

Consolidated Application for a Certificate of Corridor Compatibility & Route Permit



WILLIAMS COUNTY, NORTH DAKOTA



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1. Introduction

Savage Bakken Connector, Incorporated (Savage), a subsidiary of Savage Services Corporation, is submitting this consolidated application for a Certificate of Corridor Compatibility and Route Permit to the North Dakota Public Service Commission (PSC) to construct a crude oil pipeline. The Savage Bakken Petroleum Hub Interconnect (hereafter referred to as the Project) would receive crude oil from the Savage Bakken Petroleum Hub about 3.5 miles southwest of Trenton, North Dakota and pump the crude oil through approximately 2 miles of pipeline to the Dakota Access Pipeline, which is currently under construction. Oil transported through the pipeline will not be under the ownership of Savage Corporation; therefore, the pipeline would be considered a common carrier pipeline.

The Project would include approximately two miles of 10-inch pipe to accommodate oil production currently taking place in the Bakken oil fields. It would provide a peak transmission volume of approximately 60,000 barrels per day (BPD). Construction for the Project is anticipated to begin early 2017, and the proposed pipeline is anticipated to be in service by the second quarter of 2017.

Savage has disclosed information in this application to the best of its ability, as required by the North Dakota Energy Conversion and Transmission Facility Siting Act, in order to meet established criteria in North Dakota Century Code (NDCC) Chapter 49-22 and associated guidance. Exclusion and avoidance areas and policy criteria were considered during the selection of the proposed route and are discussed throughout this application. Information regarding the Project design, resources, and technical information has been included in this application to allow a thorough understanding of the Project and aid in review by the North Dakota PSC, regulatory agencies, the public, and individuals with vested interests. The narrative developed for this application is responsive to all North Dakota PSC instructions. **TABLE 1** shows where documentation of all application requirements are located in this application. Key phrases and descriptions of the requirements have been included in **TABLE 1** to reference both the alpha-numerical and written descriptions of the requirements, as well as the section of the application where the description is located.

The potential for impacts on environmental, cultural, noise, human, and other resources are being considered through this evaluation process and have been, and continue to be, a very important component of selecting the proposed route. The final Project design and boundaries has considered the Project's potential for impacts while balancing the overall benefits of the Project on the local community and property owners' willingness to allow access and construction.

Table 1. Consolidated Application Checklist

STATE AUTHORITY	DESCRIPTION	SECTION
	CENTURY CODE – Title 49	
Chapter 49-22	ENERGY CONVERSION AND TRANSMISSION FACILITY SITING ACT	
<i>49-22-03</i>	<i>Applicable Definitions</i>	
<i>49-22-04</i>	<i>Ten Year Plan Contents</i>	
1.	The general location, size, and type of all facilities to be owned or operated by the utility during the ensuing 10 years.	1.0, 2.1, 2.2, 2.6, 2.7, 4.0, 4.5, 4.9, 4.13, Appendix A
2.	The tentative location of all transmission facilities on which construction is intended to be commenced within the ensuing five years.	1.0, 2.1, 2.2, 2.6, 2.7, 4.0, 4.5, 4.9, Appendix A
3.	A description of the efforts by the utility to coordinate the plan with other utilities.	4.3
4.	Efforts to involve environmental protection and land use planning agencies in the planning process, efforts to identify and minimize environmental problems at the earliest possible stage.	1.0, 2.8, 4.1-4.28, 5.1
5.	Projected demand for the service rendered by the utility for the ensuing 10 years and the underlying assumptions for the projection.	2.3, 3.1
6.	Any other relevant information as could be requested by the commission.	2.4, 2.5, 3.2
<i>49-22-05.1</i>	<i>Exclusion and Avoidance Areas—Criteria</i>	
	500 feet for inhabited rural residence	4.12, 5.1
<i>49-22-07</i>	<i>Route Permit Required</i>	
49-22-07.2	Waiver of procedures and time schedules	Appendix J
<i>49-22-08</i>	<i>Application for a Certificate for a Corridor</i>	
1.a	Description of size and type of facility	1.0, 2.1, 2.6
1.b	Summary of environmental impacts	4.1–4.25
1.c	Need for the facility	2.3, 3.1
1.d	Site for energy conversion facility	N/A
1.e	Preferred transmission (pipeline) corridor	2.2, 2.7
1.f	Analysis of merits and detriments of facility location	1.0, 2.2, 2.7, 4.1–4.28
1.g	Mitigating measures	2.8, 4.1–4.25
1.h	Corridor evaluation pursuant to 49-22-09 and 49-22-05.1	2.2, 4.1–4.25
1.i	Other relevant information	2.4, 2.5, 6.0, 7.0
<i>49-22-08.1</i>	<i>Application for Route Permit</i>	
1.a	Description of size and type of facility	2.1, 2.6
1.b	Description of the location	2.2, 2.7
1.c	Route evaluation relative to 49-22-09 and 49-22-05.1	2.2, 4.1–4.25
1.d	Mitigating measures	2.8, 4.1–4.25
1.e	Describe right-of-way preparation, construction, and reclamation	2.2, 2.6, 2.8, 3.2.2, 5.1
1.f	Statement identifying how: Landowners informed of right-of-way acquisition How landowners will be compensated	2.9
1.g	Other relevant information	2.4, 2.5, 6.0, 7.0

STATE AUTHORITY	DESCRIPTION	SECTION
<i>49-22-09</i>	<i>Factors to be Considered in Evaluating Corridor and Route Applications</i>	
1.	Research and investigation into impacts of the project on public health, welfare, natural resources, and the environment	4.1–4.28
2.	Effects of transmission technology and design to minimize adverse impacts	2.3, 2.4, 2.8
3.	Potential beneficial uses of waste energy from energy conversion facility	N/A
4.	Unavoidable adverse direct and indirect environmental impacts	4.1–4.25
5.	Corridor or route alternatives developed during the hearing that minimize adverse impacts	N/A
6.	Irreversible and irretrievable commitments of natural resources if designated	4.25
7.	Direct and indirect economic impacts of the facility	4.1, 4.14, 4.15
8.	Existing plans for other developments at or in the vicinity	2.1
9.	Impact of project on scenic areas, historic sites and structures, and paleontological and archaeological sites	4.11, 4.12, 4.13
10.	Impact of route on unique biological areas	4.22, 4.23
11.	Problems raised by Federal, state, or local entities	7.0
ADMINISTRATIVE CODE – Title 69		
<i>69-06-05-01</i>	<i>Application for a Transmission Facility Permit</i>	
2.a. (1)	Type of facility proposed	2.1
2. a. (2)	Purpose of facility	2.3, 3.1
2.a.(3)	Technology to be deployed	2.4
2.a.(4)	Type of product to be transmitted	2.5
2.a.(5)	Source of product being transmitted	2.3, 3.1
2.a.(6)	Final destination of product being transmitted	2.3, 3.1
2.a.(7)	Size and design detail	2.6,
2.a.(7)(a)	The width of right-of-way	2.6
2.a.(7)(b)	The approximate length of facility	2.1
2.a.(7)(c)	The estimated span length for electric facilities	N/A
2.a.(7)(d)	The anticipated type of structure for electric facilities	N/A
2.a.(7)(e)	The voltage for electric facilities	N/A
2.a.(7)(f)	The requirement for and general location of any new associated facilities	2.1
2.a.(7)(g)	The estimated distance between pipeline surface structures	2.1
2.a.(7)(h)	The pipe size	2.1, 2.6
2.a.(7)(i)	The maximum design for pipeline operating pressure and temperature	2.6
2.a.(7)(j)	The maximum design pipeline flow rate	2.6
2.a.(7)(k)	The number and general location of compressor or pumping stations	2.1
2.b.	Time schedule	2.9
2.b.(1)	Obtaining the certificate of corridor compatibility	2.9.1
2.b.(2)	Obtaining the route permit	2.9.2
2.b.(3)	Completing right-of-way acquisition	2.9.3
2.b.(4)	Starting construction	2.9.4
2.b.(5)	Completing construction	2.9.5
2.b.(6)	Testing operations	2.9.7

STATE AUTHORITY	DESCRIPTION	SECTION
2.b.(7)	Commencing operations	2.9.6
2.c.	A copy of each evaluative study or assessment of the environmental impact of the proposed facility submitted to the agencies listed in section 69-06-01-05 and each response received	7.0, Appendix J
2.d.	Need for the facility	2.3, 3.1
2.f.	Corridor width	2.2, 2.9.1
2.g.	Study area to enable the Commission to evaluate the factors in the Century Code section 49-22-09	2.7
2.h.	Discussion of factors in Century Code 49-22-09 to aid Commission's evaluation	2.2, 4.1–4.25
2.i.	A discussion of the applicant's policies and commitments to limit the environmental impact of its facilities, including copies of the board resolutions and management directives	2.8, 5.1
2.j.	Map of criteria that led to route location	Appendix A
2.k.	Discuss relative value of each criterion and how the location was selected; how operation will affect criteria	4.1–4.25
2.l.	Mitigating measures	2.8, 4.1–4.25
2.m.	Qualifications of each person involved in location study	8.0
2.n.	Map identifying criteria that led to the route location and new facilities	Appendix A
2.p.	Discussion of present and future natural resource development in the area	2.1, 2.3, 3.1
2.q.	Map meeting PSC requirements	Appendix A
69-06-06-01	<i>Application for Waiver of Procedures and Time Schedules</i>	
2.a.	Type of facility, including the purpose and technology	2.1, 2.3, 2.4, 2.6, 3.1
2.b.	Description of products transmitted in pipeline	2.5
2.c.	Capacity and design of facility	2.6
2.d.	Map showing location of proposed pipeline	Appendix A
2.e.	Description of area served by facility	1.0, 2.2, 2.7
2.f.	Anticipated time schedule	2.9
2.h.	Need for facility based on present and projected demand	2.3, 3.1
2.j.	Deviation from 10-year plan	3.2, Appendix E
2.k.	Estimated cost of construction	2.1
2.l.	Specific provisions of law that the applicant requests the Commission waive or modify, with separate justifications	N/A
2.m.	Factual basis demonstrating facility will produce minimal impacts	4.1–4.25
2.n.	Nature of emergency justifying immediate authority	N/A
69-06-08-02	<i>Transmission Facility Corridor and Route Criteria</i>	
1.	Exclusion areas	5.1.1
1.a.	Designated or registered national: parks, memorial parks, historic sites and landmarks, monuments, and wilderness areas	4.13
1.b.	Designated or registered state: parks, historic sites and markers, monuments, archaeological sites, and nature preserves	4.12
1.c.	County parks and recreational areas, municipal parks, parks owned or administered by other governmental subdivisions	N/A
1.d.	Areas of Critical Habitat	4.22
1.e.	Areas where animal or plant species that are unique or rare to the State of North Dakota would be irreversibly damaged	4.22, 4.23, 4.25
1.f.	Area within one thousand two hundred feet of the geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility	N/A
1.g.	Areas within thirty feet on either side of a direct line between ICBM launch or launch control facilities	N/A

STATE AUTHORITY	DESCRIPTION	SECTION
2.	Avoidance areas	5.1.2
2.a.	Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges, and grasslands	4.12
2.b.	Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands	4.12
2.c.	Historical resources that are not specifically designated as exclusion or avoidance areas	4.12
2.d.	Areas that are geologically unstable	4.16
2.e.	Within 500 feet of a residence, school, or place of business	4.8, 4.9,
2.f.	Reservoirs and municipal water supplies	4.16
2.g.	Water sources for organized rural water districts	4.7
2.h.	Irrigated land	7.5
2.i.	Area of recreational significance that are not designated exclusion areas	4.13, 5.1.1
3.	Selection criteria. Impact on:	5.1.3
3.a.(1)	Agricultural production	4.14, 4.15
3.a.(2)	Family farms and ranches	4.15
3.a.(3)	Land economically suitable for irrigation	7.5
3.a.(4)	Surface drainage patterns and groundwater flow patterns	4.16, 4.17
3.b.(1)	Sound-sensitive land uses	4.10
3.b.(2)	Visual impact on adjacent area	4.11
3.b.(3)	Extractive and storage resources	5.1.3
3.b.(4)	Wetlands, woodlands, and wooded areas	4.2, 4.18
3.b.(5)	Radio and television reception and other communication or electronic control facilities	4.6
3.b.(6)	Human health and safety	4.8–4.10, 5.1
3.b.(7)	Animal health and safety	5.1
3.b.(8)	Plant life	4.19, 4.25
4.	Policy criteria	5.1.4
4.a.	Location and design	2.2, 2.6, 2.7, Appendix A
4.b.	Training and use of available in-state labor for the general and specialized skill required	4.1
4.c.	Economies of construction and operation	4.1, 4.14
4.d.	Use of citizen coordinating committees	N/A
4.e.	Commitment of portion of transmitted product for use in state	1.0, 2.1
4.f.	Labor relations	4.1
4.g.	Coordination of facilities	4.3
4.h.	Monitoring of impacts	2.8, 5.1.4
4.i.	Using existing and proposed rights-of-way and corridors	2.9.2
4.j.	Other existing or proposed transmission facilities	1.0, 2.1, 2.2, 2.7

2. Project Description

2.1. Type of Facility

The Project would consist of a 10-inch-diameter steel pipeline buried a minimum of 48 inches deep, with a total length of approximately 2 miles, in Williams County, North Dakota. The Project would extend from the Savage Bakken Petroleum Hub approximately 3.5 miles southwest of Trenton, to the Dakota Access Pipeline. Please refer to **PROJECT LOCATION MAP IN APPENDIX A**. The existing petroleum hub is connected to the Trenton Rail Hub which is an ‘open access’ unit train loading facility that provides producers and marketers access to destinations served by local rail. The facility consists of a 100+-acre lot that includes two rail loops each approximately 8,000 feet long, three additional landing tracks, a truck center with multiple independent bays, and tank storage.

The Project would comply with United States Department of Transportation (USDOT) regulations, specifically the design, installation, pressure testing, and operation requirements, as outlined in Transportation of Hazardous Liquids by Pipeline guidance (49 Code of Federal Regulations [CFR] Part 195). The proposed pipeline would be owned and operated by Savage. A Savage and/or Dakota Access operations and maintenance team would be responsible for daily operations and scheduled and unscheduled monitoring and maintenance. Construction of the Project is estimated to cost less than \$6 million.

2.2. Identification of Route

The proposed route represents an alignment through which property owners within the Project Corridor are willing to allow construction of the pipeline across their property.

Based on publicly available data, data received through agency agreements, agency feedback, literature reviews, and environmental studies, the Project Corridor has been sited to minimize impacts, in accordance with the Energy Conversion and Transmission Facility Siting Act (NDCC Chapter 49-22) and North Dakota Administrative Code (NDAC) 69-06-08-02. The Project survey area is one-mile-wide, and occurs on property primarily consisting of cropland and hayland. The study area is located in a rural location with sparsely scattered farmsteads.

The Project route was sited to provide an efficient route from the petroleum hub to a pipeline currently under construction southwest of Trenton. The route was sited using PSC siting consideration including sensitive environmental features, cultural resources, along with property owners’ concerns.

2.3. Necessity

The development of hydrocarbon production in the Williston Basin has increased in recent years due to advancements in deep horizontal directional drilling (HDD) techniques and subsequent oil extraction in the Bakken and Three Forks shale formations. This recent increase in crude oil production in North Dakota has outpaced the development of efficient transportation methods. At this time, oil from the petroleum hub is transported primarily through rail. This Project will provide an additional avenue for oil transportation to refineries. With the completion of the Project, at its peak, the pipeline would be capable of handling 60,000 BPD.

2.4. Technology

The Project would be constructed using conventional, open-cut construction practices. Portions of the Project would be constructed by boring under roads, wetlands, and other identified areas using HDD technology, leaving no surface disturbance between the drill entrance and exit points.

Above ground facilities and equipment associated with the Project would include two pump stations and launcher and receiver valve sets. The booster pump station and launcher valve set will be located at the Savage Bakken Petroleum Hub. The injection pump station (approx. 1,400 sq. ft.) and metering station (approx. 400 sq. ft.) will be located 200-feet north of the pipeline connection. The pump station will consist of multiple 700 HP pumps along with the associated electrical equipment. The pump and meter stations will be housed in separate buildings. The receiver valve set will be located at the pipeline connection.

In addition, there would be pigging equipment and infrastructure at the source and receiving location to aid in cleaning and inspecting the pipeline. Upon completion of construction, the proposed pipeline would be cleaned by running multiple cleaning pigs through the line. Then the proposed pipeline would be hydrotested for leaks. Upon completion of hydrotesting, the pipeline would be dewatered with cleaning pigs. Following dewatering, the proposed pipeline would be inspected by running a smart pig through to detect dents, out of roundness, scrapes, and gouges in the pipeline. Upon completion of commissioning the pipeline in-service, a pigging routine would be developed using historical pipeline data.

2.5. Product

The proposed pipeline would be designed for the transport of unrefined crude oil. The pipeline system would only transport unrefined crude, generally low in sulfur content and typical of production from the regional geologic formations. Prior to transport, the crude oil would have all of the gas and water removed.

2.6. Size and Design

The Project would consist of a 10-inch-diameter steel pipeline with a wall thickness of 0.365 inches where open-cut installation and HDD would occur. Where HDD would occur there will be additional Abrasion Resistant Overlay (ARO) coating. Per Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195), the pipeline would be buried at a minimum depth of 48 inches and would be located in a 100-foot-wide right-of-way (ROW). The proposed pipeline would have a yield strength of 52,000 pound-force per square-inch gauge (psig), and welding procedures would be performed under the regulations referenced in Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). The pipeline would have a maximum temperature rating of 120 degrees Fahrenheit and a maximum allowable operating pressure of 1,480 psig. The Project would typically operate at 60 degrees Fahrenheit and between 200 to 1,440 psig. The proposed pipeline would have a maximum daily output of 60,000 BPD and be designed to be cleaned and inspected using internal tools, such as cleaning pigs and smart pigs.

2.7. Location

The proposed route would cross portions of four sections of predominantly rural cropland and Savage property in Williams County. It was selected to stay predominately on current industrial zoned acreage and reduce the amount of cropland disturbance. The proposed route begins in section 36, Township 153 North, Range 103 West, and ends in section 6, Township 152 North, Range 103 West, near North Dakota Highway

1804 (ND-1804). The Study area is located approximately three miles from the Missouri River and is characterized by low lying area at the base of rolling hills with a few drainages. Based on publicly available data, data received through agency agreements, agency feedback, literature reviews and corridor surveys, the proposed route has been sited to minimize impacts, based on NDCC Chapter 49-22 and NDAC Section 69-06-08-02. Please refer to **PROJECT ROUTE AND CORRIDOR MAP IN APPENDIX A** and **TABLE 2**.

Per Section 69-06-08-02 of the NDAC, the Project route takes into account the natural geomorphology, while avoiding sensitive environmental features, cultural resources, geotechnical constraints, and other property owners' ROW agreements. Exclusion and avoidance areas, along with selection criteria (described in **SECTION 5.1. CRITERIA FOR TRANSMISSION FACILITY CORRIDOR AND ROUTE SELECTION** of this application), were evaluated when determining the Project route. These considerations make the proposed route the most direct and feasible route from the Petroleum Hub to the Dakota Access Pipeline which is currently under construction. Two avoidance areas consisting of a community center and church occur in a relatively small portion of the 200-foot wide survey area. Savage is currently working towards attaining a waiver for these two properties.

Table 2. Site Location

COUNTY	TOWNSHIP	RANGE	SECTIONS
Williams	153 North	103 West	35, 36
	152 North	103 West	5, 6



2.8. Methods to Minimize Adverse Environmental Impacts

Potential environmental impacts from construction activities in and around the study area could include displacement of wildlife or damage to vegetation, wetlands, streams, soil composition, and air quality. Construction of the Project would result in vegetation removal, increased noise, potential sedimentation, and carbon dioxide emissions. Best management practices (BMPs) would be implemented to avoid, minimize, or mitigate impacts and are discussed in this application, where applicable. BMPs would include HDD, as well as the use of mufflers, silt fences, straw wattles, earth berms, retention ponds, culverts, rock check dams, and/or trench breakers.

2.9. Project Schedule

2.9.1. Certificate of Corridor Compatibility and Route Permit

Savage is seeking a Certificate of Corridor Compatibility and Route Permit granted in early 2017.

2.9.2. Right-of-Way Acquisition

The permanent ROW for the Project would consist of approximately 6.3 acres and include interests of three private land owners, including Savage. Currently, additional ROW and option agreements are being negotiated for the proposed route. The construction ROW would include a 25-foot-wide permanent ROW and additional 75-foot wide temporary construction easements (a total of 100 feet wide). Additional temporary workspaces could be acquired in the event that additional space were needed for HDD pullback or if additional space were needed for construction. All of the analyses for temporary and permanent impacts on resources anticipate a 100-foot-wide construction ROW. Execution of ROW terms would be completed in compliance with North Dakota State Law in place at the time of the agreements. Some existing pipelines occur within the Project Study Corridor. Upon completion of construction activities, the study area would be reclaimed to property owner satisfaction by reseeding at the appropriate time to blend with existing vegetation and the topography would be reshaped to preconstruction contours.

2.9.3. Construction Start Date

Construction for the Project is scheduled to commence in early 2017.

2.9.4. Construction Completion Date

Savage anticipates that installation of the two-mile pipeline would be completed in the second quarter of 2017.

2.9.5. Facility Testing

Savage would hydrotest the proposed pipeline immediately after construction is completed and prior to commissioning.

2.9.6. Commercial Operation Date

The production date would follow testing and the Project is anticipated to begin transporting crude oil in the second quarter of 2017.

2.9.7. General Maintenance Duties

The Pipeline and Hazardous Materials Safety Administration (PHMSA) continuously updates rules and regulations stipulating how pipeline owner/operators should design, construct, operate, and monitor pipelines. The Project would be in compliance with all of the design, construction, pressure testing, operation, safety, welding, and maintenance requirements listed in the most recent edition of the Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). For all underground portions, the proposed pipeline would be designed to be cleaned and inspected via internal tools (e.g., cleaning pigs and smart pigs) to assess pipeline conditions in order to maintain the integrity of the pipeline system. The proposed pipeline would receive regular inspections along the ROW for any indications of leaks and other maintenance issues.

3. Need for Facility

3.1. Needs Analysis

The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep HDD techniques and subsequent oil extraction in the Bakken and Three Forks shale formations. Studies released by the North Dakota Department of Mineral Resources (DMR) and US Geological Survey (USGS) in 2013 for the Bakken and Three Forks formations, estimated undiscovered volumes of 7.4 billion barrels of recoverable crude oil reserves potentially available in the deep shale formations in North Dakota. There is speculation that more oil may be recoverable than the 2013 estimate. One projection published by the North Dakota DMR states that production from the Williston Basin is anticipated to last 25 to 30 years. Oil production statistics from North Dakota indicate that oil production has increased dramatically over the past 5 years from nearly 425,344 BPD in July 2011, to nearly 1,029,734 BPD in July 2016. In that same timeframe, the number of producing wells has increased from 5,514 to 12,956. Existing infrastructure for transporting oil was not developed in anticipation of the current level of production; therefore, more pipeline capacity is needed.

A major constraint in transporting hydrocarbons from North Dakota to distribution centers and eventually, end users throughout the United States, is the lack of pipeline capacity. To relieve the limited pipeline capacity, several projects have been planned to address the growing volumes of crude oil, natural gas, and natural gas liquids. However, pipeline capacity is not currently sufficient for existing or potential future levels of production, which leaves companies with a need to find alternative transportation methods (e.g., rail, truck).

Construction of the Project would provide reliable service for up to 60,000 BPD and a more efficient link between oil production in oilfields in northwestern North Dakota to end users throughout the United States.

3.2. Ten-Year Plan

The Ten-Year Plan for Savage for the North Dakota PSC is included in **APPENDIX B**.

4. Environmental Analysis

This section describes the existing conditions of resources within the Project route, as well as anticipated impacts on resources within the Project route from implementation of the Project. As previously noted, the Project route refers to the 200-foot wide survey area within a one-mile wide study corridor. Indirect and direct impacts are identified in the individual resource discussions, where appropriate. Environmental protection measures, such as BMPs, would be implemented to avoid, minimize, or mitigate any adverse impacts and are discussed where impacts are identified.

The Project route would be located in a rural portion of Williams County in North Dakota. The proposed pipeline would extend within the Project corridor between a petroleum hub to the Dakota Access Pipeline which is currently under construction, all located 3.5 miles southwest of Trenton. The proposed pipeline would be bored under roads and other identified areas using HDD technology, leaving no surface disturbance between the drill entrance and exit points. The one roadway within the Project route is a well-maintained state highway. The towns nearest to the proposed pipeline include Trenton and the unincorporated community of Buford.

The primary objectives of the environmental analysis are to identify potential issues within the Project route and determine the appropriate environmental protection measures necessary to minimize any adverse impacts from the Project. The exclusion and avoidance criteria outlined in the North Dakota Energy Conversion and Transmission Facility Siting Act were used as the basis for the analysis. A Geographic Information System (GIS) database has been developed for the Project route to assist with the analysis. The analysis incorporated data from field surveys, literature reviews, data use agreements, and office studies. A 200-foot-wide pedestrian survey was conducted for wetlands, cultural and biological resources within the Project route. In addition, the survey area was expanded in the southern section of the study area where the pump station, temporary access road and bore areas would be located to ensure all potential environmental impacts would be identified.

4.1. Demographics

The Project would be located in a rural area of western North Dakota. The region of influence for demographic resources is Williston in Williams County, North Dakota. Major employment industries within this county include oil- and gas-related activities, agriculture, educational, health and social services, transportation and warehousing, utilities, construction, accommodation, food services, and retail trade. Williams county has a higher than statewide average of per capita income and a lower poverty rate than the statewide average. Please refer to **TABLE 3**.

Table 3. Demographic Trends

LOCATION	POPULATION (2015)	PER CAPITA INCOME (2014)	PERCENT OF INDIVIDUALS BELOW POVERTY LEVEL
Williams County	35,294	\$41,984	6.9
Statewide	756,927	\$30,894	11.0

Source: Census Bureau 2015a, Census Bureau 2015b

4.1.1. Demographic Impacts/Mitigation

Impacts. Short- and long-term, beneficial impacts on area demographics would be expected from the Project. The Project would result in an increased need for construction contractors. Contractors for construction of the proposed pipeline would be obtained from the local area to the maximum extent practicable. Additional construction contractors would be obtained outside of the local area, when needed. Accordingly, the local economy would be stimulated, as there would be increases in the local business volume, sales receipts, and indirect purchase of goods and services associated with additional construction contractors temporarily relocating to the area. In addition, implementation of the Project would result in increased income to local landowners receiving ROW payments. The Project would provide a temporary increase in property owners' and laborer's annual income; however, the number of permanent jobs created by the Project is anticipated to be low. The Project would not alter long-term population trends within Williams County.

Mitigation. No significant, adverse impacts on demographics are anticipated; therefore, no mitigation would be required.

4.2. Land Use

The Project would be located in a rural setting composed of idle grassland with sporadic trees, cropland, developed land, industrial and wetlands. The majority of the land within the 200-foot environmental survey area is composed of industrial land (approximately 23.3 acres), cropland (approximately 19.8 acres), and idle grasslands (approximately 17.3 acres). Table 4 summarizes land uses within the 200-foot environmental survey area for the Project, including potential temporary impacts from the Project. Please refer to **TABLE 4** and **LAND USE IN APPENDIX D**.

Table 4. Land Use

LAND CLASSIFICATION	ACREAGE IN PROJECT ROUTE (WITHIN 200-FOOT SURVEY AREA)	PERCENT OF PROJECT ROUTE	TEMPORARY IMPACTS (ACRES): 100-FOOT ROW
Industrial	23.3	35.1	11.7
Developed	4.3	6.5	1.3
Cropland	19.8	29.8	6.8
Grassland	17.3	26.1	5.1
Wetlands	1.66	2.5	0.2
Total	66.4	100	25.1

4.2.1. Land Use Impacts/Mitigation

Impacts. Short-term, adverse impacts on land use would be expected from the Project. Implementation of the Project would result in temporary disturbance of a total of approximately 25.1 acres of land within the 100-foot ROW. It is not anticipated that the disturbance of existing lands within the Project route would result in a trend toward modification of existing land use patterns. Conflicts with existing state, local, and private development plans associated with the Project are not anticipated.

Mitigation. Impacts on the stream wetland on the south side of the Project route would be avoided by constructing the pipeline using HDD. The smaller manmade ditch wetland on the north side of the study area will be trenched but returned to original state once the Project is completed. Long-term impacts on land use from installation of the Project would be minimized by implementation of BMPs. Upon completion of construction activities, the topography of the Project route would be returned to its preconstruction contours and vegetation cover would be replaced, blended with surrounding areas, and reclaimed to landowner satisfaction. Once re-vegetated, these areas would be available for their preconstruction land uses (e.g., cropland). BMPs that minimize impacts on surrounding vegetation would be implemented to protect exposed soil from erosion or runoff, contain temporary spoil piles, prevent weed growth, and provide for material stabilization.

4.3. Public Services—Utilities

There is one overhead transmission line and one gas transmission line that would be crossed by the Project. Please refer to **PUBLIC SERVICE INFRASTRUCTURE IN APPENDIX E.**

4.3.1. Utility Impacts/Mitigation

Impacts. Adverse impacts on local electrical service would not be expected from the Project.

Mitigation. Long-term, significant impacts on, or interference of, electrical service are not anticipated; therefore, no mitigation would be required.

4.4. Public Services—Local Services

The Project would be located in a rural part of North Dakota, primarily composed of grasslands/pasturelands and cultivated lands. There are no towns within the Project ROW; however, the town of Trenton and unincorporated community of Buford are within five miles of the Project route. The town of Trenton primarily includes restaurants, hotels, gas stations, a casino, and recreational opportunities. The unincorporated community of Buford primarily includes a few homes and is less than one-mile from Fort Buford State Historical Site. Williston Medical Center and Fairlight Medical Center, located in Williston, North Dakota, are the nearest medical facilities to the Project route. The Williston Medical Center specializes in family and internal medicines, general and orthopedic surgeries, and pediatric care. The Fairlight Medical Center specializes in radiology and walk-in services.

4.4.1. Local Services Impacts/Mitigation

Impacts. Short-term, beneficial impacts on local services would be expected from the Project. Implementation of the Project would result in an increased need for construction contractors. Contractors for construction of the proposed pipeline would be obtained from the local area to the maximum extent practicable. Additional construction contractors would be obtained outside of the local area, when needed. Accordingly, there would be increases in demand for local services associated with the additional construction contractors temporarily relocating to the area. However, the demand for local services during construction of the pipeline is not anticipated to be significant or exceed the existing capacities of the local services in the area.

Mitigation. Only beneficial impacts on local services in and around the Project route are anticipated; therefore, no mitigation would be required.

4.5. Public Services—Roads and Traffic

The proposed pipeline would begin at the Savage Bakken Petroleum Hub, approximately 3.5 miles southwest of Trenton, and extend approximately 2 miles to the southwest to the Dakota Access Pipeline which is currently under construction, approximately 0.5 miles southwest of the intersection of ND-1804 and 149th Ave NW. Major roadways in the vicinity of the Project route include ND-1804, crossing over the southern end of the Project and the corner of 149th Ave NW and 42nd St NW near the middle of the study area. ND-1804 is the only major roadway that is intersected by the Project. Other minor roadways in the vicinity of the Project route are well-maintained county paved/gravel roadways. Please refer to **PUBLIC SERVICE INFRASTRUCTURE IN APPENDIX E**.

From 2011 to 2015, the North Dakota Department of Transportation (NDDOT) average annual daily traffic (AADT) volume reported for vehicles and commercial trucks on ND-1804 increased approximately 38 percent. In 2015, the NDDOT AADT volume for ND-1804 was reported at 5,105 vehicles per day and 3,685 commercial trucks per day. The increases in NDDOT AADT volumes on ND-1804 from 2011 to 2015 can be attributed to the increase in crude oil production in North Dakota and subsequent increase in trucks and rail transporting oil. Traffic volume counts on rural, non-paved roadways along the Project route have not been conducted due to the limited-use of these roadways. Most of the traffic on these rural roadways consists of local agriculture traffic, local residential commuters and oil-related activities.

4.5.1. Roads and Traffic Impacts/Mitigation

Impacts. Short-term, adverse and impacts on roadways and traffic would be expected from the Project. Traffic volumes would increase slightly during construction activities; however, any increases in traffic would be temporary. Existing major and minor roadways within and in the vicinity of the Project would be used for access to the Project route and could experience damage during construction activities. Prior to construction, haul road permits would be obtained from Williams county and the NDDOT for the transport of overweight equipment. Cross-country vehicle travel outside the ROW or on non-approved, existing access roads would not be allowed. Traffic associated with maintenance of the pipeline is anticipated to be minor. Any increases in traffic from construction, operation, and maintenance is not expected to be at a volume that would alter travel patterns in the area or result in significant damage to roadways.

Mitigation. Where the Project intersects ND-1804, HDD would be used to construct the proposed pipeline to avoid any impacts on traffic and commerce. If temporary private access roads were constructed, they would be designed to maintain proper drainage, and BMPs would be implemented to minimize soil erosion. All roadways damaged from construction activities would be restored, as near as possible, to preconstruction condition or as agreed between Savage and the landowner or regulatory agencies. Dust control measures (e.g., watering roadways, slow speeds) would be used by Savage, when necessary, to minimize dust from truck and equipment movement on gravel and dirt roads.

4.6. Public Services—Telephone, Radio, Antenna, and Microwave Structures

No radio, antenna, or microwave structures are present within the Project route; however, the Project does intersect fiber optic lines in the study area.

4.6.1. Telephone, Fiber Optic and Microwave Impacts/Mitigation

Impacts. No impacts on radio, antenna, or microwave structures would be expected from the Project. There is potential for disruption of services if a fiber optic line is damaged during construction. In the event that a fiber optic line would be damaged during construction, the utility company would be contacted immediately for repair.

Mitigation. Impacts are not anticipated; therefore, no mitigation would be required.

4.7. Public Services—Water Supply

The Williams Rural Water District (WRWD) manages rural water distribution projects and supports water interests throughout Williams County. The water source for the WRWD is the Western Area Water Supply which obtains its water from the Missouri River. The water treatment plant intake is located on the north bank near the Lewis & Clark bridge on Highway 85 (WRWD, 2016). The WRWD is governed by a board of directors that represents several townships in Williams County.

It is common for rural residences in the area to use private wells for domestic and agricultural purposes. According to the North Dakota State Water Commission (NDSWC) data, there are no industrial or private wells within the 100-foot ROW. There are three wells within the 200-foot survey area; one domestic well with static water levels at 66 feet, and two stock wells with static water levels at 75 and 130 feet. The one aquifer in the area of the Project route is the undifferentiated Trenton Aquifer. The Trenton Aquifer is an area of approximately 40 square-miles which underlies a terrace and floodplain along the north edge of the Missouri River. The Trenton Aquifer ranges in depth from 1 foot to 125 feet with an approximate average of 50 feet (Armstrong, 1969). Please refer to **GEOLOGIC AND GROUNDWATER RESOURCES IN APPENDIX F**.

4.7.1. Water Supply Impacts/Mitigation

Impacts. No impacts on water supply would be expected from the Project. Impacts to existing or proposed water lines are not anticipated. Prior to commencement of construction activities, Savage would coordinate with the water associations and private landowners in the vicinity of the Project route to identify water line locations and would avoid or minimize service disruptions, as necessary.

The risk of water contamination from a potential release of crude oil by way of a break or leak in the proposed pipeline would be minimal. The Project would comply with USDOT regulations, specifically the design, construction, pressure testing, operation, safety, welding, and maintenance requirements, as outlined in Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). Upon completion of construction and prior to commissioning, the pipeline would be hydrotested for any potential leaks. The water from hydrotesting would be discharged in accordance with the requirements listed in the North Dakota Pollutant Discharge Elimination System (NDPDES) permit and Storm Water Pollution Prevention Plan (SWPPP). In addition, the pipeline would receive regular inspections along the ROW for any indications of leaks and other maintenance issues.

If there were a leak or break in the pipeline during operations, short-term, adverse impacts on water supply could occur. In the event of a leak or break, the section of the pipeline would be isolated, repaired, and hydrotested prior to re-commissioning. Any crude oil released from a leak or break in the pipeline would be remediated in accordance with the Emergency Response Plan; Spill Prevention, Control, and Countermeasures

(SPCC) Plan; Inadvertent Returns Contingency Plan; and North Dakota Department of Health (NDDH) regulations and requirements.

Mitigation. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. As the operator of the pipeline, Savage, would be required to write and conduct annual reviews on all operations and maintenance manuals. The manuals would describe standard operating and maintenance procedures and include emergency procedures and contacts.

4.8. Human Health and Safety—Hazardous Materials/Hazardous Waste

There are no known hazardous waste sites within the Project route. Minor amounts of hazardous materials could be used during construction, maintenance, or operation activities associated with the Project, such as vehicle antifreeze. Hazardous waste would not be generated from construction, maintenance, or operation activities associated with the Project.

4.8.1. Hazardous Materials/Hazardous Waste Impacts/Mitigation

Impacts. It is not anticipated that hazardous waste sites would be encountered within the Project route during construction activities. However, if hazardous waste sites were encountered, construction activities would be suspended and the NDDH would be contacted immediately to determine the best method for removal or clean up. All hazardous wastes encountered and hazardous materials used during construction would be contained according to the NDPDES permit maintained by Savage.

Structures within 500 feet of the proposed pipeline location include a community center and a church.

Mitigation. The pipeline would be marked with signs at road and river crossings. Savage is working on attaining waivers for both structures. No additional mitigation is anticipated at this time.

4.9. Human Health and Safety—Security

The Project would be located in rural portions of Williams County. Most of the access to the Project route would be owned by Savage. Farmsteads and rural residences are located in and around the Project route; however, no farmsteads, rural residences, or towns occur within the boundary of the Project route.

In accordance with NDCC Chapter 49-22-05.1 and NDAC Section 69-06-08-02, pipeline owners would be required to obtain a Waiver of Avoidance Area from any occupied residences, school or place of business within 500 feet of the proposed pipeline.

4.9.1. Security Impacts/Mitigation

Impacts. No impacts on security would be expected from the Project. Since most of the access to the Project route would be owned by Savage, general public access to the Project route would be minimized and the need for additional security during construction would be reduced. The security of the Project is not anticipated to be compromised during, or upon completion, of construction.

Mitigation. All above ground appurtenances will be fenced and access limited in order to maintain proper security and control of the system.

4.10. Human Health and Safety—Noise

The Project would be located in a rural setting. Noise contributions in the Project route would be from nearby farming activities and roadway traffic. Noise levels in rural settings typically range from 35 to 45 decibels, which are comparable to that of a quiet room.

4.10.1. Noise Impacts/Mitigation

Impacts. Short-term, adverse impacts on the noise environment would be expected from the Project. Construction activities would cause minor increases in noise levels. However, noise emanating from construction equipment would be localized, temporary, and intermittent during machinery operations. Heavy construction equipment would be operated periodically during construction; therefore, noise levels from the equipment would fluctuate throughout the day. Operation of the proposed pipeline would cause negligible increases in noise levels due to vehicles used during inspections and maintenance.

Mitigation. The best available technology for construction equipment (e.g., mufflers) would be used to reduce potential impacts from construction noise.

4.11. Aesthetics

The visual landscape of the Project is characterized by agricultural fields, grasslands, oil and gas development, roadway, railroad tracks including a rail hub, and one small creek and associated drainage area. The Project route lacks large-scale development and contains sparsely scattered farmland and oil and gas development. North Dakota Highway 1804 provides travelers with a scenic drive along the northern shores of Lake Sakakawea. The highway follows the general path of the historic Lewis and Clark Trail through western North Dakota north of the Missouri River.

4.11.1. Visual Impacts/Mitigation

Impacts. Evaluating the aesthetic qualities of an area is a subjective process because the value that an observer places on a specific feature varies depending on their personal perspective, experiences, and preferences. Visual impacts are inherently difficult to define because of the subjectivity involved. Short-term, adverse impacts on visually sensitive resources along Highway 1804 would be expected during construction of the Project. In addition, the pump stations, valve sets, pipeline signage and markers installed along the pipeline route would result in long-term visual impacts.

Mitigation. Upon completion of construction activities, the topography of the Project route would be returned to its preconstruction contours and vegetation cover would be replaced, blended with surrounding areas, and reclaimed to landowner satisfaction. Once re-vegetated, these areas would be available for their preconstruction use. No additional mitigation is anticipated at this time.

4.12. Cultural and Archaeological Resources

On behalf of Savage, KLJ conducted a literature review of the State Historical Society of North Dakota (SHSND) site and manuscript files on September 21, 2016. The search was made for all previously conducted cultural resource inventories and previously recorded cultural resources that are located within a one-mile radius of the project area. The literature review revealed that there are 16 previously recorded cultural

resources and 14 previous inventories within the one-mile search area. Three of the cultural resources are crossed by the Project.

KLJ performed a Class III cultural resource inventory of the proposed route on September 23, 2016. The survey area had a minimum width of 200 feet. During the survey, three previously recorded cultural resources were identified (i.e., two historical sites and one architectural site). Once finalized, a Class III Cultural Resources Report will be submitted to the North Dakota PSC and North Dakota State Historic Preservation Office (SHPO). Concurrence from the North Dakota SHPO, regarding the determinations made in the Class III Report, will be submitted to the North Dakota PSC upon receipt.

4.12.1. Cultural and Archaeological Resources Impacts

Impacts. The final Project corridor and route will avoid impacts to previously identified cultural resources. Therefore, a No Effect to Significant Sites determination for cultural resources would be expected.

Provided all work and ground disturbance stays within the surveyed corridor, and the one unevaluated architectural site is avoided by 50 feet or all work occurs across the road, KLJ recommends that No Significant Sites will be impacted by the project. If previously unidentified cultural resources are identified during the construction process, construction activities would halt until KLJ cultural staff arrive to advise (in consultation with the SHSND) on proceeding with construction.

4.13. Recreation

A few recreational activities are available near the Project. North Dakota is located in the Central Flyway of North America, which attracts recreationists (e.g., hunters, birdwatchers, nature enthusiasts) to the region. Lake Trenton Recreation Area is located approximately 3.5 miles northeast of the Project. This is a popular fishing area and campground, which has assorted amenities, including a boat dock.

Within several miles of the Project, there are opportunities for historical drives, including the Lewis & Clark Trail, which runs near the Missouri River from Bismarck to the Montana border west of Williston on ND-1804. The Lewis & Clark Trail provides a unique look at the route Lewis & Clark took on their exploratory journey across the United States. The nearest federal and state sites to the Project route include the following:

- ◆ Fort Buford Historic Site: This state historic site preserves remnants of a vital frontier plains military post, best remembered as the place where Hunkpapa Sioux leader, Sitting Bull, surrendered in 1881. The historic site is approximately 4.5 miles southwest of the Project, at its nearest point.
- ◆ Fort Union Historic Site: This national historic site was the most important fur trade post on the Upper Missouri River between 1828 and 1867. Seven Northern Plains Indian Tribes exchanged assorted hides and furs for goods from around the world. This historic site is located in western North Dakota approximately six miles west of the Project.

4.13.1. Recreational Resources Impacts/Mitigation

Impacts. Short-term, adverse impacts on recreational resources would not be expected from the Project, as the Project route does not cross through any of the recreation opportunities in the area.

Mitigation. As the Project will not directly disturb any local recreational opportunities, no mitigation is anticipated at this time.

4.14. Economics—Agriculture/Farming

The US Department of Agriculture (USDA) National Agricultural Statistics Service conducted the 2012 Census of Agriculture, which provides a comprehensive picture of American agriculture in 2012. According to the Census, Williams County contained 758 farms (approximately 1.06 million acres) that primarily produced wheat, forage and cattle. The market value of saleable agricultural products produced in Williams County was approximately \$178.7 million. There is a total of approximately 65.16 acres of farmland of statewide importance within the 200-foot environmental survey area in Williams County.

4.14.1. Agriculture and Farming Impacts/Mitigation

Impacts. Short-term, adverse impacts on farmland could be expected. Construction of the Project could result in temporary disturbance to approximately 6.8 acres of cropland within the 100-foot construction easement area in Williams County. Potential agricultural losses from the temporary disturbance of farmland of statewide importance are anticipated to be minor.

Mitigation. Upon completion of construction activities, the topography of the Project route would be returned to its preconstruction contours and vegetation cover would be replaced, blended with surrounding areas, and reclaimed to landowner satisfaction. Once re-vegetated, these areas would be available for their preconstruction use. No additional mitigation is anticipated at this time.

4.15. Soils

There are 4 soil types within the 200-foot survey area in Williams County. The majority of these soil types are clay/loamy soils, which are a textural class of soils that contain a mixture of clay particles with some silt and or sand particles. The presence of clay in a soil has a greater influence on a soil than the presence of silt or sand; therefore, a soil name can include the modifier ‘clay’ with as little as 20 percent clay, while a soil must contain at least 40 percent sand or 45 percent silt in order to contain those respective modifiers in its name. Soils identified as loamy have light to moderately coarse textures, silt loams have medium textures, and clay loams have moderately fine textures.

There are approximately 66.4 acres of soils (i.e., clayey and loamy) classified by the Natural Resources Conservation Service (NRCS) as farmland of statewide importance within the 200-foot survey area in Williams County; the remaining 1.25 acres are not classified as prime farmland. Please refer to Soil Summary in **TABLE 5 ON PAGE 20** and **PRIME AND UNIQUE FARMLAND MAP IN APPENDIX G.**

Table 5. Soil Summary

MAP UNIT SYMBOL	ECOLOGICAL SOIL TYPES	FARMLAND OF STATEWIDE IMPORTANCE	ACRES WITHIN 200-FOOT SURVEY AREA
E0821A	Clayey	X	24.65
E0835A	Clayey	X	18.76
E2145A	Loamy	X	21.75
E4005A	Loamy		1.25
Total Acres		65.16	66.41

4.15.1. Soils Impacts/Mitigation

Impacts. Short-term, adverse impacts on soils would be expected from the Project. Of the total 66.41 acres of soil within the 200-foot survey area, approximately 25.1 acres would be temporarily impacted from surface disturbance and soil compaction during construction and the use of heavy machinery. Of the 66.41 acres of soil within the 200-foot survey area, approximately 96 percent are classified as farmland of statewide importance. Any impacts on soils from construction of the Project would be localized and would not be considered significant, as BMPs would be implemented to minimize impacts on soils.

The risk of soil contamination from a potential release of crude oil by way of a break or leak in the proposed pipeline would be minimal. The Project would comply with USDOT regulations, specifically the design, construction, pressure testing, operation, safety, welding, and maintenance requirements, as outlined in Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). Upon completion of construction and prior to commissioning, the pipeline would be hydrotested for any potential leaks. The water from the hydrotesting would be discharged in accordance with the requirements listed in the NDPDES permit and SWPPP. In addition, the pipeline would receive regular inspections along the ROW for any indications of leaks and other maintenance issues.

If there were a leak or break in the pipeline during operations, short-term, adverse impacts on water supply could occur. In the event of a leak or break, the section of the pipeline would be isolated, repaired, and hydrotested prior to re-commissioning. Any crude oil released from a leak or break in the pipeline would be remediated in accordance with the Emergency Response Plan; SPCC Plan; Inadvertent Returns Contingency Plan; and NDDH regulations and requirements.

Mitigation. BMPs would be implemented during construction to minimize any impacts on soils. Topsoil would be segregated during the construction process and backfilled to the appropriate depth once construction is complete. The following BMPs would be implemented to decrease silting and soil erosion and compaction: using erosion- and sediment-control devices during and upon completion of construction, segregating topsoil from subsurface materials, reseeding disturbed areas, using construction equipment appropriately sized to the scope and scale of the Project, and maintaining proper drainage. Upon completion of construction activities and installation of the proposed pipeline, the topography of the Project route would be returned to its preconstruction contours and vegetation cover would be replaced, blended with surrounding areas, and reclaimed to landowner satisfaction. Once re-vegetated, these areas would be available for their preconstruction uses. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. The operator of the pipeline (i.e., Savage and/or Dakota Access) would be required to write and conduct annual reviews on all operations and

maintenance manuals. The manuals would describe standard operating and maintenance procedures and include emergency procedures and contacts.

4.16. Geology and Groundwater Resources

The Project would be located within the Missouri Plateau section of the Great Plains Province. The broad valleys, hills, and buttes of the Missouri Plateau are largely the result of erosion of flat-lying beds of sandstone, siltstone, claystone, and lignite. These sediments belong primarily to the Paleocene-age Fort Union Group and were deposited by ancient rivers flowing away from the rising Rocky Mountains between approximately 55 and 65 million years ago. The Missouri Plateau is characterized by gently rolling topography, interrupted by isolated buttes which may be prone to landslides. The topography of the survey area is gently rolling with very little slope; therefore, no landslide areas would be intersected by the Project. Please refer to **LANDSLIDE AREAS** in Appendix C.

Groundwater sources near the Project route occur within consolidated Tertiary sedimentary rocks. The unconsolidated aquifer in the area of the Project route includes the Trenton Aquifer. The Trenton Aquifer underlies an area of approximately 40 square-miles in Williams County and has a thickness ranging from 1 to 125 feet thick with an approximate average of 50 feet (Armstrong 1969). Two stock wells and one domestic well were identified within the study area with static water levels ranging from 66 feet to 130 feet. Please refer to Geologic and **GROUNDWATER RESOURCES IN APPENDIX F**.

4.16.1. Geologic and Groundwater Resources Impacts/Mitigation

Impacts. No impacts on geological or groundwater resources would be expected from the Project. The Project is not anticipated to increase the risk of landslides in the area.

The risk of groundwater contamination from a potential release of crude oil by way of a break or leak in the proposed pipeline would be minimal. The Project would comply with USDOT regulations, specifically the design, construction, pressure testing, operation, safety, welding, and maintenance requirements, as outlined in Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). Upon completion of construction and prior to commissioning, the pipeline would be hydrotested for any potential leaks. The water from the hydrotesting would be discharged in accordance with the requirements listed in the NDPDES permit and SWPPP. In addition, the pipeline would receive regular inspections along the ROW for any indications of leaks and other maintenance issues.

If there were a leak or break in the pipeline during operations, short-term, adverse impacts on water supply could occur. In the event of a leak or break, the section of the pipeline would be isolated, repaired, and hydrotested prior to re-commissioning. Any crude oil released from a leak or break in the pipeline would be remediated in accordance with the Emergency Response Plan; SPCC Plan; Inadvertent Returns Contingency Plan; and NDDH regulations and requirements.

Mitigation. Upon completion of construction activities, the study area would be reclaimed to property owner satisfaction by reseeding at the appropriate time to blend with existing vegetation and the topography would be reshaped to preconstruction contours. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. The operator of the pipeline (i.e., Savage and/or Dakota Access) would be required to write and conduct annual reviews on all operations and maintenance manuals. The manuals would describe standard operating and maintenance procedures and include emergency procedures and contacts.

4.17. Surface Water and Floodplain Resources

The Project would be located within the Missouri River Basin, in an area that is drained by the Missouri River. One small stream crosses the Project. This water complex is likely to be used by wildlife or provide crucial areas for hunting, bird watching, and fishing and they do support hydrophytic vegetation. There are no Federal Emergency Management Agency (FEMA) mapped floodplains located within the Project route.

4.17.1. Surface Water Resources Impacts/Mitigation

Impacts. Impacts on floodplain resources would not be expected from the Project. The Project route and associated aboveground infrastructure would be sited to avoid direct impacts to the small stream by means of HDD. Short-term, adverse impacts on surface water may occur due to the temporary removal of vegetation and excavation of soil, which could result in erosion of disturbed soils and transport of sediment into nearby low lying drainages during storm water flow events.

The risk of surface water contamination from a potential release of crude oil by way of a break or leak in the proposed pipeline would be minimal. The Project would comply with USDOT regulations, specifically the design, construction, pressure testing, operation, safety, welding, and maintenance requirements, as outlined in Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). Upon completion of construction and prior to commissioning, the pipeline would be hydrotested for any potential leaks. The water from the hydrotesting would be discharged in accordance with the requirements listed in the NDPDES permit and SWPPP. In addition, the pipeline would receive regular inspections along the ROW for any indications of leaks and other maintenance issues.

If there were a leak or break in the pipeline during operations, short-term, adverse impacts on water supply could occur. In the event of a leak or break, the section of the pipeline would be isolated, repaired, and hydrotested prior to re-commissioning. Any crude oil released from a leak or break in the pipeline would be remediated in accordance with the Emergency Response Plan; SPCC Plan; Inadvertent Returns Contingency Plan; and NDDH regulations and requirements.

Mitigation. Potential impacts on surface water from construction activities would be avoided or minimized through implementation of BMPs such as using silt fences, straw wattles, earth berms, retention ponds, culverts, and/or rock check dams to reduce erosion and sediment transport. In addition, measures would be implemented to avoid disruption of the natural flow of the stream within the Project route. HDD would be used to bore the stream wetland in the survey area. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. The operator of the pipeline (i.e., Savage and/or Dakota Access) would be required to write and conduct annual reviews on all operations and maintenance manuals. The manuals would describe standard operating and maintenance procedures and include emergency procedures and contacts.

4.18. Wetlands

Wetlands are defined in Executive Order 11990, Protection of Wetlands, and Section 404 of the Clean Water Act, as areas that are inundated by surface or groundwater with a frequency to support, and under normal circumstances do or would support, a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Wetlands containing various hydrology and vegetation exist within the Project survey area. Both natural and artificial wetlands are present along drainages and occur as basins. Some wetlands associated with streams and drainages could be classified by the US Army Corps of Engineers (USACE) as jurisdictional waters of the United States. Savage would comply with the USACE Nationwide Permit 12 (NWP-12) and General Conditions for Nationwide Permits for installation of pipe and construction of the associated temporary access roads.

Field wetland delineations were completed by KLJ to document wetlands so they could be avoided if possible, and impacts on wetlands from construction activities could be minimized. A total of 5 wetlands, spanning approximately 1.67 acres were delineated within the Project survey area; however, there are only two wetlands (approximately 0.15 acres total) that are within the 100-foot construction easement. Please refer to **DELINEATED WETLANDS AND WETLAND REPORT IN APPENDIX H.**

4.18.1. Wetlands Impacts/Mitigation

Impacts. Permanent impacts to wetlands would not be expected from construction of the pipeline. The natural stream wetland (Wetland #3) would be avoided by means of HDD and the manmade ditch wetland (Wetland #5) would be trenched. In according the USACE NWP-12, delineated wetlands can be trenched through to lay the pipeline as long as stipulations of the permit are complied with. During construction, temporary matting, wooden timbers and/or other approved materials would be placed within the boundaries of the wetlands to allow for equipment to pass.

Mitigation. The manmade ditch wetland (Wetland #5) would be trenched; however, it will be reclaimed to its existing condition. Upon completion of construction activities, any material placed within the wetlands would be promptly removed. The Project route would be returned to its preconstruction contours and vegetative cover would be replaced, blended with surrounding areas, and reclaimed to landowner satisfaction. Reclamation activities would occur during a time which optimizes the likelihood for success. Property owners would also be consulted regarding reclamation adequacy.

4.19. Vegetation

Half of the Project would be located on industrial or developed land. The other half would consist of idle grassland and cropland. The cropland consisted of small grains and the grassland was dominated by crested wheatgrass (*Agropyron cristatum*) and smooth brome (*Bromus inermis*). Noxious weeds were identified in the survey area and consisted of Canada thistle (*Cirsium arvense*) and leafy spurge (*Euphorbia esula*).

The idle grassland also contained sporadic trees within the Project survey area. The tree species consisted of boxelder (*Acer negundo*), chokecherry (*Prunus virginiana*), eastern cottonwood (*Populus deltoides*), green ash (*Fraxinus pennsylvanica*), peachleaf willow (*Salix amygdaloides*), Russian-olive (*Elaeagnus angustifolia*), and Siberian elm (*Ulmus pumila*).

4.19.1. Vegetation Impacts/Mitigation

Impacts. Short-term, adverse impacts to vegetation would be expected from the Project on the grassland and cropland. Impacts on vegetation would be expected from temporary disturbance of approximately 11.9 acres of land within the 100-foot ROW from construction of the proposed pipeline. Trees within the 100-foot ROW will be removed as part of the Project. It is common for weed species to grow in disturbed areas from construction until desired re-vegetation of the site is complete.

The risk of contamination from a potential release of crude oil by way of a break or leak in the proposed pipeline would be minimal. The Project would comply with USDOT regulations, specifically the design, construction, pressure testing, operation, safety, welding, and maintenance requirements, as outlined in Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). Upon completion of construction and prior to commissioning, the pipeline would be hydrotested for any potential leaks. The water from the hydrotesting would be discharged in accordance with the requirements listed in the NDPDES permit and SWPPP. In addition, the pipeline would receive regular inspections along the ROW for any indications of leaks and other maintenance issues.

If there were a leak or break in the pipeline during operations, short-term, adverse impacts on water supply could occur. In the event of a leak or break, the section of the pipeline would be isolated, repaired, and hydrotested prior to re-commissioning. Any crude oil released from a leak or break in the pipeline would be remediated in accordance with the Emergency Response Plan; SPCC Plan; Inadvertent Returns Contingency Plan; and NDDH regulations and requirements.

Mitigation. Short-term impacts on vegetation from the pipeline would be minimized by reclamation activities and implementation of BMPs. Upon completion of construction activities, the topography of the Project route would be returned to its preconstruction contours and vegetation cover would be replaced, blended with surrounding areas, and reclaimed to landowner satisfaction. Once re-vegetated, these areas would be available for their preconstruction uses. BMPs that minimize impacts on surrounding vegetation would be implemented to protect exposed soil from erosion or runoff, contain temporary spoil piles, prevent weed growth, and provide for material stabilization. If noxious weeds become an issue while the study area is being reclaimed to preconstruction conditions, Savage would use noxious weed management practices approved by the appropriate local weed board and coordinated with the landowner to control occurrences of noxious weeds. A Noxious Weed Control Plan, NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. The operator of the pipeline (i.e., Savage and/or Dakota Access) would be required to write and conduct annual reviews on all operations and maintenance manuals. The manuals would describe standard operating and maintenance procedures and include emergency procedures and contacts.

Tree and Shrub Mitigation Specifications and a Tree and Shrub Inventory and Sampling Plan would be developed for the Project. All of the woody vegetation larger than 1-inch diameter at breast height (DBH) removed during construction, would be documented prior to removal, and replaced upon completion of construction. Trees larger than 1-inch in diameter and shrubs that would not naturally regenerate on their own which were removed during construction would be replaced at a 2-to-1 ratio and would be monitored for survival. The locations for tree and shrub plantings would be coordinated with the impacted landowners.

4.20. Wildlife—Mammal Species

White-tailed (*Odocoileus virginianus*) and mule (*Odocoileus hemionus*) deer flourish in the vicinity of the Project route due to the ample forage from surrounding cropland intermingled with the rangeland and draws. Numerous other mammals such as Eastern cottontail rabbit (*Sylvilagus floridanus*), red fox (*Vulpes vulpes*), and coyote (*Canis latrans*) also inhabit this part of the state.

4.20.1. Mammal Impacts/Mitigation

Impacts. Short-term, adverse impacts on mammal species would be expected from the Project. High noise events associated with construction activities could cause species to engage in escape or avoidance behaviors. However, most species would be expected to quickly return to the area once construction noise and disturbances ceased. Ground clearing activities associated with construction of the proposed pipeline are anticipated to be minimal and could result in the temporary loss of wildlife habitat for ground dwelling mammals and other wildlife species. Wildlife species using the Project route for breeding and feeding are anticipated to adapt to the changing conditions and continue to thrive.

The risk of wildlife habitat contamination from a potential release of crude oil by way of a break or leak in the proposed pipeline would be minimal. The Project would comply with USDOT regulations, specifically the design, construction, pressure testing, operation, safety, welding, and maintenance requirements, as outlined in Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). Upon completion of construction and prior to commissioning, the pipeline would be hydrotested for any potential leaks. The water from hydrotesting would be discharged in accordance with the requirements listed in the NDPDES permit and SWPPP. In addition, the pipeline would receive regular inspections along the ROW for any indications of leaks and other maintenance issues.

If there were a leak or break in the pipeline during operations, short-term, adverse impacts on water supply and grassland habitat could occur. In the event of a leak or break, the section of the pipeline would be isolated, repaired, and hydrotested prior to re-commissioning. Any crude oil released from a leak or break in the pipeline would be remediated in accordance with the Emergency Response Plan; SPCC Plan; Inadvertent Returns Contingency Plan; and NDDH regulations and requirements.

Mitigation. Upon completion of construction activities, the topography of the Project route would be returned to its preconstruction contours and vegetative cover would be replaced, blended with surrounding areas, and reclaimed to landowner satisfaction. Once re-vegetated, these areas would be available for their preconstruction uses (e.g., cultivation).

A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. The operator of the pipeline (i.e., Savage and/or Dakota Access) would be required to write and conduct annual reviews on all operations and maintenance manuals. The manuals would describe standard operating and maintenance procedures and include emergency procedures and contacts. In addition, suitable mufflers would be used on all internal combustion engines during construction, operations and maintenance activities to minimize noise impacts.

4.21. Wildlife—Avian Species

The Project lies in the central flyway of North America. Therefore, the Project route is used as resting grounds for many migratory birds on their spring and fall migrations, as well as nesting and breeding grounds for many song, wading, shore, upland, and waterfowl species. The nearest USFWS Waterfowl Production Area (i.e., Missouri Bottoms Waterfowl Production Area) is approximately two miles south of the Project route.

Protection for the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) is provided under the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668–668d), while protection for migratory birds is provided under the Migratory Bird Treaty Act (MBTA) (916 U.S.C. 703–711). The BGEPA, as amended, was written with the intent to protect and preserve bald and golden eagles, both of which are

treated as species of concern within the Department of the Interior. The BGEPA provides additional protection to all bald and golden eagles as well as over 1000 migratory bird species. Under the BGEPA, 'take' includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb, wherein 'disturb' means to agitate or bother a bald or golden eagle to the degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, causing injury, death, or nest abandonment. The MBTA regulates impacts on migratory birds such as taking, direct mortality, habitat degradation, and/or displacement of individual birds. The MBTA defines 'taking' to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof, except when specifically permitted by regulations.

A pedestrian survey for raptor nests was conducted within the 200-foot survey area of the Project. The surveys were completed by KLJ staff in September 2016. No raptor nests were observed during the survey. Please refer to **RAPTOR NEST LOCATIONS IN APPENDIX I**.

4.21.1. Avian Species Impacts/Mitigation

Impacts. Short-term, adverse impacts on avian species would be expected from the Project. High noise events associated with construction activities could cause species to engage in escape or avoidance behaviors. However, most species would be expected to quickly return to the area once construction noise and disturbances ceased. Ground clearing activities associated with construction activities are anticipated to start at the beginning of spring nesting (February 1 to July 15). Pre-construction surveys would be completed a maximum of five days prior to ground clearing or tree removal.

The risk of habitat contamination from a potential release of crude oil by way of a break or leak in the proposed pipeline would be minimal. The Project would comply with USDOT regulations, specifically the design, construction, pressure testing, operation, safety, welding, and maintenance requirements, as outlined in Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). Upon completion of construction and prior to commissioning, the pipeline would be hydrotested for any potential leaks. The water from the hydrotesting would be discharged in accordance with the requirements listed in the NDPDES permit and SWPPP. In addition, the pipeline would receive regular inspections along the ROW for any indications of leaks and other maintenance issues.

If there were a leak or break in the pipeline during operations, short-term, adverse impacts on water supply or habitat could occur. In the event of a leak or break, the section of the pipeline would be isolated, repaired, and hydrotested prior to re-commissioning. Any crude oil released from a leak or break in the pipeline would be remediated in accordance with the Emergency Response Plan; SPCC Plan; Inadvertent Returns Contingency Plan; and NDDH regulations and requirements.

Mitigation. Impacts on avian species would be minimized by establishing setback requirements. The following setback requirements would be incorporated in the Project:

- ◆ Minimum setback of 0.25-mile construction buffer for any red-tailed hawks and Swainsons hawks nests from March 15 to July 15.
- ◆ Minimum setback of 0.5-mile construction buffer for any active eagle and ferruginous hawk nests from March 15 to July 15.
- ◆ Minimum setback of 0.25-mile construction buffer for any active sharp-tailed grouse lek sites from March 15 to May 15.

- ◆ If ground clearing activities are expected to occur after spring nesting (February 1st), a pre-construction survey would be completed to assure no active nests are within the 100-foot construction area.

Upon completion of construction activities, the topography of the Project route would be returned to its preconstruction contours and vegetation cover would be replaced, blended with surrounding areas, and reclaimed to landowner satisfaction. Once re-vegetated, these areas would be available for their preconstruction uses. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. The operator of the pipeline (i.e., Savage and/or Dakota Access) would be required to write and conduct annual reviews on all operations and maintenance manuals. The manuals would describe standard operating and maintenance procedures and include emergency procedures and contacts. No additional mitigation is anticipated.

4.22. Rare and Unique Natural Resources— Threatened and Endangered Species

The Project route has been evaluated to determine the potential for occurrences of federally listed threatened, endangered, and candidate species. The USFWS has identified four endangered species (interior least tern [*Sterna antillarum*], whooping crane [*Grus americana*], pallid sturgeon [*Scaphirhynchus albus*], and gray wolf [*Canis lupus*]), three threatened species (piping plover [*Charadrius melodus*], rufa red knot [*Calidris canutus rufa*], and northern long-eared bat [*Myotis septentrionalis*]) in Williams County. Williams County contains designated critical habitat for the piping plover. Habitat requirements and other information regarding listed species for Williams County are discussed in the following paragraphs.

Interior Least Tern

The endangered interior least tern nests along inland rivers. It is found in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande rivers. In North Dakota, it is sighted along the Missouri River during the summer nesting season and can be found in its preferred habitat from mid-April to September. The interior least tern nests on sandbars or barren beaches, preferably in the middle of a river for increased safety while nesting. These birds nest close together, using safety in numbers to deter predators. The nearest habitat for the interior least tern is located approximately three miles southeast of the Project route at the Missouri River.

Whooping Crane

The endangered whooping crane is the tallest bird in North America. In the United States, this species ranges through the Midwest and Rocky Mountain regions from North Dakota, south to Texas, and west to Colorado. Whooping cranes migrate through North Dakota along a corridor extending from the south central to the northwest parts of the state. They use shallow, seasonally and semi-permanently flooded palustrine (marshy) wetlands for roosting and various cropland and emergent wetlands for feeding. Whooping cranes have been documented using a wide range of wetland sizes for roosting, including small, natural wetlands; manmade stock ponds; large lakes; and rivers without visual obstructions (e.g., high or dense vegetation). Currently, there are three wild populations of whooping cranes, yielding a total species population of about 419. Of these flocks, only the Aransas-Wood Buffalo population, comprised of approximately 250 cranes, is self-sustaining. The Project would be located in the middle of the whooping crane migratory corridor. However, habitat for migrating whooping cranes does not exist within and in the vicinity of the Project route

due to the close proximity of the railroad, highway and industrial areas. The nearest documented whooping crane observation to the Project was approximately seven miles from the center of the Project route.

Pallid Sturgeon

The endangered pallid sturgeon is known to exist in the Yellowstone, Missouri, middle and lower Mississippi, and Atchafalaya rivers, and seasonally in some tributaries. In North Dakota, the pallid sturgeon is found primarily in the Missouri River and upstream of Lake Sakakawea in the Yellowstone River. Dating to prehistoric times, the pallid sturgeon has become well adapted to living close to the bottom of silty river systems. According to the USFWS, its preferred habitat includes a diversity of water depths and velocities formed by braided river channels, sand bars, sand flats, and gravel bars. Weighing up to 80 pounds, pallid sturgeons are long-lived, with individuals potentially reaching 50 years old. The Project route lacks potential habitat for the pallid sturgeon. The nearest potential habitat for the pallid sturgeon is located approximately 3.5 miles southwest of the Project route at the confluence of the Yellowstone and Missouri Rivers and south and southeast of the Project route at the Missouri River.

Gray Wolf

The endangered gray wolf is the largest wild canine species in North America. While the gray wolf is not common in North Dakota, occasionally individual wolves pass through the state. Historically, its preferred habitat includes biomes such as boreal forest, temperate deciduous forest, and temperate grassland. Gray wolves live in packs of up to 21 members, although some individuals roam alone. The Project is not located in the vicinity of any known wolf populations and habitat for the gray wolf does not exist within the vicinity of the Project route due to the close proximity of the railroad, highway and industrial areas.

Piping Plover

The endangered piping plover is a small migratory shorebird. Historically, piping plovers could be found throughout the Atlantic Coast, Northern Great Plains, and the Great Lakes. Drastically reduced, sparse populations presently occur throughout this historic range. In North Dakota, breeding and nesting sites can be found along the Missouri River and saline wetlands. Preferred habitat for the piping plover includes riverine sandbars, gravel beaches, alkali shoreline areas of wetlands, and flat, sandy beaches with little vegetation. The USFWS has identified critical habitat for the piping plover within Williams County along the Missouri River shorelines, approximately three miles southeast of the Project route. The Project is within the piping plover's range; however, no piping plovers were identified during the survey. The nearest designated critical habitat for the piping plover is located approximately three miles southeast of the Project route along the shores of the Missouri River.

Rufa Red Knot

The threatened rufa red knot migrates during the spring and fall between breeding grounds in northern Canada and wintering grounds in the southeastern United States, northeastern Gulf of Mexico, northern Brazil, and Tierra del Fuego in South America. While a majority of red knots follow migration routes along the east and west coasts of the United States, small numbers of this species follow an inland migration route across the Midwest, along the Great Lakes. Preferred stopover habitat in North America includes sandy or gravelly beaches, tidal mudflats, salt marshes, shallow coastal impoundments, and peat banks. Preferred prey found in nonbreeding habitats including snails, mollusks, and insect larvae. The nearest habitat for the rufa

red knot is located approximately three miles southeast of the Project route at the Missouri River. No rufa red knot were identified during the survey of the Project route.

Northern Long-eared Bat

Northern long-eared bats spend winter months hibernating in caves and mines (hibernacula) and the summer/fall months roosting in trees or snags (dead trees). Preferred hibernacula include large caves or mines with large passages and entrances; constant, cooler temperatures (i.e., 32 to 48 degrees Fahrenheit); and high humidity with no air currents. No hibernacula are known to exist in North Dakota. Suitable habitat for summer maternity/non-maternity activities and spring staging/fall swarming includes forests, woodlots, fencerows, riparian forests, and other wooded corridors. Density and canopy cover is variable within these forested habitats, which can be interspersed with wetlands, agricultural and fallow fields, and pastures. Potential roost sites include live trees or snags that are greater than, or equal to, 3-inch DBH and could include exfoliating bark, cracks, crevices, or cavities. Isolated trees may be potential roost sites if they exhibit the characteristics previously described and are less than 1,000 feet from the nearest roosting site or suitable forested habitat. A shelterbelt lies within the Project route and may provide potential summer habitat for the northern long-eared bat. The northern long-eared bat is one of the bat species most impacted by a fungus known as white-nose syndrome. It is listed as threatened due to population decline and continued spread of this disease.

The USFWS has published the final Section 4(d) rule for the northern long-eared bat, which exempts incidental take from all lawful activities, for all areas not affected by white-nose syndrome. Areas affected by white-nose syndrome include both counties with known infected hibernacula, as well as all counties within 150 miles of known infected hibernacula. The nearest known infected hibernacula occur in Fillmore and St. Louis Counties, Minnesota, over 550 miles from the Project route.

4.22.1. Threatened and Endangered Species Impacts/Mitigation

Impacts. Under the Endangered Species Act (ESA) Section 7(a)(2), a Federal agency is required to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species, or adversely modify or destroy designated critical habitat. Under the ESA, 'jeopardy' occurs when an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced. Federal agency action proponents are responsible for making one of the following effects determinations: 'No Effect', 'May Affect, but Not Likely to Adversely Affect', or 'Likely to Adversely Affect' (16 U.S.C. § 1531-1543).

Interior Least Tern. No suitable habitat, in the form of sandbars or barren breaches, were identified within the Project route.

Whooping Crane. The study area has been altered with multiple site avoidance criteria that would likely deter the whooping crane from occupying the emergent wetlands and cropped fields in and adjacent to the survey area. Criteria observed includes construction of roadways, railroads and industrial sites; therefore, there is no suitable habitat identified within the Project route.

Pallid Sturgeon. No suitable habitat was identified within the Project route.

Gray Wolf. The study area has been altered with multiple site avoidance criteria that would likely deter the gray wolf from occupying the area. Criteria observed includes construction of roadways, railroads and industrial sites; therefore, there is no suitable habitat identified within the Project route.

Piping Plover. No suitable habitat was identified within the Project route.

Rufa Red Knot. No suitable habitat was identified within the Project route.

Northern Long-eared Bat. The proposed Project would intersect wooded areas, which could contain potential habitat for the northern long-eared bat; however, tree removal would occur during the winter months when the NLEB would not be present. In some areas, trees might need to be removed during construction. Some of these trees could exhibit characteristics preferred by the northern long-eared bat and be considered suitable habitat. In addition, construction activities associated with the Project would result in increased noise and visual disturbances in the vicinity of the wooded areas. Increased noise and visual disturbances could result in short-term, adverse impacts on the northern long-eared bat, if it were present in the area.

Mitigation. The Project has been sited to avoid suitable habitat for threatened, endangered, and candidate species and would not be sited within designated critical habitat for the piping plover.

Trees would be removed during the winter months when the NLEB would not be present. The thickness of the pipeline would be 0.365 inches where HDD would occur, to reduce the risk of rupture. In the event of a leak or break, the section of the pipeline would be isolated, repaired, and hydrotested prior to re-commissioning. Any crude oil released from a leak or break in the pipeline would be remediated in accordance with the Emergency Response Plan, SPCC Plan, Inadvertent Returns Contingency Plan, and NDDH regulations and requirements.

BMPs that minimize impacts on surrounding vegetation would be implemented to protect exposed soil from erosion or runoff, contain temporary spoil piles, prevent weed growth, and provide for material stabilization. If noxious weeds become an issue while the study area is being reclaimed to preconstruction conditions, Savage would use noxious weed management practices approved by the appropriate local weed board and coordinated with the landowner.

Upon completion of construction activities, the topography of the Project route would be returned to its preconstruction contours and reclaimed to landowner satisfaction. Agricultural fields would be returned to production at the landowner's discretion, which could then be used as feeding areas for the whooping crane. All woody vegetation larger than 1-inch DBH removed during construction, would be documented prior to removal, and replaced upon completion of construction. Trees and shrubs removed during construction would be replaced at a 2-to-1 ratio, as necessary, and would be monitored for survival. The locations for tree and shrub plantings would be coordinated with the impacted landowners.

A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. The operator of the pipeline (i.e., Savage and/or Dakota Access) would be required to write and conduct annual reviews on all operations and maintenance manuals. The manuals would describe standard operating and maintenance procedures and include emergency procedures and contacts.

4.23. Rare and Unique Natural Resources—Rare and Sensitive Species

North Dakota has identified 100 Species of Conservation Priority within the state and has ranked those species into three levels (i.e., Level I, Level II, and Level III). Level I species are in decline and receive little or no monetary support or conservation effort. NDGFD has an obligation to use State Wildlife Grant (SWG) funding to implement conservation actions that directly benefit these Level I species. Level II species receive state wildlife grant funding to implement conservation actions to benefit these species if SWG funding for Level I species is sufficient or conservation needs have been met. Level III species receive a moderate level of conservation priority, but are believed to be peripheral or nonbreeding in North Dakota. KLJ conducted pedestrian surveys to identify any North Dakota Species of Conservation Priority within the Project route. There were no species identified along the proposed route.

No sensitive botanical or zoological species or communities of ecological importance were identified within the Project route Please refer to **SCOPING PACKAGE AND RESPONSES IN APPENDIX J**.

4.23.1. Rare and Sensitive Species Impacts/Mitigation

Impacts. Construction of the proposed pipeline is not anticipated to cause permanent impacts on rare or sensitive species or irretrievable natural resources.

The risk of habitat contamination from a potential release of crude oil by way of a break or leak in the proposed pipeline would be minimal. The Project would comply with USDOT regulations, specifically the design, construction, pressure testing, operation, safety, welding, and maintenance requirements, as outlined in Transportation of Hazardous Liquids by Pipeline guidance (49 CFR Part 195). Upon completion of construction and prior to commissioning, the pipeline would be hydrotested for any potential leaks. The water from the hydrotesting would be discharged in accordance with the requirements listed in the NDPDES permit and SWPPP. In addition, the pipeline would receive regular inspections along the ROW for any indications of leaks and other maintenance issues.

In the event of a leak or break in the pipeline during operations, short-term, adverse impacts on rare or sensitive species could occur. In the event of a leak or break, the section of the pipeline would be isolated, repaired, and hydrotested prior to re-commissioning. Any crude oil released from a leak or break in the pipeline would be remediated in accordance with the Emergency Response Plan, SPCC Plan, Inadvertent Returns Contingency Plan, and NDDH regulations and requirements.

Mitigation. The Project and associated structures have been routed to avoid impacts on rare and sensitive species and ecological communities. Following construction, the topography would be returned to its pre-construction contours and vegetation would be replaced, blending with surrounding areas, and reclaimed to landowner satisfaction. No further mitigation is anticipated at this time.

A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. The operator of the pipeline (i.e., Savage and/or Dakota Access) would be required to write and conduct annual reviews on all operations and maintenance manuals. The manuals would describe standard operating and maintenance procedures and include emergency procedures and contacts.

4.24. Summary of Mitigation Needed

Please refer to **TABLE 6. SUMMARY OF PROJECT IMPACTS.**

Table 6. Summary of Project Impacts

RESOURCE	PROPOSED PROJECT	PROPOSED MITIGATION
Demographics	Short- and long-term, beneficial impacts from increased need for construction contractors; increases in local business volume, sales receipts, and indirect purchase of goods and services; and increased income to local landowners.	None.
Land Use	Short-term, adverse impacts from temporary disturbance of 25.1 acres from construction.	Topography would be returned to preconstruction contours and vegetation cover would be replaced, blended, and reclaimed to landowner satisfaction. Once re-vegetated, areas would be available for their preconstruction use. BMPs would be implemented to protect against erosion or runoff, contain temporary spoil piles, prevent weed growth, and provide for material stabilization.
Public Services	Short-term, beneficial impacts on local services due to increased demand for workers during construction. Short-term, adverse impacts on roadways and traffic during construction activities. Potential short-term, adverse impacts on water supply in the event of breaks or leaks in the pipeline.	Project would be constructed using HDD under roadways. BMPs would be implemented to minimize dust and damage on roadways from construction, and damaged roadways would be restored. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained.
Human Health and Safety	If hazardous waste sites were encountered, construction activities would be suspended and the NDDH would be contacted. Project would be located within 500 feet of a church and community center.	Pipeline markings would be located at road and river crossings. The Injection Pump Station would be fenced and the receiver valve set would be automated to minimize external tampering. The booster pump and launcher valve set would be located within the Savage Bakken Petroleum Hub which is already a secured facility.
Noise	Short-term, adverse impacts from construction activities. Operation of the proposed pipeline would cause negligible increases in the noise levels, due to vehicles used during inspections and maintenance.	The best available technology for construction equipment (e.g., mufflers) would be used.
Aesthetics	Short- and long-term, adverse impacts on visually sensitive resources of the Lewis & Clark Trail along ND-1804 from construction activities, pump stations, valve sets and pipeline markers.	Topography would be returned to preconstruction contours and vegetation cover would be replaced, blended, and reclaimed to landowner satisfaction. Once re-vegetated, areas would be available for their preconstruction use.
Cultural and Archaeological Resources	Within the 200-foot survey area, 3 previously recorded cultural resources were identified. The Project corridor and route would avoid previously identified historical and archaeological sites located on private land. Therefore, a No Effect to Significant Sites determination for cultural resources would be expected.	Cultural resources that would be avoided would be buffered by 50 feet or all work occurs on the opposite side of the road.
Recreation	Short-term, adverse impacts on recreational resources would not be expected from the Project, as the Project route does not cross through any of the recreation opportunities in the area.	As the Project will not directly disturb any local recreational opportunities, no mitigation is anticipated at this time.
Economics	Short-term, adverse impacts from temporary disturbance to 6.8 acres of cropland within the 100-foot construction ROW.	Topography would be returned to preconstruction contours and vegetation cover would be replaced, blended, and reclaimed to landowner satisfaction. Once re-vegetated, areas would be available for their preconstruction use.

RESOURCE		PROPOSED PROJECT	PROPOSED MITIGATION
Soils		Short-term, adverse impacts on 25.1 acres from surface disturbance and soil compaction during construction and the use of heavy machinery. Potential short-term, adverse impacts in the event of breaks or leaks in the pipeline.	Topsoil would be segregated during the construction process and backfilled to the appropriate depth once construction is complete. BMPs would be implemented to decrease silting and soil erosion and compaction. Topography would be returned to preconstruction contours and vegetation cover would be replaced, blended, and reclaimed to landowner satisfaction. Once re-vegetated, areas would be available for their preconstruction recreational uses. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained.
Geology and Ground-water Resources		Potential short-term, adverse impacts on groundwater in the event of breaks or leaks in the pipeline.	The study area would be reclaimed and the topography would be reshaped to preconstruction contours. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained.
Surface Water Resources		Short-term, adverse impacts from the temporary removal of vegetation and excavation of soil and associated erosion of disturbed soils and transport of sediment into nearby water bodies during storm water flow events. Potential short-term, adverse impacts in the event of breaks or leaks in the pipeline.	Project would be constructed using HDD under the stream wetland. BMPs would be implemented for construction impacts and to avoid disruption of the natural flow of any river, creek, stream, or wetland. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained.
Wetlands		In the area where the pipeline route intersects the stream wetland, HDD would be used for construction. The manmade ditch wetland will be trenched.	Project would be constructed using HDD under the stream wetland; the manmade ditch wetland will be reclaimed once Project is complete. BMP's would be installed to minimize the risk of sedimentation in wetlands.
Vegetation		Short-term, adverse impacts from temporary disturbance to 11.9 acres of land from construction activities. Potential short-term, adverse impacts in the event of breaks or leaks in the pipeline.	BMPs would be implemented to protect against soil erosion or runoff, contain temporary spoil piles, prevent weed growth, and provide for material stabilization. Topography would be returned to preconstruction contours and vegetation cover would be replaced, blended, and reclaimed to landowner satisfaction. Once re-vegetated, areas would be available for their preconstruction recreational uses. A Noxious Weed Control Plan, NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. All woody species larger than 1-inch DBH would be documented and replaced at a 2:1 ratio in coordination with the affected landowners.
Wildlife	Mammal Species	Short-term, adverse impacts from high noise events and temporary loss of habitat associated with construction activities. Potential short-term, adverse impacts on habitats in the event of breaks or leaks in the pipeline.	Topography would be returned to preconstruction contours and vegetation cover would be replaced, blended, and reclaimed to landowner satisfaction. Once re-vegetated, areas would be available for their preconstruction recreational uses. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project.
	Avian Species	Short-term, adverse impacts from high noise events and temporary loss of habitat associated with construction activities. Potential short-term, adverse impacts on habitats in the event of breaks or leaks in the pipeline. Construction activities are anticipated to start at the beginning of spring nesting (February 1 to July 15).	Preconstruction surveys would be conducted and set-back requirements would be established and incorporated. Topography would be returned to preconstruction contours and vegetation cover would be replaced, blended, and reclaimed to landowner satisfaction. Once re-vegetated, areas would be available for their preconstruction recreational uses. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project.

RESOURCE	PROPOSED PROJECT	PROPOSED MITIGATION
Rare and Unique Natural Resources	Project would have no effect on the interior least tern, whooping crane, pallid sturgeon, gray wolf, piping plover, rufa red knot. The Project may affect, but is not likely to adversely affect the and northern long-eared bat from high noise events and temporary habitat disturbance associated with construction activities. Potential short-term, adverse impacts on habitats in the event of breaks or leaks in the pipeline.	Project would be constructed using HDD under the stream wetland. Thickness of pipeline segments used for HDD would be 0.365 inches. A NDPDES permit, SWPPP, Emergency Response Plan, SPCC Plan, and Inadvertent Returns Contingency Plan would be developed and maintained for the Project. Tree and Shrub Mitigation Specifications and a Tree and Shrub Inventory and Sampling Plan would be developed. Removed woody vegetation larger than 1-inch DBH would be documented prior to removal, replaced at a 2-to-1 ratio, and monitored for survival. Topography would be returned to preconstruction contours and vegetation cover would be replaced, blended, and reclaimed to landowner satisfaction. Once re-vegetated, areas would be available for their preconstruction use. BMPs would be implemented to protect against soil erosion or runoff, contain temporary spoil piles, prevent weed growth, and provide for material stabilization.

4.25. Irreversible and Irretrievable Commitment of Natural Resources

As with any construction project, certain irreversible and irretrievable commitments of natural resources, manpower, materials, and fiscal resources are required. Fossil fuels, labor, and construction materials would be expended to complete the Project. Additionally, labor and natural resources would be used in the fabrication and preparation of construction materials (e.g., concrete, aggregate, and steel). These materials are generally not retrievable. However, they are not in short supply, and their use would not have an adverse impact on the availability of these resources. Any construction would require a one-time expenditure of funds, which are not retrievable. However, the anticipated benefits would balance the irretrievable commitment of resources caused by construction of the Project.

5. Criteria for Transmission Facility Corridor and Route Selection

5.1. Environmental Policy Statement

Savage expresses an environmental commitment and goal to use industry standards, practices, and quality equipment, and to have the best assets to operate in an environmentally responsible manner. Savage recognizes its operations must embrace its responsibility to the communities, the public, and its employees to operate its assets in a safe and environmentally sound manner.

5.1.1. Exclusion Areas

Per Section 69-06-08-02(1) of the NDAC, certain geographical areas shall be excluded from transmission facility siting consideration. In addition, a buffer zone shall be implemented around these areas to protect their integrity.

Exclusion areas were avoided within the study area. For additional information regarding avoidance and mitigation measures, please refer to the **EXCLUSION AND AVOIDANCE AREAS MAP IN APPENDIX K** and **TABLE 7**.

Table 7. Summary of Exclusion Areas

EXCLUSION AREA	PRESENT WITHIN STUDY AREA	PRESENT WITHIN PROJECT ROUTE	METHODS/ALTERNATIVES CONSIDERED FOR EXCLUSION AREA	DESCRIPTION OF EXCLUSION AREA AND/OR PROPOSED MITIGATION
Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments and wilderness areas.	None	None	N/A	N/A
Designated or registered state parks; historic sites; monuments; historical markers; archaeological sites; and nature preserves.	None	None	N/A	N/A
County parks and recreation areas, municipal parks, and parks owned or administered by other governmental subdivisions.	None	None	N/A	N/A
Areas critical to life stages of threatened or endangered animal or plant species.	None	None	N/A	N/A
Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged.	None	None	N/A	N/A
Areas within 1,200 feet of the geographic center of an ICBM launch or launch control facility.	None	None	N/A	N/A
Areas within 30 feet on either side of a direct line between ICBM launch or launch control facilities to avoid microwave interference.	None	None	N/A	N/A

5.1.2. Avoidance Areas

Per section 69-06-08-02(2) of the NDAC, certain geographical areas shall not be approved for use as transmission facilities unless the applicant shows that, under the circumstances, there is no reasonable alternative. In determining whether an avoidance area should be designated for a facility, the North Dakota PSC may consider the proposed management of adverse impacts, the orderly siting of facilities, system reliability and integrity, the efficient use of resources, and alternative sites. In addition, a buffer zone shall be implemented around these areas to protect their integrity.

Exclusion areas were avoided within the study area. For additional information regarding avoidance and mitigation measures, please refer to the **EXCLUSION AND AVOIDANCE AREAS MAP IN APPENDIX K** and **TABLE 8**.

Table 8. Summary of Avoidance Areas

AVOIDANCE AREA	PRESENT WITHIN STUDY AREA	PRESENT WITHIN PROJECT ROUTE	METHODS/ALTERNATIVES CONSIDERED FOR AVOIDANCE AREA	PROPOSED MITIGATION
Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges and grasslands.	None	None	N/A	N/A
Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands.	None	None	N/A	N/A
Historical resources that are not specifically designated as exclusion or avoidance areas.	Yes	Yes	N/A	All construction activity would occur on opposite side of the road for the historical site.
Areas which are geologically unstable.	None	None	N/A	N/A
Within 500 feet (152.4 meters) of a residence, school, or place of business.	Yes	Yes	Savage is working on attaining waivers for the church and the community center.	N/A
Reservoirs and municipal water supplies.	None	None	N/A	N/A
Water resources for organized rural water districts.	None	None	N/A	N/A
Areas of recreational significance which are not designated as exclusion areas.	Yes	Yes	N/A	Lewis & Clark Trail along ND-1804 is intersected by the Project; no disturbance of the area is anticipated due to mitigation plans to bore underneath highway.

5.1.3. Selection Criteria

Per section 69-06-08-02(3) of the NDAC, a corridor or route shall be approved in an area only when it is demonstrated to the North Dakota PSC by the applicant that any significant adverse impacts resulting from the

location, construction, and operation of the facility in that area, as they relate to the following, would be at an acceptable minimum, or that those impacts would be managed and maintained at an acceptable minimum. Exclusion and avoidance areas, along with selection criteria described in the following table, were evaluated and taken into account when determining the proposed route. Please refer to **TABLE 9**.

Table 9. Summary of Selection Criteria

SELECTION CRITERIA	POTENTIAL ADVERSE IMPACT FROM PROJECT
Agricultural production.	Approximately 6.8 acres of farmland of statewide importance would be temporarily impacted during pipeline installation and returned to preexisting conditions after construction.
Family farms and ranches.	Economic losses to producers are anticipated to be minor in comparison to additional income provided by ROW agreements.
Land which the owner demonstrates has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation.	No impacted property owners have expressed concerns over land that is economically suitable for irrigation. No adverse impacts are anticipated.
Surface drainage patterns and ground water flow patterns.	No adverse impacts on surface drainage or groundwater flow patterns are anticipated.
Sound sensitive land uses.	A small increase in the overall noise of the rural area could occur during construction activities. These impacts would be temporary in nature.
The visual impact on the adjacent area.	Visual impacts would occur in the form of pipeline identification markings and signs along the pipeline route and road crossings, as well as, a temporary trenching scar and associated construction activities.
Extractive and storage resources.	No adverse impacts on extractive or storage resources are anticipated.
Wetlands, woodlands and wooded areas.	The stream wetland would be bored using HDD. Some trees will be removed as part of the Project.
Radio and television reception, and other communication or electronic control facilities.	No adverse impacts on radio or television reception or other communication or electronic control facilities are anticipated.
Human health and safety.	There would be an increase in truck traffic during construction activities. All waste would be stored and disposed of in accordance with local, state, and federal regulations.
Animal health and safety.	Construction of the Project would temporarily displace potential wildlife habitat; however, disturbed land areas would be returned to preexisting conditions after construction.
Plant life.	Impacts on vegetation would be temporary, as the Project route would be re-vegetated after construction and actions to minimize the spread of invasive species would be implemented.

5.1.4. Policy Criteria

Per section 69-06-08-02(4) of NDAC, the North Dakota PSC could give preference to an applicant that would maximize benefits through the adoption of criteria related to the applicant's policies and practices. Please refer to **TABLE 10**. In addition, the North Dakota PSC could also give preference to an applicant that would maximize interstate benefits.

Table 10. Summary of Policy Criteria

POLICY CRITERIA	APPLICANT'S POLICIES AND PRACTICES
Location and design.	The Project route has been sited and designed to provide a pipeline for the transportation of crude oil between a petroleum hub to the Dakota Access Pipeline. The location of the Project route would allow for the collection and transport of crude oil produced from local wells.
Training and utilization of available labor in this state for the general and specialized skills required.	Local contractors and labor would be used wherever possible.
Economies of construction and operation.	Construction of the Project would positively impact the economics of the area, although some impacts would be temporary.
Use of citizen coordinating committees.	Savage has, and will continue to, work with impacted property owners throughout the Project process.
A commitment of a portion of the transmitted product for use in this state.	The crude oil is not anticipated to be refined in North Dakota at this time; however, future refineries are planned and may utilize crude oil transported by the Savage pipeline.
Labor relations.	No benefits or impacts to labor relations are anticipated.
The coordination of facilities.	The proposed route has been coordinated with property owners within the Project route.
Monitoring of impacts.	BMPs would be implemented during the construction process. Savage would monitor impacts during and after the construction process.
Utilization of existing and proposed ROWs and corridors.	Some existing pipelines occur within the study area.
Other existing or proposed transmission facilities.	The proposed pipeline would connect with the Dakota Access Pipeline southwest of the Project.

6. Identification of Potential Permits/Approvals

A permitting matrix was created showing potential federal, state, and local permits that might be needed prior to construction of a pipeline within the Project route. Please refer to **TABLE 11**.

Table 11. Potential Permits/Approvals

AGENCY	PERMIT/COMPLIANCE	APPLICABILITY	PERMIT STATUS AND TIMING
USACE	Section 404 Permit	Discharge of dredged or filled material into jurisdictional Waters of the United States	Non-notifying NWP-12.
PHMSA	Spill Prevention Plan	Crude oil pipeline	Application prior to operations
North Dakota PSC	Certificate of Corridor Compatibility and Route Permit	Construction of a transmission facility	Application included herein
Division of Water Quality	Stormwater Discharge Related to Construction	O&G related construction activities disturbing five or more acres	Application prior to construction
Air Pollution Control	Compliance with North Dakota Air Pollution Control Requirements	As may be required by Chapter 33-15-14 of the North Dakota Air Pollution Control Rules	As required
NDDOT	Haul Permits Crossing Permit	Hauling heavy equipment and pipe Construction related activities	Application prior to construction
Counties/Townships	Conditional-Use Permit: <ul style="list-style-type: none"> > Williams County Road Approach Permit: <ul style="list-style-type: none"> > Williams County Crossing Permit: <ul style="list-style-type: none"> > Hardscrabble Township > Buford Township > Williams County 	Construction related activities	Application prior to construction

7. Agency Comments

On September 20, 2016, a scoping package was distributed to 27 local, state, and federal agencies and other interested parties, including all agencies and officers designated for notice pursuant to NDAC 69-06-01-05. The scoping package included information on the Project and a Project location map. To the date of this application, 12 responses have been received. These comments, which are summarized in the following subsections, have been referenced and incorporated where appropriate within this application. Please refer to **APPENDIX J** for the scoping letter, mailing list, map and responses.

7.1. Northwest Communications Cooperative

In an email dated September 23, 2016, the Northwest Communications Cooperative noted they did not have any communication facilities with the study area and there should be no impact from the Project.

7.2. North Dakota State Water Commission

In a letter dated September 29, 2016, the NDSWC noted that the Project is not in an identified floodplain and all waste material must be disposed of properly and not within floodways.

7.3. North Dakota Department of Commerce

In a letter dated September 29, 2016, the North Dakota Department of Commerce provided clearance in conformance with the North Dakota Federal Program Review System for the Project. If the Project changes in duration, scope, description, budget, location or area of impact, then they request additional review.

7.4. North Dakota Department of Health

In a letter dated October 5, 2016, the NDDH responded that they believe environmental impacts would be minor and can be controlled by proper construction methods. They had the following comments with regards to the construction methods:

1. Minimize fugitive dust emissions;
2. Care must be taken during construction activity near any water of the state;
3. Oil- and gas-related construction disturbing one or more acres that have the ability to distribute sediment laden stormwater to waters of the state requires a permit to discharge storm water runoff until the site is stabilized by reestablishment of vegetation or other permanent cover;
4. Care must be taken to avoid spills that may have an adverse effect on groundwater quality as the project overlies the Trenton aquifer; note presence of private drinking well south of proposed route;
5. Minimize noise; and
6. Minimize the potential for environmental damage during construction and in the event of a spill.

NDDH further stated that it owns no land in or adjacent to the Project and that the Project is consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

7.5. US Department of the Interior – Bureau of Reclamation, Great Plains Region Dakotas Area Office

In a letter dated October 6, 2016, the Bureau of Reclamation (Reclamation) noted that its primary concern regarding the Project is the proximity to Reclamation's Buford-Trenton Irrigation District and the Trenton Indian Service Area rural water system. Reclamation requested that if the Project does cross Reclamation's irrigation canals that construction activities should be coordinated with the local Irrigation District and, if necessary, acquire a Special Use Permit.

The Project does not cross either the irrigation canals or rural water systems. The north edge of the Project lies approximately 1033 feet away and the south edge lies approximately 1664 feet away from the Buford-Trenton Irrigation District; therefore, no additional correspondence or permit is necessary.

7.6. US Department of Agriculture—Natural Resources Conservation Service

In a letter dated October 11, 2016, the NRCS stated that it is responsible for documenting conversion of farmland to non-agriculture use when federal funds are utilized pursuant to the Farmland Protection Policy Action (FPPA). The Project is not supported by federal funding; therefore, the FPPA does not apply and no further action is required. The agency also recommended that impacts on wetlands should be avoided. If wetland avoidance is not feasible, the following criteria should be followed:

1. Disturbance must be temporary;
2. No drainage of wetland is allowed;
3. Mechanized landscaping must be kept to a minimum and preconstruction contours must be maintained;
4. Side cast material may not disperse into wetland; and
5. All trenches must be backfilled to original bottom elevation.

7.7. State Historical Society of North Dakota

In a letter dated October 12, 2016, the SHSND suggested a Class III cultural survey of the study area due to known archeological sites in the vicinity. KLJ staff conducted the Class III cultural survey on September 23, 2016 and located three previously recorded cultural resources within the survey area. Two of the cultural sites recommends no avoidance are necessary; the third recommend all ground disturbance remain on opposite side of the road. The Project would comply with the recommendations; therefore, no other correspondence is required.

7.8. North Dakota Game and Fish Department

In a letter dated October 18, 2016, the NDGFD noted that they do not believe the Project will have a significant adverse effect on wildlife or wildlife habitat, provided the disturbed areas are reclaimed to pre-project conditions. Therefore, no other correspondence is required.

7.9. Federal Aviation Administration

In a letter dated October 11, 2016, the Federal Aviation Administration (FAA) noted that they have no objection to the current proposed project and they would like to be notified if the route was altered prior to construction. No further correspondence is required.

7.10. North Dakota Parks and Recreation Department

In an email dated October 26, 2016, North Dakota Parks and Recreation Department (NDPRD) stated there was no conflict within a one-mile radius of the Project. No further correspondence is required.

7.11. WBI Energy

In an email dated September 26, 2016, WBI Energy stated there would be no conflict with WBI Energy's facilities and the Project and they would like to be notified if the route was altered prior to construction. No further correspondence is required.

7.12. Job Service

In a letter dated October 24, 2016, Job Service North Dakota stated that Savage is not liable to the construction project risk protection provision of North Dakota Century Code, Section 52-04-06.1., and it is not necessary to post a construction project bond or irrevocable letter of credit for the Project. No further correspondence is required.

7.13. US Fish & Wildlife—North Dakota Field Office

A letter dated September 20, 2016 was sent to the USFWS North Dakota Field Office. Please refer to **APPENDIX J** for a copy of the letter. At the time of this application, there has been no response.

8. Qualification of Contributors to Siting Study

Grady Wolf

Grady has 15 years of experience in completing environmental surveys, planning and project management associated with land and water management issues. He leads numerous complex environmental projects requiring NEPA compliance for a variety of federal, state and local agencies. Grady has managed and authored more than 50 Environmental Assessments as well as numerous Environmental Assessment Addendums, Categorical Exclusions, Biological Assessments and Environmental Reports. His experience includes project management, conducting biological and botanical studies, authoring resource reports, impact analysis and wetland delineations, mitigation and monitoring. Grady has extensive experience in the energy and renewable energy fields. His background includes holistic management on agricultural lands including watershed planning, dealing with water quality issues, fish and wildlife concerns and botanical studies. Grady has coordinated efforts for securing funding, acquiring permits, completed mitigation plans for projects through state and federal agencies and managed the projects during implementation.

Corie Erth

Corie is an environmental planner with eight years of experience in environmental conservation and five years of experience in rangeland research. She has worked in coordination with private landowners, local, state, federal and Tribal agencies. Through her past work experience and education, Corie is proficient in plant and ecological site identification and biological and botanical surveys. Corie collaborated with the BLM and the USFWS to develop a botanical survey method for identifying potential Dakota skipper habitat.

Jessica Creuzer

Jessica is an environmental planner with five years of experience in wetland research and surveys. Through her past work experience and education, Jessica has worked in coordination with private landowners, local, state and federal agencies and is proficient with wetland determination (vegetation, soils, etc.), plant identification and environmental outreach/education.

Matthew Hull

Matthew has six years of experience leading and working on archaeological projects across several regions of the United States. Projects have covered all phases of archaeological work, from preliminary research to survey to excavation/mitigation. Matthew has worked on projects including pipelines, a hydroelectric dam, post-fire re-seeding, roads, mine footprints, oil pads, quarries, wind farms, levees, telecommunication lines and a refinery expansion. Over the course of his career, he has acquired several skills needed to lead all types of projects for both linear and block surveys. Matthew's skillset includes map and compass navigation, dealing with human remains, historic structure recording, coordinating with local agencies, use of Trimble (ArcPad and Terrasync) and interacting with the public. In addition, he has experience working with metal detectors, GPR and electro resistivity machines and has taken courses on GPR, magnetometry and aerial photography.

Kailee Murphy

Kailee works with KLJ's Environmental Group. She has worked more than five years with KLJ's Environmental Group as a GIS Analyst. Kailee supplies data and analysis for environmental planners to plan, survey and report in critical analysis, environmental reports, biological reports and Environmental Assessments. She

acquires, processes, manipulates and maintains data from multiple sources and agencies to support environmental planners' needs. Specific areas include threatened and endangered species, threatened and endangered species habitats, hydrology, soils, wetlands, aerial imagery, reference data, critical issue analysis, infrastructure and oil and gas related data.

9. Acronym List

A

AADT (average annual daily traffic) 14
ARO (Abrasion Resistant Overlay) 7

B

BGEPA (Bald and Golden Eagle Protection Act) 25
BMPs (best management practices) 8
BPD (barrels per day) 1

C

CFR (Code of Federal Regulations) 6

D

DBH (diameter at breast height) 24
DMR (Department of Mineral Resources) 10

E

ESA (Endangered Species Act) 29

F

FAA (Federal Aviation Administration) 42
FEMA (Federal Emergency Management Agency) 22
FPPA (Farmland Protection Policy Action) 41

G

GIS (Geographic Information System) 11

H

HDD (horizontal directional drilling) 6

M

MBTA (Migratory Bird Treaty Act) 25

N

ND-1804 (North Dakota Highway 1804) 7
NDAC (North Dakota Administrative Code) 6
NDCC (North Dakota Century Code) 1

NDDH (North Dakota Department of Health) 16

NDDOT (North Dakota Department of Transportation) 14

NDPDES (North Dakota Pollutant Discharge Elimination System) 15

NDPRD (North Dakota Parks and Recreation Department) 42

NDSWC (North Dakota State Water Commission) 15

NRCS (Natural Resources Conservation Service) 19

P

PHMSA (Pipeline and Hazardous Materials Safety Administration) 9

PSC (Public Service Commission) 1

psig (per square-inch gauge) 7

R

Reclamation (Bureau of Reclamation) 41

ROW (right-of-way) 7

S

Savage (Savage Bakken Connector, Incorporated) 1

SHPO (State Historic Preservation Office) 18

SHSND (State Historical Society of North Dakota) 17

SPCC (Spill Prevention, Control, and Countermeasures) 15

SWPPP (Storm Water Pollution Prevention Plan) 15

U

USACE (US Army Corps of Engineers) 23

USDA (US Department of Agriculture) 19

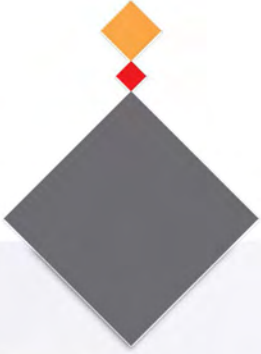
USDOT (United States Department of Transportation) 6

USGS (US Geological Survey) 10

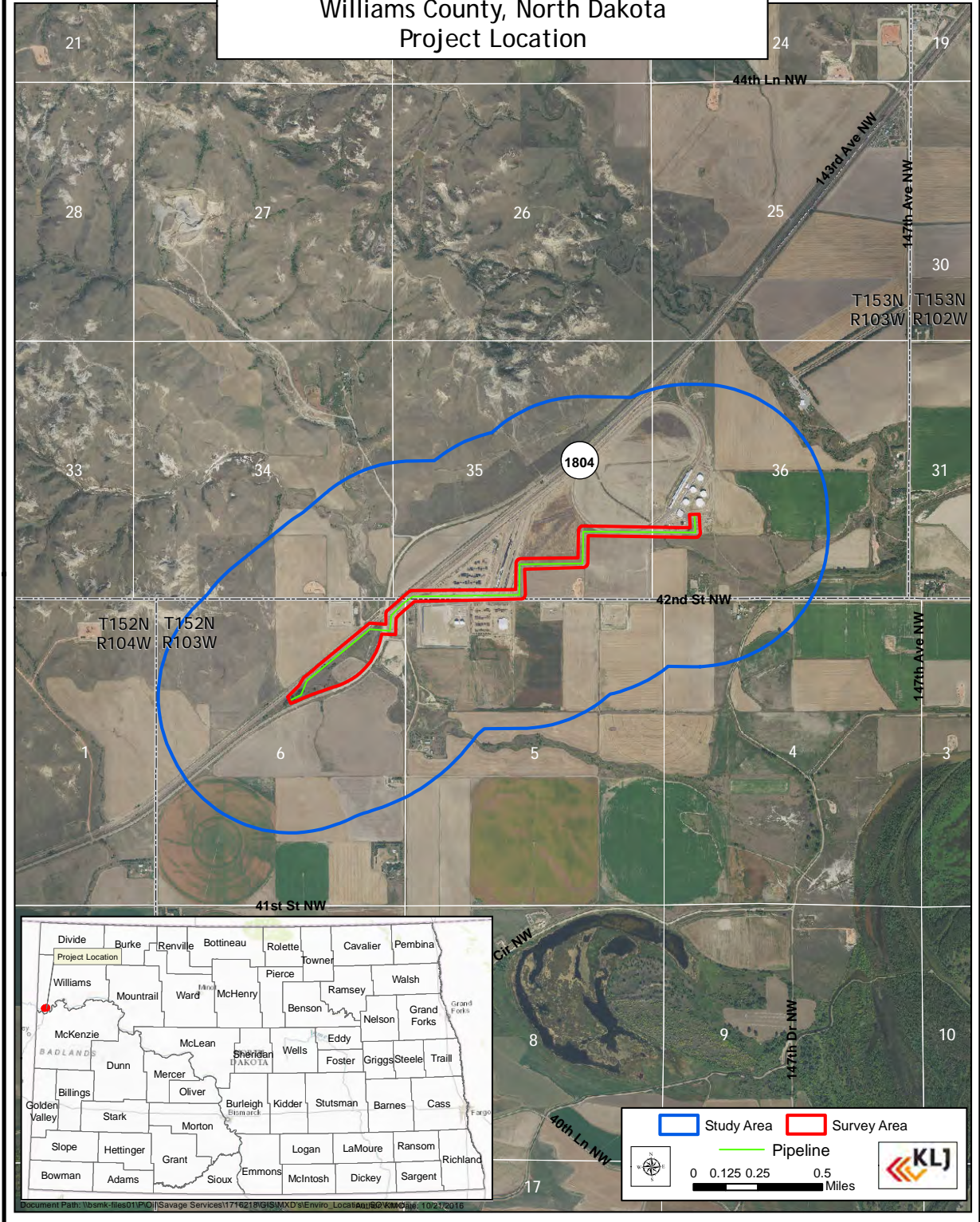
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WRWD (Williams Rural Water District) 15

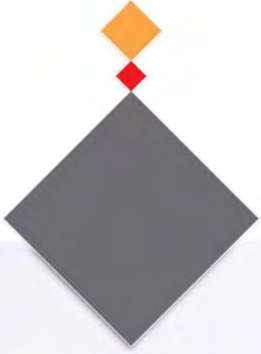
Appendix A. Project Location



Savage Bakken Petroleum Hub Interconnect Williams County, North Dakota Project Location



Appendix B. 10 Year Plan



In accordance with North Dakota Century Code § 49-22-04, Savage Bakken Connector, Inc. (Savage), a subsidiary of Savage Services Corporation, hereby submits its ten-year plan.

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

Savage Services Corporation owns and operates the Savage Bakken Petroleum Hub (Facility) near Trenton, North Dakota at which Savage Services receives and transloads Crude Oil and other materials.

The Facility's assets consist of the following:

- (a) Track, including a double loop track and three lead tracks each capable of holding a unit train.
- (b) Covered stationary railcar loading racks, including associated meters, pumps, valves and piping, capable of concurrently loading Twenty-Four (24) railcars.
- (d) Twelve truck receiving stations, including associated meters, pumps, valves and piping.
- (e) Five crude oil storage tanks capable of storing approximately 540k bbls of crude oil.
- (g) Interconnects to inbound crude oil pipelines, through which the facility can receive crude oil.

Savage is seeking a permit for an approximately 2 mile – 10" crude oil pipeline to connect the Facility to the Dakota Access Pipeline (DAPL) as described below.

From time to time, Savage Services Corporation reviews additions to the Facility in the form of capital projects (e.g., crude oil storage, pipeline interconnects, etc.). These projects are based on customer and commercial needs in the area. Currently, there are no additional capital projects for which Savage Services Corporation is seeking additional permits in the State of North Dakota.

None of the facility's assets are committed to be retired in the next ten years.

(2) An identification of the location of the tentative preferred site for all energy conversion facilities and the tentative location of all transmission facilities on which construction is intended to be commenced within the ensuing five years and such other information as may be required by the commission. The site and corridor identification shall be made Page No. 3 in compliance with the criteria published by the commission pursuant to section 49-22-05.1.

Savage is developing and intends to construct an approximately 2 mile long crude oil pipeline in Williams County, North Dakota that will connect the Facility's crude oil tanks to the DAPL. The pipeline will be 10 inches in diameter and will be capable of injecting approximately 60k bbls of crude oil per day into the DAPL. The pipeline will originate at the Facility's crude oil tanks and travel west/southwest approximately 2 miles and terminate at the DAPL. No additional crude oil pipelines are currently being developed by Savage in North Dakota.

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

Aside from collaboration directly with Dakota Access, LLC, Savage has not discussed its ten year plan with other North Dakota midstream companies due to sensitive and confidential commercial and customer information. Savage intends to explore additional pipeline interconnects on a case-by-case basis and dependent upon the value each brings to the community, customers and company.

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

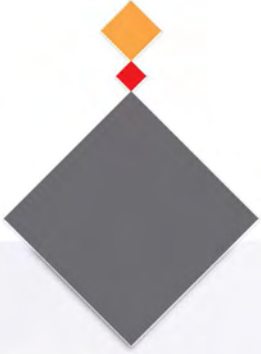
Savage engaged KLJ Engineering Firm in order to perform all necessary environmental and cultural studies for the distance of the pipeline route. Services included wetland delineation, biological and botany survey and Class I and III cultural studies. Upon completion of the studies, no issues were discovered, however Savage is committed treat any potential discoveries appropriately.

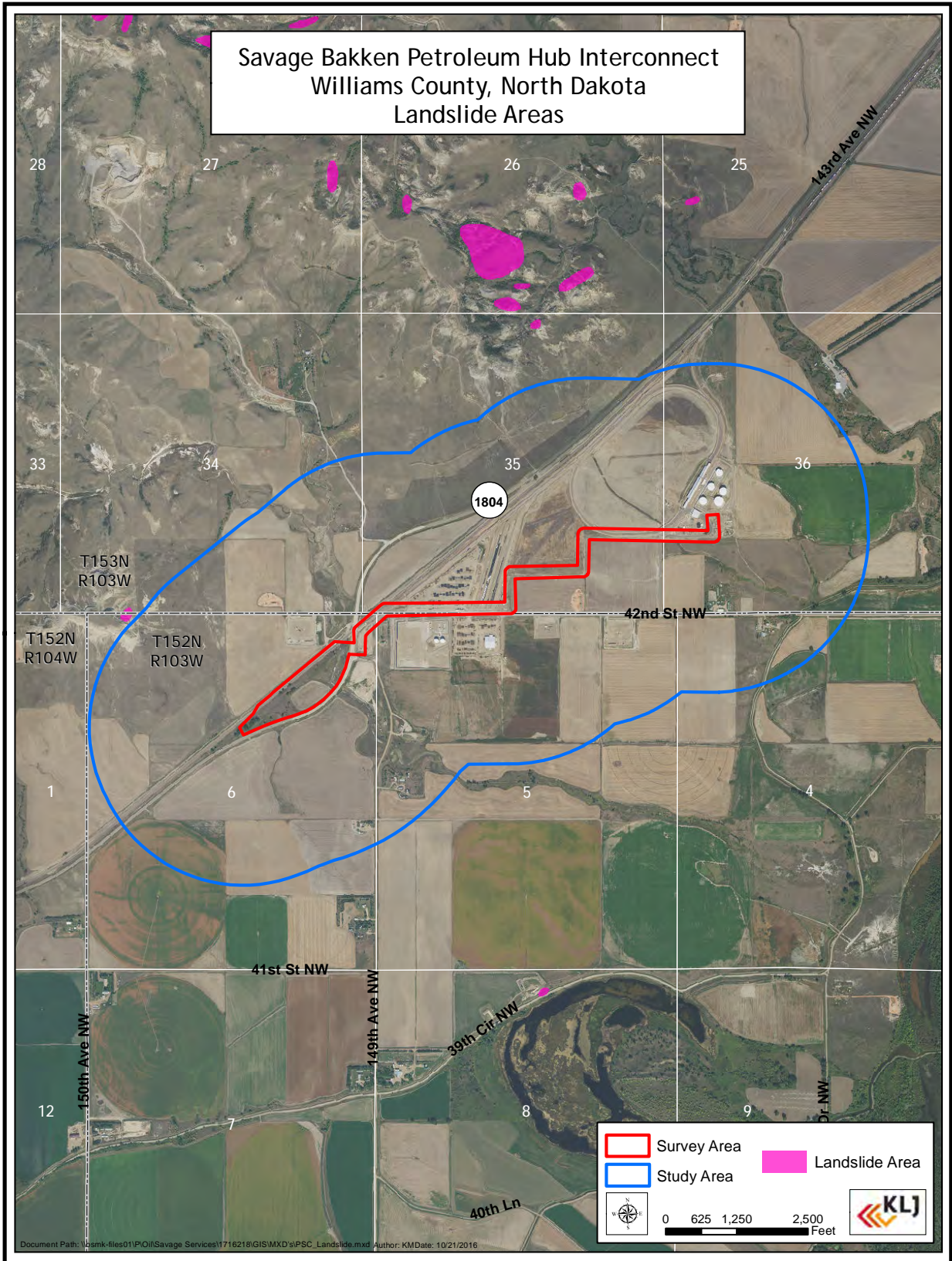
(5) A statement of the projected demand for the service rendered by the utility for the ensuing ten years and the underlying assumptions for the projection, with that information being as geographically specific as possible, and a description of the manner and extent to which the utility will meet the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

As Bakken crude oil spreads have fallen significantly over the past ~2 years, producers and consumers of Bakken crude continue to search for the most economical transportation method to bring the crude to market and provide the best netbacks. Additionally, the most economical transportation method often varies depending on the geographic end market. Therefore, Bakken producers and consumers value the optionality that a multi-use (e.g., pipeline and crude-by-rail) terminal can provide. With both out-bound crude-by-rail and pipeline access, the Facility will provide valuable optionality to producers in Williams, McKenzie and Dunn Counties and allow them the potential for better netbacks.

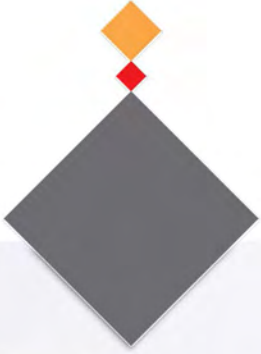
Additionally, there are currently six publically announced North Dakota receipt stations for the DAPL. The proposed Savage Bakken Petroleum Hub Interconnect pipeline would create an additional receipt location. The nearest receipt stations to the proposed pipeline location are in Williston (approximately 11 miles northeast) and Watford City (approximately 57 miles southeast). The proposed pipeline would reduce unnecessary crude oil tanker truck traffic by creating an additional origination option on to the DAPL.

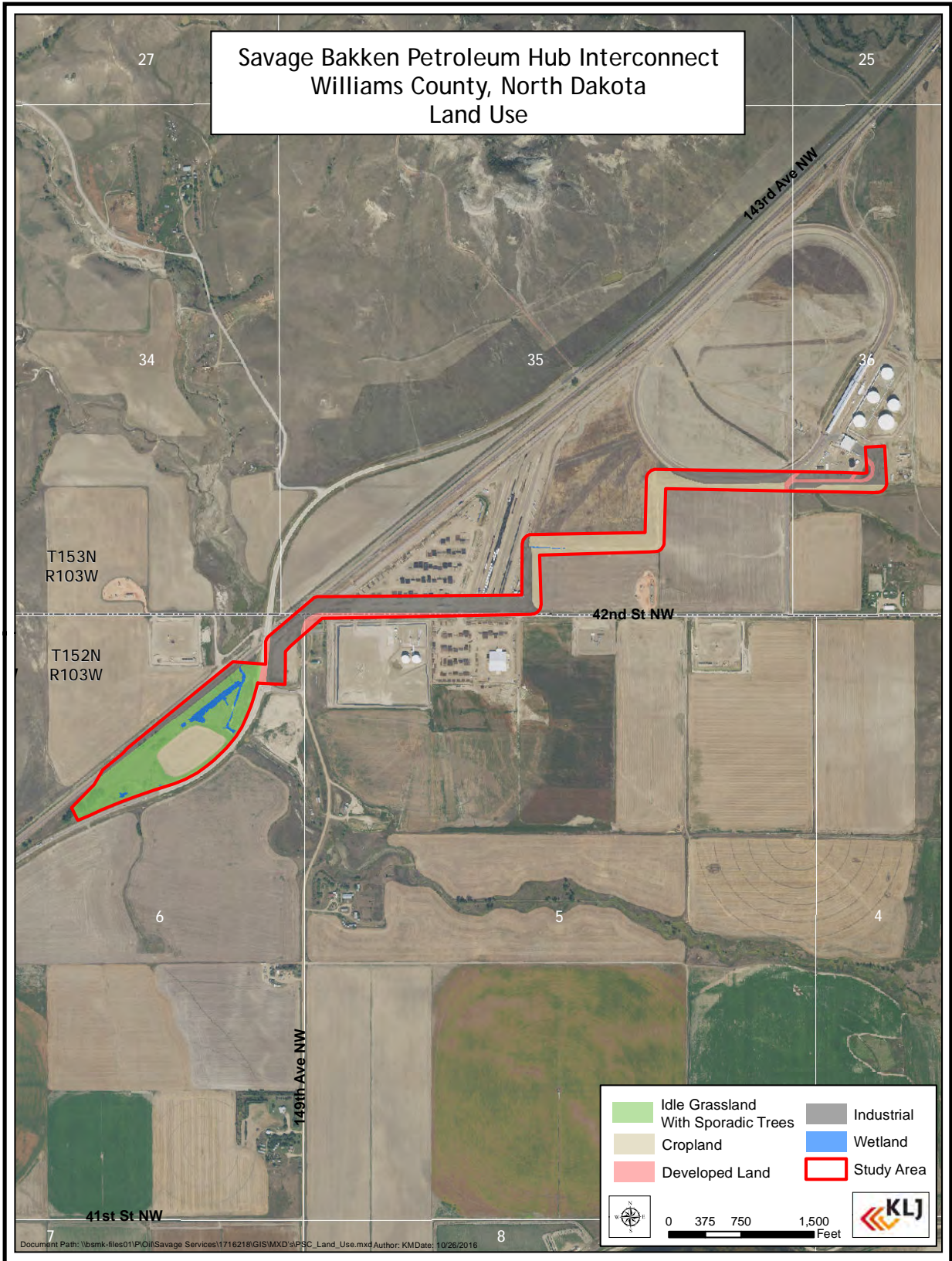
Appendix C. Landslide



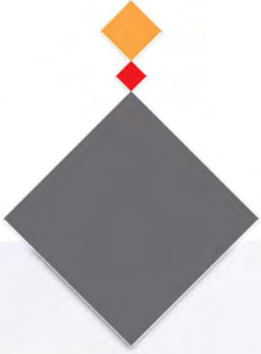


Appendix D. Land Use

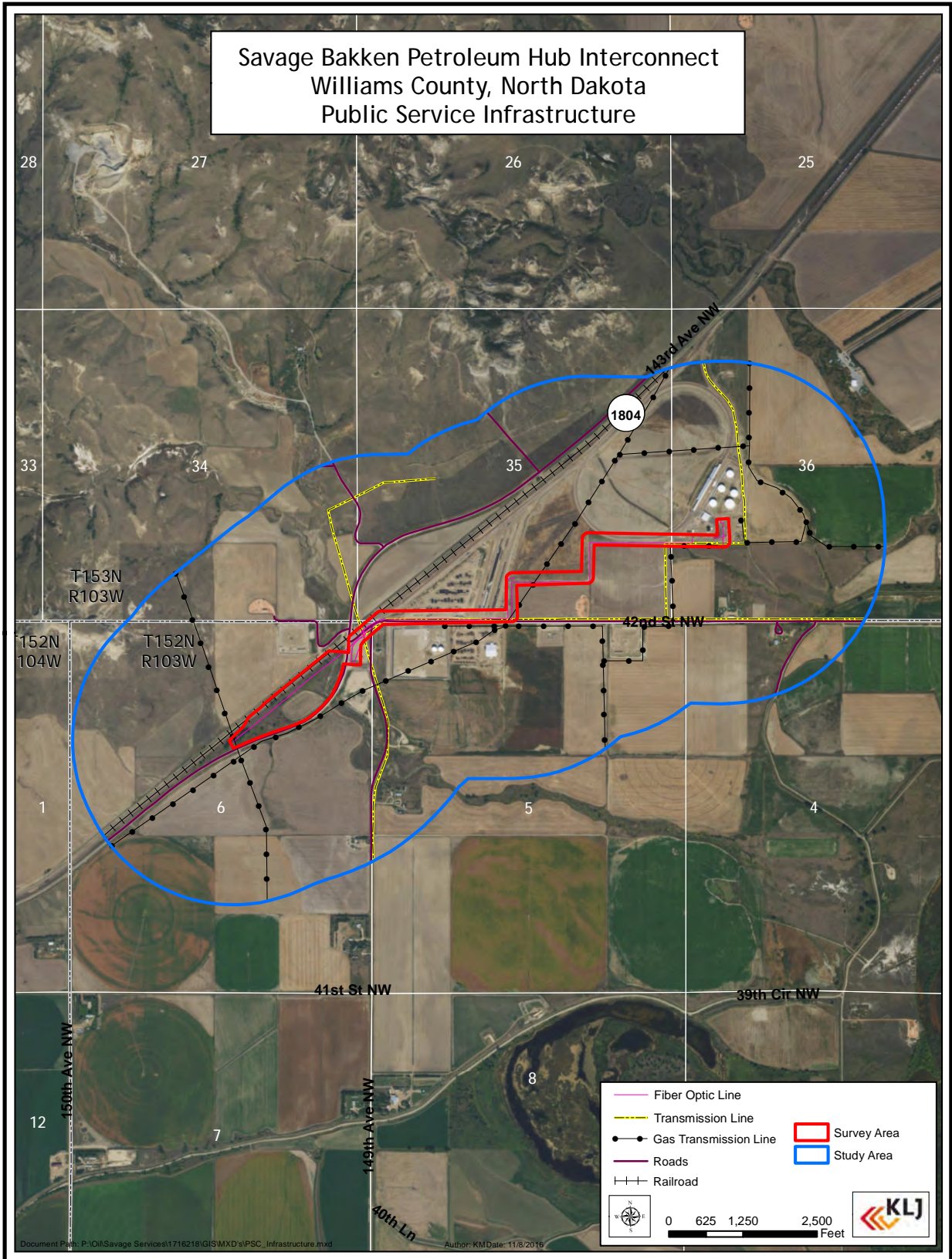




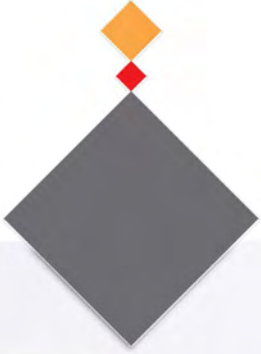
Appendix E. Infrastructure



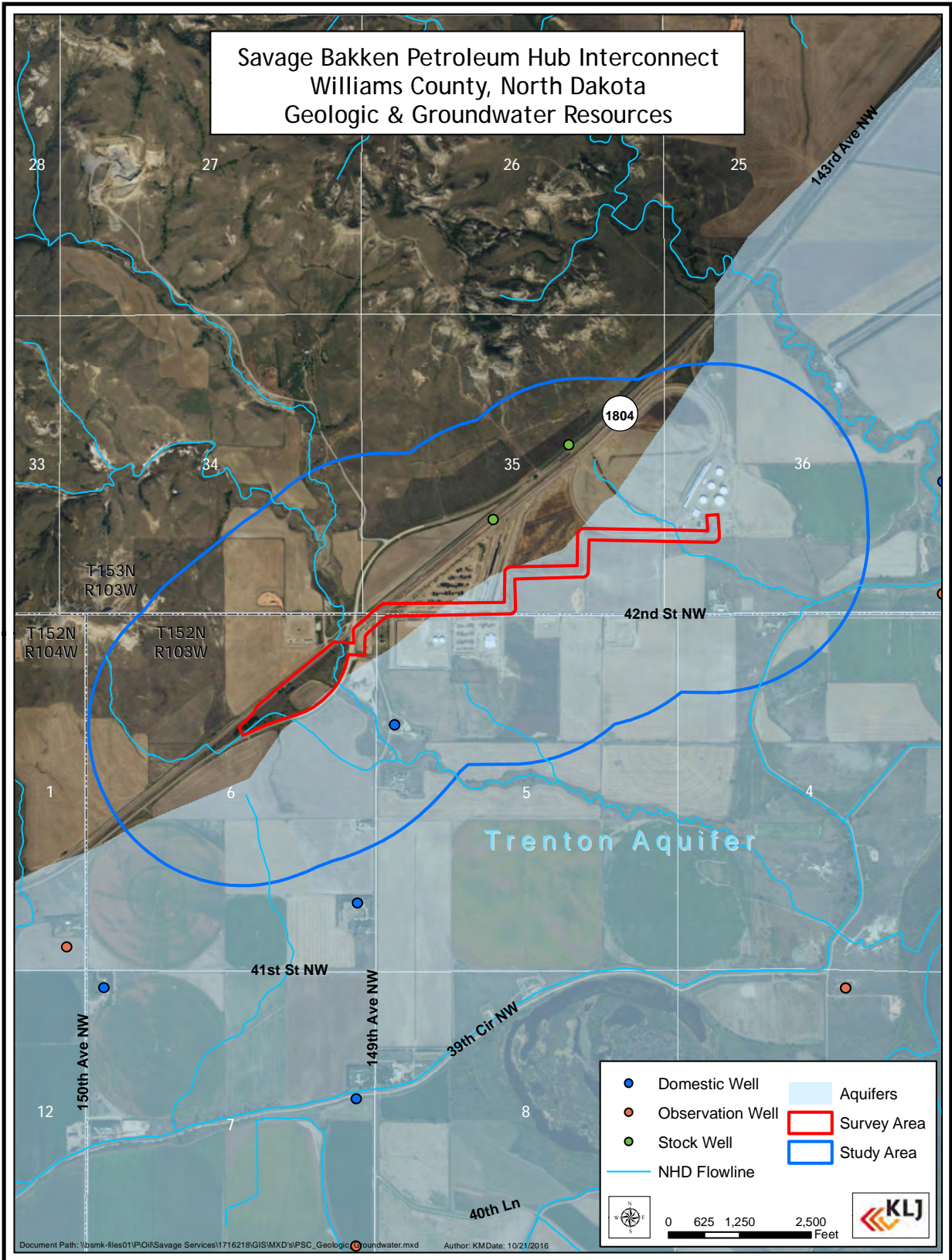
Savage Bakken Petroleum Hub Interconnect
 Williams County, North Dakota
 Public Service Infrastructure



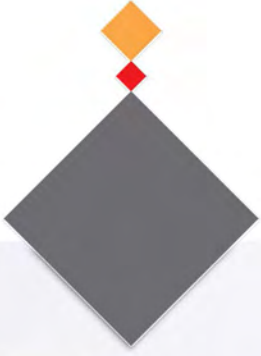
Appendix F. Geologic/GW



Savage Bakken Petroleum Hub Interconnect
 Williams County, North Dakota
 Geologic & Groundwater Resources



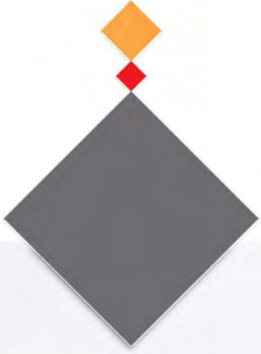
Appendix G. Farmland



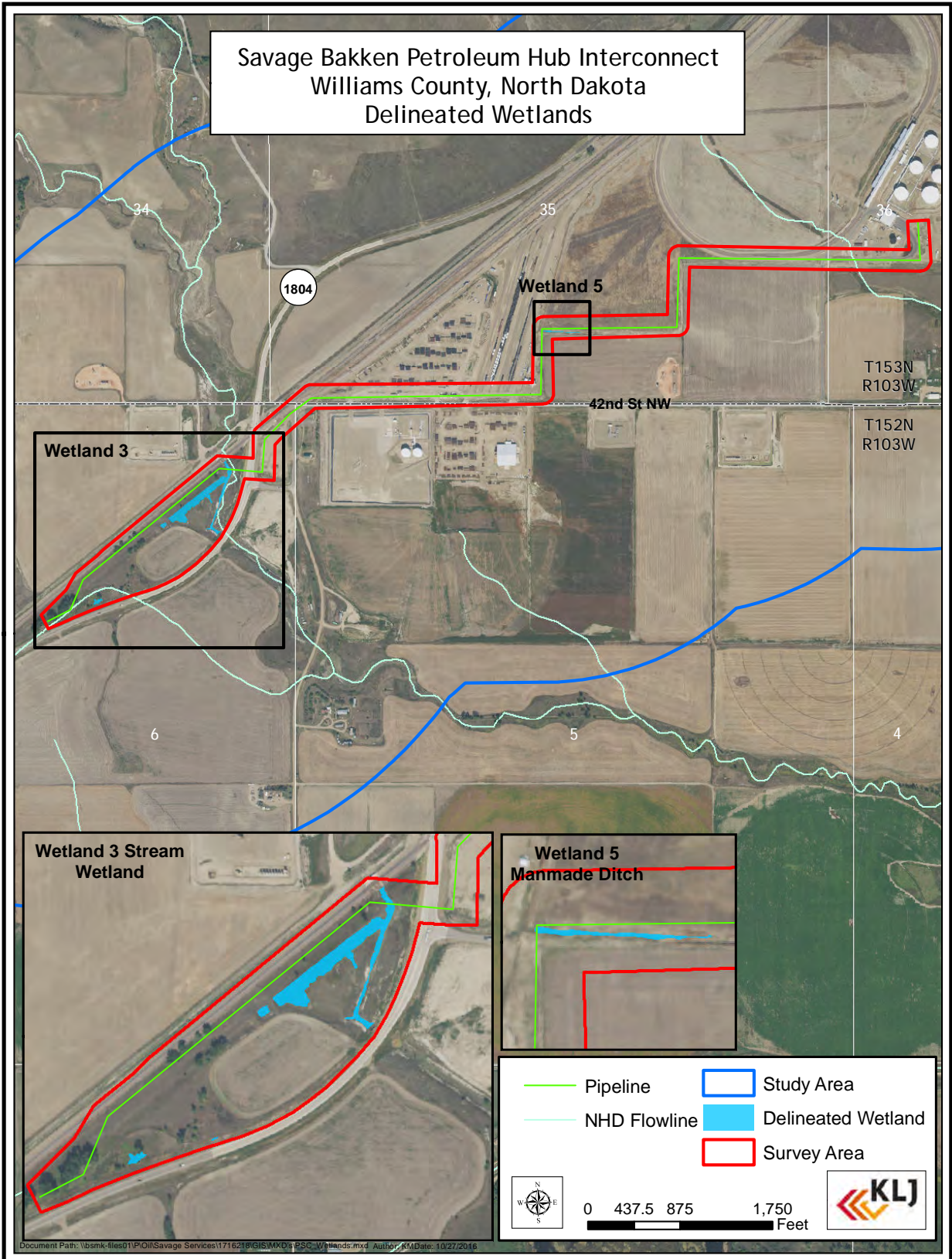
Savage Bakken Petroleum Hub Interconnect
Williams County, North Dakota
Prime & Unique Farmland



Appendix H. Wetland/report



Savage Bakken Petroleum Hub Interconnect
Williams County, North Dakota
Delineated Wetlands



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WETLAND DELINEATION

Savage Petroleum Hub Interconnect Williams County, North Dakota

Prepared for:
Savage Bakken Connector, Inc.

Prepared by:
Corie Ereth and Tyler Conley
KLJ

October 2016



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- Appendix A, Delineated Wetland Maps
- Appendix B, Site Photos
- Appendix C, Wetland Determination Data Forms

I. INTRODUCTION

KLJ was contracted by Savage Services Corporation, to conduct a field wetlands delineation for a proposed pipeline installation project located approximately 3.5 miles southwest of Trenton, North Dakota. A field wetland survey was conducted on September 15, 2016, by Corie Ereth and Tyler Conley of KLJ. **Please refer to Figure 1, Project Location Map.** The study area is approximately 65 acres in size and located in Sections 5 & 6, Township 152 North, Range 103 West; Sections 35 & 36, Township 153 North, Range 103 West.



Figure 1, Project Location Map

II. DEFINITIONS AND METHODS

The wetlands delineation conducted by KLJ was in accordance with the 1987 United States Army Corps of Engineers (USACE) Wetland Delineation Manual and the USACE March 2010 Regional Supplement: Great Plains Region (Version 2.0). The routine approach with onsite inspection was utilized, including the standard multi-parameter approach (vegetation, hydrology, and soils) for wetland identification. An area is considered to be a wetland typically if hydrophytic vegetation, wetland hydrology, and hydric soils are all present. Sample locations were determined using United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps along with sites which visually supported a hydrophytic plant community, as well as characteristics of wetland hydrology and hydric soils. Definitions and methodologies for determining each of these three parameters are summarized below:

A. Hydrophytic Vegetation

Definition: The prevalence (greater than 50 percent) of dominant plant species that are adapted to life in saturated soil conditions.

Method: To determine if vegetation was hydrophytic, the scientific name and indicator status of dominant plant species at each wetland were recorded on USACE data sheets. Dominance refers to the spatial extent of a species that is directly observed in the field. Dominance is calculated by identifying the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum as well as any other species that, by itself, accounts for at least 20 percent of the total. Where 50 percent or more of all dominant species were hydrophytic, the hydrophytic vegetation parameter was met. Absolute percent cover¹ of dominant species within each stratum is listed on data sheets.

B. Wetland Hydrology

Definition: Fourteen or more consecutive days of flooding, ponding, or water table within 12 inches of the surface during the growing season at a minimum frequency of 5 out of 10 years (50 percent).

Method: Wetland hydrology was determined by observing the presence of primary and/or secondary indicators listed on the USACE data sheet. If one primary indicator or two secondary indicators were present, the wetland hydrology parameter was met.

¹ Absolute percent cover within each stratum is not required to add up to 100 percent on the data sheets.

C. Hydric Soils

Definition: Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper 12 inches.

Method: Soils were analyzed using Munsell Soil Color Charts. If one or more of the hydric soil indicators on the USACE data sheets were identified, the soil was considered to be hydric.

Base field maps were developed using aerial photography in combination with information from the USFWS NWI maps, Natural Resources Conservation Service (NRCS) soil survey data from Williams County, and United States Geological Service (USGS) topographic quadrangle maps.

Wetland boundaries were determined based on the USACE wetland delineation process through completing paired sample points and investigating vegetation, hydrology, and hydric soils parameters. Wetland boundaries were surveyed using GPS data collection.

III. RESULTS AND DISCUSSION

The study area is located in the ecoregion identified by the USGS as the Northwestern Great Plains River Breaks. Due to the area's proximity to the Missouri River the landscape of this ecoregion is composed of varied topography, and wooded draws creating habitat for a variety of wildlife species. Current land use of the area predominantly consists of agricultural land with preferred crops such as peas, spring wheat, and durum wheat.

Five wetlands totaling approximately 1.67 acres were identified within the study area. The natural and artificial wetlands were associated with basins and drainages. Please refer to **Table 1, Delineated Wetlands**, and **Appendix A, Delineated Wetland Maps**. Please refer to **Appendix B, Site Photos** for a visual overview of each wetland. Additional information regarding vegetation dominance and hydrologic indicators can be found on data forms included in **Appendix C, Wetland Determination Data Forms**.

Table 1, Delineated Wetlands

WETLAND NUMBER	WETLAND SAMPLE POINT	WETLAND TYPE	FEATURE	DELINEATED ACREAGE	COWARDIN CLASSIFICATION
1	1W	Drainage	Artificial	<0.01	PEMA
2	2W	Basin	Natural	0.07	PEMA
3	3W	Basin	Natural	1.47	PEMC
4	4W	Basin	Artificial	0.05	PEMA
5	5W	Drainage	Artificial	0.07	PEMC
			Total	1.67 Acres	

IV. CONCLUSION

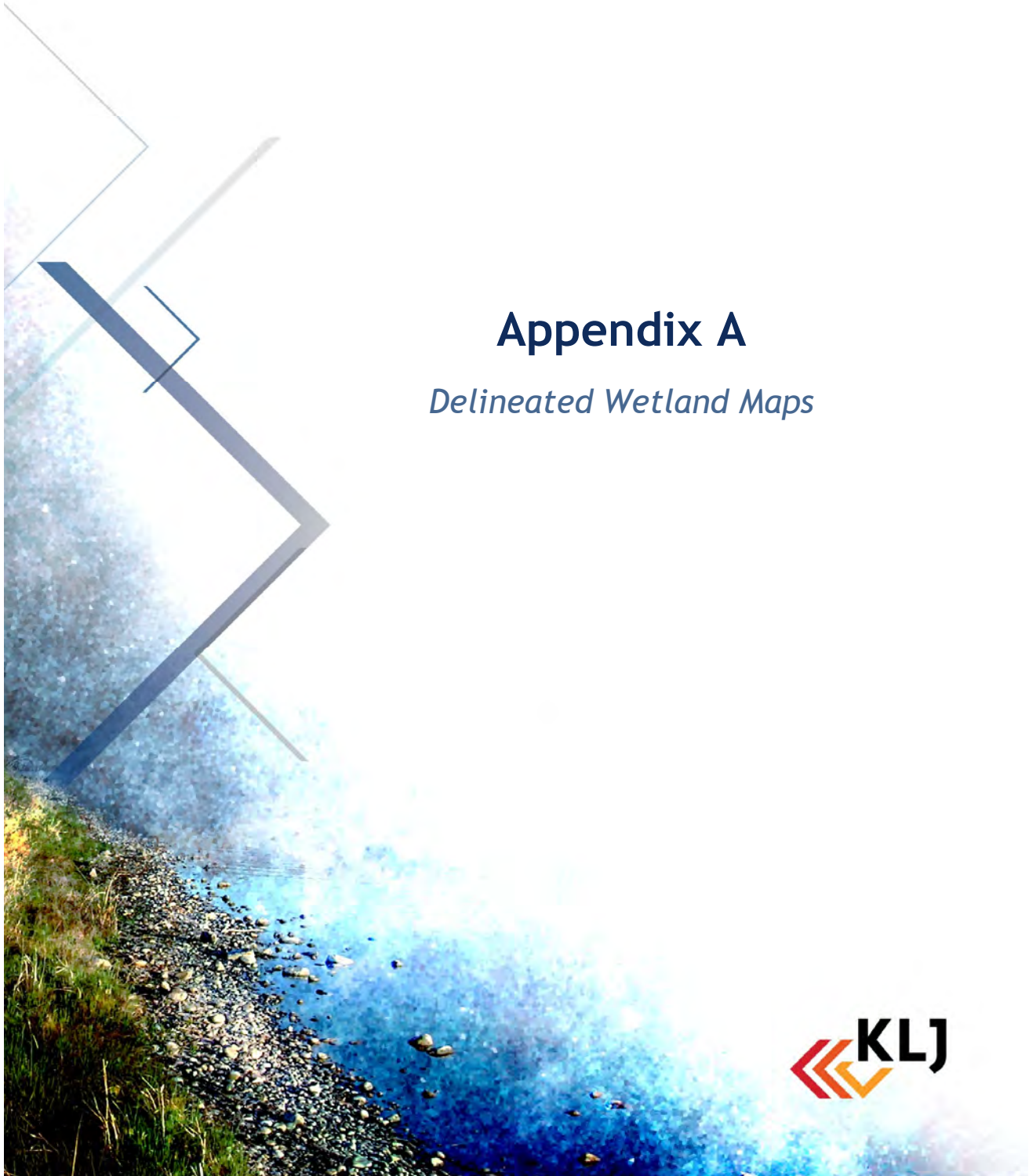
A total of approximately 1.67 acres of delineated wetlands were identified within the study area. Final determination of jurisdictional wetlands is ultimately the decision of the USACE. All necessary permits shall be acquired in the event that the delineated wetlands are determined to be jurisdictional by the USACE and would require a notification for proposed construction.

V. REFERENCES

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- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. US Army Corps of Engineers, Waterways Experiment Station. <<http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf>>.
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- National Oceanic and Atmospheric Administration: National Weather Service. Advanced Hydrologic Prediction Service. Available online at http://water.weather.gov/precip/index.php?location_type=wfo&location_name=bis
- US Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>.
- US Department of Agriculture, Natural Resources Conservation Service. Plants Database. Available online at <http://plants.usda.gov/>.
- US Department of Interior, US Fish and Wildlife Service. National Wetlands Inventory. Available online at <http://www.fws.gov/wetlands/Data/>.
- US Geological Survey. US Topo Quadrangles. Available online at <http://nationalmap.gov/ustopo/index.html>.

VI. DELINEATORS' CREDENTIALS

CORIE ERETH	
Education:	<ul style="list-style-type: none"> › North Dakota State University – MS Natural Resources Management › North Dakota State University – BS Animal and Range Sciences
Training:	<ul style="list-style-type: none"> › Richard Chinn Environmental Training, Inc.: 38-Hour Army Corps of Engineers Wetland Delineation / Regional Supplement / Waters of the United States Course (August 2015)
Professional Memberships:	<ul style="list-style-type: none"> › National Association of Environmental Professionals › The Wildlife Society – North Dakota Chapter › Society for Range Management – North Dakota Chapter



Appendix A

Delineated Wetland Maps

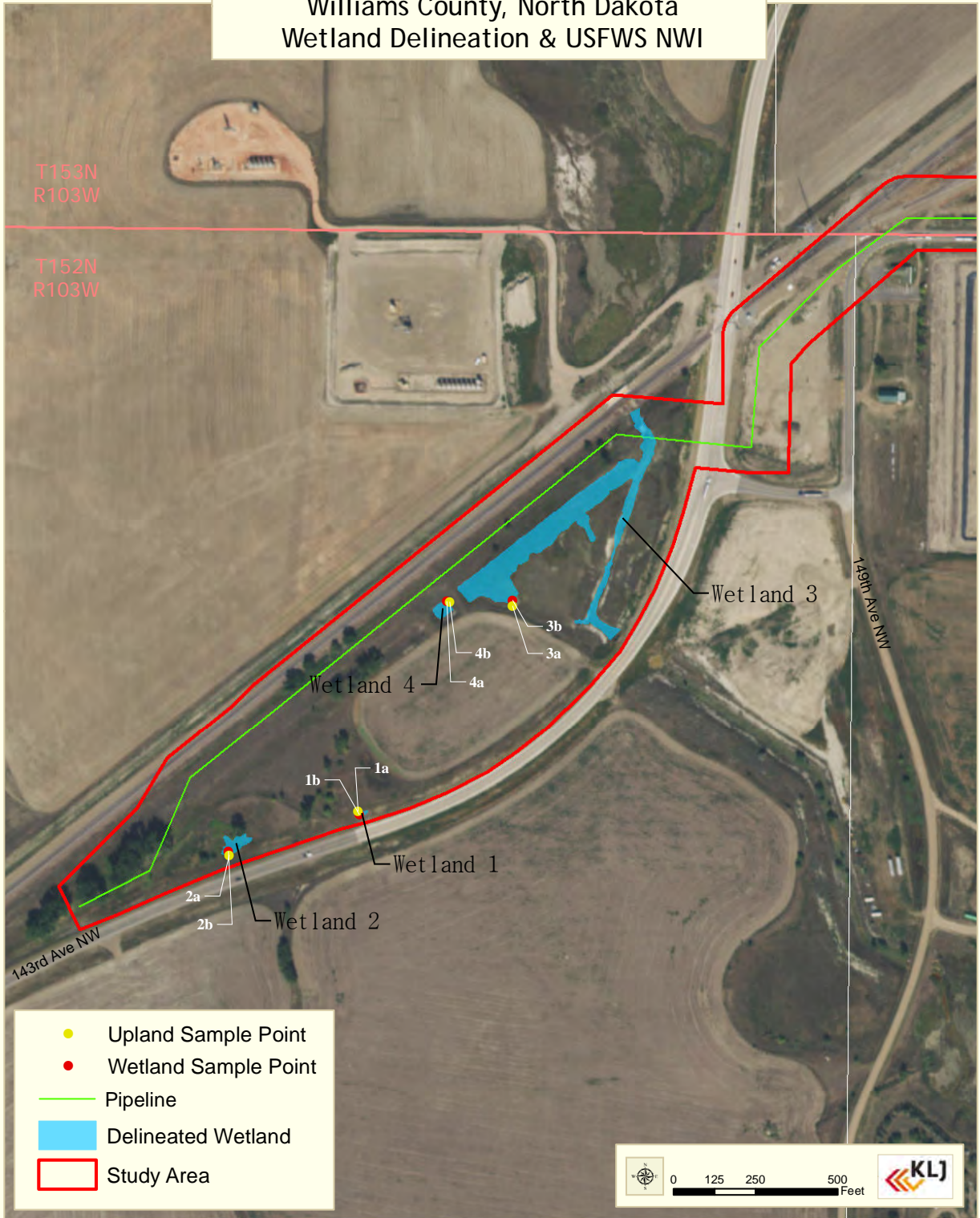


Savage Petroleum Hub Interconnect Williams County, North Dakota Project Location



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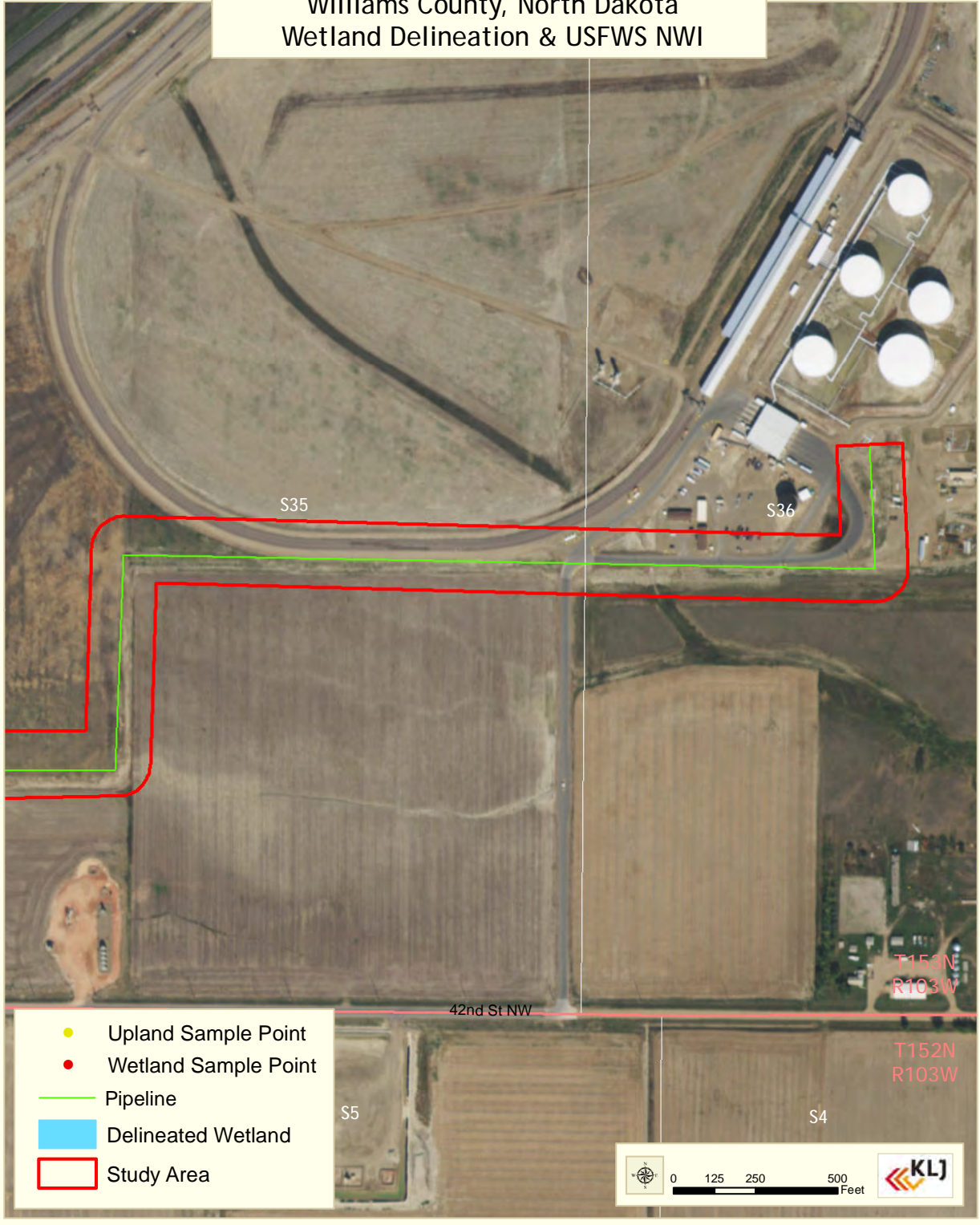
Savage Petroleum Hub Interconnect
Williams County, North Dakota
Wetland Delineation & USFWS NWI



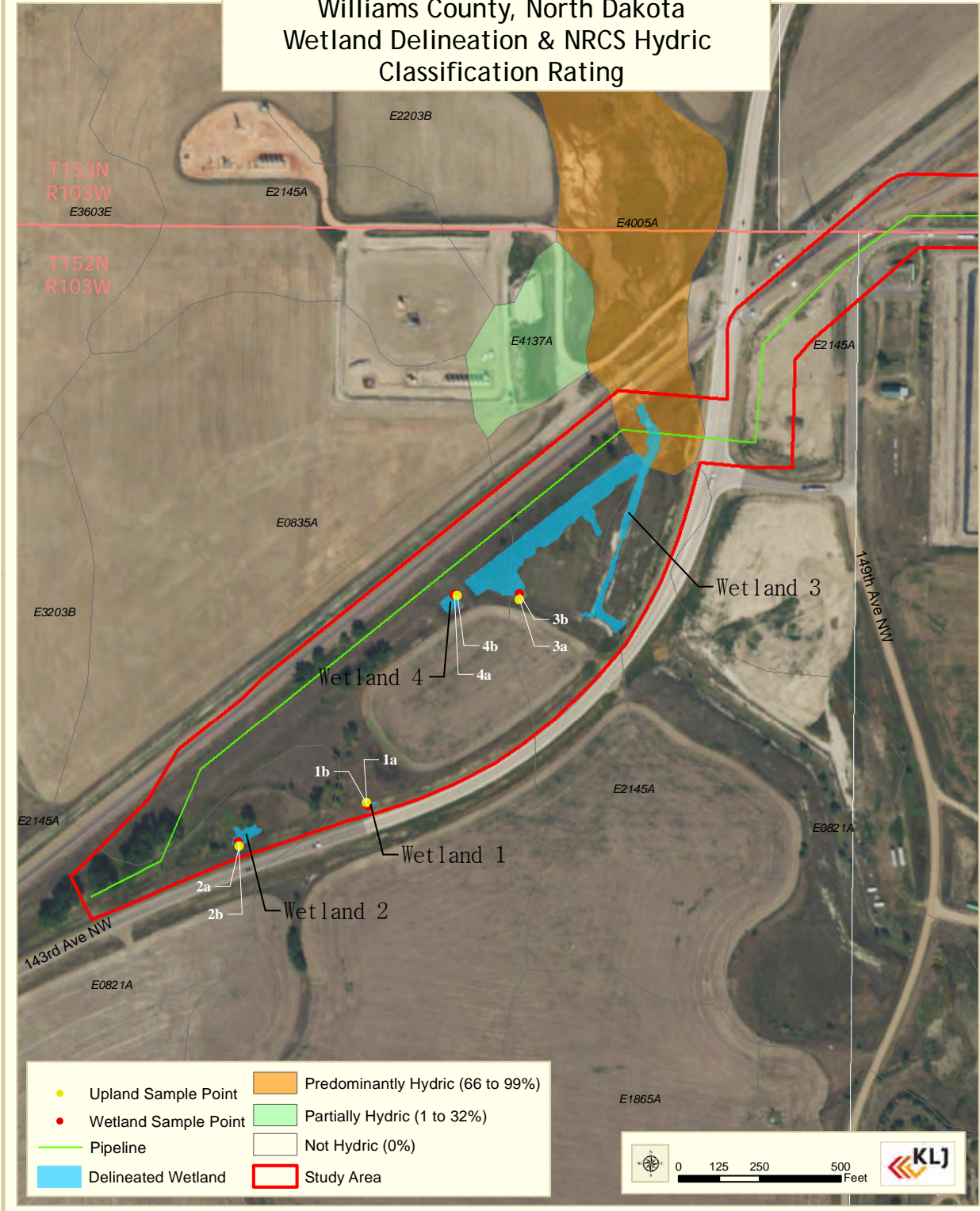
Savage Petroleum Hub Interconnect
Williams County, North Dakota
Wetland Delineation & USFWS NWI



Savage Petroleum Hub Interconnect
Williams County, North Dakota
Wetland Delineation & USFWS NWI



Savage Petroleum Hub Interconnect
Williams County, North Dakota
Wetland Delineation & NRCS Hydric
Classification Rating



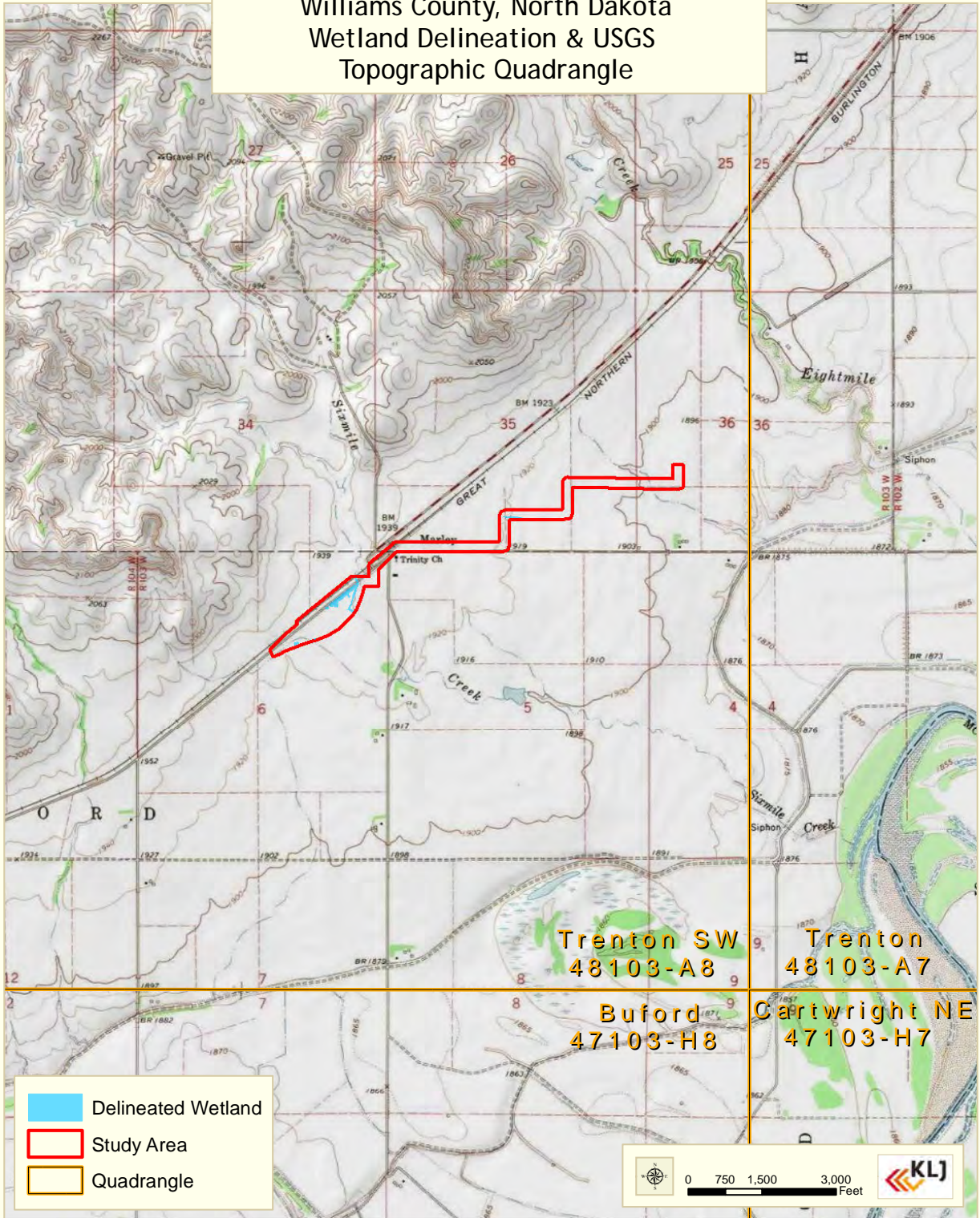
Savage Petroleum Hub Interconnect Williams County, North Dakota Wetland Delineation & NRCS Hydric Classification Rating



Savage Petroleum Hub Interconnect Williams County, North Dakota Wetland Delineation & NRCS Hydric Classification Rating



Savage Petroleum Hub Interconnect
Williams County, North Dakota
Wetland Delineation & USGS
Topographic Quadrangle



Appendix B

Site Photos





Photo 1: Wetland 1 Typical Vegetation



Photo 2: Wetland 2
View Northeast



Photo 3: Wetland 2 Typical Vegetation



Photo 4: Wetland 3
View West



Photo 5: Wetland 3
View North

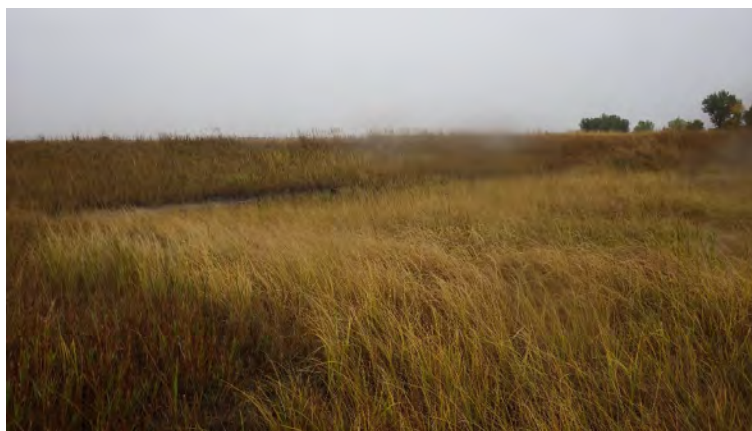


Photo 6: Wetland 4
View Southwest



Photo 7: Wetland 5
View East



Photo 8: Wetland 5
View West



Appendix C

Wetland Determination Data Forms



WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 1A
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 6, T 152N, R 103W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5%
 Subregion (LRR): F Lat: 48.01960 Long: -103.911099 Datum: NAD 83
 Soil Map Unit Name: 0835A NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: Upland area was planted to intermediate wheatgrass after road construction			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
	0	= Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = NaN
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
	0	= Total Cover		
Herb Stratum (Plot size: <u>5 ft radius</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Thinopyrum intermedium</u>	40%		UPL	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
	40	= Total Cover		
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____				
2. _____				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>60%</u>				
Remarks: Upland area was planted to intermediate wheatgrass after road construction				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 1B
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 6, T 152N, R 103W
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 5%
 Subregion (LRR): F Lat: 48.01957 Long: -103.911082 Datum: NAD 83
 Soil Map Unit Name: 0835A NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: Wetland located in road ditch near a culvert.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>20</u> x 1 = <u>20</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>40</u> (A) <u>100</u> (B) Prevalence Index = B/A = <u>2.5</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Rumex occidentalis</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Thinopyrum intermedium</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
40 = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>60</u>				
Remarks: Vegetation disturbed from road construction.				

SOIL

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	2.5Y 5/2						SiCL	
5-12	10YR 5/3						SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 Soils were disturbed by road construction, wetland was located in the highway ditch. The soils we found appeared to be a gravel fill material.

HYDROLOGY

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

Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 2A
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 6, T 152N, R 103W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5%
 Subregion (LRR): F Lat: 48.01923 Long: -103.912697 Datum: NAD 83
 Soil Map Unit Name: E0821A NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Remarks: Upland area was replanted to slender wheatgrass after road construction						

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = NaN
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Bromus inermis</u>	80%	Yes	UPL	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
80 = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 2B
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 6, T 152N, R 103W
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 3%
 Subregion (LRR): F Lat: 48.01926 Long: -103.912711 Datum: NAD 83
 Soil Map Unit Name: E0821A NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30 ft radius</u>)				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>NaN</u>
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Spartina pectinata</i>	70	Yes	FACW	
2. <i>Apocynum cannabinum</i>	30	Yes	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 3A
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 6, T 152N, R 103W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5%
 Subregion (LRR): F Lat: 48.02138 Long: -103.909202 Datum: NAD 83
 Soil Map Unit Name: E2145A NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Remarks: Upland area was replanted to slender wheatgrass after road construction						

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
0 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = NaN	
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
0 = Total Cover					
Herb Stratum (Plot size: <u>5 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Bromus inermis</u>	100	Yes	UPL		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
100 = Total Cover					
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0 = Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					
Remarks:				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

SOIL

Sampling Point: 3A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	2.5YR 4/2						CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	(LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)			

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)		
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)		
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Water-Stained Leaves (B9)			

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

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 3B
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 6, T 152N, R 103W
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 3%
 Subregion (LRR): F Lat: 48.02138 Long: -103.909202 Datum: NAD 83
 Soil Map Unit Name: E2145A NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>0</u>	= Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>NaN</u>
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Spartina pectinata</u>	<u>70</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Apocynum cannabinum</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
	<u>100</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				Remarks:
Remarks:				

SOIL

Sampling Point: 3B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 4/2						CL	
2-12	10YR 4/1	98%	7.5YR 4/4	2%	C	M	CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

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

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 4A
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 6, T 152N, R 103W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5%
 Subregion (LRR): F Lat: 48.02136 Long: -103.909987 Datum: NAD 83
 Soil Map Unit Name: E0835A NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Remarks: Upland area was replanted to smooth brome after road construction						

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
	0	= Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = NaN
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
	0	= Total Cover		Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Bromus inermis</u>	100	Yes	UPL	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
	100	= Total Cover		Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)				
1. _____				
2. _____				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 4B
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 6, T 152N, R 103W
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 2%
 Subregion (LRR): F Lat: 48.02136 Long: -103.910021 Datum: NAD 83
 Soil Map Unit Name: R0835S NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: Area disturbed from past road construction			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = NaN
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Spartina pectinata</u>	100	Yes	FACW	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100 = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

SOIL

Sampling Point: 4B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 4/2	98%	7.5YR 4/4	2%	C	M	CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> (where not tilled) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 5A
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 35, T 153N, R 103W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5%
 Subregion (LRR): F Lat: 48.02637 Long: -103.894877 Datum: NAD 83
 Soil Map Unit Name: E3503E NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Remarks: Upland area was replanted to smooth brome after road construction						

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
	0	= Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = NaN
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
	0	= Total Cover		
Herb Stratum (Plot size: <u>5 ft radius</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Bromus inermis</u>	100	Yes	UPL	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
	100	= Total Cover		
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____				
2. _____				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Savage Bakken Petroleum Hub Interconnect City/County: Williams Sampling Date: 9/15/16
 Applicant/Owner: Savage Services Corporation State: ND Sampling Point: 5B
 Investigator(s): Corie Ereth and Tyler Conley Section, Township, Range: Sect 35, T 153N, R 103W
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 2%
 Subregion (LRR): F Lat: 48.02637 Long: -103.91319 Datum: NAD 83
 Soil Map Unit Name: E3503E NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

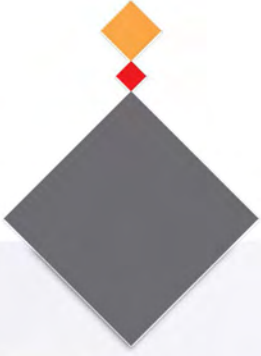
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: Area disturbed from past road construction			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = NaN
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Rumex occidentalis</u>	25%	Yes	OBL	
2. <u>Hordeum jubatum</u>	25%	Yes	FACW	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
50 = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>50%</u>				
0 = Total Cover				
Remarks:				

Appendix I. Raptor Nest

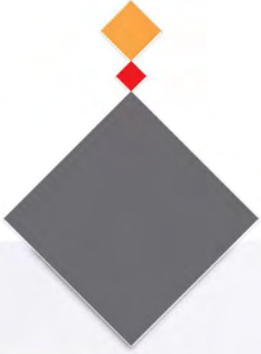


Savage Bakken Petroleum Hub Interconnect
Williams County, North Dakota
Raptor Nest Locations



Document Path: \\bank-ftp01\POIS\Savage Services\1716216\GIS\WXD\APSC_Raptor.mxd Author: KM Date: 10/21/2016

Appendix J. Scoping



4585 Coleman Street
PO Box 1157
Bismarck, ND 58502-1157
701 355 8400
kljeng.com



September 20, 2016

«CTitle» «First» «Last»

«Title»

«Department»

«Agency»

«Address»

«City», «State» «Zip»

Re: Savage Bakken Petroleum Hub Interconnect
Savage Services Corporation
Williams County, North Dakota

«GreetingLine»

On behalf of Savage Services Corporation, KLJ is preparing an application in response to requirements of the North Dakota Energy Conversion and Transmission Facility Siting Act for the North Dakota Public Service Commission. The application is for the development of a crude oil pipeline to be located in Williams County. ***Please refer to the enclosed Project Location Map.***

The proposed project consists of burying approximately two miles of pipeline from the Savage Bakken Petroleum Hub to an existing connection. The proposed pipeline would be located 3.5 miles Southwest of Trenton, North Dakota.

Construction and commercial operation is anticipated to commence early in 2017. The pipeline would not be a common carrier and no federal funding is anticipated for the project.

To ensure social, economic and environmental effects are considered in the development of the project, we are soliciting your views and comments on the proposed development. We are particularly interested in any property your department may own, or have an interest in within the project area. We would also appreciate being made aware of any proposed development your department may be contemplating in the proposed project area. Any information that might help us in our study would be appreciated.



It is requested that any comments or information be forwarded to KLJ on or before October 20, 2016. If you have any questions or need further information related to the project, please contact:

General/Technical Inquiries

Cassie Foster
4585 Coleman Street
Bismarck, ND 58503-0431
701 355 8748
Cassie.Foster@kljeng.com

Environmental/Cultural Inquiries

Corie Erth
4585 Coleman Street
Bismarck, ND 58503-0431
701 250 5904
Corie.Erth@kljeng.com

Thank you for your time and cooperation.

Sincerely,

KLJ

A handwritten signature in blue ink that reads "Corie Erth".

Corie Erth
KLJ Environmental Lead

Enclosure(s): Project Location Map

[Project Name] SOV LIST **Save as new file for each project and edit accordingly with project specific contacts**

Type	CTitle	First	Last	Title	Department	Agency	Address	City	State	Zip	Phone	Fax	Response Rec'd	Date Edied
STATE	M. Kyle	Wanner	Director	Director	ND Aeronautics Commission	PO Box 5020	Bismarck	ND	58502-5020	701-328-9651			05/04/15	
STATE	M. Wayne	Stenejem	Attorney General	Attorney General	Office of Attorney General	600 E. Blvd Ave. Dept. 125.	Bismarck	ND	58505	701-328-2210			5/4/2015	
STATE	M. Doug	Goehring	Agriculture Commissioner	Agriculture Commissioner	ND Department of Agriculture	600 E. Boulevard Ave Dept 602	Bismarck	ND	58505-0020	701-328-4754	701-328-4667		05/04/15	
STATE	M. Dave	Glatt	Chief	Chief	ND Department of Health	918 E. Divide Avenue	Bismarck	ND	58501-1947	701-328-5151	701-328-5200		10/10/16	
STATE	Ms. Maggie	Anderson	Executive Director	Executive Director	Department of Human Services	600 E. Blue Ave. Dept 325.	Bismarck	ND	58505-0250	701-328-2310	701-328-2359		05/04/15	
STATE	M. Troy	Seibel	Commissioner of Labor	Commissioner of Labor	Department of Labor	600 E. Blvd Ave. Dept. 406.	Bismarck	ND	58505-0340	701-328-2660			05/04/15	
STATE	M. Wayne	Kutzer	Director and Executive Officer	Director and Executive Officer	Career and Technical Education	600 E. Boulevard Avenue 15th Floor Dept 270.	Bismarck	ND	58505-0610	701-328-3180			5/4/2015	
STATE	M. Paul	Lucy	Director	Director	Economic Development and Finance Commission	1600 E. Century Avenue, Suite 2	Bismarck	ND	58503	701-328-5388			5/4/2015	
STATE	M. Lance	Gaabe	Director	Director	Energy Infrastructure and Impact Office	P.O. Box 5523	Bismarck	ND	58506-5523	701-328-2800	701-328-3650		05/04/15	
STATE	M. Steve	Dyke	Supervisor	Supervisor	Conservation Section	100 N Bismarck Expressway	Bismarck	ND	58501-5095	701-328-6347	701-328-6352		09/27/11	
FEDERAL	M. Gregg	Wiche	Director	Director	US Geological Survey	821 E. Interstate Ave.	Bismarck	ND	58501-1199	701-250-7401	701-250-7492		05/04/15	
STATE	M. Governal	Jaak	Governor	Governor	Office of the Governor	600 E. Blvd Ave.	Bismarck	ND	58505-0100	701-328-2200	701-328-2205			
STATE	M. Joel	Wit	District Engineer	District Engineer	ND Department of Transportation	608 E. Boulevard Ave.	Bismarck	ND	58505-0700	701-328-2500			05/04/15	
STATE	Ms. Claudia	Berg	Director	Director	ND State Historical Society	612 E Blvd Ave.	Bismarck	ND	58505	701-328-2666	701-328-3710		05/04/15	
STATE	M. Scott	Davis	Executive Director	Executive Director	Indian Affairs Commission	600 E. Blvd. Ave. 1st Floor, Judicial Wing, Rm 117	Bismarck	ND	58505-0300	701-328-2428	701-328-1537		01/12/11	
STATE	M. Lance	Gaabe	Director	Director	Job Service ND	PO Box 5507	Bismarck	ND	58506-5507					
STATE	M. Mark	Zimmerman	Director	Director	ND Department of Trust Lands	P.O. Box 5823	Bismarck	ND	58506-5823	701-328-2800	701-328-3650		05/04/15	
STATE	M. Alan	Anderson	Commissioner	Commissioner	ND Parks & Recreation Dept.	1600 E. Century Ave., Suite 3	Bismarck	ND	58503-0649	701-328-5357	701-328-5363		05/06/10	
STATE	M. Todd	Sando, P.E.	State Engineer	State Engineer	Department of Commerce	1600 E. Century Ave., Suite 2	Bismarck	ND	58503-2057	701-328-5300			10/03/16	
FEDERAL	M. Eric	Schmit, P.E.	Chief Missile Engineering	Chief Missile Engineering	ND State Water Commission	900 E. Boulevard Avenue, Dept. 770	Bismarck	ND	58505-0850	701-328-4940	701-328-3696		09/28/16	
FEDERAL	M. Cy	Munos	Chief Missile Engineering	Chief Missile Engineering	Minot Air Force Base	320 Peacekeeper Place	Minot AFB	ND	58705				02/15/13	
FEDERAL	M. Ryan	Taylor	State Director	State Director	Minot Air Force Base	300 Minuteman Drive	Minot AFB	ND	58705				05/04/15	
FEDERAL	M. Kevin	Shelley	Field Supervisor	Field Supervisor	US Department of Agriculture	Post Office Box 1737	Bismarck	ND	58502-1737	701-530-2037	701-530-2111		09/20/16	
FEDERAL	M. Scott	Williams	Manager	Manager	US Fish & Wildlife Service	3425 Miriam Ave	Bismarck	ND	58501-1926	701-250-4481	701-355-8513		09/20/16	
FEDERAL	M. Dan	Gimrossi	Manager	Manager	US Fish & Wildlife Service	5924 19th St. SE	Woodworth	ND	58496-6422	701-752-4218			11/07/12	
FEDERAL	M. Ted	Streckfuss	Chief of Programs and Project Management	Chief of Programs and Project Management	US Army Corps of Engineers	1513 S. 12th St.	Bismarck	ND	58504	701-255-0015			05/01/15	
FEDERAL	M. Laure	Sultmeier	Manager	Manager	US Army Corps of Engineers	1616 Capital Avenue	Omaha	NE	68102-4901	402-995-2417			05/01/15	
FEDERAL	M. Justin	Kingslad	Director	Director	Federal Aviation Administration	2301 University Drive, Bldg 238	Bismarck	ND	58504	701-323-7381	701-323-7399		09/19/16	
FEDERAL	M. David	Rosenkrance	Manager	Manager	ND Transmission Authority	600 E. Blvd. + Q27-M31	Bismarck	ND	58505-0840	701-220-6227	701-328-2820		05/04/15	
FEDERAL	M. Mary	Podol	Deputy Base Civil Engineer	Deputy Base Civil Engineer	ND Pipeline Authority	600 E. Blvd. Ave. Dept 405	Bismarck	ND	58505-0840	701-220-6227	701-328-2820		10/10/16	
FEDERAL	M. Mary	Podol	State Conservationist	State Conservationist	Bureau of Reclamation	304 E Broadway Avenue	Bismarck	ND	58501	701-250-4242			05/04/15	
FEDERAL	M. Mary	Podol	State Conservationist	State Conservationist	Federal Railroad Administration	1200 New Jersey Avenue SE	Washington	DC	20590				05/04/15	
FEDERAL	M. Mary	Podol	State Conservationist	State Conservationist	Grand Forks Air Force Base	525 Tuskegee Airmen Rd.	Grand Forks AFB	ND	58205-6434				05/04/15	
FEDERAL	M. Mary	Podol	State Conservationist	State Conservationist	US Department of Agriculture - NRCS	PO Box 1488	Bismarck	ND	58502-1488				11/07/12	

version 10/4/10

1 of 2



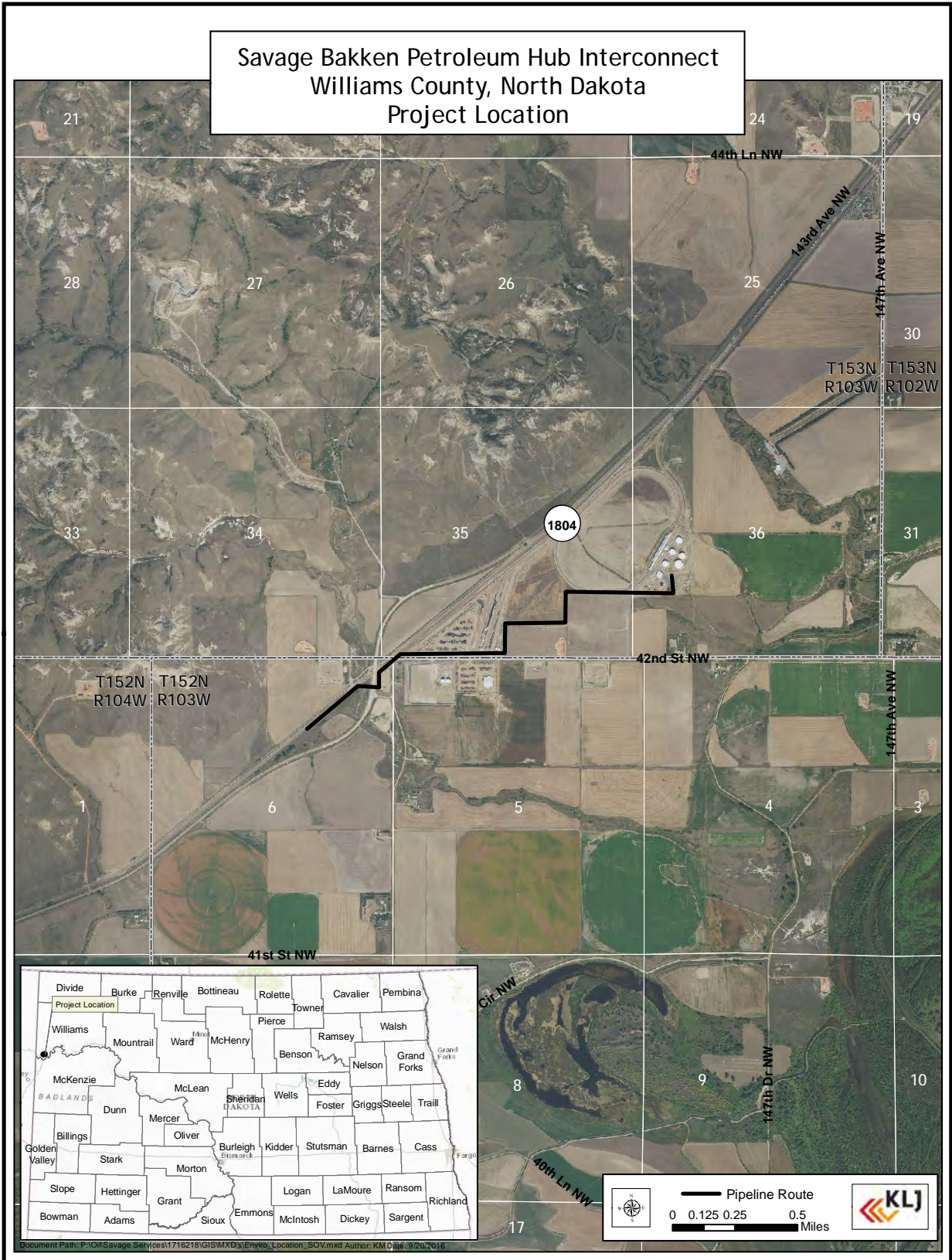
Save as new file for each project and edit accordingly with project specific contacts

[Project Name] SOV LIST

Type	CTitle	First	Last	Title	Department	Agency	Address	City	State	Zip	Phone	Fax	Response Rec'd	Date Edited
FEDERAL	Mr. Gerald Paulson	Gerald	Paulson	Director, Transmission Lines and Substations	Western Area Power Admin.	US Department of Energy	P.O. Box 1173	Bismarck	ND	58802-1173	701-221-4500			09/29/15
STATE	Mr. Cody Schulz	Cody	Schulz	Disaster Recovery Chief	Department of Homeland Security	ND Department of Emergency Services	PO Box 5511	Bismarck	ND	58506	701-328-8100	701-328-8181		05/01/15
STATE	Mr. Larry Kolbman	Larry	Kolbman	State Forester		ND Forest Service	307 1st St. E.	Bottineau	ND	58318-1100	701-228-5422			01/20/11
STATE	Mr. Edward Murphy	Edward	Murphy	State Geologist		ND Geological Survey	600 E. Blvd. Ave.	Bismarck	ND	58505-0840	701-328-8000	701-328-8010		01/20/11
STATE	Mr. Scott Hochhalter	Scott	Hochhalter	State Soil Specialist	NDSU Extension Service	Soil Conservation Committee	2718 Gateway Ave., #104	Bismarck	ND	58503	701-328-8715	701-328-9721		01/20/11
COUNTY	Ms. Katie Lima	Katie	Lima	Development Services Director	Planning/Zoning Board	Williams County	P.O. Box 2047	Williston	ND	58802	701-577-4567			09/17/16
COUNTY	Mr. Corey Paryzak	Corey	Paryzak	Chairman	Water Resource Board	Williams County	205 E Broadway, P.O. Box 2047	Williston	ND	58802-2047	701-577-4500			09/18/16
COUNTY	Ms. Beth Innis	Beth	Innis	Auditor	Auditors Office	Williams County	205 East Broadway, P.O. Box 2047	Williston	ND	58802-2047				09/19/16
COUNTY	Mr. Martin Hanson	Martin	Hanson	Commissioner	County Commission	Williams County	7653 139th Ave NW	Zahl	ND	58856	701-694-4621			09/20/16
COUNTY	Mr. Dan Kall	Dan	Kall	Commissioner	County Commission	Williams County	13925 51st ST NW	Williston	ND	58801	701-774-8067			09/21/16
COUNTY	Mr. Wayne Aberle	Wayne	Aberle	Commissioner	County Commission	Williams County	1003 Sioux St	Williston	ND	58801	701-774-8792			09/22/16
COUNTY	Mr. David Montgomery	David	Montgomery	Commissioner	County Commission	Williams County	222 14th St E	Williston	ND	58801	701-774-8928			09/23/16
COUNTY	Mr. Barry Ramberg	Barry	Ramberg	Commissioner	County Commission	Williams County	P.O. Box 854	Toga	ND	58852	701-664-2316			09/24/16
COUNTY	Ms. Mike Smith	Mike	Smith	Director	Emergency Management	Williams County	P.O. Box 2047	Williston	ND	58802	701-577-707			09/25/16
COUNTY	Williams County Highway Office			Road Superintendent	Highway Department	Williams County	P.O. Box 1305	Williston	ND	58802	701-577-4521			09/26/16
COUNTY	Mr. Scott Busching	Scott	Busching	Sheriff	Williams County Law Enforcement Center	Williams County	223 East Broadway, Suite 301	Williston	ND	58801	701-577-7700			09/27/16
COMM				General Manager	Bedlands Region	Montana-Dakota Utilities	121 8th Ave W	Williston	ND	58801				
COMM				General Manager		Mountair-Williams Electric	PO Box 7346	Williston	ND	58802				
COMM				Manager		WBI Energy Transmission	2010 Montana Ave	Glendive	MT	59330-0131				
COMM				General Manager		Northwest Communications Coop	PO Box 38	Ray	ND	58849			09/23/16	

verified

Savage Bakken Petroleum Hub Interconnect Williams County, North Dakota Project Location



Document Path: P:\OffSavage Services\1716218\GIS\MXDs\Errorp_Location_SOV.mxd Author: KMD Date: 9/20/2016

4585 Coleman Street
PO Box 1157
Bismarck, ND 58502-1157
701 355 8400
kljeng.com



September 20, 2016

Kevin Shelley
Field Supervisor
North Dakota Field Office
US Fish & Wildlife Service
3425 Miriam Ave
Bismarck, ND 58501-7926

Re: Savage Bakken Petroleum Hub Interconnect
Savage Services Corporation
Williams County, North Dakota

Dear Supervisor Shelley,

On behalf of Savage Services Corporation, KLJ is preparing an application in response to requirements of the North Dakota Energy Conversion and Transmission Facility Siting Act for the North Dakota Public Service Commission. The application is for the development of a crude oil pipeline to be located in Williams County. ***Please refer to the enclosed Project Location Map.***

The proposed project consists of burying approximately two miles of pipeline from the Savage Bakken Petroleum Hub to an existing connection. The proposed pipeline would be located 3.5 miles Southwest of Trenton, North Dakota.

Construction and commercial operation is anticipated to commence early in 2017. The pipeline would not be a common carrier and no federal funding is anticipated for the project.

To ensure social, economic and environmental effects are considered in the development of the project, we are soliciting your views and comments on the proposed development. We are particularly interested in any property your department may own, or have an interest in within the project area. We would also appreciate being made aware of any proposed development your department may be contemplating in the proposed project area. Any information that might help us in our study would be appreciated.



It is requested that any comments or information be forwarded to KLJ on or before October 20, 2016. If you have any questions or need further information related to the project, please contact:

General/Technical Inquiries

Cassie Foster
4585 Coleman Street
Bismarck, ND 58503-0431
701 355 8748
Cassie.Foster@kljeng.com

Environmental/Cultural Inquiries

Corie Ereth
4585 Coleman Street
Bismarck, ND 58503-0431
701 250 5904
Corie.Ereth@kljeng.com

Thank you for your time and cooperation.

Sincerely,

KLJ

A handwritten signature in blue ink that reads "Corie Ereth".

Corie Ereth
KLJ Environmental Lead

Enclosure(s): Project Location Map

From: [Todd Watterud / NCC](#)
To: [Corie Erath](#)
Subject: Savage Bakken Petroleum Hub Interconnect
Date: Friday, September 23, 2016 1:23:17 PM
Attachments: [image001.gif](#)
[image002.jpg](#)

Northwest Communications doesn't have any communication facilities within the project area of the Savage Bakken Interconnect pipeline project. There should be no impact on NCC with this project.

Thanks,

Todd Watterud
Engineering Manager
PO Box 38
Ray, ND 58849
701-568-3331 ext. 125
701-648-9334 cell

toddw@nccray.com

www.nccray.com

[cid:image002.jpg@01CE0541.AAE52480](#)



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North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850
(701) 328-2750 • TTY 1-800-366-6888 or 711 • FAX (701) 328-3696 • <http://swc.nd.gov>

RECEIVED
SEP 28 2016

September 29, 2016

Corie Ereth
KLJ
4585 Coleman Street
Bismarck, ND 58503-0431

Dear Ms. Ereth:

This is in response to your request for a review of the environmental impacts associated with the Crude Oil Pipeline Project located in Williams County, ND. The pipeline will be located 3.5 miles Southwest of Trenton, ND.

The proposed project has been reviewed by State Water Commission staff, and the following comments are provided:

- No permits relative to the National Flood Insurance Program are required based on the current effective FIRM and state minimum standards.
- All waste material associated with the project must be disposed of properly and not placed in identified floodway areas.

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 701-328-4968.

Sincerely,

Michael Noone
Natural Resource Economist

MN:dm/1570

JACK DALRYMPLE, GOVERNOR
CHAIRMAN

GARLAND ERBELE, P.E.
CHIEF ENGINEER-SECRETARY



RECEIVED
OCT 08 2016

September 29, 2016

Corie Ereth
KLJ Engineering
4585 Coleman Street
PO Box 1157
Bismarck, ND 58502-1157

"Letter of Clearance" In Conformance with the North Dakota Federal Program Review System -
State Application Identifier No.: ND160928-0693

Dear Mr. Ereth:

SUBJECT: Savage Bakken Petroleum Hub Interconnect

The above referenced notice has been reviewed through the North Dakota Federal Program Review Process. As a result of the review, clearance is given to the project only with respect to this consultation process.

If the proposed project changes in duration, scope, description, budget, location or area of impact, from the project description submitted for review, then it is necessary to submit a copy of the completed application to this office for further review.

We also request the opportunity for complete review of applications for renewal or continuation grants within one year after the date of this letter.

Please use the above SAI number for reference to the above project with this office. Your continued cooperation in the review process is much appreciated.

Sincerely,

Rikki Roehrich
Program Specialist
Division of Community Services

cmh



October 5, 2016

RECEIVED
OCT 14 2016

Ms. Corie Ereth
Environmental Lead
KLJ
P.O. Box 1157
Bismarck, ND 58502-1157

Re: Savage Bakken Petroleum Hub Interconnect
Williams County

Dear Ms. Ereth:

This department has reviewed the information concerning the above-referenced project submitted under September 20, 2016, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner.
2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.
3. Oil and gas projects disturbing one or more acres are required to obtain a permit to discharge storm water if runoff from the project will carry eroded material to a water of the state. A permit is not required for oil and gas projects if runoff from the project will not carry eroded material to a water of the state. Further information on the storm water permit may be obtained from the Department's website or by calling the Division of Water Quality (701-328-5210). In addition, cities or counties may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.

Environmental Health
Section Chief's Office
701.328.5150

Division of
Air Quality
701.328.5188

Division of
Municipal Facilities
701.328.5211

Division of
Waste Management
701.328.5186

Division of
Water Quality
701.328.5210

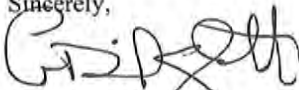
Printed on recycled paper.

4. The construction project overlies the Trenton aquifer. Care should be taken to avoid spills of any materials that may have an adverse effect on groundwater quality. All spills must be immediately reported to this Department and appropriate remedial actions performed. Additionally, please note the presence of a private drinking water well to the south of the proposed route.
5. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.
6. Projects that involve construction of pipelines should select locations that minimize the potential for impacts to human health and the environment during and after construction by avoiding, when possible, source water protection areas and sensitive surface and groundwater environments. Additionally, when possible, pipeline routes should select areas with natural barriers to both surface and ground waters. Human health and the environment should be further protected by developing a spill response plan that emphasizes rapid deployment of prepositioned assets necessary to contain spills and subsequent cleanup. Proper surveillance and monitoring for early detection of leaks should be required.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,



L. David Glatt, P.E., Chief
Environmental Health Section

LDG:cc
Attach.



Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.

Environmental Health
Section Chief's Office
701.328.5150

Division of
Air Quality
701.328.5188

Division of
Municipal Facilities
701.328.5211

Division of
Waste Management
701.328.5166

Division of
Water Quality
701.328.5210

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IN REPLY REFER TO:

DK-5000
ENV-6.00

United States Department of the Interior

BUREAU OF RECLAMATION
Great Plains Region
Dakotas Area Office
P.O. Box 1017
Bismarck, ND 58502-1017

OCT - 6 2016

RECEIVED
OCT 10 2016

Corie Ereth
4585 Coleman Street
P.O. Box 1157
Bismarck, ND 58202-1157

Subject: Solicitation of Views, Proposed Savage Bakken Petroleum Hub Interconnect

Dear Ms. Ereth:

On behalf of the Dakotas Area Manager, David Rosenkrance, this letter is to notify you of our receipt of your scoping letter dated September 20, 2016, and the information and map you provided have been reviewed by Bureau of Reclamation staff. The proposed action includes approximately 2 miles of buried pipeline from the Savage Bakken Petroleum Hub to an existing connection, Williams County, North Dakota. It appears from the map provided in your letter that the proposed pipeline crosses in proximity to Reclamation's facilities at the Buford-Trenton Irrigation District (Irrigation District) and the Trenton Indian Service Area (TISA) rural water system.

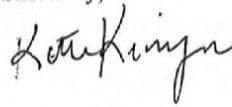
If the proposed pipeline does cross Reclamation's irrigation canals, construction activities will need to be coordinated with Reclamation and the local Irrigation District that operate and maintain the canals. Plans for how and when the crossing will be constructed need to be submitted to both Reclamation and the Irrigation District for review and approval. If the proposed construction will alter, modify, or disturb Reclamation's facilities or cross its lands, a Special Use Permit containing provisions necessary to protect the interests of the United States may be granted. In some cases, Reclamation may hold only an easement interest. This is especially true for some of Reclamation's linear facilities, such as roads, canals, and other water distribution systems. In these situations, Reclamation may grant an Acknowledgement of Easement Crossing, which will include protective measures to avoid any potential conflict with Reclamation's facilities or easement interests. Permission by the underlying landowner is needed to cross private lands.

Reclamation owns and funds the operation and maintenance of six water source intakes on the Missouri River for water distribution to the Three Affiliated Tribes and Standing Rock Sioux Tribe. Five water source intakes are located in North Dakota and one is located in South Dakota. Additionally, TISA receives its water from the city of Williston which in turn withdraws water from the Missouri River.

Subject: Solicitation of Views, Proposed Savage Bakken Petroleum Hub Interconnect

Thank you for the opportunity to comment on this project. If you have any questions, please contact Kate Kenninger at 701-221-1282.

Sincerely,



Kate Kenninger
Natural Resource Specialist



United States Department of Agriculture

RECEIVED

OCT 14 2016

Natural Resources
Conservation Service

Bismarck State Office
PO Box 1458
Bismarck, ND
58502-1458

Voice 701.530.2000
Fax 855-813-7556

October 11, 2016

Ms. Ashley Ross
KLJ
4585 Coleman Street
PO Box 1157
Bismarck, ND 58502-1157

RE: Proposed project, Savage Bakken Petroleum Hub Interconnect
Savage Services Corporation
Williams County, North Dakota

Dear Ms. Ross:

The Natural Resources Conservation Service (NRCS) has reviewed your letter dated September 20, 2016, concerning the above mentioned project.

Farmland

NRCS has a major responsibility with the Farmland Protection Policy Act (FPPA) in documenting conversion of farmland (i.e., prime, statewide importance and local importance) to non-agriculture use when federal funding is used. It appears your proposed project is not supported by federal funding; therefore, FPPA does not apply to this project and no further action is needed.

Wetlands

The Wetland Conservation Provisions of the 1985 Food Security Act, as amended, provide that if a USDA participant converts a wetland for the purpose, or to have the effect of making agricultural production possible, loss of USDA benefits could occur. The NRCS has developed the following guidelines for the installation of permanent structures where wetlands occur. If these guidelines are followed, the impacts to the wetland will be considered minimal allowing USDA participants to continue to receive USDA benefits. Following are the requirements:

- Disturbance to the wetland must be temporary.
- No drainage of wetland is allowed (temporary or permanent).
- Mechanized landscaping necessary for installation is kept to a minimum and preconstruction contours are maintained.
- Temporary side cast material must be placed in such a manner not to be dispersed in the wetland.
- All trenches in a wetland must be backfilled to the original elevation.

(MORE)

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Ms. Ross
Page 2

NRCS recommends that impacts to wetlands be avoided.

If you have additional questions pertaining to FPPA, please contact Steve Sieler, Liaison Soil Scientist, NRCS, Bismarck, ND, at 701-530-2019.

Sincerely,



WADE D. BOTT
State Soil Scientist



**STATE
HISTORICAL
SOCIETY
OF NORTH DAKOTA**

RECEIVED
OCT 17 2016

Jack Dalrymple
Governor of North Dakota

October 12, 2016

North Dakota
State Historical Board

Mr. Corie Ereth
Environmental Lead
KLJ
4585 Coleman Street
PO Box 1157
Bismarck ND 58502-1157

Margaret Puetz
Bismarck - President

Gereid Gernholz
Valley City - Vice President

Albert I. Berger
Grand Forks - Secretary

Calvin Grinnell
New Town

Diane K. Larson
Bismarck

Chester E. Nelson, Jr.
Bismarck

Terrance Rockstad
Bismarck

Sara Otte Coleman
*Director
Tourism Division*

Kelly Schmidt
State Treasurer

Alvin A. Jaeger
Secretary of State

Mark Zimmerman
*Director
Parks and Recreation Department*

Grant Levi
*Director
Department of Transportation*

Claudia J. Berg
Director

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of Museums since 1986

ND SHPO REF.: 16-1796 PSC Savage Bakken Petroleum Hub two mile pipeline in portions of [T153N R103W Section 35 and 152N R103W Section 6] Williams County, North Dakota

Dear Mr. Ereth:

We received your preliminary letter regarding ND SHPO REF.: 16-1796 PSC Savage Bakken Petroleum Hub two mile pipeline in portions of [T153N R103W Section 35 and 152N R103W Section 6] Williams County, North Dakota.

We recommend a Class III (pedestrian) cultural resources survey of the entire project area as there are areas of concern and known archeological sites in the vicinity.

Thank you for the opportunity to review the project to date. We look forward to review of the Class III report prior to any earth work. If you have questions, please contact Susan Quinnell at (701) 328-3576 or squinnell@nd.gov

Sincerely,

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



"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

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

RECEIVED

OCT 21 2016

October 18, 2016

Corie Ereth
KLJ Environmental Lead
KLJ
PO Box 1157
Bismarck, ND 58502-1157

Dear Ms. Ereth:

RE: Savage Bakken Petroleum Hub Interconnect

Savage Services Corporation is proposing to construct approximately two miles of crude oil pipeline from the Savage Bakken Petroleum Hub to an existing connection southwest of Trenton in Williams County, North Dakota.

The North Dakota Game and Fish Department has reviewed this project for wildlife concerns. We do not believe it will have significant adverse effects on wildlife or wildlife habitat, including species of conservation priority, provided disturbed areas are reclaimed to pre-project conditions.

Sincerely,

(fos) Greg Link
Chief
Conservation & Communication Division

js

4585 Coleman Street
PO Box 1157
Bismarck, ND 58502-1157
701 335 8400
kljeng.com



Date: 10/11/2016

September 20, 2016

Ms. Laurie Suttmeier
Manager
Bismarck Airports District Office
Federal Aviation Administration
2301 University Drive, Bldg 23B
Bismarck, ND 58504

No objection provided the Federal Aviation is notified of construction or alterations as required by Federal Aviation Regulations, Part 77, Objects Affecting Navigable Airspace, Paragraph 77.9. Notice may be filed on-line at <https://oeaaa.faa.gov>.

Don Phillips, Program Manager 
FAA/Dakota-Minnesota Airports District Office, Bismarck Office
2301 University Drive, Building 23B
Bismarck, ND 58504

Re: Savage Bakken Petroleum Hub Interconnect
Savage Services Corporation
Williams County, North Dakota

Dear Manager Suttmeier,

On behalf of Savage Services Corporation, KLJ is preparing an application in response to requirements of the North Dakota Energy Conversion and Transmission Facility Siting Act for the North Dakota Public Service Commission. The application is for the development of a crude oil pipeline to be located in Williams County. ***Please refer to the enclosed Project Location Map.***

The proposed project consists of burying approximately two miles of pipeline from the Savage Bakken Petroleum Hub to an existing connection. The proposed pipeline would be located 3.5 miles Southwest of Trenton, North Dakota.

Construction and commercial operation is anticipated to commence early in 2017. The pipeline would not be a common carrier and no federal funding is anticipated for the project.

To ensure social, economic and environmental effects are considered in the development of the project, we are soliciting your views and comments on the proposed development. We are particularly interested in any property your department may own, or have an interest in within the project area. We would also appreciate being made aware of any proposed development your department may be contemplating in the proposed project area. Any information that might help us in our study would be appreciated.



It is requested that any comments or information be forwarded to KLJ on or before October 20, 2016. If you have any questions or need further information related to the project, please contact:

General/Technical Inquiries

Cassie Foster
4585 Coleman Street
Bismarck, ND 58503-0431
701 355 8748
Cassie.Foster@kljeng.com

Environmental/Cultural Inquiries

Corie Ereth
4585 Coleman Street
Bismarck, ND 58503-0431
701 250 5904
Corie.Ereth@kljeng.com

Thank you for your time and cooperation.

Sincerely,

KLJ

A handwritten signature in blue ink that reads "Corie Ereth".

Corie Ereth
KLJ Environmental Lead

Enclosure(s): Project Location Map



Jack Dalrymple, Governor
Mark A. Zimmerman, Director

1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649
Phone 701-328-5357
Fax 701-328-5363
E-mail parkrec@nd.gov
www.parkrec.nd.gov

November 1, 2016

Corie Erethl
Kadmas Lee and Jackson
PO Box 1157
4585 Coleman Street
Bismarck, ND 58503-0431

Re: Crude Oil Pipeline Trenton, ND

Dear Corie,

The North Dakota Parks and Recreation Department has reviewed the above proposed two-mile crude oil pipeline project located southwest of Trenton, North Dakota.

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

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

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

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Kathy Duttonhefner", is written over a light blue rectangular background.

Kathy Duttonhefner, Coordinator
Natural Resources Division

R.USNDNHI*2016_241KD11/1/2016DL11/1/2016

.....
Play in our backyard!



PO Box 5507 • Bismarck, ND 58506-5507
701-328-2825 (Phone) • 800-366-6888 (TTY) • 701-328-4000 (Fax)

October 24, 2016

SAVAGE SERVICES CORPORATION
ATTN: CASSIE FOSTER
4585 COLEMAN STREET
BISMARCK ND 58503

RE: SAVAGE BAKKEN PETROLEUM HUB INTERCONNECT

Project #: 2016-17
UI Account #: NL

To Whom It May Concern:

We have determined from the information you submitted that you **are not** liable to the construction project risk protection provision of North Dakota Century Code, Section 52-04-06.1. Therefore, it is not necessary for you to post a construction project bond or irrevocable letter of credit with Job Service North Dakota for this project.

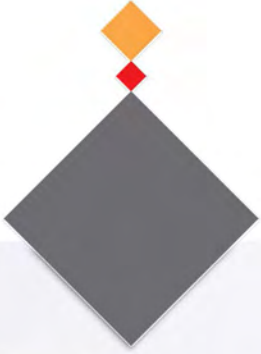
If you have any questions, please call (701) 328-2814.

Sincerely,

UI TAX & FIELD SERVICES

Job Service North Dakota is an equal opportunity employer/program provider.
Auxiliary aids and services are available upon request to individuals with disabilities.

Appendix K. Exc/Avd Areas



Savage Bakken Petroleum Hub Interconnect
Williams County, North Dakota
Exclusion & Avoidance Areas

