

**North Dakota Public Service Commission
Consolidated Application
Certificate of Corridor Compatibility and Route
Permit
Sacagawea Pipeline Project**

Prepared for:

Sacagawea Pipeline Company, LLC

Prepared by:

E3 Environmental, LLC

March 2015

Volume 1



E3 ENVIRONMENTAL
Enhancing Execution with Experience



North Dakota Public Service Commission

Certificate of Corridor Compatibility

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INTRODUCTION

Sacagawea Pipeline Company, LLC (Sacagawea), a joint venture between Paradigm Pipeline, LLC and Grey Wolf Midstream, LLC, is proposing to construct a 16-inch outside diameter crude oil pipeline approximately 70 miles in length located in McKenzie and Mountrail counties, North Dakota. The proposed Sacagawea Pipeline Project (Project) would originate at Paradigm Midstream Services – SC Keene Crude Oil Terminal (KCT) which is located approximately 2.5 miles south of Keene, North Dakota in McKenzie County and would terminate at the Phillips 66 Partners Palermo Rail Terminal Facility (PRTF) located west of Palermo, North Dakota in Mountrail County. The Project is needed to address transportation of growing volumes of crude oil to refineries located on the East Coast, Mid-Continent, and West Coast of the United States.

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

The application provides the requisite information as stipulated by:

- North Dakota Century Code, Energy Conversion and Transmission Facility Siting Act, Section 49-22-08; and,
- North Dakota Administrative Code, Chapter 69-06-05, Certificate of Site or Corridor Compatibility.

SECTION 1: DESCRIPTION

1.1 TYPE AND SIZE OF FACILITY

1.1.1 TYPE

The proposed Project would result in a new crude oil transmission pipeline. The Project would meet U.S. Department of Transportation (DOT) regulations, specifically the design criteria outlined in CFR 195.1, the construction specifications per CFR 195.2, and the operation and maintenance criteria per CFR 195.4.

1.1.2 SIZE

The Project pipeline specifications are the following:

- One 16-inch Outside Diameter Pipe
 - Steel, API-5L, PSL2, Grade X-60 ERW Line Pipe
 - Line Pipe Wall Thickness of 0.312 inch
 - Bore Pipe Wall Thickness of 0.375 inch
 - Lake Bore Pipe Wall Thickness of 0.500 inch
 - Maximum Operating Pressure: 1,440 pounds per square inch (psi)
 - Normal Operating Pressure: 1,200 psi
 - Maximum Throughput: 200,000 barrels per day (bpd)
 - Normal Throughput: 140,000 bpd
 - Maximum Operating Temperature: 120 degrees Fahrenheit

1.1.3 LENGTH

The proposed Project is approximately 70 miles in length.

1.2 PURPOSE OF FACILITY

The purpose of the Project is to transport crude oil to the PRTF in Palermo, North Dakota for distribution to refineries located on the East Coast, Mid-Continent, and West Coast of the United States.

1.3 LOCATION

The Project would be located in McKenzie and Mountrail counties, North Dakota. The Project would originate at the KCT, located approximately 2.5 miles south of Keene, North Dakota in McKenzie County and terminate at the PRTF west of Palermo, North Dakota in Mountrail County. Refer to maps provided in Volume 2, Appendix B.

1.4 ABOVEGROUND FACILITIES

The proposed Project would include nine mainline block valves and two mainline check valves. These valves would be installed to DOT regulations and would allow for the isolation of select segments of the pipeline for inspection and maintenance purposes as well as in the event of a system failure. The valves would be 16-inch ANSI 600, flange

end by flange end, full port, quarter turn ball valves and 16-inch ANSI 600 flange end by flange end, swing check valves. These valves would be manufactured in accordance with API Standard 6D.

The Project would include one launcher and one receiver. A launcher and leak detection meter would be constructed at the KCT. A receiver and custody transfer meter with pressure and flow control equipment would be installed at the PRTF. The launchers and receivers enable in-line inspection of the pipeline for integrity management per DOT requirements and Sacagawea standards.

Project maps illustrating the location of the proposed block valves, launcher, and receiver are contained in Volume 2, Appendix B. Refer to Volume 2, Appendix A for engineering documents.

1.5 PROJECT SCHEDULE

1.5.1 CERTIFICATE OF CORRIDOR COMPATIBILITY

Sacagawea seeks a Certificate of Corridor Compatibility by or before August 2015.

1.5.2 ROUTE PERMIT

Sacagawea seeks a Route Permit by or before August 2015.

1.5.3 RIGHT-OF-WAY ACQUISITION

Sacagawea anticipates right-of-way acquisition for the Project will be completed by May 2015.

1.5.4 CONSTRUCTION SCHEDULE

Sacagawea has scheduled construction activities to commence once all permit authorizations are received, which could be as early as the third quarter of 2015. The construction activities would take approximately six months to complete. Testing and commencement of operations would occur as soon as possible after construction has been completed. Commissioning and restoration activities would also commence immediately after construction is complete.

SECTION 2: STUDIES

2.1 CORRIDOR

Sacagawea 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. Sacagawea's process of selecting a corridor to site a pipeline between two fixed assets was influenced by the opportunity to collocate with other utility corridors.

As stated in the accompanying Application for Waiver or Reduction of Procedures and Time Schedules, Sacagawea requests the Commission waive the requirement that a study corridor width equal to ten percent of the length of the pipeline be studied and instead allow for a one-mile corridor, subject to deviations imposed by any exclusion or avoidance area or other selection criteria. 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 Volume 2, Appendix B. The results of this environmental analysis are summarized in Section 2.2 of this document.

A comprehensive desktop analysis of the Corridor included consultations and applicable permitting with the federal, state, and local agencies identified below. Agency consultations were initiated citing Paradigm Midstream Services – ND, LLC as the organization seeking a permit to construct two projects (the Sacagawea Pipeline Project, approximately 63 miles in length, and the Palermo Pipeline Project approximately 9 miles in length). The individual projects have been consolidated into one pipeline project (approximately 70 miles in length) under the name Sacagawea Pipeline Project. In addition, the ownership of the Project has changed to Sacagawea Pipeline Company, LLC, however the scope of the Project remains the same. Refer to the Agency Consultation Table in Volume 2, Appendix C for a summary of responses received. Copies of the agency consultation letters and responses are also provided in Volume 2, Appendix C.

- U.S. Fish and Wildlife Service (USFWS)
- North Dakota Game and Fish Department (NDGFD)
- North Dakota Parks and Recreation - Natural Heritage Program (NDPRD)
- North Dakota Department of Trust Lands (NDDTL)
- North Dakota State Historic Preservation Office (SHPO)
- North Dakota Department of Health (NDDoH)
- United States Air Force Cable Affairs (USAF Cable Affairs)
- Bureau of Indian Affairs (BIA)
- United States Army Corps of Engineers (USACE)
- North Dakota State Water Commission
- McKenzie County Planning and Zoning Department

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 counties.

Sacagawea engaged federal and state agencies in consultations to identify potential occurrences of sensitive species or their critical habitats. Refer to Volume 2, Appendix C for a 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 were completed. The desktop analysis identified 100 streams, 93 waterbodies, and approximately 1,496 wetland features within the Corridor. Sacagawea commissioned field studies to augment the desktop analysis, with the field study results discussed in the 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, incised drainage channels, or agricultural windrows. Sacagawea commissioned field studies to inventory the Project survey corridor for woody vegetation. The survey corridor was typically a 200-foot corridor centered upon the preferred alignment. The results of these studies are documented in Volume 2, Appendix D and proposed mitigation measures are detailed in the Route Permit Application and Volume 2, Appendix K.

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.

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 under 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
- Piping plover (*Charadrius melodus*) – Threatened
- Dakota skipper (*Hesperia dacotae*) – Threatened, and proposed critical habitat
- Rufa red knot (*Calidris canutus rufa*) – 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. Section 7 consultation has been initiated as part of the NEPA process to satisfy the BIA and USACE. See Volume 2, Appendix H for documentation of the ongoing Section 7 consultation.

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 offers 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 potential foraging habitat for the whooping crane within the Corridor. The field studies and associated mitigation measures are discussed in the Route Permit Application and Appendix K located in Volume 2.

Least tern: The interior populations of the least tern have historically been associated with large river systems for breeding and migratory habitats. The least tern are known to breed in colonies, utilizing sandbar habitat common to larger rivers. Regionally the Missouri River is known to host remnant-breeding populations of terns. Potential suitable habitat is present in the Corridor. Refer to the Route Permit Application for further analysis.

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 to the headwaters of Lake Sakakawea are thought to provide suitable habitat for the pallid sturgeon; however much of the habitat has been compromised from channelization, installation of impoundments, and altered flow regimes. Potential suitable habitat is present in the Corridor. Refer to the Route Permit Application for further analysis.

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 tends 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.

Piping plover: The piping plover is a small shorebird that nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands and on beaches, sand bars and dredged material islands of major river systems. The shorelines of the Missouri River and Lake Sakakawea provide suitable habitat. Potential suitable habitat is present in the Corridor. Refer to the Route Permit Application for further analysis.

Dakota skipper: Dakota skippers require untilled, high-quality prairie. Habitat preferred by the skipper is wet-mesic prairie with little topographic relief on near-shore glacial lake deposits and in rolling native-prairie terrain over gravelly glacial moraine deposits. Larvae feed on grasses, favoring little bluestem (*Schizachyrium scoparium*). Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*). This species is not known to disperse widely and has low mobility, dispersing a maximum of 0.6 miles. The species is threatened by conversion of native prairie to cultivated agriculture or shrublands, over-grazing, invasive species, gravel mining, and inbreeding. Desktop analysis supported with field studies have concluded that some suitable foraging habitat is located within the Corridor. However, impacts to the Dakota skipper are not anticipated as the nearest proposed critical habitat is located approximately 10.7 miles from the Project.

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 the loss or modification of its habitat from beach erosion and shoreline protection efforts. Migratory behavior and habitat requirements of this species are poorly understood, particularly for those populations occupying the midcontinent flyways. Inland stopovers include the Mississippi Valley, Great Lakes, and Great Plains. Suitable habitat along Lake Sakakawea is approximately seven miles from the Project. Potential spills and sedimentation occurring within the project area are concerns for downstream water quality and could indirectly affect suitable stopover habitat. BMP's would be implemented during construction to minimize sedimentation, erosion and runoff. Thus, the proposed Project is not likely to impact this species.

E3, on behalf of Sacagawea, initiated project consultation in support of this siting application with the USFWS providing a comprehensive project description and environmental analysis. Refer to Volume 2, Appendix C for a summary of communications with the USFWS in the Agency Consultations and Communications table, and for a record of the correspondence.

2.3.1.2 MIGRATORY BIRD TREATY ACT CONSULTATION

On October 30 and December 18, 2014, on behalf of Sacagawea, E3 initiated consultations with the USFWS; the consultation addressed several topics that 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, it is generally acknowledged that MBTA species of concern may be present and active in North Dakota from February 1st through July 15th annually. Currently, the proposed Project construction is scheduled to commence as soon as all permit authorizations are received, which could be as early as the third quarter of 2015 and reach completion early 2016. If construction were to take place during this interval, MBTA mitigation may be required. Sacagawea would continue to consult with agencies as necessary regarding this subject and shall 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.

E3, on behalf of Sacagawea, sent a Project consultation letter with maps of the Corridor to the USFWS, which addressed the topic of the BGEA. To date, no response has been received from the USFWS regarding the BGEA. Refer to Appendix C located in Volume 2 for a summary of agency consultation in the Agency Consultations and Communications table, and for a record 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 indicated USFWS wetland easements are located within the Corridor.

A Project consultation letter was provided to the USFWS providing an opportunity for the agency to identify any additional USFWS managed lands that may be impacted by the Project. In addition, consultation was initiated with the Lostwood Wetland Management District in January of 2015 regarding the identified wetland easements within the Corridor. Refer to Volume 2, Appendix B for maps depicting the location of the easements and Appendix C for maps of the easements provided by the USFWS.

Refer to Volume 2 for the Agency Consultations and Communications table in Appendix C for a summary of agency responses. Copies of the agency consultation letters and responses are also provided in Appendix C.

2.3.2 NORTH DAKOTA GAME AND FISH DEPARTMENT

The NDGFD has oversight of the State’s game species. E3, on behalf of Sacagawea, initiated consultations with the NDGFD requesting information regarding the presence

or absence of State Conservation Priority Species within the Corridor. Refer to Volume 2, Appendix C for a summary of the response from the NDGFD in the Agency Consultations and Communications table. Copies of the agency consultation letters and responses are also provided in Appendix C.

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.

E3, on behalf of Sacagawea, initiated consultations with the NDPRD seeking confirmation regarding the presence or absence of managed lands within the Corridor. Refer to Volume 2, Appendix C for a summary of the response from the NDPRD in the Agency Consultations and Communications table. Copies of the agency consultation letters and responses are also provided in Appendix C.

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 a review of publically available information, the Corridor crosses state trust land.

E3, on behalf of Sacagawea, initiated consultations with the NDDTL Surface Management Division requesting comments regarding the presence of School Trust Lands within the Corridor. Refer to Volume 2, Appendix C for a summary of the response from the NDDTL in the Agency Consultations and Communications table. Copies of the agency consultation letters and responses are also provided in Appendix C.

E3, on behalf of Sacagawea, initiated consultations with the NDDTL Minerals Management Division requesting comments regarding the presence or absence of State Mineral Trust lands within the Corridor. Refer to Volume 2, Appendix C for a summary of the response from the NDDTL in the Agency Consultations and Communications table. Copies of the agency consultation letters and responses are also provided in Appendix C.

2.3.5 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

The SHPO is responsible for managing the historic and archaeological resources of the state; as such, the SHPO maintains records of all previously recorded cultural resources within the state. Coordination with the SHPO was initiated for the Palermo and original Sacagawea line prior to the projects consolidation to form the current, approximately 70 mile Project. The information below reflects the combined Class I literature review for the Project. Refer to Volume 2, Appendix E for the separate Palermo and original Sacagawea pipeline cultural resources report abstracts. The full cultural resources

reports and associated maps located in Volume 3 are privileged and not for internet publication.

On August 15, 2013 and July 28, October 17, and November 17, 2014, SWCA Environmental Consultants (SWCA) conducted a Class I cultural resources literature review of records from the State Historical Society of North Dakota to identify previously completed cultural resource investigations and previously recorded cultural resources within one mile of the Corridor. The Class I review identified 148 previously recorded cultural resources within the Corridor (98 of the resources are sites, 21 are site leads, and 29 are isolated finds). Of the 98 sites, four are recommended eligible for the National Register of Historic Places (NRHP), 24 are recommended not eligible for the NRHP, and 70 are unevaluated regarding their eligibility for the NRHP. All 21 site leads are unevaluated regarding their eligibility for the NRHP and the 29 isolated finds are not eligible for listing on the NRHP. The results of this Class I effort are documented in Volume 2, Appendix E. To augment this Class I effort SWCA also conducted a Class III field investigation, the details of which are included in Appendix E and in the Route Permit Application. The full cultural resources reports and associated maps located in Volume 3 are privileged and not for internet publication.

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. Sacagawea would procure the following NDPDES permits from the NDDoH as described below.

Construction Stormwater: Sacagawea 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. Sacagawea 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: Sacagawea 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.

2.3.7 UNITED STATES AIR FORCE CABLE AFFAIRS

The USAF Cable Affairs division at the Minot Air Force Base maintains a fleet of 150 Minuteman III missiles/launch facilities and associated underground communication network cable system.

E3, on behalf of Sacagawea, initiated consultations with the USAF Cable Affairs division seeking confirmation regarding the presence or absence of any ICBM related systems within the Corridor. Refer to Appendix C located in Volume 2 for a summary of the consultation with the USAF Cable Affairs division in the Agency Consultations and Communications table. Copies of the agency consultation letters and responses are also provided in Appendix C.

2.3.8 BUREAU OF INDIAN AFFAIRS

The Bureau of Indian Affairs (BIA) is responsible for the administration and management of surface and subsurface estates held in trust by the United States for American Indian, Indian tribes, and Alaska Natives. The BIA is responsible for making grants of right-of-way for projects located on BIA managed lands. As such portions of the Project are subject to BIA oversight.

As proposed, the Project would impact approximately 244 acres of fee surface land and approximately 43 acres of allotted tribal lands within the Fort Berthold Indian Reservation. In compliance with the National Environmental Policy Act (NEPA), the BIA is preparing an Environmental Assessment and initiated public scoping in January of 2015. Consultations with the BIA, the public scoping letter and responses, and other ongoing correspondence is located in Volume 2, Appendix H.

2.3.9 UNITED STATES ARMY CORPS OF ENGINEERS

The USACE maintains regulatory jurisdiction over navigable waters. In compliance with Section 10 of the Rivers and Harbors Act of 1899, Sacagawea submitted a Section 10 permit application to directionally bore beneath Lake Sakakawea, a Section 10 water, by horizontal directional drilling (HDD). In addition, Sacagawea has initiated the process of obtaining a permanent pipeline easement through the USACE Garrison Project Office, triggering NEPA. The BIA is the lead federal agency for the NEPA process, however both agencies (*i.e.*, BIA and USACE) will issue a record of decision (ROD). Refer to Appendix I located in Volume 2 for a copy of the Section 10 submittal and Appendix H for documentation of the ongoing coordination with the USACE.

2.3.10 NORTH DAKOTA STATE WATER COMMISSION

The North Dakota State Water Commission, in conjunction with the Office of the State Engineer authorizes Sovereign Land Permits pursuant to NDCC Chapter 61-33. This permit would authorize Sacagawea to bore the Project beneath the historic channel of the Missouri River. Approximately 1,500 feet of pipeline would be installed under the Missouri River channel at a depth of 100-150 feet below the channel. Sacagawea submitted a Sovereign Lands Permit application on February 23, 2015. Refer to Appendix J located in Volume 2 for a copy of the permit application submittal.

2.3.11 MCKENZIE COUNTY PLANNING AND ZONING DEPARTMENT

Pipeline construction in McKenzie County, North Dakota, requires a conditional use permit prior to construction. Sacagawea has initiated the process of obtaining the required permit from the McKenzie County Planning and Zoning Department. Refer to Appendix C located in Volume 2 for a summary of the response from McKenzie County in the Agency Consultations and Communications table. A copy of the correspondence are also provided in Appendix C.

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 11 percent 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, by such means as rail or other surface transportation alternatives.

Construction of the proposed project would provide firm, reliable transport of 140,000 bpd of crude oil between the KCT and the PRTF in North Dakota. From the PRTF, the product would be shipped via rail to refineries located on the East Coast, Mid-Continent and West Coast of the United States.

SECTION 4: CORRIDOR LOCATION AND CRITERIA EVALUATION

Sacagawea has conducted a thorough inventory of the Corridor and evaluated the resources within to assess the compatibility of the Project with the PSC's siting criteria. Because this application is part of a consolidated application for a Certificate of Corridor Compatibility and a Route Permit, the criteria evaluation is more fully discussed in the Route Permit portion of the application. Where siting criteria are identified, the location of each is shown on the maps in Volume 2, Appendix B as appropriate.

4.1 CORRIDOR LOCATION

Sacagawea 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 Sacagawea with the opportunity to utilize existing assets, and minimize landowner and environmental impacts.

Sacagawea initiated landowner negotiations, agency consultations, and performed internet-based research and desktop analysis of the Corridor. These efforts were augmented by field studies, including natural and cultural resource field surveys, the results of which are discussed in detail in the 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 proposed Project would provide firm, reliable service for 140,000 barrels of crude oil per day from the KCT to the PRTF. From the PRTF, the product would be shipped via rail to refineries located on the East Coast, Mid-Continent and West Coast of the United States. Sacagawea 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, Sacagawea 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 proposed Project would be approximately 140,000 barrels or 5,880,000 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 approximately 786 trucks per day, an average of 32.7 trucks every hour for 24 hours a day to transport the volume of product the pipeline would transport. 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, Sacagawea rejected a *Trucking Alternative*.

4.2.1.3 Rail Alternative

A Rail Alternative was also evaluated as a surface transportation alternative. However, the lack of active railroad service within reasonable proximity to Keene, North Dakota limited the viability of this alternative. Upon further analysis, this alternative was determined not feasible because of the associated environmental impacts and financial, logistic and time constraints necessary to acquire land and construct the requisite rail infrastructure. This alternative would also require a third party rail operator. For these reasons, Sacagawea rejected a *Rail Alternative*.

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

Sacagawea 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

Sacagawea is not aware of any other future development plans within or in close proximity to the Project.

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

Sacagawea 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 Volume 2, Appendix C.

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

Exclusion areas are geographical areas that must be excluded from consideration when siting an energy transmission facility. A proposed corridor may contain exclusion areas; however, exclusion areas may not encompass more than 50 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.

Exclusion Area	Within Corridor
Federal	
National Parks or Memorial Parks	No
Historic Sites, or Landmarks	Yes
Natural Landmarks or Monuments	No
Wilderness Areas	No
State	
Historic Sites, Monuments, or Historical Markers	No
Archaeological Sites	Yes
Parks	No
Nature Preserves	No
County	
Parks	No
Recreation Areas	No
Municipal Parks	No
Other	
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.	Yes
Areas within 30 feet on either side of a direct line between ICBM launch or launch control facilities to avoid microwave interference.	Yes

4.3.1 FEDERAL RESOURCE REVIEW

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

Sacagawea commissioned a Class I inventory of the Corridor. These efforts identified 88 historic sites within the Corridor (four sites eligible for inclusion on the NRHP and 84 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 Sacagawea agency consultations and Appendix C located in Volume 2 for a record of these consultations. Mitigation details are discussed in the Route Permit Application and Volume 2, Appendix K.

4.3.2 STATE RESOURCE REVIEW

Sacagawea confirmed through a combination of agency consultations, review of publicly available information and field studies the absence of state parks, historic sites, monuments, historical markers, or nature preserves within the proposed Corridor. Refer to Section 2 for a comprehensive discussion of Sacagawea agency consultations and Appendix C located in Volume 2 for a record of these consultations.

Sacagawea commissioned a Class I cultural resources inventory of the Corridor. These efforts identified 60 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 Sacagawea agency consultations and Appendix C, located in Volume 2 for a record of these consultations. Mitigation details are discussed in the Route Permit Application and Appendix K located in Volume 2.

4.3.3 COUNTY RESOURCE REVIEW

Sacagawea 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 for a comprehensive discussion of Sacagawea's 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

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

Refer to Volume 2, Appendix C for documentation of the agency consultations, and Section 2 of the 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

Sacagawea 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, Sacagawea has confirmed the absence of protected species and/or their critical habitats. Refer to Volume 2, 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 Minuteman Intercontinental Ballistic Missile (ICBM) site, Sacagawea has confirmed the

presence of two ICBM launch or launch control facility is located within 1,200 feet of the Corridor.

E3, on behalf of Sacagawea, initiated consultations with the USAF Cable Affairs division seeking confirmation regarding the presence or absence of any ICBM related systems within the Corridor. Refer to Volume 2, Appendix C for a summary of consultations with the USAF Cable Affairs division in the Agency Consultations and Communications table, and for a record of the correspondence.

4.3.7 AREAS WITHIN 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 Minuteman Intercontinental Ballistic Missile (ICBM) site, Sacagawea has confirmed the presence of three areas within 30 feet on either side of a direct line between ICBM launch or launch control facilities.

E3, on behalf of Sacagawea, initiated consultations with the USAF Cable Affairs division seeking confirmation regarding the presence or absence of any ICBM related systems within the Corridor. Refer to Volume 2, Appendix C for a summary of consultations with the USAF Cable Affairs division in the Agency Consultations and Communications table, and for a record of the correspondence.

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

Avoidance areas are geographic areas that may not be considered in the routing of a transmission facility unless it is shown there is no reasonable alternative under the circumstances. A proposed corridor may contain avoidance areas; however, avoidance areas may not encompass more than 50 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.

Avoidance Area	Within Corridor
Federal	
Historic Districts	No
Wildlife Areas	No
Wild, Scenic or Recreational Rivers	No
Wildlife Refuges	No
Grasslands	Yes
State	
Wild, Scenic, or Recreational Rivers	No
Game Refuges or Game Management Areas	Yes
Forests or Forest Management Areas	No
Grasslands	No

Avoidance Area	Within Corridor
Other	
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	No
Water Sources for Organized Rural Water Districts	No
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

Sacagawea conducted agency consultations and a comprehensive review of publicly available information. This review indicated the absence of designated or registered historic districts, refuges, and wild, scenic or recreational rivers within the Corridor. However, the Little Missouri National Grassland is located within the Corridor. Refer to Volume 2, Appendix C for documentation of agency consultations.

4.4.2 STATE RESOURCE REVIEW

Sacagawea 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 forests, forest management lands, grasslands or wild, scenic, or recreational rivers within the Corridor.

The Van Hook and Palermo Wildlife Management Areas are within the Corridor, and the NDGFD noted the management areas presence. None of these resources would be traversed by the Route. Refer to Volume 2, Appendix C for documentation of agency consultations.

4.4.3 HISTORICAL RESOURCES NOT MEETING EXCLUSION AREA CRITERIA

Sacagawea conducted a review of publicly available information, initiated project specific agency consultations, and augmented agency review with field studies. Through these efforts, Sacagawea has concluded there are no historic resources not meeting exclusion areas criteria within the Corridor. Refer to Volume 2, Appendix C for documentation of agency consultations and Volume 2, Appendix E for the Cultural Resources Report Abstracts. The full cultural resources reports and associated maps located in Volume 3 are privileged and not for internet publication.

4.4.4 AREAS OF KNOWN GEOLOGIC INSTABILITY

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, 100K Sheet* of Parshall and Stanley indicated landslide deposits are present 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, four abandoned surface mines are located in the Corridor. Refer to the maps in Volume 2, 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 166 potentially occupied structures were identified within the Corridor. Refer to the Route Permit Application regarding potentially occupied structures within 500 feet of the Route.

4.4.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

Sacagawea has confirmed the Corridor does not contain reservoirs or municipal source water protection areas for community water supply sources. Lake Sacagawea is used as a municipal water source for surrounding communities, however the Project's boring location is 25 river miles from the nearest community intake location. While a number of wells were identified within the Corridor, these wells are used for either local domestic, stock, or irrigation purposes and are not located within the Survey Corridor. The maps in Volume 2, Appendix B depict the location of these resources.

4.4.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

Sacagawea has confirmed the Corridor does not contain documented source water protection areas for community and non-community water supplies. The Corridor intersects the McKenzie County Water Resource District, however there are no source waters near the Route inside the district boundaries. The maps in Volume 2, Appendix B depict the location of wells located within the Corridor.

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

Two Private Land Open to Sportsmen (PLOTS) managed by the NDGFD are located within the Corridor in T154N, R91W, Sections 11 and 17. Sacagawea confirmed the Corridor does not contain any additional areas of recreational significance.

4.5 SELECTION CRITERIA (NDAC 69.06-08-02(3))

The selection criteria require assessment of the environmental impacts and alterations to land use that may result from the siting of the proposed project. Through this process, Sacagawea 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 842 acres of private land in North Dakota. Of the 842 acres, approximately 416 acres are located on privately owned cropland. Once construction is complete, the land would be restored to its pre-construction contours and land use. Sacagawea would provide settlements to landowners for crop loss resulting from Project construction.

Family Farms and Ranches: The Project would temporarily affect approximately 842 acres of private land in North Dakota. Of the 842 acres, approximately 416 acres are located on privately owned cropland. Once construction is complete, the land would be restored to its pre-construction contours and land use. Sacagawea 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 more than 20 feet below the surface. Typical subsurface excavations associated with the Project would not extend to more than ten 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 proposed 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 proposed 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: The proposed Project would include nine mainline block valves, two mainline check valves, one launcher and one receiver. Each valve assembly occupies approximately 0.04 acres with exposed piping and appurtenances that may be up to six feet in height. These facilities would be enclosed within chain-link fences with security wires to protect against vandalism. An electrical panel for power and remote communication would also be installed at each mainline valve location. Each location would be clearly marked with a small placard that details ownership and contact information. These features are common throughout the landscape and are not obtrusive. No other permanent aboveground features are to be installed as a part of 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. Sacagawea commissioned field surveys to identify and record the locations of these resources along the proposed Route. Refer to Section 2 of the Route Permit Application for a comprehensive discussion of the field studies results, as well as Volume 2, Appendix C for copies of agency consultations. Mitigation details are discussed in the Route Permit Application and Appendix K located in Volume 2.

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

Human Health and Safety: Sacagawea corporate Health and Safety Policy meets or exceeds federal and state laws, rules and regulations, and is enforced equally with respect to both Sacagawea and contractor employees. The implementation of this policy promotes a safe and healthy workplace during construction and operation of all Sacagawea assets.

The design of the Project has incorporated the use of block valves at regular intervals. The purpose of the block valve is to segment the system and allow for the isolation of select portions of the system to facilitate maintenance in a safe and controlled manner. Additionally, in the event of an abnormal operating condition, block valves can be closed

as necessary to prevent an uncontrolled release of oil. Finally, 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. Sacagawea does not anticipate species of special concern to experience direct impacts due to construction or operation of the proposed 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

Sacagawea 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. Sacagawea 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 Sacagawea 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 pipeline would be located in McKenzie and Mountrail Counties, North Dakota. The Project would result in a transmission pipeline originating at the KCT located approximately 2.5 miles south of Keene, North Dakota in McKenzie County and terminates at the PRTF just west of Palermo, North Dakota in Mountrail County. Refer to maps provided in Volume 2, Appendix B.

The proposed pipeline would be approximately 70-miles long, 16-inch outside diameter crude oil pipeline. As part of this Project, nine mainline block valves, two mainline check valves, one launcher and one receiver would be installed. No other permanent above ground appurtenances would be constructed for the Project.

The proposed pipeline would meet US Department of Transportation regulations, specifically the design criteria outlined in CFR 195.1, constructed per CFR 195.2 operated and maintained per CFR 195.4.

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 250 personnel.

4.6.4 ECONOMIES OF CONSTRUCTION AND OPERATION

Sacagawea would invest approximately \$100 million in North Dakota to develop this Project, generating approximately \$600,000 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

Sacagawea 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 proposed 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

Sacagawea 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

Sacagawea owns and operates all of the affected facilities; thus, coordination would be seamless and executed from within Sacagawea's internal management systems.

4.6.9 MONITORING OF IMPACTS

Sacagawea 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. Sacagawea would monitor landowner concerns through its right-of-way (ROW) department and would respond to all reasonable requests. In a similar manner, Sacagawea would monitor community concerns and would respond to all reasonable concerns brought to its attention by local community leaders. Sacagawea 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 shall be coordinated in the same manner.

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

Sacagawea chose the preferred Project alignment in an effort to maximize the use of existing utility corridors. Approximately 58% (40 miles) of the project is co-located with existing utility corridors. Refer to Volume 2, Appendix B for project maps depicting the portions of the Project, which are collocated with other utilities.

4.6.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

Volume 2, Appendix F contains Sacagawea's 10-Year Plan, which contains details regarding existing and planned Sacagawea assets.

SECTION 5: MITIGATIVE MEASURES

5.1 LOCATION

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 meets the siting criteria, and provides Sacagawea 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.

Sacagawea 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 Sacagawea to draw upon existing pipeline and facility assets in the region.

5.2 CONSTRUCTION

The proposed construction of the 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 a minimum of six 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 proposed Project would operate continuously, delivering crude oil from the KCT to the PRTF in North Dakota. 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 right-of-way would likely be required to remain in compliance.

SECTION 6: LIST OF PREPARERS

Thomas G. Janik

Paradigm Energy Partners, LLC

B.S. Civil Engineering, Texas A&M University. Mr. Janik has 38 years of experience in the oil and gas industry including executive management experience in engineering and corrosion services, project and construction management, operations, and pipeline and facilities construction. Mr. Janik has extensive technical expertise in engineering designs, project and construction management, operations and maintenance of natural gas and liquid pipeline facilities. In addition, he is experienced in the development and management of pipeline integrity management process safety management programs.

William McCarthy, C.W.B.

Senior Environmental Compliance Analyst

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

M.S. Wildlife Biology, University of Minnesota – Twin Cities; and B.S. Wildlife Biology, Michigan State University. Mr. McCarthy is an environmental compliance analyst with 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 ten years of experience working with various energy assets and regulatory agencies. As a consultant, she has managed multiple pipeline projects supporting clients through the construction permitting and siting processes, which included coordination with various federal, state and local agencies.

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.

Dan Woodward, RPA

Senior Archaeologist
E3 Environmental, LLC, 871 Jefferson Ave St Paul, MN 55102

M.A. Anthropology (archaeology focus), California State University - Fullerton; and B.A. History, University of Florida. Mr. Woodward is a secretary of the interior qualified archaeologist with 15 years of environmental consulting experience working with various energy assets and regulatory agencies. As a senior archaeologist, he has overseen all phases of archaeological fieldwork from class I record searches and class III intensive surveys to detailed excavations and archaeological damage assessments. He has authored dozens of cultural resource technical reports fulfilling NHPA and NEPA cultural resource requirements. Mr. Woodward has also coordinated with multiple Native American groups and has met with interested Tribal representatives in the field to address project concerns. Mr. Woodward has performed historic building analysis and authored built-environment technical reports. Mr. Woodward has also assisted with extensive paleontological fieldwork including paleontological surveys, monitoring, and salvage activities.

North Dakota Public Service Commission
Application for Route Permit
Sacagawea Pipeline Company, LLC
Sacagawea Pipeline Project

Prepared by:

E3 Environmental, LLC

March 2015



E3 ENVIRONMENTAL
Enhancing Execution with Experience

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INTRODUCTION

Sacagawea Pipeline Company, LLC (Sacagawea), a joint venture between Paradigm Pipeline, LLC and Grey Wolf Midstream, LLC, is proposing the Sacagawea Pipeline Project (Project), located in McKenzie and Mountrail County, North Dakota. The Project scope includes a new approximately 70 mile, 16-inch outside diameter crude oil pipeline that would originate at Paradigm Midstream Services – SC Keene Crude Oil Terminal (KCT) which is located approximately 2.8 miles south of Keene, North Dakota in McKenzie County and terminates at the Phillips 66 Partners Palermo Rail Terminal Facility (PRTF) located just west of Palermo, North Dakota in Mountrail County.

The Project is needed to address transportation of growing volumes of crude oil to refineries located on the East Coast, Mid-Continent and West Coast of the United States.

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

The application provides the requisite information as stipulated by:

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

SECTION 1: DESCRIPTION

1.1 TYPE OF TRANSMISSION FACILITY

The proposed 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 CFR 195.1, construction specifications per CFR 195.2, and operation and maintenance requirements per CFR 195.4.

1.2 PURPOSE OF TRANSMISSION FACILITY

The purpose of the Project is to transport crude oil from the KCT northeast to the PRTF in Palermo, North Dakota. From the PRTF, the product would be shipped via rail to refineries located on the East Coast, Mid-Continent and West Coast of the United States. The pipeline would provide crude oil delivery from McKenzie and Mountrail counties to the PRTF and subsequently would reduce or eliminate truck transport.

Sacagawea estimates the Project would cost approximately \$100 million to develop.

1.3 LENGTH, SIZE AND DESIGN OF PIPELINE FACILITY

1.3.1 LENGTH OF FACILITY

The proposed Project is approximately 70 miles in length.

1.3.2 PIPE SIZE

The Project pipeline specifications are detailed below:

- One 16-inch Outside Diameter Steel Pipe
- Steel, API-5L, PSL2, Grade X-60 ERW Line Pipe
- Line Pipe Wall Thickness of 0.312 inch
- Bore Pipe Wall Thickness of 0.375 inch
- Lake Bore Pipe Wall Thickness of 0.500 inch

1.3.3 OPERATING PRESSURE AND THROUGHPUT

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

- Maximum Operating Pressure: 1,440 pounds per square inch (psi)
- Normal Operating Pressure: 1,200 psi
- Maximum Throughput: 200,000 bpd
- Normal Throughput: 140,000 bpd
- Maximum Operating Temperature: 120 degrees Fahrenheit

1.4 ABOVEGROUND FACILITIES

The proposed Project would include nine mainline block valves and two mainline check valves. These valves would be installed to DOT regulations and would allow for the isolation of select segments of the pipeline for inspection and maintenance

purposes as well as in the event of a system failure. The valves would be 16-inch ANSI 600, flange end by flange end, full port, quarter turn ball valves and 16-inch ANSI 600 flange end by flange end, swing check valves. These valves would be manufactured in accordance with API Standard 6D.

The Project would also include one launcher and one receiver. A launcher and leak detection meter would be constructed at the KCT. A receiver and custody transfer meter with pressure and flow control equipment would be installed at the PRTF. The launchers and receivers enable in-line inspection of the pipeline for integrity management per DOT requirements and Sacagawea standards.

Project maps illustrating the location of the proposed block valves, launcher, and receiver are contained in Volume 2, Appendix B. Refer to Volume 2, Appendix A for engineering documents.

1.5 WIDTH OF RIGHT-OF-WAY

The Pipeline would be constructed utilizing a 100-foot construction right-of-way (ROW). Sacagawea would maintain a typical 50-foot permanent ROW along the entire length of the pipeline.

1.6 LOCATION

The pipeline would be located in McKenzie and Mountrail counties, North Dakota. The Project would originate at the KCT, located approximately 2.5 miles south of Keene, North Dakota in McKenzie County and terminate at the PRTF west of Palermo, North Dakota in Mountrail County. Refer to maps provided in Volume 2, Appendix B for the location of the Project.

1.7 PROJECT SCHEDULE

1.7.1 ROUTE PERMIT

Sacagawea is seeking a Route Permit by or before August 2015.

1.7.2 CERTIFICATE OF CORRIDOR COMPATIBILITY

Sacagawea seeks a Certificate of Corridor Compatibility by or before August 2015.

1.7.3 RIGHT-OF-WAY ACQUISITION

Sacagawea anticipates right-of-way acquisition for the Project will be completed by May 2015.

1.7.4 CONSTRUCTION SCHEDULE

Sacagawea has scheduled construction activities to commence as soon as all permit authorizations are received, which could be as early as the third quarter of 2015. The construction activities would take approximately six months to complete. Testing and commencement of operations will occur as soon as possible after construction has

been completed. Commissioning and restoration activities would also commence immediately after construction is complete.

SECTION 2: ROUTE ANALYSIS AND ENVIRONMENTAL STUDIES

2.1 PIPELINE ROUTE

Sacagawea has conducted a thorough analysis of the proposed Corridor and Route, which included 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 proposed Project Corridor was suitable for routing a pipeline with minimal environmental impacts thus conforming to the PSC siting criteria.

Sacagawea evaluated potential routing alternatives and identified the proposed Project alignment (Route). Sacagawea chose this Route to meet landowner requests and to minimize impacts to environmental features. Additionally, the Route meets the Project's objectives while conforming to the PSC's transmission route siting requirements. In support of Sacagawea's route selection, the desktop studies from the Corridor were refined and field studies were conducted of the proposed Project Route. Trained natural and cultural resource specialists conducted the field studies.

The purpose of the field studies was two-fold: (1) to 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 identify whether alternative routing or mitigation was necessary to minimize environmental impacts. The environmental Survey Corridor was a minimum of 200-feet centered (Survey Corridor) on the proposed Route. Field surveys were conducted in August, September, and November of 2013, August and October of 2014, and January of 2015. The results of these field surveys are summarized in the following sections; the full Natural Resources Report is contained in Volume 2, Appendix D and the Class I and Class III Cultural Resources Report Abstracts can be found in Appendix E. The full cultural resources reports and associated maps located in Volume 3 are privileged and not for internet publication. The Survey Corridor is depicted on the maps in Volume 2, Appendix B.

2.2 ROUTE ALTERNATIVES

Construction of the proposed Project would provide firm, reliable service for 140,000 bpd of crude oil from the KCT to the PRTF. From the PRTF, the product would be shipped via rail to refineries located on the East Coast, Mid-Continent and West Coast of the United States. Sacagawea 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, Sacagawea 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 proposed Project would be approximately 140,000 barrels or 5,880,000 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 approximately 786 trucks per day, an average of 32.7 trucks every hour for 24 hours 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 the 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, Sacagawea rejected a *Trucking Alternative*.

Rail Alternative:

Rail transport was also evaluated as a surface transportation alternative. However, the lack of active rail service within reasonable proximity to Keene, North Dakota limited the viability of this alternative. Upon further analysis, this alternative was determined not feasible because of the associated environmental impacts, financial, logistic, and time constraints necessary to acquire land and construct the requisite rail infrastructure. This alternative is not desirable; therefore, Sacagawea rejected the *Rail Alternative*.

2.3 ENVIRONMENTAL SURVEY

Field surveys were conducted in August, September, and November of 2013, August and October of 2014, and January 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 Volume 2, Appendix B.

2.3.1 NOXIOUS WEEDS

“Noxious weed” is a 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. Four areas of Canada thistle were identified within the Survey Corridor. Refer to Volume 2, Appendix D for the Natural Resources Report and Mitigation Measures for the proposed mitigation procedures.

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, 71 tree and shrub areas were located within the Survey Corridor. In total, 6,142 trees were identified within the Survey Corridor; 2,460 of these features were located within the planned 100-foot wide construction ROW. See Volume 2, Appendix D for the 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, and rivers). Field crews identified features, characterized these features as a wetland or waterbody and recorded feature boundaries relative to the proposed Route to facilitate avoidance mitigation where practicable. Volume 2, Appendix D contains the Natural Resources Report, which outlines the results of these field efforts.

2.3.3.1 WETLAND SURVEY

Field surveys identified and recorded 151 wetland features. Of these features, 23 were identified as potentially jurisdictional wetlands within the 100-foot-wide construction ROW. Sacagawea would implement the appropriate construction mitigation measures to minimize impacts or avoid these features, which may include avoidance (*e.g.*, workspace modification or horizontal directional drilling) or use of construction mats and other best management practices (BMP's). See the Project Maps contained in Volume 2, Appendix B for the mapped location of each feature and Appendix D for the Natural Resources Report.

2.3.3.2 WATERBODIES SURVEY

Two waterbodies and 23 streams were identified within the Survey Corridor. Ten of the streams were determined to be likely jurisdictional. See Volume 2, Appendix B for the mapped location of each feature, Appendix D for the Natural Resources Report, and Section 5 of this application 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. Piping plovers were observed during field surveys and nesting behavior was noted. No other threatened or endangered species or their critical habitats were observed by field biologists. Volume 2, Appendix D contains the Natural Resources Report, which outlines the results of these field efforts.

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.

E3 Environmental, LLC (E3), on behalf of Sacagawea, requested a USFWS review of the Project, to identify the presence or absence of threatened and endangered species within the project area. Refer to Volume 2, Appendix C for a summary of communications with the USFWS in the Agency Consultations and Communications table, and for a record of the correspondence. See Volume 2, Appendix H for documentation of the ongoing Section 7 consultation as required by the National Environmental Policy Act (NEPA) process.

Sacagawea commissioned field studies to confirm the presence or absence of these species and/or their critical habitats along the Route. The results of this assessment are outlined below. Refer to Volume 2, 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 offers 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 proposed project may affect but is not likely to impact the whooping crane.

Piping plover: Suitable shoreline habitat for breeding and nesting does occur in the Survey Corridor. The piping plover may occur within the project area as a migrant, however adverse impacts to the least terns as a result of the Project are not anticipated.

Interior least tern: Suitable shoreline habitat for breeding and nesting terns does occur in the Survey Corridor. The piping plover may occur within the project area as a migrant, however adverse impacts to the least terns as a result of the Project are not anticipated. In addition, it is unlikely terns would visit the upland or wetland habitats present in the survey area as it is not their preferred habitat. Therefore, impacts to the least terns as a result of the Project are not anticipated.

Pallid sturgeon: Suitable habitat for the pallid sturgeon does occur in the Survey Corridor; however, activities associated with Project are not anticipated to adversely impact water quality and subsequently the pallid sturgeon.

Dakota skipper: Suitable habitat for the Dakota skipper is not present within the Survey Corridor, and the nearest proposed critical habitat is located approximately 10.7 miles from the project area. This species is not known to disperse widely and has low mobility, dispersing a maximum of 0.6 miles. Therefore, impacts to the Dakota skipper 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.

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

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. See Appendix H located in Volume 2 for the ongoing Section 7 consultation efforts.

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. See Appendix H located in Volume 2 for the ongoing Section 7 consultation efforts.

Migratory Bird: Field studies identified suitable habitat for migratory birds in the project area. Project activities may occur within the February 1st through July 15th breeding season, however mitigation measures (*e.g.* construction timing) would be implemented to avoid impacts, as such the Project is unlikely to impact migratory birds.

2.3.5 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

The North Dakota State Historic Preservation Office (SHPO) is responsible for managing the historic and archaeological resources of the state; as such, the SHPO maintains records of all previously recorded cultural resources within the state. Coordination with the SHPO was initiated for the Palermo and original Sacagawea line prior to consolidation of the projects to form the current, approximately 70 mile Project. The information below reflects the combined Class I literature review and Class III cultural resources inventory results for the Project. Refer to Volume 2, Appendix E located in Volume 2 for the separate Palermo and original Sacagawea pipeline cultural resources report abstracts. The full cultural resources reports and associated maps located in Volume 3 are privileged and not for internet publication.

E3 commissioned SWCA Environmental Consultants (SWCA) to conduct a Class I cultural resources inventory (literature review) of the Corridor. The Class I effort was

completed on August 15, 2013 and July 28, October 17, and November 17, 2014. The inventory identified 148 previously recorded cultural resources within the Corridor (98 of the resources are sites, 21 are site leads, and 29 are isolated finds). Of the 98 sites, four are recommended eligible for the National Register of Historic Places (NRHP), 24 are recommended not eligible for the NRHP, and 70 are unevaluated regarding their eligibility for the NRHP. All 21 site leads are unevaluated regarding their eligibility for the NRHP and the 29 isolated finds are not eligible for listing on the NRHP. Thirteen of the previously recorded cultural resources were identified within the Survey Corridor.

The ensuing Class III cultural resources inventory of the Survey Corridor was completed in August, September and November of 2013, August and October of 2014, and January of 2015. The following information reflects the cultural resources within the current Survey Corridor. During the inventories, SWCA attempted to revisit eight previously recorded resources (32MN1031, 32MN1130, 32MN1131, 32MZ2195, 32MNX110, 32MNX213, 32MZX97, and 32MN1149) and recorded seven new sites (32MN1205, 32MN1206, 32MN1207, 32MN1320, 32MN1322, 32MN1317 and 32MN1318) within the Survey Corridor. Three of the previously recorded resources were relocated (32MN1130, 32MN1131, and 32MN1149), and the remaining five were unable to be located. Of the 15 resources located within the Survey Corridor, one site is considered not eligible for the NRHP (32MN1205), and the remaining sites are unevaluated regarding their eligibility for the NRHP. Appendix E located in Volume 2 contains the Cultural Resources Report Abstracts.

On February 17, 2015, Sacagawea received concurrence of *No Significant Sites Affected* for the Sacagawea Pipeline Report from the SHPO, provided there are no changes to the nature or location of the proposed Project. On February 4, 2015, Sacagawea received concurrence of *No Significant Sites Affected* for the Palermo Gathering Pipeline Report from the SHPO, provided there are no changes to the nature or location of the proposed Project. Refer to Volume 2, Appendix C for related agency consultations, and Appendix E for the Cultural Resources Survey Report Abstracts. The full cultural resources reports and associated maps located in Volume 3 are privileged and not for internet publication.

2.3.6 U.S. FISH AND WILDLIFE SERVICE MANAGED LANDS

Desktop analysis indicated USFWS wetland easements are located within the Survey Corridor. E3 and SWCA, on behalf of Sacagawea, requested a USFWS review of the Project, requesting information relating to the presence or absence of USFWS managed land within the Survey Corridor. Refer to Volume 2, Appendix C for a summary of communications with the USFWS in the Agency Consultations and Communications table, and for a record of the correspondence. Refer to maps in Volume 2, Appendix B for the location of the easements.

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. 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 11 percent 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 transmission pipeline would provide firm, reliable transport of 140,000 bpd of crude oil between the KTC and the PRTF. From the PRTF, the product would be shipped via rail to refineries located on the East Coast, Mid-Continent and West Coast of 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:

Route planning between the KCT and the PRTF identified and evaluated several options for routing this Project. These studies were designed to define a preferred route that achieves project objectives, is technologically and economically feasible to construct, and minimizes impacts to landowners and the environment. The key logistical considerations were identification of existing utility corridors for collocation, and acquisition of pipeline ROW from area landowners. Approximately 58% of the proposed Project will be collocated with other existing utilities.

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, and full reports are provided in Appendices D and E. The sections below discuss possible effects of the Project 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 to be employed.

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

Any 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. Sacagawea 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 mitigation 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:

Sacagawea 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:

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

4.1.6 DIRECT AND INDIRECT ECONOMIC IMPACTS OF THE PROPOSED FACILITY:

Sacagawea would invest approximately \$100 million in North Dakota to develop this Project, generating approximately \$600,000 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed 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 \$50 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:

Sacagawea is not aware of any other future development plans within or in close proximity to the Project.

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

Sacagawea commissioned Class I and Class III cultural resource inventories. Sacagawea 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 Volume 2, Appendix C and supporting documentation of field studies can be found in Volume 2, Appendix E.

Project-specific consultation with various federal, state and local agencies did not identify any scenic areas within the Route. Refer to Volume 2, 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 comprehensive discussion of Sacagawea's effort to identify sensitive environmental resources within the proposed Route and Section 5 for a comprehensive discussion of proposed mitigation measures. Sacagawea 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 Volume 2, Appendix C for complete federal and state agency consultations. Detailed survey results can be found in Volume 2, Appendix D.

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

Sacagawea provided Project specific consultations to various federal, state and local agencies; through the consultation process, agencies had the opportunity to identify possible sensitive environmental resources and any related agency concerns within the Route. Agency consultations were initiated siting Paradigm Midstream Services – ND, LLC as the organization seeking a permit to construct two projects (the Sacagawea Pipeline Project approximately 63 miles in length, and the Palermo Pipeline Project approximately 9 miles in length). The two projects have been consolidated to form one project, now known as the Sacagawea Pipeline Project. In addition, the ownership of the Project has changed to Sacagawea Pipeline Company, LLC, but the scope of the Project remains the same.

A summary of agency concerns is summarized below, with a complete record of these communications found in Volume 2, Appendix C. Mitigation measures to address these concerns are discussed in Section 5 of this document.

- NDPRD: The Department recommends that the Project be accomplished with minimal impacts and that measures should be implemented to ensure that critical habitats are not disturbed. In addition, the Department recommends that impacted areas be revegetated with native species.
- NDGFD: The Department's primary concern was disturbance to native prairie and wooded draws associated with construction of the pipeline and associated access roads. Avoidance of these areas was 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. Additionally, if the Van Hook or Palermo Wildlife Management Areas are impacted by construction activities, a special use permit may be required. Avoidance of these Wildlife Areas are recommended, if avoidance cannot be achieved a special use permit should be obtained from the Wildlife Resource

Management Supervisor. The Department recommended Lake Sakakawea be crossed by directional boring and if that method is not feasible, construction should take place within the waterway between April 15th and June 1st to protect fishery resources. Lastly, the NDGFD recommended aerial surveys be conducted for raptor nests prior to construction.

- USFWS: The USFWS reviewed the Project and provided maps identifying wetlands on USFWS easement land. Avoidance of the areas by boring and routing around the features was recommended. In addition, the USFWS recommended equipment or fill should not be placed in the wetlands and soil should not be removed.

Sacagawea incorporated this feedback into the Route selection process, and as appropriate, into field survey protocols. If field studies confirmed the presence of these items, Sacagawea 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 Certificate of Corridor Compatibility portion of the application and discussions of avoidance and mitigation measures are found in Section 5 of this document. See Volume 2, Appendix C for complete federal and state agency consultations. Detailed survey results can be found in Volume 2, Appendix D and Appendix E.

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

Exclusion areas are geographical areas that must be excluded in the consideration of a route for a transmission facility. The following table and text identify and discuss exclusion areas identified along the proposed Route.

Exclusion Area	Within Survey Corridor
Federal	
National Parks or Memorial Parks	No
Historic Sites or Landmarks	Yes
Natural Landmarks or Monuments	No
Wilderness Areas	No
State	
Historic Sites, Monuments, or Historical Markers;	No
Archaeological Sites	Yes
Parks	No
Nature Preserves	No
County	
Parks	No
Recreation Areas	No
Municipal Parks	No
Other	

Exclusion Area	Within Survey Corridor
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 30 feet on either side of a direct line between (ICBM) launch or launch control facilities to avoid microwave interference.	Yes

4.2.1 FEDERAL RESOURCE REVIEW

Sacagawea has initiated consultations with various federal agencies and has conducted a comprehensive review of published information. Sacagawea has concluded no national parks, memorial parks, landmarks, natural landmarks, monuments, or wilderness areas would be impacted by the Project.

Sacagawea confirmed the presence of previously recorded historic sites within the Survey Corridor (*i.e.*, cultural resource unevaluated for inclusion into the NRHP). Refer to Section 2.3.5 for more information on these resources, Volume 2, Appendix C for a record of agency consultation, Appendix E for the Cultural Resources Report Abstracts, and Section 5 for proposed mitigation. The full cultural resources reports and associated maps located in Volume 3 are privileged and not for internet publication.

4.2.2 STATE RESOURCE REVIEW

Sacagawea confirmed through a combination of agency consultations, review of publicly available information and field studies the absence of state parks, historic sites, monuments, historical markers, or nature preserves within the Survey Corridor. Refer to Section 2 of the Certificate of Corridor Compatibility for further discussion of Sacagawea’s agency consultations and Volume 2, Appendix C for documentation of agency correspondence.

Sacagawea confirmed the presence of previously recorded archaeological sites within the Survey Corridor (*i.e.*, cultural resources determined to be not eligible for inclusion into the NRHP). Refer to Section 2.3.5 for more information on these resources, Volume 2, Appendix C for a record of agency consultation, Appendix E also located in Volume 2 for the Cultural Resources Report Abstracts, and Section 5 for proposed mitigation. The full cultural resources reports and associated maps located in Volume 3 are privileged and not for internet publication.

4.2.3 COUNTY RESOURCE REVIEW

Through a combination of agency consultations and review of publicly available information, Sacagawea confirmed the absence of county parks or recreation areas, and municipal parks, or parks owned by other subdivisions of government bodies within the Survey Corridor. Refer to Section 2 of the Certificate of Corridor Compatibility portion of the application for a comprehensive discussion of Sacagawea's agency consultations and Appendix C, located in Volume 2 for documentation of agency correspondence.

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

Sacagawea 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 Corridor and therefore, the Route. The results of these field efforts are detailed in Section 2.3, planned mitigation measures are discussed in Section 5, and Appendix D located in Volume 2 contains the 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 a review of published information, agency consultations and subsequent field surveys, the proposed Project would 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, Sacagawea has confirmed the absence of ICBM launch or launch control facilities within 1,200 feet of the Route.

4.2.7 AREAS WITHIN 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 Minuteman Intercontinental Ballistic Missile (ICBM) site, Sacagawea has confirmed the presence of three areas within 30 feet on either side of a direct line between ICBM launch or launch control facilities.

E3, on behalf of Sacagawea, initiated consultations with the USAF Cable Affairs division seeking confirmation regarding the presence or absence of any ICBM related systems within the Corridor. Refer to Volume 2, Appendix C for a summary of consultations with the USAF Cable Affairs division in the Agency Consultations and Communications table, and for a record of the correspondence.

4.3 AVOIDANCE AREAS (NDAC 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
Federal	
Historic Districts	No
Wildlife Areas	No
Wild, Scenic or Recreational Rivers	No
Wildlife Refuges	No
Grasslands	Yes
State	
Wild, Scenic or Recreational Rivers	No
Game Refuges or Game Management Areas	No
Forests or Forest Management Lands	No
Grasslands	No
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	No
Water Sources for Organized Rural Water Districts	No
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

Sacagawea conducted 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, and wild, scenic or recreational rivers in the

Survey Corridor. The Little Missouri National Grassland is located within the Survey Corridor, however the grassland fence boundary is approximately 90 feet from the route and impacts to the grassland are not anticipated. Refer to Volume 2, Appendix C for documentation of agency consultations.

4.3.2 STATE RESOURCE REVIEW

Sacagawea conducted a review of publicly available resources and concluded no designated or registered state wild, scenic or recreational rivers, game refuges, game management areas, forests, forest management lands, or grasslands are crossed by Historical Resources Not Meeting Exclusion Area Criteria

Sacagawea conducted a review of publicly available information, initiated project specific agency consultations, and augmented agency review with field studies. Through these efforts, Sacagawea has concluded there are no historic resources not meeting exclusion areas criteria within the Survey Corridor. Refer to Volume 2, Appendix C for documentation of agency consultations and Volume 2, Appendix E for the Cultural Resources Report Abstracts. The full cultural resources reports and associated maps located in Volume 3 are privileged and not for internet publication.

4.3.3 AREAS OF KNOWN GEOLOGIC INSTABILITY

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, 100K Sheet* of Parshall and Stanley indicated three landslide deposit areas are present within the Survey Corridor. Refer to the maps in Volume 2, Appendix B for the location of these areas. Mitigation measures are detailed in Section 5 and Volume 2, Appendix K.

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.

4.3.4 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. A total of 11 potentially occupied structures are located within 500 feet of the Route. Sacagawea is in the process of obtaining landowner waivers from those residences within 500 feet of the Project. Executed landowner waivers can be found in Volume 2, Appendix G.

4.3.5 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

Sacagawea has confirmed the Survey Corridor does not contain reservoirs or municipal source water protection areas for community water supply sources. Lake Sacagawea is used as a municipal water source for surrounding communities, however the Project's boring location is 25 river miles from the nearest community

intake location. While a number of wells were identified within the Corridor, these wells are used for either local domestic, stock, or irrigation purposes and are not located within the Survey Corridor. The maps in Volume 2, Appendix B depict the location of these resources.

4.3.6 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

Sacagawea has confirmed the Survey Corridor does not contain documented source water protection areas for community and non-community water supplies. The Survey Corridor intersects the McKenzie County Water Resource District, however there are no source waters near the Route inside the district boundaries.

4.3.7 IRRIGATED LAND

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

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

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

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

The selection criteria require assessment of the environmental impacts and alterations to land use that may result from the siting of the proposed project. Through this process, Sacagawea 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 842 acres of private land in North Dakota. Of the 842 acres, approximately 416 acres are located on privately owned cropland. Once construction is complete, the land would be restored to its pre-construction contours and land use. Sacagawea would provide settlements to landowners for crop loss resulting from Project construction.

Family Farms and Ranches: The Project would temporarily affect approximately 842 acres of private land in North Dakota. Of the 842 acres, approximately 416 acres are located on privately owned cropland. Once construction is complete, the land would be restored to its pre-construction contours and land use. Sacagawea would negotiate easements with all affected landowners. The Project is not anticipated to have permanent impacts to lifestyle or farm/ranch operations once construction is completed.

With respect to above ground structures, the location of pipeline markers is defined under 49 CFR 195 for pipelines. Sacagawea works with local landowners and county officials to ensure pipeline markers are located where required but also in an acceptable location for these parties. These markers are to be placed in full view so

they are not accidentally damaged by or cause damage to landowner or county equipment.

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

Surface Drainage: Standard construction techniques 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, areas disturbed during construction would be restored, the local topography would be restored to its original contours, vegetation would be reestablished, and impacts would be minimal and temporary. BMPs would be implemented in accordance with the project-specific Stormwater Pollution Prevention Plan (SWPPP), which would comply with the NDDoH Construction Stormwater General Permit requirements.

Groundwater: Well data, recorded by the State Water Commission, has been reviewed for the Project. Well data indicates groundwater in upland areas is located more than 20 feet below the surface. Typical subsurface excavations associated with the Project would not extend to more than ten 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 proposed 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 proposed 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: The proposed Project would include nine mainline block valves, two mainline check valves, one launcher and one receiver. Each valve assembly occupies approximately 0.04 acres with exposed piping and appurtenances that may be up to six feet in height. These facilities would be enclosed within chain-link fences with security wires to protect against vandalism. An electrical panel for power and remote communication will also be installed at each mainline valve location. Each location would be clearly marked with a small placard that details

ownership and contact information. These features are common throughout the landscape and are not obtrusive. No other permanent aboveground features are to be installed as a part of the Project.

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

Wetlands, Woodlands and Wooded Areas: Sacagawea 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 study results and Section 5 for mitigation measures.

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

Human Health and Safety: Sacagawea's corporate Health and Safety Policy meets or exceeds federal and state laws, rules and regulations, and is enforced equally with respect to both Sacagawea and contractor employees. The implementation of this policy promotes a safe and healthy workplace during construction and operation of all Sacagawea's assets.

The design of the Project incorporates the use of valves at each pipeline terminus. The purpose of the valves is to allow for the isolation of a pipeline to facilitate maintenance in a safe and controlled manner. Additionally, in the event of an abnormal operating condition, valves can be closed as necessary to prevent an uncontrolled release of oil. Finally, 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. Sacagawea does not anticipate species of special concern to experience direct impacts due to construction or operation of the proposed Project.

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

4.5 POLICY CRITERIA (NDAC 69-06-08-02(4))

4.5.1 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

Sacagawea 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. Sacagawea 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 Sacagawea 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 proposed Project is designed to provide delivery throughput from the KCT to the PRTF. From the PRTF, the product would be shipped via rail to refineries located on the East Coast, Mid-Continent and West Coast of the United States. As such, all routing was anchored from the KCT to potential destinations. The town of Palermo was determined to be the preferred destination due to its proximity to the PRTF.

The Project would be approximately 70 miles in length, constructed of steel, and would be a 16-inch outside diameter pipe. The line pipe installed would have a nominal wall thickness of 0.312 inches, the bore pipe wall thickness would be 0.375 inches, and the lake bore pipe would be 0.500 inches. The maximum operating pressure of the pipeline would be 1,440 psi. As part of the Project, nine mainline block valves, two mainline check valves, one launcher, and one receiver will be installed. No other permanent above ground appurtenances will be constructed for the Project.

The proposed Project would meet US Department of Transportation regulations, specifically the design criteria outlined in CFR 195.1, constructed per CFR 195.2 and operated and maintained per CFR 195.4.

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. Sacagawea would draw upon the local labor force to supply as appropriate. The workforce is anticipated to reach a peak of approximately 250 personnel.

4.5.4 ECONOMIES OF CONSTRUCTION AND OPERATION

Sacagawea would invest approximately \$100 million in North Dakota to develop this Project, generating approximately \$600,000 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 pipeline itself would not generate any direct tariff revenues, it is estimated the gross crude oil product value produced and transported through the Project would be in excess of approximately \$50 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

Sacagawea's affiliates have 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, Sacagawea has maintained several grass roots communication channels to inform local residents regarding the developments

associated with the Project. Sacagawea would maintain contact with local government officials throughout the construction and operation of the Project. Through this contact, project related information would be exchanged and should concerns arise, Sacagawea 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 proposed 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

Sacagawea 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

Sacagawea owns and operates all of the affected facilities; thus, coordination would be seamless and executed from within Sacagawea's internal management systems.

4.5.9 MONITORING OF IMPACTS

Sacagawea 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. Sacagawea would monitor landowner concerns through its right-of-way (ROW) department and would respond to all reasonable requests. In a similar manner, Sacagawea would monitor community concerns and would respond to all reasonable concerns brought to its attention by local community leaders. Sacagawea 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 shall be coordinated in the same manner.

4.5.10 UTILIZATION OF EXISTING AND PROPOSED ROW AND CORRIDORS

Sacagawea chose the Route in an effort to maximize the use of existing utility corridors. Approximately 58% (40 miles) of the project is co-located with existing utility corridors. Refer to Volume 2, Appendix B for project maps depicting the portions of the Project, which are collocated with other utilities.

4.5.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

Volume 2, Appendix F contains Sacagawea's 10-Year Plan, which contains details regarding existing and planned Sacagawea assets.

SECTION 5: MITIGATIVE MEASURES

5.1 LOCATION

The proposed Project is approximately 70-miles long, 16-inch diameter crude pipeline originating at the KCT located approximately 2.5 miles south of Keene, North Dakota in McKenzie County and terminating at the PRTF west of Palermo, North Dakota in Mountrail counties. Refer to maps provided in Volume 2, Appendix B.

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

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

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

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

See Sacagawea's Construction, Mitigation, and Reclamation Plan in Volume 2, Appendix K, for a detailed description of the mitigation measures to be followed for the Project.

Trees and shrubs: Sacagawea would comply with the Commission's tree and shrub mitigation specifications. Field surveys included a pre-construction tree and shrub inventory. Refer to the Sacagawea Construction, Mitigation, and Reclamation Plan in Volume 2, Appendix K for more information on tree and shrub mitigation.

Wetlands and Waterbodies: Sacagawea 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. Sacagawea would conduct all regulated crossings in compliance with the U.S. Army Corps of Engineers (USACE) Nationwide Permit #12. Refer to the Sacagawea Construction, Mitigation, and Reclamation Plan in Volume 2, Appendix K for more information on wetland and waterbody mitigation.

USFWS Managed Lands: Based on public information, the Project would avoid USFWS refuges and Waterfowl Production Areas. In consultation with the USFWS Lostwood Wetland Management District, Sacagawea has identified wetland features under conservation easement with the USFWS. Recommended mitigation measures would be followed. Refer to Volume 2, Appendix C for a complete record of this correspondence.

Migratory Bird Treaty Act: The commonly observed timeframe for migration of protected species in North Dakota is February 15th through July 15th. Construction activities for the proposed project are planned to be initiated as soon as all permit authorizations are received, which could be as early as the third quarter of 2015 and take approximately six months to complete. Based on the Project's schedule, construction activities may occur during the recognized migration/breeding season. Sacagawea 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.

Bald and Golden Eagle: Field surveys 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. Sacagawea would work with the USFWS as necessary if an eagle nest is identified within 0.5 miles of the proposed pipeline route.

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 typically pass through the state during the spring migration from March through early May. Construction activities for the proposed Project are scheduled to commence as soon as all permit authorizations are received, which could be as early as the third quarter of 2015 and reach completion in early 2016. Construction activities may occur during the migration period. To mitigate any adverse effects on migratory cranes, Sacagawea would suspend heavy equipment operations when whooping cranes are found within 0.5 miles (line of sight) of the

construction corridor. Suspended activities would resume in the absence of whooping cranes. See Volume 2, Appendix C for Sacagawea's Project notification to the USFWS.

Least Tern: Interior populations of the least tern have historically been associated with large river systems for breeding and migratory habitats. Potentially suitable breeding habitat is present within the Survey Corridor. Field survey indicated no suitable habitat is present within the Survey Corridor, however to mitigate any adverse effects to the terns, ground disturbing activities would be constrained from 0.5 miles of the primary habitat (lake and sandbar features).

Piping Plover: The piping plover is a small shorebird that 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. Field survey indicated no suitable habitat is present within the Survey Corridor, however to mitigate any adverse effects, ground disturbing activities would be constrained from 0.5 miles of the primary habitat associated with Lake Sakakawea (lake and sandbar features).

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. Field survey indicated suitable habitat is present within the Survey Corridor, however to mitigate any adverse effects, ground disturbing activities would be constrained from 0.5 miles of the primary habitat (Lake Sakakawea), and the lake crossing will be bored 100 feet below the water.

Cultural Resources: Coordination with the NDSHPO was initiated for the Palermo and original Sacagawea line prior to the projects consolidation to form the current, approximately 70 mile Project. On February 17, 2015, Sacagawea received concurrence of *No Significant Sites Affected* for the Sacagawea Pipeline Report from the SHPO, provided there are no changes to the nature or location of the proposed Project. On February 4, 2015, Sacagawea received concurrence of *No Significant Sites Affected* for the Palermo Gathering Pipeline Report from the SHPO, provided there are no changes to the nature or location of the proposed Project. Resources identified during field surveys are summarized below. Refer to Volume 2, Appendix C for a complete record of this correspondence and to Volume 2, Appendix K for additional mitigation measures.

32MN1206: This newly recorded site consists of a single cairn. The site is unevaluated for inclusion into the NRHP and avoidance of at least 50 feet between the edge of construction and the site boundary is recommended. If 50 feet of avoidance is not possible due to project design, fencing of the site boundary and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MN1207: This newly recorded site consists of a single stone circle and is unevaluated for inclusion into the NRHP. Avoidance of at least 50 feet between the edge of construction and the site boundary is recommended. If 50 feet of avoidance is

not possible due to project design, fencing of the site boundary and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MN1320: This newly recorded site consists of a depression and cultural material scatter. The site is unevaluated for inclusion into the NRHP and avoidance of at least 50 feet between the edge of construction and the site boundary is recommended. If 50 feet of avoidance is not possible due to project design, fencing of the site boundary and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MN1321: This newly recorded site consists of a stone circle and cairn site. The site is unevaluated for inclusion into the NRHP. The site is located within a portion of the alignment that has been abandoned by project design. The Project will have no impact on the site and no further work is recommended.

32MN1322: This newly recorded site consists of a cultural material scatter. The site is unevaluated for inclusion into the NRHP and avoidance of at least 50 feet between the edge of construction and the site boundary is recommended. If 50 feet of avoidance is not possible due to project design, fencing of the site boundary and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MN1130: This previously recorded site was relocated during the Class III inventory and consists of a single stone circle. The site is unevaluated for inclusion into the NRHP and avoidance of at least 50 feet between the edge of construction and the site boundary is recommended. If 50 feet of avoidance is not possible due to project design, fencing of the site boundary and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MN1131: This previously recorded site was relocated during the Class III inventory and consists of a single cairn. The site is unevaluated for inclusion into the NRHP and avoidance of at least 50 feet between the edge of construction and the site boundary is recommended. If 50 feet of avoidance is not possible due to project design, fencing of the site boundary and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MN897: This previously recorded cairn and stone circle site was not relocated during the Class III inventory. The site is unevaluated for inclusion into the NRHP and is located within a portion of the alignment that has been abandoned by project design. The Project will have no impact on the site and no further work is recommended.

32MZ2195: This previously recorded cairn, stone circle, pit, and other rock feature site was not relocated during the Class III inventory. The site is unevaluated for inclusion into the NRHP and has been avoided by 50 feet through project design. The Project will have no impact on the site and no further work is recommended.

32MN1031: This previously recorded cairn and other rock feature site was not relocated during the Class III inventory due to dense vegetation. The site is unevaluated for inclusion into the NRHP and avoidance of 50 feet is recommended. Attempts were made to reroute the route within the current Survey Corridor, however permission from surrounding landowners was not obtained. Because Sacagawea has exhausted all rerouting options to avoid the site, horizontal directional drilling beneath the site at a depth of 50 feet or greater is recommended. In addition, it is recommended the site avoidance boundary be fenced, and an archaeological monitor be present during any ground disturbing activities associate with the boring process.

32MNX110: This previously recorded cultural material scatter site lead was not relocated during the Class III inventory due to coarse location data. The site lead is unevaluated for inclusion into the NRHP and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MNX213: This previously recorded cultural material scatter site lead was not relocated during the Class III inventory due to coarse location data. The site lead is unevaluated for inclusion into the NRHP and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MNX97: This previously recorded depression, foundation, and cultural material scatter site lead was not relocated during the Class III inventory due to coarse location data. The site lead is unevaluated for inclusion into the NRHP and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MN1149: This previously recorded stone circle and cairn site was relocated during the Class III inventory. The site is unevaluated with regard to eligibility for inclusion in the NRHP and a 50-foot avoidance buffer is recommended. If 50 feet of avoidance is not possible due to project design, fencing of the site boundary and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MN1317: This newly recorded site consists of a stone circle situated on a small knoll. The site is unevaluated with regard to eligibility for inclusion in the NRHP and a 50-foot avoidance buffer is recommended. If 50 feet of avoidance is not possible due to project design, fencing of the site boundary and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

32MN1318: This newly recorded site consists of a pit and three cairns located on top of a small knoll. The site is unevaluated with regard to eligibility for inclusion in the NRHP and a 50-foot avoidance buffer is recommended. If 50 feet of avoidance is not possible due to project design, fencing of the site boundary and an archaeological monitor present during any ground disturbing activities at and adjacent to the site is recommended.

Noxious Weeds: Field surveys identified approximately 19.5 acres of Canada thistle within the Survey Corridor. Refer to the Sacagawea Construction, Mitigation, and Reclamation Plan in Volume 2, Appendix K for more information on noxious weed mitigation.

Areas of Known Geologic Instability: Desktop analysis identified three areas containing landslide deposits within the Survey Corridor. Two of these areas are located at either side of the Lake Sakakawea crossing location (near mileposts 16 and 18). The landslide deposits are a variable mixture of strata and deposits that have slid to the base of steep slopes. Most the landslides in this area are a hundreds, if not thousands of years old. Impacts and future risks of slides would be mitigated through boring under the lake. The third landslide deposit (near milepost 5) is a variable mixture of strata and deposits that have slid to the base of steep slopes. Mitigation would be implemented through minimizing impacts with construction techniques and restoring the area to its original condition. This would be accomplished through preserving top soil and continued monitoring of the area through restoration until the site reaches final stabilization per applicable permit(s) requirements. Refer to Volume 2, Appendix K for additional information in the Construction, Mitigation, and Reclamation Plan.

5.2 CONSTRUCTION

The proposed construction of the 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 six months to complete. 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. Refer to the Sacagawea Construction, Mitigation, and Reclamation Plan in Volume 2, Appendix K for more information on restoration.

5.3 OPERATION

Once put into service, the proposed Project would operate continuously, delivering crude oil from the KCT to the PRTF. 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 six 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 occur 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. Refer to the Sacagawea Construction, Mitigation, and Reclamation Plan in Volume 2, Appendix K for more information on ROW preparation, construction and reclamation procedures.

**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 will be conducted of courthouse records for the purpose of identifying the current landowner. Sacagawea 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. Sacagawea, 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 at this time for the portion of the route located in North Dakota.

7.2 COMPENSATION POLICY

Sacagawea'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

Thomas G. Janik

Paradigm Energy Partners, LLC

B.S. Civil Engineering, Texas A&M University. Mr. Janik has 38 years of experience in the oil and gas industry including executive management experience in engineering and corrosion services, project and construction management, operations, and pipeline and facilities construction. Mr. Janik has extensive technical expertise in engineering designs, project and construction management, operations and maintenance of natural gas and liquid pipeline facilities. In addition, he is experienced in the development and management of pipeline integrity management process safety management programs.

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
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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 ten years of experience working with various energy assets and regulatory agencies. As a consultant, she has managed multiple pipeline projects supporting clients through the construction permitting and siting processes, which included coordination with various federal, state and local agencies.

Melissa Schmit

Consultant
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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.

Dan Woodward, RPA

Senior Archaeologist
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M.A. Anthropology (archaeology focus), California State University - Fullerton; and B.A. History, University of Florida. Mr. Woodward is a secretary of the interior qualified archaeologist with 15 years of environmental consulting experience working with various energy assets and regulatory agencies. As a senior archaeologist, he has overseen all phases of archaeological fieldwork from class I record searches and class III intensive surveys to detailed excavations and archaeological damage assessments. He has authored dozens of cultural resource technical reports fulfilling NHPA and NEPA cultural resource requirements. Mr. Woodward has also coordinated with multiple Native American groups and has met with interested Tribal representatives in the field to address project concerns. Mr. Woodward has performed historic building analysis and authored built-environment technical reports. Mr. Woodward has also assisted with extensive paleontological fieldwork including paleontological surveys, monitoring, and salvage activities.