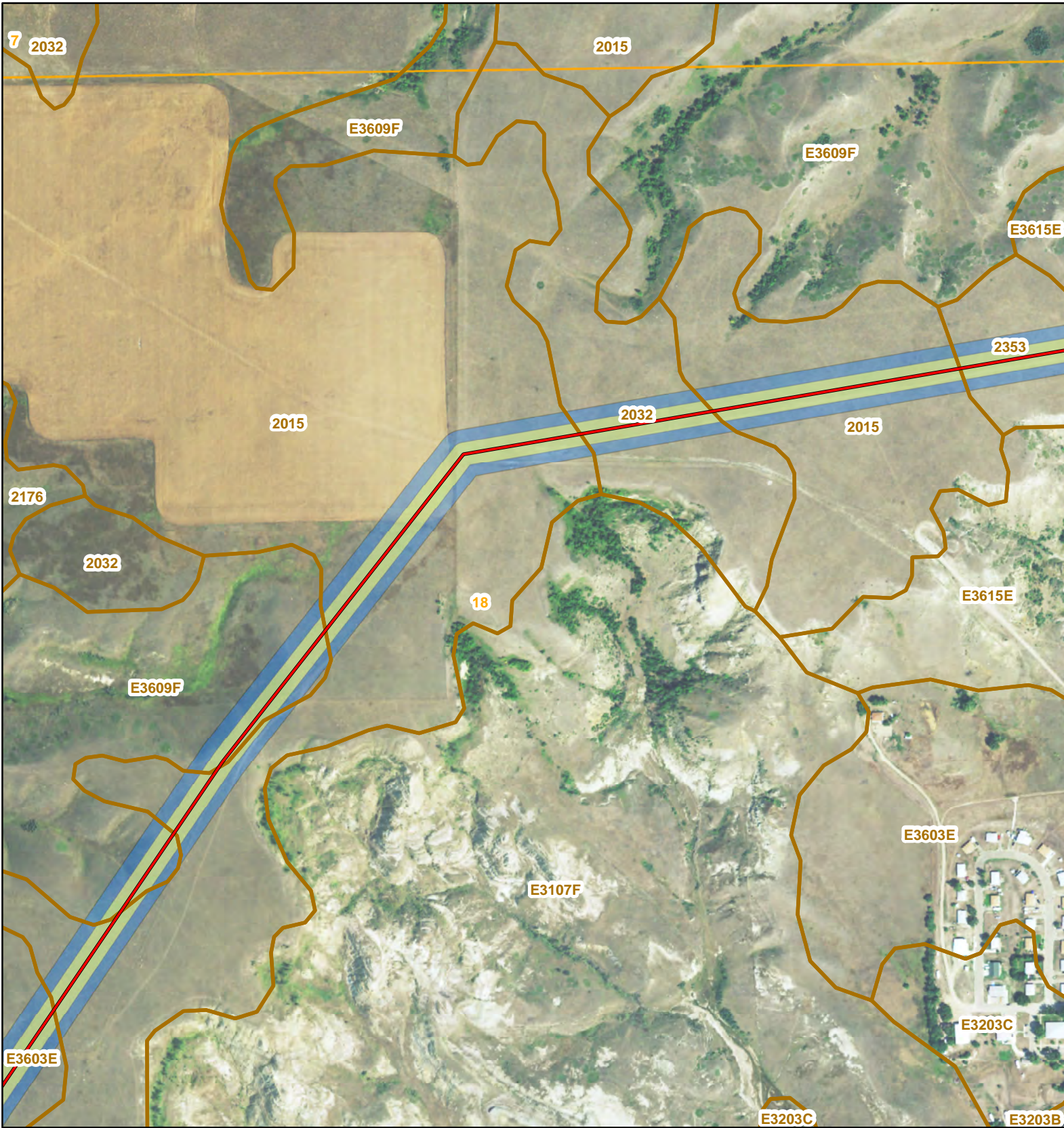
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




Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton (1976)  
T. 153N, R. 103W and T. 153N, R. 102W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





**North Segment - Highway 1804 Reroute**

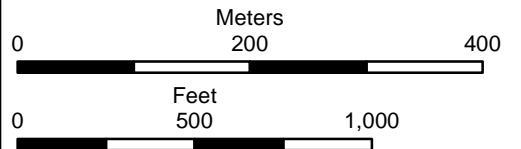
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-  Existing Road
-  Survey Area
-  100-foot Right-of-Way
-  Williams County Soil Unit
-  Township/Range Boundary
-  Section Boundary



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

Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton (1976)  
T. 153N, R. 102W  
Williams County, North Dakota

Projection: NAD 1983 UTM Zone 13N





### North Segment - Highway 1804 Reroute

-  Proposed Pipeline System
-  Existing Road
-  Survey Area
-  100-foot Right-of-Way
-  Williams County Soil Unit
-  Township/Range Boundary
-  Section Boundary

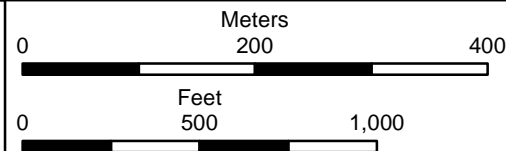


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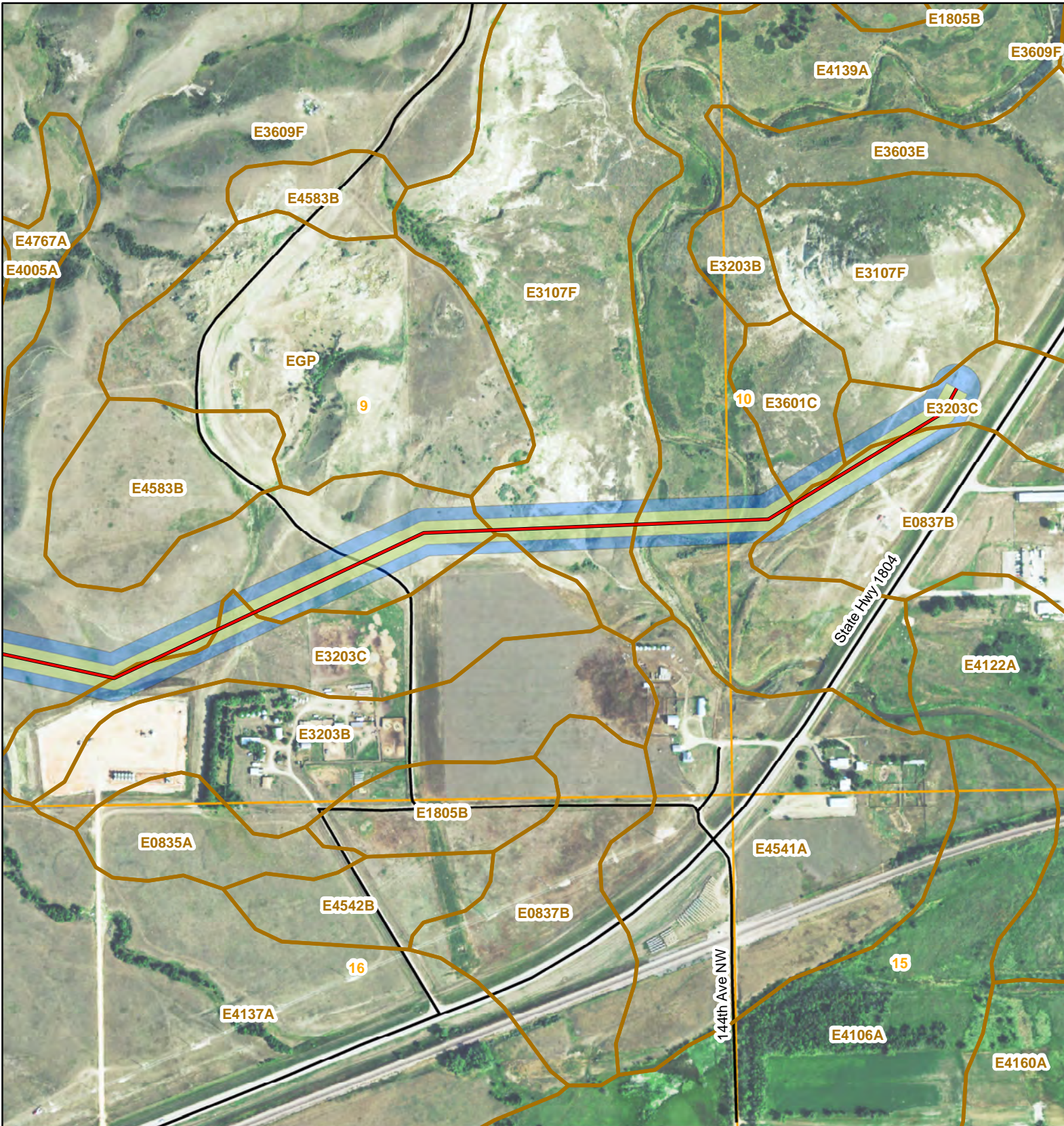


Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton (1976)  
T. 153N, R. 102W  
Williams County, North Dakota








Projection: NAD 1983 UTM Zone 13N







### North Segment - Highway 1804 Reroute

-  Proposed Pipeline System
-  Existing Road
-  Survey Area
-  100-foot Right-of-Way
-  Williams County Soil Unit
-  Township/Range Boundary
-  Section Boundary

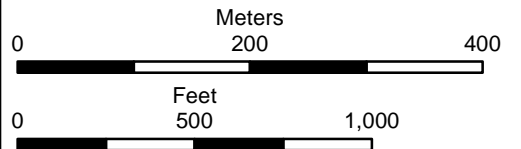


116 North 4th Street  
Suite 200  
Bismarck, ND 58501

Phone: 701.258.6622  
Fax: 701.258.5957

[www.swca.com](http://www.swca.com)

Page 9 of 9



Base Map: 2014 NAIP Aerial Imagery  
Source: USDA/FSA  
Aerial Photography Field Office  
Trenton (1976)  
T. 153N, R. 102W  
Williams County, North Dakota  
Projection: NAD 1983 UTM Zone 13N





**APPENDIX C**  
**Photographs of Project Area**





**Figure C.1. Intermittent stream with mixed woody vegetation (Stream 1), facing upstream (photo taken May 12, 2015).**



**Figure C.2. Typical patch of natural mixed woody vegetation (WV7), (photo taken May 13, 2015).**



**Figure C.3. Ephemeral stream (Stream 3), facing downstream (photo taken May 13, 2015).**



**Figure C.4. Ephemeral drainage in a badland area (Stream 4), facing downstream (photo taken May 13, 2015).**



**Figure C.5. Perennial stream (Stream 5), facing downstream (photo taken May 13, 2015).**



**Figure C.6. Intermittent stream with woody vegetation (Stream 6), facing downstream (photo taken May 13, 2015).**



**Figure C.7. Green ash (*Fraxinus pennsylvanica*), silver buffaloberry (*Shepherdia argentea*), and American plum (*Prunus americana*) (WV13), (photo taken May 13, 2015).**

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## **Appendix E**

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### Cultural Resource Report Abstract

Jack Dalrymple  
Governor of North Dakota

North Dakota  
State Historical Board

Gereld Gerntholz  
Valley City - President

Calvin Grinnell  
New Town - Vice President

A. Ruric Todd III  
Jamestown - Secretary

Albert I. Berger  
Grand Forks

Diane K. Larson  
Bismarck

Chester E. Nelson, Jr.  
Bismarck

Margaret Puetz  
Bismarck

Sara Otte Coleman  
Director  
Tourism Division

Kelly Schmidt  
State Treasurer

Alvin A. Jaeger  
Secretary of State

Mark Zimmerman  
Director  
Parks and Recreation  
Department

Francis Ziegler  
Director  
Department of Transportation

Merlan E. Paaverud, Jr.  
Director

Accredited by the  
American Association  
of Museums since 1986

July 11, 2012

Mr. Patrick Fahn  
Public Service Commission  
600 East Boulevard Avenue  
Bismarck ND 58505-0480

RE: Cultural Resource Reports Submitted to the North Dakota Public Service  
Commission

Dear Mr. Fahn,

Here is the text to the letter we will be sending out to the permitted cultural resource  
contractors.

Locational information for archaeological and historic sites is protected under North  
Dakota Century Code § 55-02-07. Due to a problem of cultural resource reports and  
archeological site locational information appearing on the North Dakota Public  
Service Commission (PSC) website, we request that all reports (Class I, Class II or  
Class III, or documents outlining testing or data recovery methodologies) or any loose  
maps sent to the PSC offices by a permittee or their client not contain site locational  
information. Site locational information includes the location of a site on a  
topographic map or aerial photographs, the location of a site in tables, such as  
Township, Range and Section, or the photograph of a site. It is acceptable to mention  
the Smithsonian Trinomial designation (e.g., 32EM0123) as this does not contain  
locational information, other than state and county.

For reports or documents of any type omitting site locational information can most  
easily be accomplished by sending just the report cover and abstract pages. Please be  
sure that your abstracts do not contain tables of sites with Township, Range and  
Section columns, or other locational identification. Report covers sent to the PSC  
should not contain photographs of sites, which might be identifiable in reports that  
cover small areas. If for some reason you need to send a loose map, please delete all  
archaeological and historic site locations from the map before submittal to the PSC.  
We have been working with PSC staff, and the abstracts alone would be acceptable.  
Therefore full reports that are redacted are **not** necessary.

Thank you for your attention to this important matter. If you have questions, please  
contact either Susan Quinnell, Review and Compliance Coordinator at  
[squinnell@nd.gov](mailto:squinnell@nd.gov), (701) 328-3576, or Paul Picha, Chief Archaeologist at  
[ppicha@nd.gov](mailto:ppicha@nd.gov), (701) 328-3574.

Sincerely,

Susan Quinnell  
Review and Compliance Coordinator  
State Historical Society of North Dakota

**A Class I and Class III Cultural  
Resource Inventory of the North  
Segment of the Highway 1804  
Reroute Pipeline Project,  
Williams County, North Dakota**

Prepared for

**Plains All American Pipeline, L.P.**

Prepared by

**SWCA Environmental Consultants**

July 2015

**MANUSCRIPT DATA RECORD FORM**

1. Manuscript Number:
2. SHPO Reference #:
3. Author(s): Matthew Cox, Theresa Kilcullin, Jolene Schleicher, and Carolyn Riordan
4. Title: A Class I and Class III Cultural Resource Inventory of the North Segment of the Highway 1804 Reroute Pipeline Project, Williams County, North Dakota
5. Report Date: July 10, 2015
6. Number of Pages: 56
7. Type – I, T, E, O: I
8. Acres: 236.5
9. Legal Location(s) (no quarter sections) with Historic Context Study Unit(s):  
Consult the Township tables in *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component* (SHSND 2008; available at <http://history.nd.gov/hp/hpforms.html>) for Study Unit assignments.  
Study Units: LM, CB, KN, HE, SM, GA, JA, GR, NR, SR, SO, SH, YE

<u>COUNTY</u>	<u>TWP</u>	<u>RNG</u>	<u>SEC</u>	<u>SU</u>
Williams	152N	103W	5	GA
Williams	153N	103W	13, 24, 25, 35, 36	GA
Williams	153N	102W	8, 9, 10, 17, 18	GA

**A Class I and Class III Cultural Resource Inventory of the  
North Segment of the Highway 1804 Reroute Pipeline Project,  
Williams County, North Dakota**

Submitted to:

**North Dakota Public Service Commission**

Prepared for:

**Plains All American Pipeline, L.P.**  
333 Clay Street, Suite 1600  
Houston, Texas 77002

Prepared by:

**Matthew Cox, Theresa Kilcullin, Jolene Schleicher, and Carolyn Riordan**

Principal Investigator:

**William Harding**

**SWCA Environmental Consultants**  
116 North 4th Street, Suite 200  
Bismarck, North Dakota 58501

SWCA Cultural Resource Report Number 15-362

**July 10, 2015**

## **ABSTRACT**

SWCA Environmental Consultants (SWCA) conducted a Class I and Class III cultural resource inventory on behalf of Plains All American Pipeline, L.P. (Plains) in support of the Highway 1804 reroute pipeline (Highway 1804) project. The pipeline would be located on privately owned lands in Williams County, North Dakota, and parallel an existing Plains pipeline for portions of its route.

Plains retained SWCA to complete a Class I and Class III cultural resource inventory for the proposed project area in support of the North Dakota Public Service Commission's Certificate of Corridor Compatibility and Route Permit application. In its entirety, the proposed pipeline is 14.06 miles long, and was reported on in its entirety to the State Historic Society of North Dakota (Cox et al. 2015). However, for the Certificate of Corridor Compatibility and Route Permit application Plains has separated the pipeline into three segments: the Highway 1804 Reroute South (pipeline mile post [MP] 0 to 0.2 and 1.1 to 5.5), the Fort Buford State Historic Site (MP 0.2 to 1.1), and the Highway 1804 Reroute North (MP 5.5 to 14.0). Thus, this report solely presents the results of the Class I and Class III inventory of the North Segment of the Highway 1804 project.

The Class I inventory was conducted on March 3, 2015, and updated on April 22, 2015, and the Class III inventory was conducted on May 13 through 15 and June 24, 2015. The Class III survey area consisted of a 200-foot-wide survey corridor centered on the proposed pipeline centerline (8.45 miles) and alternative pipeline alignments (1.5 miles). In total, 236.5 acres were inventoried for the North Segment. The inventoried areas are located in Township (T) 152 North (N), Range (R) 103 West (W); T153N, R103W; and T153N, R102W.

During the inventory, SWCA personnel revisited two previously recorded cultural resources (32WI325 and 32WIX652) and newly recorded two resources (32WI1750 and 32WI1752). 32WI325 is a historic bridge recommended eligible for the National Register of Historic Places (NRHP) and will not be impacted by the proposed project because the bridge was previously relocated outside of the proposed project area; therefore, no further work is recommended. 32WIX652 is a piece of historic farm equipment recommended not eligible for the NRHP, and no further work is recommended. 32WI1750 is a prehistoric stone circle site and 32WI1752 is a cairn of unknown age or cultural affiliation. 32WI1750 and 32WI1752 are both unevaluated for listing on the NRHP and avoidance is recommended. As proposed, disturbance for the pipeline project will avoid 32WI1750 and 32WI1752 by more than 50 feet; therefore, no further work is recommended for those resources at this time. With the above stipulations, it is recommended that a determination of *No Significant Sites Affected* be granted for the project to proceed as planned.

# **Appendix F**

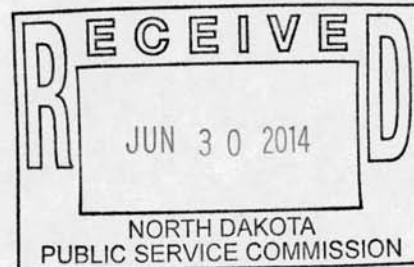
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## 10-Year Plan



**PLAINS**  
PIPELINE, L.P.

P. O. Box 708  
Belfield, ND 58622



Jun. 24, 2014

Public Service Commission  
State Capitol Building  
Bismarck, ND 58505

Re: Ten-Year Plan

To Whom It May Concern:

Enclosed are ten copies of our Ten-Year Plan for filing with the Commission as required by law. Notice of filing to State Agencies and Officers has been completed and one copy of our plan has been mailed to respective County Auditors.

Please call me at 701-575-4349 if you have any inquiries regarding the contents of our plan.

Sincerely,

Ed Shypkoski  
District Manager

Enclosure

1 **PU-14-502** Filed: 6/30/2014 Pages: 8  
**2014 Ten Year Plan**

Plains Pipeline, L.P.

Ed Shypkoski, District Manager

**PLAINS PIPELINE, L.P.**  
**2014**  
**TEN-YEAR PLAN**

**Introduction**

Plains Pipeline, L.P. [hereafter known as "Plains"] controls various pipeline transmission facilities in the State of North Dakota subject to the provisions of N.D.C.C. § 49-22-04. The 2014 ten-year plan of Plains Pipeline, L.P. is as follows:

(NOTE: The following assets were formerly owned by the following entities:

Koch Gathering Systems, Inc. and/or Koch Pipelines, Inc.(previous to December 1, 1998), EOTT Energy Pipeline Limited Partnership (December 1, 1998 – October 1, 2003), and Link Energy Pipeline Limited Partnership (October 1, 2003 -- April 1, 2004).

Plains acquired the Link Energy Pipeline Limited Partnership assets on April 1, 2004.

In late December 2010, Plains acquired Nexen USA assets. In Dec 2011, Bridger Pipeline acquired the Fryburg Dodge and Killdeer Pipeline systems from Plains PL. Those segments have been removed from Plains' Ten Year Plan.

• **Whitetail Gathering Facilities (Pipeline)**

1. Whitetail Gathering System
  - a. Product type: crude oil
  - b. Length of facility: 17 miles
  - c. Pipe size: 4"
  - d. Maximum design operating pressure: 1440 PSI
  - e. Maximum design flow rate: 6720 BPD
  - f. Pump station specifications: field gathering injection pumps move product to Whitetail Station.
  - g. Minimum cover over pipe: 48" (more or less)
  - h. The Whitetail gathering line was placed in service in 1982.
  - i. An internal line inspection tool was run in 2010. Several anomaly digs were done as a result of the tool run.

**PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.**

1. There are no plans for the next 5 years on this pipeline.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. See above 5 year proposed plans.

• **Baker/Rhame Gathering Facilities (Pipeline)**

1. Harding Station (South Dakota) to Rhame Station, ND (Looped)
  - a. Product type: crude oil
  - b. Length of facility: approx. 30 miles (with 15 miles in South Dakota)
  - c. Pipe Size: The pipeline consists of parallel pipelines running the entire distance. The line size in North Dakota is 2", 3" and 4". The line size in South Dakota is 4" and 6".
  - d. Maximum design operating pressure: 1400 PSI
  - e. Maximum design flow rate: 4800 BPD at 1100 PSI
  - f. Pump station specifications: field pumps with low design flow rates.
  - g. Minimum cover over pipe: 48" (more or less)
  - h. The 2" ND line has been purged and idled. The 4" SD to Rhame Station line has had an internal inspection done in 2014 with anomaly repairs pending. No immediate repair conditions exist on this line.
  
2. Rhame Station to Baker Station (Montana) (Looped)
  - a. Product type: crude oil
  - b. Length of facility: 47.5 miles
  - c. Pipe Size: The Rhame Station to Baker facility consists of parallel pipelines running the entire distance with an intermediate Marmarth Station. The line size in North Dakota is 6", 4", and 8". The line size in Montana is 4", 4", and 8".
  - d. Maximum design operating pressure: 1400 PSI
  - e. Maximum design flow rate: 58,000 BPD at 1400 PSI
  - f. Pump station specifications: (Rhame and Marmarth combined) two 250 HP, 2651 Gaso pumps with an output pressure of 950 PSI and with throughput capacity of 10,000 BPD. A centrifugal pump with a throughput capacity of 42,000 BPD was installed at Marmarth Station in 2005, and another in 2006, with a maximum capacity of 53,000 BPD. A 30,000 bbl tank was constructed at Marmarth Station in 2005.
  - g. Minimum cover over pipe: 48" (more or less)
  - h. The 4", 6" and 8" lines from Rhame to Baker have had internal line inspection tools ran as of 2011 with all anomalies being inspected or repaired. The 4" and 6" lines between Rhame and Marmarth have internal line inspections scheduled for July of 2014.
  
3. In-Service "Dates"
  - a. The original Rhame Station to Baker line was put in service in 1971 with a 4" loop constructed in 1973, a 6" loop in 1984 and an 8" loop line in 1995. The 8" extension in to North Dakota was built in 1997. Other small gathering lines were constructed in

1995-1997 and 2003-2004. Several other small gathering lines were constructed in 2005 and 2006.

- b. The original gathering into Rhame Station was built in 1971. The Harding Station to Rhame Station lines were built and put into service in 1985.
- c. A 30,000 bbl crude oil tank has been constructed at Marmarth Station in 2005 to improve pipeline flows.  
Throughput of the main lines has been increased up to 50000 bpd due to improvements in capacity at Marmarth Station.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.

1. None anticipated

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. None anticipated

• **Robinson Lake to Stanley Transmission Facilities (Pipeline)**

1. Robinson Lake Station to Stanley 8"
  - a. Product type: crude oil
  - b. Length of facility: approx. 17 miles
  - c. Pipe Size: 8"
  - d. Maximum design operating pressure: 1440 PSI
  - e. Maximum design flow rate: 62000 BPD
  - f. Pump station specifications: 2-1250 HP Centrifugal pumps with tankage
  - g. Minimum cover over pipe: 48" (more or less)
  - h. Internal line inspection tools are scheduled to be run in 2015
2. In-Service "Dates"
  - a. This line was put into service in 2010 by Nexen USA. Plains acquired the line in late Dec., 2010.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.

1. Plains Pipeline has no approved plans in place at this time although drilling and exploration is increasing in this area which increases the chance of additional transmission and transportation facilities to be constructed in the future.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. See above 5 year plan.

• **Stanley to Manitou Transmission Facilities (Pipeline)**

1. Stanley to Manitou 10"

Also known as Nelson to Manitou

- a. Product type: crude oil
- b. Length of facility: approx. 17 miles
- c. Pipe Size: 10"
- d. Maximum design operating pressure: 1440 PSI
- e. Maximum design flow rate: 62000 BPD
- f. Pump station specifications: 2-1250 HP Centrifugal pumps with tankage, originating from Robinson Lake Station.
- g. Minimum cover over pipe: 48" (more or less)

2. In-Service "Dates"

- a. Construction began on this line in late June 2012 and was put in service on Dec 30, 2012.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.

1. There are no other plans for this pipeline during the next 5 years other than possibly short pipeline connections from various production companies or other crude carriers.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. There are no other plans for this pipeline during the next 10 years other than possibly pipeline connections from various production companies or other crude carriers.

• **Bakken North Transmission Facilities (Pipeline)**

1. Bakken North 12" (Trenton Station to Raymond Station)

- a. Product type: crude oil
- b. Length of facility: approx. 80 miles
- c. Pipe Size: 12"
- d. Maximum design operating pressure: 1440 PSI
- e. Maximum design flow rate: 75000 BPD
- f. Pump station specifications: 2-1250 HP Centrifugal pumps with tankage originating near Williston ND at Plains' Trenton Station
- g. Minimum cover over pipe: 48" (more or less)
- h. This lines originates from Trenton Station near Williston ND and delivers to Wascana Pipeline at the Canadian border north of Outlook, MT. The newly constructed segment from Trenton Station to Raymond Station is 80 miles in length and ties into an existing 6 mile segment Plains acquired from Bridger PL from Raymond Station to the Canada/US border.
- j. The existing segment from Raymond to the border was internally inspected in 2012.
- k. The newly constructed segment is scheduled to be internally inspected in 2014.

2. In-Service "Dates"

- a. Construction began on this line in early 2012 and completed by the 1<sup>st</sup> Qtr of 2014.  
This line was placed into service in April 2014.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT FIVE YEARS.

1. Plains Pipeline has constructed this line to deliver crude oil from the Williston ND area to the Canadian border near Outlook, MT where it connects with Wascana Pipeline in Canada. Connections from other crude oil sources such as production companies and other pipelines are possible, however, no plans are in existence at this time.

PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES DURING THE NEXT TEN YEARS.

1. There are no other plans for this pipeline during the next 10 years other than possibly pipeline connections from various production companies, however, no plans are in existence at this time.

• **Trenton System Transmission Facilities (Pipeline)**

1. Richland County, MT to Trenton Station near Williston, ND
  - a. Product type: crude oil
  - b. Length of facility: 303 miles (280 miles are in Montana)
  - c. Pipe Size: 4", 6" and 10"
  - d. Maximum design operating pressure: 1440 psi
  - e. Maximum design flow rate: 36,000 bpd
  - f. Pump station specifications: Oil is gathered from production facilities with individual pumps at production sites in North Dakota and Montana. A truck unloading facility, Richland Station, injects crude into the line in Richland County, MT. Oil is gathered to tankage at Trenton Station near Williston, ND. Trucks can also unload at Trenton Station.
  - g. Minimum cover over pipe: 48" (more or less)
  - h. The Trenton gathering line was placed in service in 1968.
  - i. Internal inspection tools were ran in the pipeline in 1997, 2004, 2009, and 2014.
  - j. 5000' of changeouts were made in 1997-1998. Additional repairs were made in early 2005 as a result of the 2004 internal line inspection tool run. Other anomalies were addressed with pipe replacements as a result of the 2009 internal inspection tool run.
  - k. Approximately 5 miles of 10" pipeline, including a 10" line bored under the Missouri River, have been constructed in 2006 to replace portions of the 6" line to increase capacity. The replaced portions of the 6" pipeline have been taken out of service.

2. East Fork Gathering Pipeline (INACTIVE)

- a. Product type: crude oil
- b. Length of facility: 30 miles
- c. Pipe size: 6" and 4"
- d. Maximum design operating pressure: 1440 psi

REPORT ID: 90259149  
REPORT NAME: ERROR LISTING FOR FIELD OFFICES  
3

- e. Maximum design flow rate: 8400 BPD
- f. Pump specifications: All pumps have been removed from production facilities.
- g. Minimum pipe cover: 48" (more or less)
- h. Internal inspection tool run in 1997.
- i. No changeouts were required.
- j. This line has been purged of all crude oil.

This pipeline is currently idle. Plains maintains the property, however, to preserve its salvage value or return it to service should that be desired.

#### PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES IN THE NEXT FIVE YEARS:

1. Plains Pipeline has no plans in the next 5 years to expand this pipeline other than possible connects to various sites such as production facilities or other carriers. However, no approved plans or projects are pending at this time.

#### PROPOSED CONSTRUCTION OF TRANSMISSION FACILITIES IN THE NEXT TEN YEARS:

1. See above 5 year plan.

### **Company Overview**

Plains Pipeline, L.P. provides crude petroleum transportation 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 or ten 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 services.

### **Regional Coordination**

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.

It is believed that 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.

### **Environmental Information**

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.

In 1988, a new metering and SCADA supervisory system was installed on the Rhame to Baker, and Trenton lines for leak detection purposes. New pipelines under construction will have the newest technology for SCADA and leak detect available. Plains Pipeline's Control Center in Midland, TX monitors most of Plains Pipeline's operations in North Dakota. Plains maintains a rigid pipeline integrity program and periodically runs internal line inspection tools to find anomalies and perform required repairs and change outs as needed.

### **Projected Demand For Services**

At the present time, the world market for crude oil is tight. This has led to higher crude oil prices.

Current high prices of crude oil have increased crude oil exploration in North Dakota and surrounding states. As development and production increases, the need for transportation capability also increases. 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.

# **Appendix G**

---

## Landowner Waivers



**PLAINS**  
PIPELINE, L.P.

May 13, 2015

Robert B. Gannaway  
C/O Yellowstone Ethanol, LLC  
PO Box 1990  
Williston, ND 58802

**RE: Plains Pipeline, L.P. – Ft. Buford to Highway 1804**

Dear Sir,

According to Williams County, North Dakota records you own a tract within Gibbins Subdivision, Block 3, Lot 2 of Section 35, Township 153 North, Range 103 West (39.0200 acres).

A residence or business (a house) is located in Gibbins Subdivision, Block 3, Lot 2 of Section 35, Township 153 North, Range 103 West; between 40<sup>th</sup> St NW, Williston, ND and 42<sup>nd</sup> St NW, Williston, ND.

Please review the attached site map noting the proposed location of Plains Pipeline, L.P.'s ("Plains") Ft. Buford to Highway 1804 Pipeline Project application that Plains intends to file with the North Dakota Public Service Commission. The map indicated that the Ft. Buford to Highway 1804 Pipeline will be located within 500 feet of the aforementioned residence or business.

By signing below you are confirming that you have no objection to the installation of Plains' Ft. Buford to Highway 1804 Pipeline at this location, or the future operation and maintenance of the Ft. Buford to Highway 1804 Pipeline. Your cordial cooperation in this matter is greatly appreciated.

Respectfully,

Adam C. Ross  
Project Manager  
Plains Pipeline, L.P.

Robert B. Gannaway  
Managing Member for Yellowstone Ethanol, LLC

Plains GP LLC, General Partner

333 Clay Street, Suite 1600 (77002) ☎ P.O. Box 4648 ☎ Houston, Texas 77210 ☎ 713/646-4100 or 800-564-3036



**PLAINS**  
PIPELINE, L.P.

May 13, 2015

Preston and Roxanne Oen  
PO Box 176  
Trenton, ND 58853-0176

**RE: Plains Pipeline, L.P. – Ft. Buford to Highway 1804**

Dear Sir and Madam,

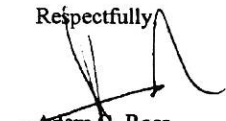
According to Williams County, North Dakota records you own a tract within the N $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  of Section 17, Township 153 North, Range 102 West (10.90 acres).

A residence or business (a house) is located in the N $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  of Section 17, Township 153 North, Range 102 West; on 4596 145<sup>th</sup> Dr NW, Williston, ND.

Please review the attached site map noting the proposed location of Plains Pipeline, L.P.'s ("Plains") Ft. Buford to Highway 1804 Pipeline Project application that Plains intends to file with the North Dakota Public Service Commission. The map indicated that the Ft. Buford to Highway 1804 Pipeline will be located within 500 feet of the aforementioned residence or business.

By signing below you are confirming that you have no objection to the installation of Plains' Ft. Buford to Highway 1804 Pipeline at this location, or the future operation and maintenance of the Ft. Buford to Highway 1804 Pipeline. Your cordial cooperation in this matter is greatly appreciated.

Respectfully

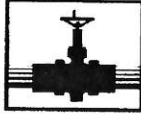
  
Adam C. Ross  
Project Manager  
Plains Pipeline, L.P.

  
Preston Oen

  
Roxanne Oen

Plains GP LLC, General Partner

333 Clay Street, Suite 1600 (77002) • P.O. Box 4648 • Houston, Texas 77210 • 713/646-4100 or 800-564-3036



**PLAINS**  
PIPELINE, L.P.

May 13, 2015

Jane Lawrence  
4612B 145<sup>th</sup> Dr NW  
Williston, ND 58801

**RE: Plains Pipeline, L.P. – Ft. Buford to Highway 1804**

Dear Madam,

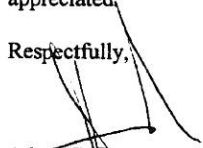
According to Williams County, North Dakota records you own a tract within the S $\frac{1}{2}$ SW $\frac{1}{4}$  North of Road of Section 8, Township 153 North, Range 102 West (16.19 acres).


A residence or business (a house) is located in the S $\frac{1}{2}$ SW $\frac{1}{4}$  North of Road of Section 8, Township 153 North, Range 102 West; on 4630 145<sup>th</sup> Dr NW, Williston, ND.

Please review the attached site map noting the proposed location of Plains Pipeline, L.P.'s ("Plains") Ft. Buford to Highway 1804 Pipeline Project application that Plains intends to file with the North Dakota Public Service Commission. The map indicated that the Ft. Buford to Highway 1804 Pipeline will be located within 500 feet of the aforementioned residence or business.

By signing below you are confirming that you have no objection to the installation of Plains' Ft. Buford to Highway 1804 Pipeline at this location, or the future operation and maintenance of the Ft. Buford to Highway 1804 Pipeline. Your cordial cooperation in this matter is greatly appreciated.

Respectfully,

  
Adam C. Ross  
Project Manager  
Plains Pipeline, L.P.

  
Jane Lawrence

Plains GP LLC, General Partner

333 Clay Street, Suite 1600 (77002) • P.O. Box 4648 • Houston, Texas 77210 • 713/646-4100 or 800-564-3036



**PLAINS**  
PIPELINE, L.P.

May 13, 2015

Louis and Charlene Vondall  
4591 145<sup>th</sup> Dr NW  
Williston, ND 58801

**RE: Plains Pipeline, L.P. – Ft. Buford to Highway 1804**

Dear Sir and Madam,

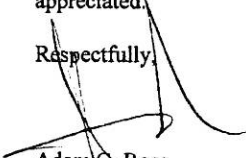
According to Williams County, North Dakota records you own a tract within the NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  of Section 17, Township 153 North, Range 102 West (2.04 acres).


A residence or business (a house) is located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  of Section 17, Township 153 North, Range 102 West; on 4591 145<sup>th</sup> Dr NW, Williston, ND.

Please review the attached site map noting the proposed location of Plains Pipeline, L.P.'s ("Plains") Ft. Buford to Highway 1804 Pipeline Project application that Plains intends to file with the North Dakota Public Service Commission. The map indicated that the Ft. Buford to Highway 1804 Pipeline will be located within 500 feet of the aforementioned residence or business.

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Respectfully,

  
Adam C. Ross  
Project Manager  
Plains Pipeline, L.P.

  
Louis Vondall

  
Charlene Vondall

Plains GP LLC, General Partner

333 Clay Street, Suite 1600 (77002) P.O. Box 4648 Houston, Texas 77210 713/646-4100 or 800-564-3036



May 13, 2015

Savage Companies  
901 W. Legacy Center Way  
Midvale, UT 84047

**RE: Plains Pipeline, L.P. – Ft. Buford to Highway 1804**

Dear Sir,

According to Williams County, North Dakota records you own a tract within the N $\frac{1}{2}$  (MS13-0143, Minor Sub) of Section 5, Township 152 North, Range 103 West (96.8300 acres).

A residence or business (a house) is located in the N $\frac{1}{2}$  of Section 5, Township 152 North, Range 103 West; on 14872 42<sup>nd</sup> St NW, Williston, ND.

Please review the attached site map noting the proposed location of Plains Pipeline, L.P.'s ("Plains") Ft. Buford to Highway 1804 Pipeline Project application that Plains intends to file with the North Dakota Public Service Commission. The map indicated that the Ft. Buford to Highway 1804 Pipeline will be located within 500 feet of the aforementioned residence or business.

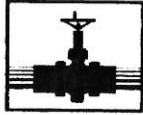
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Respectfully,

Adam C. Ross  
Project Manager  
Plains Pipeline, L.P.

Plains GP LLC, General Partner

333 Clay Street, Suite 1600 (77002) ☎ P.O. Box 4648 ☎ Houston, Texas 77210 ☎ 713/646-4100 or 800-564-3036



**PLAINS**  
PIPELINE, L.P.

May 13, 2015

Fred E. Martin  
14425 Highway 1804  
Williston, ND 58801-8640

**RE: Plains Pipeline, L.P. – Ft. Buford to Highway 1804**

Dear Sir,

According to Williams County, North Dakota records you own the W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 9, Township 153 North, Range 102 West (160.00 acres).

A residence or business (a house) is located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 9, Township 153 North, Range 102 West; on 14425 Highway 1804, Williston, ND.

Please review the attached site map noting the proposed location of Plains Pipeline, L.P.'s ("Plains") Ft. Buford to Highway 1804 Pipeline Project application that Plains intends to file with the North Dakota Public Service Commission. The map indicated that the Ft. Buford to Highway 1804 Pipeline will be located within 500 feet of the aforementioned residence or business.

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Respectfully,

Adam Q. Ross  
Project Manager  
Plains Pipeline, L.P.

Fred E. Martin

Plains GP LLC, General Partner

333 Clay Street, Suite 1600 (77002) ☎ P.O. Box 4648 ☎ Houston, Texas 77210 ☎ 713/646-4100 or 800-564-3036