North Dakota Public Service Commission
Consolidated Application

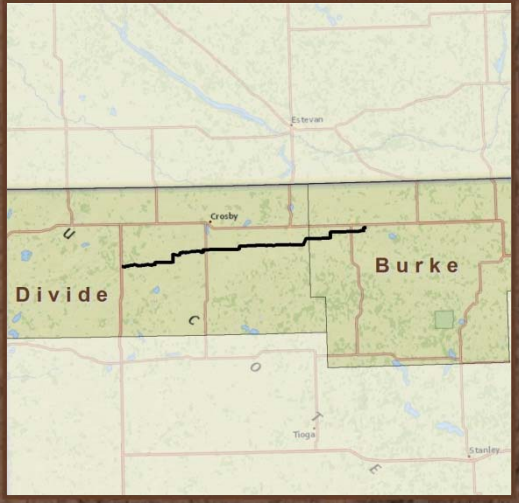
Certificate of Corridor Compatibility and Route Permit

Global Stampede Pipeline Project

Prepared for:
Meadowlark Midstream Company, LLC

Prepared by:
E3 Environmental, LLC

November 2014



E3 ENVIRONMENTAL
Enhancing Execution with Experience

North Dakota Public Service Commission

Certificate of Corridor Compatibility

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INTRODUCTION

Meadowlark Midstream Company, LLC (MMC) a wholly owned subsidiary of Summit Midstream Partners, LLC, owns and operates crude oil assets in North Dakota. MMC is proposing the Global Stampede Pipeline Project (Project). The Project will include certain receipt facilities within the existing Basin Transload Rail Facility (BTRF) near Columbus, ND, and the construction of the Stampede Pipeline (Pipeline) originating at the Divide Pump Station (DPS) and terminating at the BTRF. The BTRF is jointly owned by Basin Transload and Global Partners and is operated by Basin Transload. The proposed crude oil Pipeline will be ten inches in diameter, will be approximately 46 miles long, and will have a throughput capacity of approximately 50,000 barrels per day (bpd).

The proposed Project will also include the construction of one 400 barrel above ground tank at the existing BTRF to provide pressure relief for the Pipeline.

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

The application provides the requisite information as stipulated by:

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

SECTION 1: DESCRIPTION

1.1 TYPE AND SIZE OF FACILITY

1.1.1 TYPE

The proposed Project would result in a new crude oil transmission pipeline and expansion of the existing BTRF. The steel pipeline will meet U.S. Department of Transportation (DOT) regulations, specifically the design criteria outlined in 49 CFR 195.100, constructed per 49 CFR 195.200 operated and maintained per 49 CFR 195.400. The new tank will be constructed to meet DOT regulations and API 650 Standards.

1.1.2 SIZE

The Project pipeline specifications are the following:

- One ten inch Nominal Diameter Steel Pipe
  - ERW API 5L X42/52 PSL1/PSL2 DRL pipe
  - Wall Thickness of 0.365 inch
  - Pipeline casings installed at State and US Highway crossings and Railroad crossings
  - Maximum Operating Pressure: 1,480 pounds per square inch (psi)
  - Normal Operating Pressure: 500 psi
  - Maximum Throughput: 50,000 bpd
  - Normal Throughput: 35,000 bpd
  - Maximum Operating Temperature: 180 degrees Fahrenheit

1.1.3 LENGTH

The proposed Project is approximately 46 miles in length.

1.2 PURPOSE OF FACILITY

The purpose of the Project is to transport crude oil from the DPS east to the BTRF. From this location, the crude would be transported by rail to Global Partner's rail offloading terminal in Albany, New York for distribution to refineries along the East Coast of the United States. The additional aboveground tank at the BTRF will provide pressure relief for the pipeline. Crude oil is currently gathered by truck from within Divide County and is delivered to the BTRF. The pipeline would provide crude oil delivery from Divide County to the BTRF and subsequently would reduce or eliminate this truck transport.

1.3 LOCATION

The Project would be located in Burke and Divide Counties, North Dakota. The Project would result in a transmission pipeline originating at the DPS in Divide County, approximately ten miles southeast of Fortuna, North Dakota. From the DPS, the Pipeline will trend in an easterly direction to its terminus at the existing BTRF, located

approximately two miles southeast of Columbus, North Dakota. Please refer to the Project maps provided in Appendix B.

1.4 ABOVEGROUND FACILITIES

The proposed Project would include the construction of one (1) additional aboveground tank with a storage capacity of 400 barrels at the BTRF. The additional tank would provide pressure relief for the pipeline. Additionally, the proposed Pipeline would include seven (7) block valves, one (1) at each terminus and five (5) block valves located at intervals along the route. The valves will be actuated, fail-safe, automated and controlled by both the local actuation and by a 24-hour Control Center located in the City of The Woodlands, Texas. The Project will also include ancillary above ground facilities such as a check meter, pig launchers, custody transfer meter and pig receivers. A pig launcher and check meter would be constructed at the DPS and a pig receiver and custody transfer meter would be constructed at the BTRF. Additionally a pig launcher/receiver would be constructed at a mid-point along the line; this location would coincide with a block valve location. The pig launchers and receivers enable in-line inspection of the Pipeline for integrity management per DOT requirements and MMC standards. Please see Appendix A for engineering documents.

1.5 PROJECT SCHEDULE

1.5.1 CERTIFICATE OF CORRIDOR COMPATIBILITY

MMC seeks a Certificate of Corridor Compatibility on or before January 2015.

1.5.2 ROUTE PERMIT

MMC seeks a Route Permit on or before January 2015.

1.5.3 CONSTRUCTION SCHEDULE

MMC plans to commence construction activities as early as the first quarter of 2015. The construction activities would take approximately four to six months to complete. Commissioning and restoration activities would commence immediately after construction is complete.

SECTION 2: STUDIES

2.1 CORRIDOR

MMC selected the proposed corridor based upon several criteria designed to conform to the PSC's siting requirements and to avoid and minimize socioeconomic and environmental impacts, while maximizing the benefits to local resource developers in the Williston Basin. The location of existing assets was also considered during the selection process.

MMC's process of selecting a corridor to site a route between two fixed assets was influenced by the opportunity to collocate with other utility corridors. Agencies and the public at large generally prefer the collocation of utilities within existing corridor.

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

A comprehensive desktop analysis of the Corridor included consultations with the federal and state agencies identified below. The results of this environmental analysis are summarized in Section 2.2 of this document. Records of the agency consultations are provided in Appendix C.

- U.S. Fish and Wildlife Service (USFWS)
- North Dakota Game and Fish Department (NDGFD)
- North Dakota Parks and Recreation - Natural Heritage Program (NDPRD)
- North Dakota State Lands Department (NDSLD)
- North Dakota State Preservation Office (NDSHPO)
- North Dakota Department of Health (NDDoH)
- North Dakota PSC- Reclamation Division (PSC)

2.2 ENVIRONMENTAL DESKTOP ANALYSIS

2.2.1 WILDLIFE INVENTORY

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

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

2.2.2 WETLAND AND WATERBODIES ANALYSIS

To evaluate the location and extent of mapped wetlands and waterbodies within the Corridor a desktop analysis of aerial photography, National Hydrography Data set (NHD) and National Wetland Inventory (NWI) maps was completed. Desktop analysis identified 39 streams, 132 waterbodies (i.e. ponds) and approximately 865 wetland features within the Corridor. MMC commissioned field studies to augment the desktop analysis, the field study results are discussed in the Route Permit Application.

2.2.3 TREE/SAPLING/SHRUB ANALYSIS

The density of the woody cover in this region is generally sparse, and typically associated with significant topographic relief such as defined banks or incised drainage channels or agricultural windrows. MMC commissioned field studies to inventory the Project survey corridor, a typical 150-foot corridor centered upon the preferred alignment, woody vegetation. The results of these studies are documented in Appendix D; proposed mitigation measures are detailed in Section 5: Mitigative Measures of the Route Permit Application.

2.3 AGENCY CONSULTATIONS

2.3.1 U.S. FISH AND WILDLIFE SERVICE

The U.S. Fish and Wildlife Service (USFWS) administers several programs designed to identify and protect special status plant and animal species, critical habitats and lands managed by the agency. E3 Environmental, LLC (E3), on behalf of MMC, sent a Project consultation letter with maps of the Corridor on July 21, 2014. A response from the USFWS consultation is pending. Refer to Appendix C for a record of this consultation.

2.3.1.1 FEDERALLY PROTECTED SPECIES REVIEW

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

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

- Whooping Crane (*Grus Americana*) - Endangered
- Gray wolf (*Canis lupus*) – Endangered
- Piping plover (*Charadrius melodus*) – Threatened
    - Federally designated critical habitat

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

Whooping crane: The Aransas-Wood Buffalo Population of whooping cranes engages in semi-annual migration through North Dakota. This flock breeds in the Wood

Buffalo National Park in Alberta and Northwest Territories, Canada, and winters in the Aransas National Wildlife Refuge in Texas. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. During migration, the species is most closely associated with larger wetland complexes for roosting habitat, typically using adjacent uplands to forage. Desktop screening identified potential foraging habitat for the whooping crane within the Corridor.

Gray wolf: The gray wolf uses a variety of habitats that support a large prey base including montane and low-elevation forests, grasslands and desert scrub. The Corridor generally lacks forested habitat and is a great distance from the known Minnesota and Manitoba populations. The Corridor does not provide suitable habitat or host known populations of the gray wolf. As such, the proposed Project will have no impact on the gray wolf.

Piping plover: The piping plover is associated with shorelines along small alkaline lakes, large reservoir beaches, and river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25 percent of the area. Current breeding range on the Northern Great Plains extends south along major prairie rivers including the Yellowstone and Missouri, and in alkali wetlands including those in northeastern Montana and North Dakota. The Project will intersect prairie pothole wetlands, some of which may be suitable alkali wetland habitat, particularly in low-water years. Wetland, waterbody and habitat surveys will be conducted for the Project and best management practices (BMPs) will be implemented to avoid impacts to the piping plover. This will be achieved by avoiding and minimizing impacts to potential habitat and by observing sensitive timing windows. The nearest federally designated critical habitat is Miller Lake located approximately 15 miles west of the Corridor. In addition, the Project is approximately 46 miles from the Missouri River and Lake Sakakawea. The proposed Project will not likely impact piping plovers or their designated critical habitat.

2.3.1.2 MIGRATORY BIRD TREATY ACT CONSULTATION

On July 21, 2014, E3, initiated consultations with the USFWS; the consultation addressed several topics, which fall under the purview of the USFWS including the Migratory Bird Treaty Act (MBTA). The management of MBTA concerns correspond with the regional timing associated with annual phenology of migratory species. In North Dakota, generally it is acknowledged MBTA species of concern may be present and active in North Dakota from February 1st through July 15th annually. Currently the proposed Project construction is scheduled to commence in early 2015 and reach completion late 2015. If construction were to take place during this interval, MBTA mitigation may be required. MMC will continue to consult with agencies as necessary regarding this subject and shall develop MBTA mitigation as appropriate.

2.3.1.3 BALD AND GOLDEN EAGLE PROTECTION ACT CONSULTATION

The Bald and Golden Eagle Act (BGEA) prohibits anyone without a permit from taking a bald or golden eagle including their parts, nests or eggs. The BGEA defines “take” as to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or

disturb. The BGEA also addresses impacts resulting from human-induced alterations occurring around previously used nesting sites.

On July 21, 2014, E3, on behalf of MMC, sent a Project consultation letter with maps of the Corridor to the USFWS, which addressed the topic of BGEA. To date, no response has been received from the USFWS regarding the BGEA. Refer to Appendix C for a copy of the correspondence.

2.3.1.4 U.S. FISH AND WILDLIFE SERVICE MANAGED LANDS

The USFWS administers National Wildlife Refuges and Waterfowl Production Areas (WPAs) as well as wetland and grassland easements throughout North Dakota. A desktop review of information available in the public domain, including U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps, USGS PAD-US dataset, and the USFWS Information, Planning, and Conservation System (IPaC) has been completed for the Corridor. Desktop efforts indicate there may be USFWS managed lands within the Corridor. On September 19, 2014, MMC contacted the USFWS's Lostwood Wetland Management District Complex to determine if any USFWS wetland easements would be crossed by the proposed Project. On September 25, 2014, the USFWS Lostwood Wetland Management District Complex responded and indicated the proposed pipeline crosses USFWS easement tracts. Approximately 40 USFWS wetland easements are located within the Corridor. Please see Appendix C for a record of this consultation, and Appendix B for mapped locations of these areas.

2.3.2 NORTH DAKOTA GAME AND FISH DEPARTMENT

The North Dakota Game and Fish Department (NDGFD) has oversight of the State's game species. On July 21, 2014, E3, initiated consultations with the NDGFD requesting information regarding the presence or absence of State Conservation Priority Species within the Corridor. The NDGFD provided a written response dated August 15, 2014. Refer to Appendix C for a copy of this correspondence.

The NDGFD's response identified that the Harris M. Baukol Wildlife Management Area is located within the Corridor and stated that construction activities within this management area would require a Special Use Permit. Additionally, the Department is concerned with the disturbance to native prairie and wooded draws. Avoidance of these areas is recommended, if avoidance cannot be achieved areas should be reclaimed to pre-project conditions.

2.3.3 NORTH DAKOTA PARKS AND RECREATION DEPARTMENT

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

On July 21, 2014, E3, initiated consultations with the NDPRD seeking confirmation regarding the presence or absence of managed lands, ecological resources, rare species or their critical habitats within the Corridor. The NDPRD response is pending. See Appendix C for a copy of the correspondence.

2.3.4 NORTH DAKOTA STATE LANDS DEPARTMENT

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

On July 21, 2014, E3, initiated consultations with the NDSLD requesting comments regarding the presence of school trust lands within the Corridor; the NDSLD responded on July 23, 2014 stating that portions of tracts within the Corridor were mined for coal. The NDSLD recommended the Reclamation Division of the PSC be consulted to confirm the extent of which the sub-surface was affected by the coal mining. Refer to Appendix C for a copy of this correspondence.

On July 21, 2014, E3, initiated consultations with the NDSLD requesting comments regarding the presence or absence of state mineral trust lands within the Corridor. On July 31, 2014, the NDSLD requested the data be sent again in a different format. On August 1, 2014, E3 submitted the requested data to the NDSLD. The NDSLD response is pending. See Appendix C for a copy of the correspondence.

2.3.5 NORTH DAKOTA PSC-RECLAMATION DIVISION

Through the consultation process, the NDLSD identified portions of Section 16, Township 162N, Range 94W have been utilized for coal mining. The NDSLD recommended that MMC consult with the Reclamation Division of the PSC. MMC initiated this consultation on August 19, 2014. The Reclamation Division of the PSC responded on August 29, 2014 stating the Project route borders areas of previous mining activities and soil probing/geotechnical surveys are recommended. See Appendix C for a copy of this correspondence. MMC commissioned field studies as recommended and no concerns were identified regarding the stability of the survey area.

2.3.6 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

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

E3 commissioned SWCA Environmental Consultants (SWCA) to conduct a Class I inventory of the Corridor. A Class I Cultural Resource Inventory was completed on June 11, 2014 and an addendum was competed on September 26, 2014. The Class I identified previously recorded cultural resources within the Corridor. The results of this Class I effort are documented in Appendix E. To augment this Class I effort a Class III Inventory was commissioned and the details of this effort are documented in Appendix E and are discussed in more detail in the Route Permit application.

2.3.7 NORTH DAKOTA DEPARTMENT OF HEALTH

The North Dakota Department of Health (NDDoH) administers various water quality regulatory programs. These programs include construction stormwater permitting, hydrostatic test water discharges and other water discharges.

2.3.7.1 NDDOH POLLUTION DISCHARGE ELIMINATION SYSTEM

The North Dakota Pollution Discharge Elimination System (NDPDES) is the regulatory program for water discharges such as construction stormwater, site dewatering, and hydrostatic water discharges. MMC would procure the following NDPDES permits from the NDDoH as described below.

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

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

SECTION 3: NEED FOR FACILITY

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

The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep horizontal directional drilling techniques and subsequent oil extraction in the Bakken and Three Forks Shale formations. The total recoverable amount of Bakken Shale and Three Forks oil reserves are subject to interpretation and speculation. Studies conducted by the North Dakota Department of Mineral Resources and the USGS in 2010 estimated mean undiscovered volumes of 3.65 billion barrels of recoverable crude oil reserves may be available in North Dakota's deep shale formations. From March of 2007 to March of 2013, oil production in North Dakota has surged by 564 percent. In March of 2007, North Dakota produced 118,000 barrels of oil per day. That figure has increased to 783,000 barrels per day in March of 2013. In 2007, North Dakota accounted for roughly 2.5 percent of all the oil produced in the United States. In 2013, North Dakota accounted for roughly 11 percent of all the oil produced in the country.

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

Construction of the proposed Project will provide firm, reliable service for 50,000 barrels of crude oil per day and provide a critical link between the DPS and the BTRF. From this location, the crude would be transported to Global Partner's rail offloading terminal in Albany, New York for distribution to refineries along East Coast of the United States.

SECTION 4: CORRIDOR LOCATION AND CRITERIA EVALUATION

The information presented in this section was developed to demonstrate conformation with the PSC's siting criteria for transmission facilities. MMC has conducted a thorough inventory of the Corridor and evaluated the resources within it to assess the compatibility of the Project with the PSC's siting criteria. The following sections identify and discuss the presence or absence of siting criteria within the Corridor. Where siting criteria are identified, the location of each is shown on the maps in Appendix B.

4.1 CORRIDOR LOCATION

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

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

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

4.2.1 FEASIBLE ALTERNATIVES TO THE PROPOSED CORRIDOR OR ROUTE

Construction of the proposed Project will provide firm, reliable service for 35,000 barrels of crude oil per day and provide a critical link between the DPS and the BTRF. MMC identified and evaluated several project alternatives; however, none of these alternatives effectively satisfied the Project objective. These alternatives included:

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

4.2.1.1 No Action Alternative

This alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of crude oil products to markets. Overall, regional oil and gas production would continue to be constrained by the limited volume of product that could be shipped utilizing existing infrastructure. No action could resulting curtailment of crude oil production. For these reasons, MMC rejected a *No Action Alternative*.

4.2.1.2 Trucking Alternative

This alternative was reviewed and eliminated due to the volume of crude oil to be transported. The normal daily throughput of the proposed Project would be approximately 50,000 barrels or 1,575,000 gallons of crude oil. The average load for a truck carrying crude oil is approximately 178 barrels (7,500 gallons) per truck. Thus, it will require 281 trucks per day, an average of 11.7 trucks every hour for 24 hours a day to transport the volume of product the pipeline would transport to the BTRF. This level of truck activity is not logistically feasible; as it would cause significant amounts of heavy vehicle traffic for the area's residents as well as additional wear and tear on the infrastructure. Disruption in the trucking capacity due to seasonal load restrictions on roads, inclement weather or road repairs would cause a delay in delivering this valuable resource to market. This alternative is not desirable; therefore, MMC rejected a *Trucking Alternative*.

4.2.1.3 Rail Alternative

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

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

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

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

MMC is aware of other future development plans within close proximity to the Project; however, the pipeline route has been designed to accommodate these developments.

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

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

4.3 EXCLUSION AREAS (NAC 69-06-08-02.1)

Exclusion areas are geographical areas that should be excluded from consideration when siting an energy transmission facility. A proposed corridor may contain exclusion areas, but exclusion areas may not encompass more than 50 percent of the

corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss exclusion areas identified within the Corridor.

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

4.3.1 FEDERAL RESOURCE REVIEW

MMC has initiated consultations with various federal and state agencies and conducted a comprehensive review of published information. MMC concluded no national or memorial parks, natural landmarks or monuments, or wilderness areas would be crossed or affected by the Project. Please refer to Section 2: Studies of this document for a comprehensive discussion of MMC's agency consultations and Appendix C for copies of the consultations.

4.3.2 STATE RESOURCE REVIEW

MMC confirmed through a combination of agency notifications, review of publicly available information and field studies the absence of state parks, historic sites, monuments, historical markers, or nature preserves within the proposed Corridor.

Please refer to Section 2: Studies of this document for a comprehensive discussion of MMC's agency consultations and Appendix C for copies of the consultations.

MMC commissioned a Class I Inventory of the Corridor. These efforts identified previously recorded historic properties and cultural resources. Please refer to Section 2: Studies of this document for a comprehensive discussion of MMC's related agency consultations, and Appendix E for the Cultural Resource Report. Mitigation details are discussed in Section 5: Mitigative Measures of the Route Permit Application.

4.3.3 COUNTY RESOURCE REVIEW

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

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

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

Please refer to Appendix C for documentation of the agency consultations as well as Section 2: Route Analysis and Environmental Studies of the application for a Route Permit for details of the field studies.

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

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

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

MMC conducted a review of publicly available information and concluded there are no ICBM launch or launch control facilities within the Corridor.

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

MMC conducted a review of publicly available information and concluded there are no ICBM launch or launch control facilities within the Corridor.

4.4 AVOIDANCE AREAS (NAC 69-06-08-02.2)

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

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

4.4.1 FEDERAL RESOURCE REVIEW

MMC conducted a comprehensive review of publicly available information, and agency consultations of the proposed Corridor. This review indicated the absence of designated or registered historic districts, refuges, grasslands, and wild, scenic or recreational rivers within the Corridor. However, the Divide County Waterfowl Production Area was identified within the Corridor. Refer to Appendix C for documentation of agency consultations.

4.4.2 STATE RESOURCE REVIEW

MMC conducted a review of publicly available information and initiated project specific agency consultations and through these efforts has concluded there are no designated or registered management areas, forests, forest management lands, grasslands or wild, scenic, or recreational rivers within the Corridor, however the NDGFD noted the Harris M. Baukol Wildlife Management Area is within the Corridor. Refer to Appendix C for documentation of agency consultations.

4.4.3 HISTORICAL RESOURCES NOT MEETING EXCLUSION AREA CRITERIA

MMC commissioned a Class I Cultural Resource Inventory of the Corridor. This study identified and confirmed the presence of historical resources within the corridor. Please refer to Appendix C for related agency consultations and Appendix E for the Cultural Resource Survey Report.

4.4.4 AREAS OF KNOWN GEOLOGIC INSTABILITY

The North Dakota Geological Survey (NDGS) landslide mapping data was consulted for information regarding areas of landslides near the Project area. No mapping has been done and no landslide data exists near the Project. Finally, North Dakota has not experienced an earthquake of sufficient magnitude to damage steel welded pipe or structural steel structures in recorded history.

Sinkholes are known to occur in the region, but these are related to subsurface mining activities as opposed to limestone dissolution. According to review of PSC abandoned mine data, five mines are located within the Corridor. MMC has engaged the PSC Reclamation Division to determine if subsurface mining activities have occurred within the Project Corridor. Refer to Appendix C and Route Application for a record of this communication.

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

MMC utilized aerial photography to identify structures located within 500 feet of the proposed pipeline alignment. Forty-three (43) occupied structures are located within Corridor. Refer to the Route Permit regarding occupied structures within 500 feet of the Route. MMC is in the process of obtaining landowner waivers from those occupied structures within 500 feet of the Route. Executed landowner waivers are located in Appendix G.

4.4.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

MMC has confirmed the Corridor does not contain reservoirs or municipal source water protection areas used for community water supply sources. A number of wells were identified within the Corridor; these wells are used for domestic, stock or observation purposes. The maps in Appendix B depict the location of these resources.

4.4.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

Desktop analysis confirmed the Corridor is located outside of any organized rural water district or association.

4.4.8 IRRIGATED LAND

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

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

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

4.5 SELECTION CRITERIA (NAC 69.06-08-02.3)

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

4.5.1 AGRICULTURAL IMPACT

Agricultural Production: The Project will temporarily affect approximately 560 acres of private land in North Dakota. Once construction is complete, the land would be restored to its pre-construction contours and land use. MMC will provide settlements to landowners for crop loss resulting from Project construction. The expansion at the BTRF will not have an effect on agricultural projection, as it is located within the existing boundaries of the BTRF.

Family Farms and Ranches: The Project will temporarily affect approximately 560 acres of private land in North Dakota. Once construction is complete, the land would be restored to its pre-construction contours and land use. MMC will negotiate easements with all affected landowners. The Project will have no permanent impacts to lifestyle or farm/ranch operations once construction is completed.

Lands Suitable for Irrigation: This section is not applicable to buried pipelines (69-06-08-02.2h). The expansion at the BTRF will not affect lands suitable for irrigation as all ground disturbing/construction activities will occur within the boundaries of the existing facility.

Surface Drainage: Standard construction techniques would be employed; significant modifications to surface drainage patterns are not anticipated. Site grading will be necessary at the BTRF; however, site design will minimize runoff impacts to adjacent landowners. Care will be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction would be restored, the local topography would be restored to its original contours, vegetation would be reestablished and impacts shall be minimal and temporary. BMPs would be implemented in accordance with the project-specific SWPPP, which would comply with the NDDoH Construction Stormwater General Permit requirements. The grading for the BTRF would occur to allow for the siting and construction of the pressure relief

tank. Permanent impacts to surface drainage would be minimized to the maximum extent possible. BTRF site drainage would be designed in a manner in which impacts to adjacent properties are not altered from pre-construction conditions.

Ground Water: Well data has been recorded by the State Water Commission for the Project area. Well data indicate groundwater in upland areas is located more than 14 feet below the surface. Typical subsurface excavations associated with the Project would not extend to more than 10 feet below the ground surface. At that depth, the Project would not intersect the groundwater table, nor would the Project alter recharge rates or the infiltration, permeability, or percolation of water into the groundwater reservoir. Additionally, construction would not affect the lateral movement and groundwater quality.

4.5.2 THE IMPACTS UPON OTHER RESOURCES

Noise-Sensitive Land Uses: The Project is located in a rural setting, effectively isolating it from the majority of sensitive receptors. Construction of the proposed Project would affect the local noise environment. The ambient sound level of a region is defined by the total noise generated within the specific environment and is usually comprised of sounds emanating from natural and artificial sources. Construction could cause temporary increases in the ambient sound environment in the areas immediately surrounding active construction. Once constructed and in-service, normal pipeline operations are not audible.

Construction of the proposed Project will be conducted during typical working hours and is expected to cause temporary increases in ambient sound within and adjacent to the Project area. The use of heavy equipment or trucks will be the primary noise source during construction and excavation. The level of impact may vary by equipment type, duration of construction activity, and the distance between the noise source and the receptor.

Visual Effect on Adjacent Areas: The proposed Project would include the installation of a launcher or receiver at each of the Project terminuses as well as at the approximate mid-point of the pipeline. Additionally, the Project would include the installation of seven block valves, one at each terminus and five block valves located at intervals along the route. These are small aboveground features, which would be installed within the footprint of the maintained right-of-way (ROW) in locations approved by landowners. The visible piping and equipment are finished and maintained with a white painted surface.

One additional aboveground pressure relief tank, associated secondary containment, and facility fencing will be constructed at the existing BTRF. Other oil development is occurring in proximity to the BTRF, and as such, visual impacts associated with the addition of one tank is minimal in this landscape.

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

Wetlands, Woodlands and Wooded Areas: A comprehensive desktop review of published data, including aerial photography and NWI data, was conducted to assess the presence or absence of wetlands, woodlands and wooded areas. The review of the proposed Corridor confirmed the presence of these resources. MMC commissioned field surveys to identify and record the locations of these resources along the proposed Route. Please refer to Section 2: Studies in this document for a comprehensive discussion of the field studies results, as well as Appendix C for copies of the consultations. Mitigation details are discussed in Section 5: Mitigative Measures of the Route Permit Application.

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

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

The design of the Project has incorporated the use of block valves at regular intervals. The purpose of the block valve is to segment the system and allow for the isolation of select portions of the system to facilitate maintenance in a safe and controlled manner. Additionally, in the event of an abnormal operating condition, block valves can be closed as necessary to prevent an uncontrolled release of oil. Finally, the operation of the pipeline would be monitored in accordance with DOT regulations.

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

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

4.6 POLICY CRITERIA

4.6.1 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

MMC would comply with requirements contained in the Corridor Compatibility Certificate and Route Permit. MMC would conduct its activities with the objectives of providing a healthful and safe workplace for its employees, and preventing accidents and environmental incidents. All persons and firms providing service to MMC are

required to conduct their work in compliance with environmental conditions, permit authorizations, and applicable regulations, and would be held accountable for their actions in that regard. MMC is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations and standards are designed to safeguard the environment, human health, wildlife and natural resources.

4.6.2 LOCATION AND DESIGN

This Project will connect two existing facilities, the DPS and the BTRF. From this location, the crude would be transported to Global Partner's rail offloading terminal in Albany, New York for distribution to refineries along East Coast of the United States. Refer to Appendix B for project location maps.

The proposed Project would be constructed of carbon steel and will be a nominal 10.75-inch diameter pipe. The pipe installed would have a nominal wall thickness of 0.365 inches and manufactured to meet API Code 5L specification Grade B pipe. The maximum operating pressure (MOP) of the pipeline will be 1,480 psig.

The proposed pipeline will meet US Department of Transportation regulations, specifically the design criteria outlined in 49 CFR 195.100, constructed per 49 CFR 195.200 operated and maintained per 49 CFR 195.400.

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

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

4.6.4 ECONOMIES OF CONSTRUCTION AND OPERATION

MMC would invest approximately $33 million in North Dakota to develop this Project, generating approximately $429,000 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are minimal.

4.6.5 USE OF CITIZEN COORDINATING COMMITTEES

Through its corporate presence in the region (local office in Stanley, ND), MMC has established and maintains a good relationship with the local community officials and the local population. These relationships provide multiple grass roots communication channels to inform local residents regarding the developments associated with the Project.

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

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

4.6.7 LABOR RELATIONS

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

4.6.8 THE COORDINATION OF FACILITIES

MMC owns and operates the DPS. The Project will connect with the BTRF, a Global Partners asset.

4.6.9 MONITORING OF IMPACTS

MMC has operated pipeline gathering and associated facilities in the area since February of 2013. Through these operations, MMC has established and maintained positive landowner and community relationships throughout the region. MMC's operations reflect its commitment to corporate citizenship standards founded on integrity. MMC will monitor landowner concerns, if any, through its Land Department and will respond to all reasonable concerns. Similarly, MMC will monitor community concerns and will respond to all reasonable concerns brought to its attention by local community leaders. MMC is currently in the process of selecting a primary contractor for the construction of the Project and will coordinate with this contractor with respect to the oversight responsibilities for construction activities. Environmental responsibilities shall be coordinated in the same manner.

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

This Project will not be co-located with other utilities. Refer to Appendix B for project maps depicting the Project. However, the majority of the Project will parallel existing utility or road ROW.

4.6.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

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

SECTION 5: MITIGATIVE MEASURES

5.1 LOCATION

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

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

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

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

5.2 CONSTRUCTION

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

Construction is estimated to require a minimum of four to six months to complete. Construction techniques would be employed that minimize the area of ground disturbance, off site deposition of sediments and long-term impacts to agricultural productivity. Construction activities shall conform to all applicable permit

stipulations; these requirements are mandated by the agency and implemented by the project sponsor for minimizing impacts to the environment.

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

5.3 OPERATION

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

SECTION 6: LIST OF PREPARERS

John Millar
Vice President-Liquids Group
Summit Midstream

Mr. Millar is Vice President, Liquids Group for Summit Midstream and is responsible for developing liquid pipeline commercial opportunities and for managing Summit's liquid pipeline assets. Prior to joining Summit Midstream, Mr. Millar was Vice President and General Manager of Genesis Energy, L.P.'s pipeline, terminal, and trucking businesses, responsible for improving safety, operating efficiency, and service quality and for developing growth projects involving liquid pipeline facilities, marine terminals, rail facilities, and truck stations. Prior to joining Genesis, Mr. Millar held numerous positions in engineering, project management, field operations, control center operations, joint ventures, and business development for Chevron Pipe Line Company, EOTT Energy, Unocal Corporation, and Enbridge Energy Partners. Mr. Millar has over 28 years of experience in nearly all aspects of the oil pipeline industry and holds BS and MS degrees in Civil Engineering from the University of California and an MBA from the University of Houston. Mr. Millar is a licensed Civil Engineer in the State of California.

William McCarthy, C.W.B.

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

M.S. Wildlife Biology, University of Minnesota – Twin Cities; and B.S. Wildlife Biology, Michigan State University. Mr. McCarthy is an environmental compliance analyst with 15 years of environmental consulting experience working with various energy assets and regulatory agencies. As a compliance analyst, he has managed the environmental requirements for facility siting, pipeline routing, federal licensing and various federal, state and local permits. Mr. McCarthy is a certified wildlife biologist, in this role conducts, and coordinates field studies, agency consultations, mitigation and avoidance plans.

Katie Schmidt, EIT

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

B.S. Civil Engineering with an emphasis in Environmental Engineering-Iowa State University. Ms. Schmidt is a Senior Environmental Consultant with 8 years of experience working with various energy assets and regulatory agencies. As a consultant, she has managed multiple pipeline projects supporting clients through the construction permitting and siting processes, which included coordination with various federal, state and local agencies.

Chris Schmidt, GIT

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

B.S. in Environmental Geology and Geologist-In-Training Certification for Minnesota. Mr. Schmidt has over 3 years of environmental consulting experience. Mr. Schmidt has pursued a career focused on regulatory compliance and supports energy clients by providing regulatory review and permitting services. Mr. Schmidt's experience includes work supporting pipeline systems of natural gas, natural gas liquids, and petroleum throughout multiple states.

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

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

North Dakota Public Service Commission

Application for Route Permit

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Prepared by:
E3 Environmental, LLC

November 2014

E3 ENVIRONMENTAL
Enhancing Execution with Experience

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INTRODUCTION

Meadowlark Midstream Company, LLC (MMC) a wholly owned subsidiary of Summit Midstream Partners, LLC, owns and operates crude oil assets in North Dakota. MMC is proposing the Stampede Pipeline Project (Project). The Project will include certain receipt facilities within the existing Basin Transload Rail Facility (BTRF) near Columbus, ND, and the construction of the Stampede Pipeline (Pipeline) originating at the Divide Pump Station (DPS) and terminating at the BTRF. The BTRF is jointly owned by Basin Transload and Global Partners and is operated by Basin Transload. The proposed crude oil Pipeline will be ten inches in diameter, will be approximately 46 miles long, and will have a throughput capacity of approximately 50,000 barrels per day (bpd).

The proposed Project will also include the construction of one 400 barrel above ground tank at the existing BTRF to provide pressure relief for the Pipeline.

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

The application provides the requisite information as stipulated by:

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

SECTION 1: DESCRIPTION

1.1 TYPE OF TRANSMISSION FACILITY

The proposed Project would result in a new crude oil transmission pipeline and expansion of the existing BTRF. The steel pipeline will meet U.S. Department of Transportation (DOT) regulations, specifically the design criteria outlined in 49 CFR 195.100, constructed per 49 CFR 195.200 operated and maintained per 49 CFR 195.400. The new tank would be constructed to meet DOT regulations and API 650 Standards

1.2 PURPOSE OF TRANSMISSION FACILITY

The purpose of the Project is to transport crude oil from the DPS east to the BTRF. From this location, the crude would be transported by rail to Global Partner's rail offloading terminal in Albany, New York for distribution to refineries along the East Coast of the United States. The additional aboveground tank at the BTRF will provide pressure relief for the pipeline. Crude oil is currently gathered by truck from within Divide County and is delivered to the BTRF. The pipeline would provide crude oil delivery from Divide County to the BTRF and subsequently would reduce or eliminate this truck transport.

MMC estimates the Project will cost approximately $33 million to develop.

1.1 LENGTH, SIZE AND DESIGN OF PIPELINE FACILITY

1.1.1 LENGTH OF FACILITY

The proposed Project is approximately 46 miles in length.

1.1.2 PIPE SIZE

The Project pipeline specifications are detailed below:

- One 10-inch Nominal Diameter Steel Pipe
- ERW API 5L X42/52 PSL1/PSL2 DRL pipe
- Wall Thickness of 0.365 inch
- Pipeline casings installed at State and US Highway crossings and Railroad crossings

1.1.3 OPERATING PRESSURE AND THROUGHPUT

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

- Maximum Operating Pressure: 1,480 pounds per square inch (psi).
- Normal Operating Pressure: 500 psi
- Maximum Throughput: 50,000 bpd
- Normal Throughput: 35,000 bpd

1.2 ABOVEGROUND FACILITIES

The proposed Project would include the construction of one (1) additional aboveground tank with a storage capacity of 400 barrels at the BTRF. The additional tank would provide pressure relief for the pipeline. Additionally, the proposed Pipeline would include seven (7) block valves, one (1) at each terminus and five (5) block valves located at intervals along the route. The valves will be actuated, fail-safe, automated and controlled by both the local actuation and by a 24-hour Control Center located in the City of The Woodlands, Texas. The Project will also include ancillary above ground facilities such as a check meter, pig launchers, custody transfer meter and pig receivers. A pig launcher and check meter would be constructed at the DPS and a pig receiver and custody transfer meter would be constructed at the BTRF. Additionally a pig launcher/receiver would be constructed at a mid-point along the line; this location would coincide with a block valve location. The pig launchers and receivers enable in-line inspection of the Pipeline for integrity management per DOT requirements and MMC standards. Please see Appendix A for engineering documents.

1.3 WIDTH OF RIGHT-OF-WAY

The Pipeline would be constructed utilizing a 110-foot construction right-of-way (ROW). MMC would maintain an average 25-foot permanent ROW along the entire length of the pipeline.

1.4 LOCATION

The Project would be located in Burke and Divide Counties, North Dakota. The Project would result in a transmission pipeline originating at the DPS in Divide County, approximately ten miles southeast of Fortuna, North Dakota. From the DPS the pipeline will extend in an easterly direction to its terminus at the existing BTRF, located two miles southeast of Columbus, North Dakota. Please refer to the project maps provided in Appendix B.

1.5 PROJECT SCHEDULE

1.5.1 ROUTE PERMIT

MMC is seeking a Route Permit on or before January 2015.

1.5.2 CERTIFICATE OF CORRIDOR COMPATIBILITY

MMC seeks a Certificate of Corridor Compatibility on or before January 2015.

1.5.3 CONSTRUCTION SCHEDULE

MMC plans to commence construction activities as early as the first quarter of 2015. The construction activities would take approximately four to six months to complete.

SECTION 2: ROUTE ANALYSIS AND ENVIRONMENTAL STUDIES

2.1 PIPELINE ROUTE

MMC has conducted a thorough analysis of the proposed Corridor as reported in the Application for a Certificate of Corridor Compatibility. This analysis was a broad based study of the proposed Corridor (a one-mile corridor centered upon a proposed route, which was chosen utilizing web-based mapping tools, (i.e., one-half mile on either side of a proposed route). The purpose of this analysis was to confirm the proposed Project Corridor was suitable and it would cause minimal environmental impacts thus conforming to the PSC siting criteria.

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

The environmental survey corridor was a minimum of 150-feet centered on the proposed Route. Field crews performed comprehensive natural and cultural resource surveys on June 16-19, 2014 and September 30 through October 2, 2014. The purpose of the field studies was two-fold: (1) to definitively identify any potential resource issues (e.g., wetlands, waterbodies, protected species, critical habitats or cultural resources) within the survey corridor; and (2) to provide the baseline field data necessary to prescribe alternative routing or mitigation as necessary to minimize environmental impacts. The results of these field surveys are summarized in the following sections; the full Natural Resources Report is contained in Appendix D and the Class I and Class III Cultural Resources Reports can be found in Appendix E.

2.2 ROUTE ALTERNATIVES

Construction of the proposed Project will provide firm, reliable service for 50,000 barrels of crude oil per day and provide a critical link between the DPS and the BTRF. MMC identified and evaluated several project alternatives; however, none of these alternatives effectively satisfied the Project objective. These alternatives included:

- No Action Alternative;
- Trucking Alternative
- Rail Alternative

No Action Alternative:

This alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of crude oil products to markets. Overall, regional oil and gas production would continue to be constrained by the limited volume of product

that could be shipped utilizing existing infrastructure. No action could resulting curtailment of crude oil production. For these reasons, MMC rejected a *No Action Alternative*.

Trucking Alternative:

This alternative was reviewed and eliminated due to the volume of crude oil to be transported. The normal daily throughput of the proposed Project would be approximately 50,000 barrels or 1,575,000 gallons of crude oil. The average load for a truck carrying crude oil is approximately 178 barrels (5,600 gallons) per truck. Thus, it will require 281 trucks per day, an average of 11.7 trucks every hour for 24 hours a day to transport the volume of product the pipeline would transport to the Basin Transload Rail Facility. This level of truck activity is not logistically feasible; as it would cause significant amounts of heavy vehicle traffic for the area's residents as well as additional wear and tear on the infrastructure. Disruption in the trucking capacity due to seasonal load restrictions on roads, inclement weather or road repairs would cause a delay in delivering this valuable resource to market. This alternative is not desirable; therefore, MMC rejected a *Trucking Alternative*.

Rail Alternative:

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

2.3 ENVIRONMENTAL SURVEY.

Field surveys were conducted on June 16-19 and September 30-October 2 of 2014. The survey corridor was typically a 150-foot corridor centered upon the proposed Route. The survey corridor is depicted on the maps in Appendix B.

2.3.1 NOXIOUS WEEDS

"Noxious weed" is a general term used to describe fast-spreading, non-native plant species in a given area. These species have adverse ecological and economic impacts due to their ability to outcompete native plant species for habitat and resources. Field surveys identified six (6) areas of leafy spurge within the survey corridor totaling approximately 6.54 acres of which 4.82 acres occur within the construction ROW. MMC will implement the appropriate mitigation measures in these areas to avoid the spread of noxious weeds. Please see Appendix D for the complete Natural Resources Report and Section 5 Mitigative Measures in the document for the proposed mitigation procedures.

2.3.2 TREE/SAPLING/SHRUB SURVEY

During field survey, crews performed a detailed tree/shrub inventory. This inventory recorded the pre-construction status of these resources, which will form the baseline for restoration and mitigation reconciliation. Based on this effort, 35 tree and shrub areas were located within the survey corridor. In total, 626 trees were identified within the 150-foot wide survey corridor; 251 of these features were located within the planned 110-foot wide construction ROW. Please see Appendix D for the complete Natural Resources Report and Section 5 for planned mitigation measures.

2.3.3 WETLAND AND WATERBODIES SURVEY

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

2.3.3.1 WETLAND SURVEY

Field surveys identified and recorded; 111 wetland features (a total of approximately 68.27 acres) within the survey corridor. MMC will implement appropriate mitigation measures at these features, which may include avoidance (e.g. workspace modification or horizontal directional drill) or use of construction mats and other best management practices (BMPs), to minimize impacts to these features. Please see Appendix B Project Maps, for the mapped location of each feature and Appendix D for the detailed Natural Resource Report.

2.3.3.2 WATERBODIES SURVEY

Seven (7) waterbodies were identified during field surveys, four intermittent streams and three permanent waterbodies. See Appendix B for the mapped location of each feature, Appendix D for the detailed Natural Resources Report, and Section 5: Mitigative Measures of this application for the proposed mitigation measures.

2.3.4 WILDLIFE INVENTORY

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

2.3.4.1 FEDERALLY PROTECTED SPECIES SURVEY

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

On July 21, 2014, E3 Environmental, LLC (E3) requested a USFWS review of the Project, requesting information relating to the presence or absence of threatened and endangered species within the project area. USFWS response is pending.

MMC commissioned field studies to confirm the presence or absence of these species and/or their critical habitats along the proposed pipeline Route. The results of this assessment are provided below; refer to Appendix D, which contains the Natural Resources Report, which outlines the results of these field efforts.

Whooping Crane: The Aransas Wood Buffalo Population of whooping cranes engages in semi-annual migration through North Dakota. During migration, the species is most closely associated with larger wetland complexes for roosting habitat, typically using adjacent uplands to forage. Suitable foraging habitat (i.e., cultivated cropland and wetlands) was observed within the survey corridor. Project activities are scheduled to begin prior to the spring migration window. During migration, it is expected that construction activities will deter the crane from the Project area. The proposed Project is not likely to impact the whooping crane. Please refer to Appendix C for related agency consultations, Appendix D for the detailed Natural Resources Report, and Section 5: Mitigative Measures in this document for proposed mitigation measures.

Piping Plover: Field studies of the survey corridor identified areas of potentially suitable piping plover habitat; plover nesting behavior was also observed during field survey. The piping plover will have completed its nesting season prior to the commencement of construction activities. Active construction should deter the plover from the Project area. Due to the construction schedule and Project location the Project may, but is not likely to impact the piping plover. Please refer to Appendix C for related agency consultations, Appendix D for the detailed Natural Resource Report, and Section 5: Mitigative Measures in this document for proposed mitigation measures.

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

Golden Eagle: Field studies confirmed the absence of nesting or roosting habitat within 0.5 mile of the centerline of the survey corridor. Refer to Section 5 for mitigation measures should a golden eagle be observed during construction.

2.3.5 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

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

E3 commissioned SWCA Environmental Consultants (SWCA) to conduct a Class I of the Corridor. The Class I effort was completed on June 11, 2014 and identified ten previously recorded cultural resources within the Corridor (32BK12, 32BKX776, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX243, 32DVX244, 32DVX246, and 32DVX247). All ten previously recorded cultural resources remain unevaluated regarding their eligibility for inclusion into the National Register of Historic Places (NHRP) and no further work is recommended for these resources.

The ensuing Class III Cultural Resource Inventory of the survey corridor was completed on June 16-19, 2014 by SWCA. During the inventory, 14 new cultural resources were recorded (32BK68, 32BK155, 32BK156, 32DV141, 32DV142, 32DV143, 32BK157, 32DV144, 32DV145, 32BKX1003, 32DVX432, 32BKX1004, 32DVX433, and 32DVX434). The newly recorded resources are all historic, and consist of a newly recorded segment of a previously recorded railroad site (32BK68); two homestead and cultural material scatter sites (32BK155 and 32DV143); a building site (32DV142); five cultural material scatter sites (32BK156, 32BK157, 32DV141, 32DV144, and 32DV145); four farm equipment isolated finds (32BKX1003, 32BKX1004, 32DVX432, and 32DVX434); and one wagon isolated find (32DVX433). Of these resources, 32BK68 is recommended as eligible for the NRHP, therefore this site would be avoided via horizontal directional drilling underneath the site. The remaining 13 newly recorded sites are recommended not eligible for the NRHP and therefore no further work is necessary. Appendix E contains the Cultural Resources Report.

On August 26, 2014, E3 on behalf of MMC submitted SWCA's Cultural Resource Report. The SHPO responded on August 29, 2014 providing concurrence with SWCA's recommendation of *No Significant Sites Affected* for the Project. Please refer to Appendix C for related agency consultations, and Appendix E for the Cultural Resources Reports.

E3 commissioned SWCA to conduct an additional Class I and Class III Cultural Resource Inventory to accommodate Project adjustments that placed the centerline outside of the previously inventoried survey corridor. The Class I was completed on September 26, 2014 and identified an additional 15 previously recorded cultural resources within the adjusted survey corridor. Fourteen of the sites were newly recorded sites from the June 2014 Class III survey conducted by SWCA, and one site (32DVX207) is unevaluated for inclusion on the NRPH. The additional Class III inventory was completed September 30, 2014 and October 1-2, 2014. At this time, SWCA revisited eligible site 32BK68 and recorded one new cultural resource (32DVX435). Site 32DVX435 is recommended as not eligible for the NRHP, and therefore no further work is necessary. The Addendum Cultural Resources Report

was submitted to the SHPO for review on October 22, 2014. The SHPO responded on November 4, 2014 providing concurrence with SWCA's recommendation of *No Significant Sites Affected* for the Project. A record of this communication can be found in Appendix C and the Addendum Cultural Resources Report can be found in Appendix E.

2.3.6 U.S. FISH AND WILDLIFE SERVICE MANAGED LANDS

MMC coordinated with the USFWS Lostwood Wetland Management District Complex to determine if any USFWS wetland easements would be crossed by the proposed Project. On September 25, 2014, the USFWS Lostwood Wetland Management District Complex responded and indicated the proposed Pipeline would cross USFWS easement tracks. Approximately 14 USFWS wetland easements and subsequently17 wetland basins would be crossed by the Project. Please see Appendix C for a record of this consultation. The proposed mitigation is detailed in Section 5: Mitigative Measures of the Route Permit application.

SECTION 3: NEED FOR FACILITY

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

The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep horizontal directional drilling techniques and subsequent oil extraction in the Bakken and Three Forks Shale formations. Studies conducted by the North Dakota Department of Mineral Resources and the USGS in 2010 estimated mean undiscovered volumes of 3.65 billion barrels of recoverable crude oil reserves may be available in North Dakota's deep shale formations. From March of 2007 to March of 2013, oil production in North Dakota has surged by 564 percent. In March of 2007, North Dakota produced 118,000 barrels of oil per day. That figure has increased to 783,000 barrels per day in March of 2013. In 2007, North Dakota accounted for roughly 2.5 percent of all the oil produced in the United States. In 2013, North Dakota accounted for roughly 11 percent of all the oil produced in the country.

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

Construction of the proposed Project would provide firm, reliable service of 35,000 bpd of crude and would provide a critical link between the DPS and the BTRF. From this location, the crude would be transported to Global Partner's rail offloading terminal in Albany, New York for distribution to refineries along East Coast of the United States.

SECTION 4: SITING CRITERIA ANALYSIS

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

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

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

Field studies were conducted to identify environmental, biological and cultural resources along the Route; the results of this effort are discussed in Section 2 of this document, and full reports are provided in Appendices D and E. The sections below discuss possible effects on the public health and welfare.

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

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

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

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

Unavoidable adverse direct and indirect environmental effects will be temporary and minimized through compliance with environmental permits. The potential impacts to resources including vegetation, wildlife, agricultural operations, transportation and noise levels are discussed in the following sections. MMC will mitigate these temporary impacts to the maximum extent possible.

The Project would be constructed in compliance with environmental permits; the conditions of these permits are designed to minimize adverse environmental impacts.

Refer to Section 5 for a full description of the mitigative measures planned to minimize impacts resulting from the Project's location, construction and operation.

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

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

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

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

4.1.6 DIRECT AND INDIRECT ECONOMIC IMPACTS OF THE PROPOSED FACILITY:

MMC will invest approximately $33 million in North Dakota to develop this Project, generating approximately $429,000 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed Project are minimal. While the pipeline itself will not generate any direct tariff revenues for the state of North Dakota, it is estimated the gross product value produced and transported through the Project will be in excess of $100 million annually, generating significant producer, royalty and state tax revenues in the most efficient and minimally intrusive way possible.

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

MMC is aware of other future development plans within close proximity to the Project; however, the pipeline route has been designed to accommodate these developments.

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

MMC commissioned Class I and Class III cultural resource inventories. MMC developed mitigation plans for registered or eligible sites that encroach on the proposed construction corridor. The proposed mitigation measures are detailed in Section 5 of this document. All related agency consultations can be found in Appendix C and supporting documentation of field studies can be found in Appendix E.

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

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

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

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

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

- USFWS: The survey corridor crosses USFWS wetland easements and wetland basins. Measures should be taken to avoid impacts to these features.
- ND Department of Trust Lands: Coal was mined along portions of the proposed pipeline tract. The agency recommended consulting with the Reclamation Division of the ND PSC to the extent of the surface impacted by the coal mining. A response from the ND PSC was received on August 26, 2014.
- ND PSC Reclamation Division: The Reclamation Division suggests that since the Project borders areas of previous mining activity soil probing/geotechnical testing be done to determine the limits of the mine disturbance in that area.
- NDGFD: The Department's primary concern is with the disturbance to native prairie and wooded draws associated with construction of the Pipeline and associated access roads. Avoidance of these areas is recommended, if avoidance cannot be achieved areas should be reclaimed to pre-project conditions. Additionally, if the Harris M. Baukol Wildlife Management area will crossed by construction activities a special use permit will be required. Avoidance of this Wildlife Area is recommended, if avoidance cannot be achieved a special use permit should be obtained from the Wildlife Resource Management Supervisor.

MMC incorporated this feedback into the Route selection process, and as appropriate, into field survey protocols. If field studies confirmed the presence of these items, MMC refined the proposed alignment or developed mitigation strategies to avoid or minimize direct impacts. Further discussion on agency coordination can be found in the Section

2 of the Certificate of Corridor Compatibility application and discussions of avoidance and mitigation measures are found in Section 5 of this document. Please see Appendix C for complete federal and state agency consultations. Detailed survey results can be found in Appendix D and E.

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

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

Exclusion Area	Crossed by Proposed Route
Federal	
National Parks or Memorial Parks	No
Historic Sites or Landmarks	No
Natural Landmarks or Monuments	No
Wilderness Areas	No
State	
Historic Sites, Monuments, or Historical Markers;	No
Archaeological Sites	Yes
Parks	No
Nature Preserves	No
County	
Parks	No
Recreation Areas	No
Municipal Parks	No
Other	
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	No
Areas where Animal or Plant Species that are Unique or Rare to this State would be Irreversibly Damaged	No
Areas within 1,200 feet of a geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	No
Areas within 30 feet on either side of a direct line between (ICBM) launch or launch control facilities to avoid microwave interference.	No

4.2.1 FEDERAL RESOURCE REVIEW

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

4.2.2 STATE RESOURCE REVIEW

MMC confirmed through a combination of agency consultations, review of publicly available information and field studies the absence of state parks, historic sites, monuments, historical markers, or nature preserves within the proposed Route. Please refer to Section 2: Studies of this document for a comprehensive discussion of the results of agency consultations and field studies conducted for this project.

4.2.3 COUNTY RESOURCE REVIEW

Through a combination of agency consultations and review of publicly available information, MMC confirmed the absence of county parks or recreation areas, and municipal parks, or parks owned by other subdivisions of government bodies within the proposed Route. Please refer to Section 2: Studies of this document for a comprehensive discussion of MMC's agency consultations and Appendix C for documentation of agency correspondence.

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

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

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

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

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

MMC conducted a review of publicly available information and concluded there are no ICBM launch or launch control facilities within 1,200 feet of the Route.

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

MMC conducted a review of publicly available information and concluded there are no ICBM launch or launch control facilities within 30 feet of the Route.

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

Avoidance areas are geographical areas that shall not be considered in the routing of a transmission facility unless, under the circumstances, it is shown there is no reasonable alternative. The following table and text identify and discuss avoidance areas crossed by the proposed Route.

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

4.3.1 FEDERAL RESOURCE REVIEW

MMC conducted a comprehensive review of publicly available information and field studies of the survey corridor. This review indicated the absence of designated or registered historic districts, refuges, grasslands, and wild, scenic or recreational rivers in the survey corridor.

4.3.2 STATE RESOURCE REVIEW

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

4.3.3 HISTORICAL RESOURCES NOT MEETING EXCLUSION AREA CRITERIA

MMC conducted a review of publicly available resources along with field surveys and concluded there is one historical resources within the survey corridor that meet the exclusion area criteria. Avoidance of this site will be achieved by horizontal directional drill of the historical railroad feature. Refer to Section 5 of this document for additional mitigative measures, Appendix C for agency consultations and Appendix E for the complete Cultural Resources Report.

4.3.4 AREAS OF KNOWN GEOLOGIC INSTABILITY

The North Dakota Geological Survey (NDGS) landslide mapping data was consulted for information regarding areas of landslides near the Project. No mapping has been done and no landslide data exists near the Project. Finally, North Dakota has not experienced an earthquake of sufficient magnitude to damage steel welded pipe or structural steel structures in recorded history.

Sinkholes are known to occur in the region, but these are related to subsurface mining activities as opposed to limestone dissolution. Based on coordination with the PSC the Route borders areas of previous mining activity and the PSC recommend soil probing/geotechnical surveys be conducted to confirm areas of mining disturbances. Refer to Appendix C for agency consultations. MMC has commissioned the recommended studies.

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

MMC utilized aerial photography to identify structures located within 500 feet of the proposed pipeline alignment. Seven (7) occupied structures are located within 500 feet of the Project. MMC is in the process of obtaining landowner waivers from those residences within 500 feet of the Project. Executed landowner waivers can be found in Appendix G.

4.3.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

MMC has confirmed the survey corridor does not contain reservoirs or municipal source water protection areas for community water supply sources. While a number of wells were identified within the Corridor, these wells are used for either local domestic, stock, or irrigation purposes. The maps in Appendix B depict the location of these resources.

4.3.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

Desktop analysis confirmed the Route is located outside of any organized rural water district or association. There are no documented source water protection areas for

community and non-community water supplies within the proposed Corridor. While a number of wells were identified within the Corridor, these wells are used for either local domestic, stock, or irrigation purposes. The maps in Appendix B depict the location of these resources.

4.3.8 IRRIGATED LAND

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

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

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

4.4 SELECTION CRITERIA (NAC 69-06-08-02.3)

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

4.4.1 AGRICULTURAL IMPACTS

Agricultural Production: The Project will temporarily affect approximately 560 acres of private land in North Dakota. Once construction is complete, the land will be restored to its pre-construction contours and land use. MMC will provide settlements to landowners for crop loss resulting from Project construction. The expansion at the BTRF will not have a significant effect on agricultural projection, as it is located in an area previously developed for oil production.

Family Farms and Ranches: The Project will temporarily affect approximately 560 acres of private land in North Dakota. Once construction is complete, the land will be restored to its pre-construction contours and land use. MMC will negotiate easements with all affected landowners. The Project will have no permanent impacts to lifestyle or farm/ranch operations once construction is completed.

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

Lands Suitable for Irrigation: This section is not applicable to buried pipelines (69-06-08-02.2h). The expansion at the BTRF will not affect lands suitable for irrigation as all ground disturbing/construction activities will occur within the boundaries of the existing facility.

Surface Drainage: Standard construction techniques would be employed; significant modifications to surface drainage patterns are not anticipated. Site grading would be

necessary at the BTRF; however, site design would minimize runoff impacts to adjacent landowners. Care would be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction would be restored, the local topography shall be restored to its original contours, vegetation shall be reestablished, and impacts shall be minimal and temporary. BMPs would be implemented in accordance with the project-specific Stormwater Pollution Prevention Plan (SWPPP), which would comply with the NDDoH Construction Stormwater General Permit requirements. The grading for the BTRF will occur to allow for the siting and construction of the pressure tank. Permanent impacts to surface drainage would be minimized to the maximum extent possible. BTRF site drainage would be designed in a manner in which impacts to adjacent properties are not altered from pre-construction conditions.

Ground Water: Well data has been recorded by the State Water Commission for the Project. Well data indicate groundwater in upland areas is located more than 14 feet below the surface. Typical subsurface excavations associated with the Project will not extend to more than ten feet below the ground surface. At that depth, the Project will not intersect the groundwater table, nor will the Project alter recharge rates or the infiltration, permeability, or percolation of water into the groundwater reservoir. Additionally, construction will not affect the lateral movement and groundwater quality.

4.4.2 THE IMPACTS UPON OTHER RESOURCES

Noise-Sensitive Land Uses: The Project is located in a rural setting, effectively isolating it from the majority of sensitive receptors. Construction of the proposed Project would affect the local noise environment. The ambient sound level of a region is defined by the total noise generated within the specific environment and is usually comprised of sounds emanating from natural and artificial sources. Construction could cause temporary increases in the ambient sound environment in the areas immediately surrounding active construction. Once constructed and in-service, normal pipeline operations are not audible.

Construction of the proposed Project will be conducted during typical working hours and is expected to cause temporary increases in ambient sound within and adjacent to the Project. The use of heavy equipment or trucks will be the primary noise source during construction and excavation. The level of impact may vary by equipment type, duration of construction activity, and the distance between the noise source and the receptor.

Visual Effect on Adjacent Areas:

The proposed Project would include the installation of launchers or receivers at each of the Project terminuses as well as at a mid-way point along the Route. Additionally, the Project will include the installation of seven (7) block valves, one at each terminus and five (5) block valves located at intervals along the route. These are small

aboveground features, which would be installed within the footprint of the maintained ROW in locations approved by landowners. The visible piping and equipment are finished and maintained with a white painted surface.

One additional aboveground pressure relief tank, associated secondary containment, and facility fencing would be constructed at the existing BTRF. Other oil development is occurring in proximity to the BTRF, and as such, visual impacts associated with the addition of one tank is minimal in this landscape.

No other permanent aboveground features are proposed as a part of the Project.

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

Wetlands, Woodlands and Wooded Areas: MMC commissioned field surveys to identify and record the locations of these resources along the proposed Route. Please refer to Section 2: Studies in this document for a comprehensive discussion of the field studies results, as well as Appendices C for copies of related correspondence. Mitigation details are discussed in Section 5: Mitigative Measures of the Route Permit Application.

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

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

The design of the Project has incorporated the use of block valves at regular intervals. The purpose of the block valve is to segment the system and allow for the isolation of select portions of the system to facilitate maintenance in a safe and controlled manner. Additionally, in the event of an abnormal operating condition, block valves can be closed as necessary to prevent an uncontrolled release of NGLs. Finally, the operation of the pipeline would be monitored in accordance with DOT regulations.

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

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

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

4.5.1 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

MMC will comply with requirements contained in the Corridor Compatibility Certificate and Route Permit. MMC will conduct its activities with the objectives of providing a healthful and safe workplace for its employees, and preventing accidents and environmental incidents. All persons and firms providing service to MMC are required to conduct their work in compliance with environmental conditions, permit authorizations, and applicable regulations, and will be held accountable for their actions in that regard. MMC is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations and standards are designed to safeguard the environment, human health, wildlife and natural resources.

4.5.2 LOCATION AND DESIGN

This Project will connect two existing facilities, the DPS and the BTRF. From this location, the crude would be transported via rail to Global Partner's rail offloading terminal in Albany, New York for distribution to refineries along East Coast of the United States. Refer to Appendix B for project location maps.

The proposed pipeline would be constructed of carbon steel and will be a nominal 10-inch outside diameter pipe. The pipe installed will have a nominal wall thickness of 0.365 inches and manufactured to meet API Code 5L specification Grade X42 or X52 pipe. The maximum operating pressure (MOP) of the pipeline will be 1,480 psig.

The proposed Pipeline will meet US Department of Transportation regulations, specifically the design criteria outlined in 49 CFR 195.100, constructed per 49 CFR 195.200 operated and maintained per 49 CFR 195.400.

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

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

4.5.4 ECONOMIES OF CONSTRUCTION AND OPERATION

MMC would invest approximately $33 million in North Dakota to develop this Project, generating approximately $429,000 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are minimal. While the Global Stampede Pipeline itself will not generate any direct tariff revenues, it is estimated the gross crude oil product value produced at the Plant and transported through the Project will be in excess of $100 million annually, generating significant producer, royalty and state tax revenues in the most efficient and minimally intrusive way possible.

4.5.5 USE OF CITIZEN COORDINATING COMMITTEES

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

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

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

4.5.7 LABOR RELATIONS

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

4.5.8 THE COORDINATION OF FACILITIES

Basin Transload and Global Partners operate the rail terminal and MMC will coordinate pipeline deliveries with them on a daily basis.

4.5.9 MONITORING OF IMPACTS

MMC has operated pipeline gathering and associated facilities in the area since February of 2013. Through these operations, MMC has established and maintained positive landowner and community relationships throughout the region. MMC's operations reflect its commitment to corporate citizenship standards founded on integrity. MMC will monitor landowner concerns, if any, through its Land Department and will respond to all reasonable concerns. Similarly, MMC will monitor community concerns and will respond to all reasonable concerns brought to its attention by local community leaders.

4.5.10 UTILIZATION OF EXISTING AND PROPOSED ROW AND CORRIDORS

This Project will not be co-located with other utilities; however, the Pipeline will parallel existing utility and road corridors. Refer to Appendix B for project maps depicting the Project.

4.5.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

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

SECTION 5: MITIGATIVE MEASURES

5.1 LOCATION

The proposed Project is a new approximately 46 mile; ten inch diameter crude pipeline originating ten miles southeast of Fortuna, North Dakota at Meadowlark Midstream Company's DPS and will terminate at the BTRF approximately two miles southeast of Columbus, North Dakota. Please refer to the Project maps provided in Appendix B.

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

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

Migratory Bird Treaty Act: The commonly observed timeframe for migration of protected species in North Dakota is February 15 to July 15. Construction activities for the propose project are planned to be initiated in early 2015 and continue into late 2015. Based on the Project's schedule, construction activities may occur during the recognized migration/breeding season. MMC will develop and implement a mitigation plan which may include conducting survey for nesting birds prior to the commencement of ground disturbing activities and implementing avoidance and monitoring measures of any active nests.

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

In North Dakota, the cranes will typically pass through the state during the spring migration occurring March through early May. Construction activities for the proposed Project are scheduled to begin in early 2015, which should largely mitigate impacts to this species. Additionally, to mitigate any adverse effects on migratory cranes, MMC will suspend heavy equipment operations when whooping crane(s) are found within 0.5 mile (line of sight) of the construction corridor. Suspended activities would resume

in the absence of whooping cranes. Please see Appendix C for MMC Project notification to the USFWS.

Piping Plover: The piping plover is federally listed as a threatened species and is present in North Dakota along the shorelines of alkaline lakes, large reservoir beaches, river islands and alkai wetlands. Field surveys identified piping plovers and nesting behavior near wetlands. The piping plover nesting season is from early May to the end of August. Project construction is planned to commence in early 2015, and this schedule would mitigate impacts to the plover during its typical nesting season. If plovers are encountered MMC would suspend heavy equipment operations and cordon off a 100-foot avoidance zone. Construction activities would not commence in this area until appropriate agency coordination has occurred. Please see Appendix C for MMC project notification to the USFWS and Appendix D for the Natural Resource Report.

Bald and Golden Eagle: Field surveys conducted in April of 2014 confirmed the absence of nests or nesting activities where habitat was suitable along the Route. If bald or golden eagles are observed within 0.5 mile (line of sight) of the Project, MMC would suspend heavy equipment operations until the eagles have left the area. MMC would work with the USFWS as necessary if an eagle nest is identified within 0.5 mile of the proposed Route.

Cultural Resources: On August 29, 2014, MMC received concurrence of *No Significant Sites Affected* for the Project from the SHPO, provided there are no changes to the nature or location of the proposed Project. On November 4, 2014, MMC received an additional concurrence of *No Significant Sites Affected* for the Project from the SHPO regarding the Addendum Cultural Resource Report. Resources identified during field surveys are summarized below. Refer to Appendix C for a complete record of this correspondence.

32BK68: This site is a newly recorded segment of the previously recorded 32BK68. 32BK68 is a segment of the Great Northern Railroad, which is owned and operated by Burlington Northern Santa Fe (BNSF). Segments of 32BK68 were recorded in 2003, 2011, 2012. In 2001, this site was recommended eligible for listing on the NRHP. Therefore, MMC would horizontal directional drill beneath the site to avoid impacts.

Noxious Weeds: Field surveys identified approximately 6.54 acres of leafy spurge within the survey corridor. MMC will advise contractors of these locations. Equipment leaving infested areas would be inspected visually prior to leaving the area, vegetation and soils shall be cleaned from vehicles and equipment. The vehicles and equipment shall be cleaned (e.g.; power washed) to remove remaining soils and vegetation prior to entering uninfected tracts.

5.2 CONSTRUCTION

The proposed construction of the Pipeline would be conducted in an orderly sequence designed to complete the Project in the minimum amount of time required

to safely prepare the site, install the pipeline and restore the areas disturbed by construction.

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

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

5.3 OPERATION

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

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

6.1 PIPELINE CONSTRUCTION

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

At any location in the Project area, construction activities would require approximately four to six months to complete from start to finish, except when weather-related delays affect the schedule. However, construction activity at any location would not continual but occurs in distinct phases with several days or weeks between each phase. For example, clearing and grading may require 10 hours to progress for one mile along the pipeline ROW, but trenching may not follow in the area for several weeks. During the interim, activity in the area may be completely lacking or limited to occasional vehicular or pedestrian traffic.

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

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

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

Where steep slopes or side slopes are encountered, the construction contractor may re-grade the slope, or in areas of side slopes, two-tone the area to create level working surface. At these locations, excess spoil would be pushed to the side of the

construction ROW, distributed over the working area and travel lane, or stored in alternative temporary workspace (ATWS.) This material would be returned to the original location and preconstruction contours reestablished during restoration.

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

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

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

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

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

After the pipe sections are bent, the joints would be welded together into sections and placed on temporary supports. Welding would comply with requirements listed in Title 49 CFR Part 195 and API Standard 1104 *Welding of Pipelines and Related Facilities*. Each weld would be tested by using radiographic non-destructive examination to ensure no defective welds were present and MMC engineering standards were met.

Welds that do not meet standards and specifications would be removed and/or repaired.

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

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

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

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

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

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

Final Tie-in and Commissioning: Following successful pressure testing, test manifolds would be removed and the final pipeline tie-ins would be made. After final tie-ins were complete, the tie-in welds were inspected and the line was sufficiently dried, the pipeline would be commissioned. Commissioning involves activities to verify equipment is properly installed and working, the controls and communications systems are functional, and the pipeline is ready for service. The pipeline would be

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

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

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

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

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

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

The horizontal directional drilling bore method involves setting a horizontal drill rig at one or both ends of the bore area. If the drill rig was located on or near the stream bank, erosion countermeasures would be installed to minimize bank disturbance and prevent further erosion during the drilling operation. The drill bores underneath the waterbody followed by a casing pipe, which provides drilling fluid to dissipate heat and remove soil spoils. The main pipe, known as the string pipe, would be installed inside the casing pipe once the bore has been completed. The string pipe would then be connected to the main pipeline.

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

MMC is proposing to cross flowing waterbodies using methods, which would minimize the length of time necessary to install the pipes and restore the stream bank, as well

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

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

Wetland Restoration: Following pipeline installation, the trench would be backfilled with the material excavated and, to the maximum extent possible, restored to pre-construction contours. Replacing the wetland soil and restoring pre-construction hydrology would promote the rapid re-establishment of hydrophytic vegetation.

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

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

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

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

Agricultural Land Restoration: Extensive portions of the Project would involve heavy construction through agricultural areas. These areas consist of active croplands predominately used to grow durum, hard red spring wheat, red winter wheat, barley, sunflowers and canola. Additionally, agricultural lands are used as range or pasture land used for livestock production. MMC would utilize the following general construction methods in agricultural areas, consistent with the requirements of landowners:

- Prior to construction, landowners would be contacted and irrigation facilities, and wells, waterlines and other and livestock watering systems would be located.
- Water flow would be maintained in supply systems unless shutoff was coordinated with the affected parties.
- Existing fences would be cut and braced along the ROW, and temporary gates and fences, if necessary, would be installed to control livestock and limit public access.
- On all active agricultural lands, which include fallow or rotated cropland, hayfields, improved pastures and rangeland, MMC would remove the topsoil removal and segregate the soil from subsoil.
- MMC would decompact the travel lane on the ROW if requested by the landowner.
- On all actively cultivated lands free of shallow bedrock, the trench would be excavated to sufficient depth to allow a minimum of four feet of soil cover between the top of the pipe and the final land surface after backfilling.
- Restoration and revegetation practices (i.e., seeding) would comply with the requirements outlined in the landowner line list.
- MMC would not plant an annual cover crop on actively cultivated land unless requested by the landowner.

- Weed-free mulch would be used on steep slopes to control erosion unless the landowner requests mulch not be applied. Mulch would be crimped into the soil.
- Earthen diversion berms would be constructed to reduce runoff on steep slopes only when the landowner approves.
- No erosion control fabric would be used in rangeland without having landowner approval.
- Fences and gates would be replaced in accordance with landowner agreements.
- Private roads would be restored to equal pre-construction condition.
- MMC would respond promptly to landowner concerns following construction to mitigate areas of subsidence and erosion problems should they occur.
- MMC would require the contractor to clean thoroughly the equipment and materials (e.g., timber mates, bridges, etc.) at the contractor yard prior to mobilization to the ROW to prevent spread of nuisance weeds.

6.2 BASIN TRANSLOAD RAIL FACILITY EXPANSION

No construction-related activities would take place outside the footprint of MMC's properties at the existing BTRF. As such, no surveying, staking or clearing would be necessary. The construction activities would include grading, tie-in and commissioning, and clean/final restoration activities.

Grading: The storage tank site would be graded, where necessary, providing a reasonably level work surface. Where steep slopes or side slopes are encountered, the construction contractor may grade the slope to reduce the grade, or in areas of side slopes, two-tone the area to create level working surface.

Concurrent with grading, erosion and sediment control devices would be installed as required by state stormwater permit conditions. Erosion and sediment control devices, which may include silt fences, straw wattles, straw bales and road access pads, would be installed where necessary to prevent soil and sediment from leaving the construction work area.

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

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

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

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

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

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

The refinement of the Route includes adjustments made per landowner request. MMC, at all times, negotiates in good faith and necessary easement conditions and restrictions are presented and discussed. All fee land easements for the proposed Route have been acquired at this time for the portion of the route located in North Dakota.

7.2 COMPENSATION POLICY

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

SECTION 8: LIST OF PREPARERS

John Millar

Vice President-Liquids Group
Summit Midstream

Mr. Millar is Vice President, Liquids Group for Summit Midstream and is responsible for developing liquid pipeline commercial opportunities and for managing Summit's liquid pipeline assets. Prior to joining Summit Midstream, Mr. Millar was Vice President and General Manager of Genesis Energy, L.P.'s pipeline, terminal, and trucking businesses, responsible for improving safety, operating efficiency, and service quality and for developing growth projects involving liquid pipeline facilities, marine terminals, rail facilities, and truck stations. Prior to joining Genesis, Mr. Millar held numerous positions in engineering, project management, field operations, control center operations, joint ventures, and business development for Chevron Pipe Line Company, EOTT Energy, Unocal Corporation, and Enbridge Energy Partners. Mr. Millar has over 28 years of experience in nearly all aspects of the oil pipeline industry and holds BS and MS degrees in Civil Engineering from the University of California and an MBA from the University of Houston. Mr. Millar is a licensed Civil Engineer in the State of California.

William McCarthy, C.W.B.

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

M.S. Wildlife Biology, University of Minnesota – Twin Cities; and B.S. Wildlife Biology, Michigan State University. Mr. McCarthy is an environmental compliance analyst with 15 years of environmental consulting experience working with various energy assets and regulatory agencies. As a compliance analyst, he has managed the environmental requirements for facility siting, pipeline routing, federal licensing and various federal, state and local permits. Mr. McCarthy is a certified wildlife biologist, in this role conducts, and coordinates field studies, agency consolations, mitigation and avoidance plans.

Katie Schmidt, EIT

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

B.S. Civil Engineering with an emphasis in Environmental Engineering-Iowa State University. Ms. Schmidt is a Senior Environmental Consultant with 8 years of experience working with various energy assets and regulatory agencies. As a consultant, she has managed multiple pipeline projects supporting clients through the construction permitting and siting processes, which included coordination with various federal, state and local agencies.

Chris Schmidt, GIT

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

B.S. in Environmental Geology and Geologist-In-Training Certification for Minnesota. Mr. Schmidt has over 3 years of environmental consulting experience. Mr. Schmidt has pursued a career focused on regulatory compliance and supports energy clients by providing regulatory review and permitting services. Mr. Schmidt's experience includes work supporting pipeline systems of natural gas, natural gas liquids, and petroleum throughout multiple states.

Dan Woodward, RPA

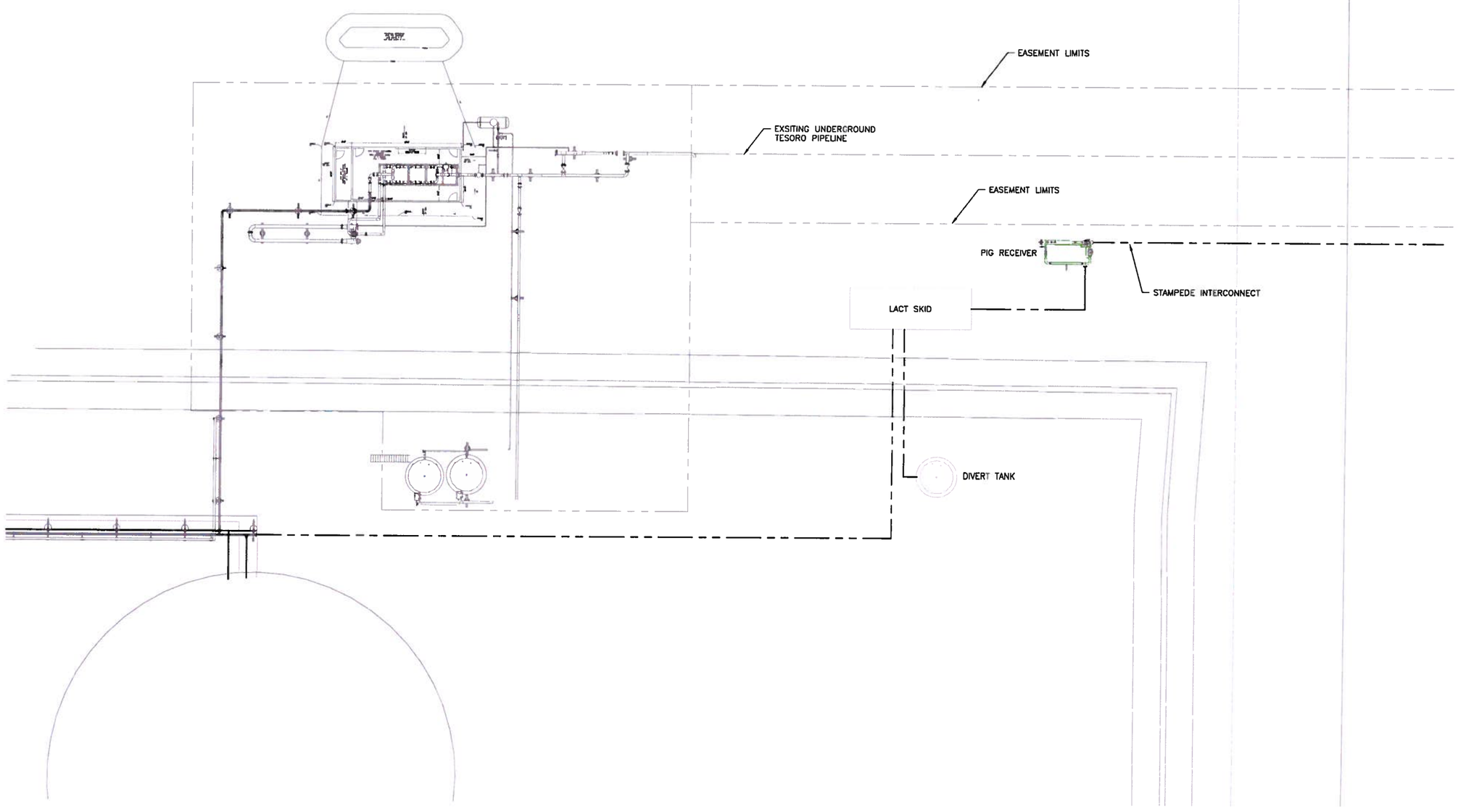
Senior Archaeologist
E3 Environmental, LLC, 871 Jefferson Ave St Paul, MN 55102

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

Appendix A

Engineering Documents

PLANT NORTH



GRAPHIC SCALE
30 0 30 40
(IN FEET)
1 inch = 20 ft.

Harris Group Inc.
ENERGY 61448

NOTES:

REV	DESCRIPTION	DATE	BY	APPROVED
A	ISSUED FOR REVIEW	07/24/14	JJB	

DRAWING REVISION

DRAWING NUMBER | DESCRIPTION
REFERENCE DRAWINGS

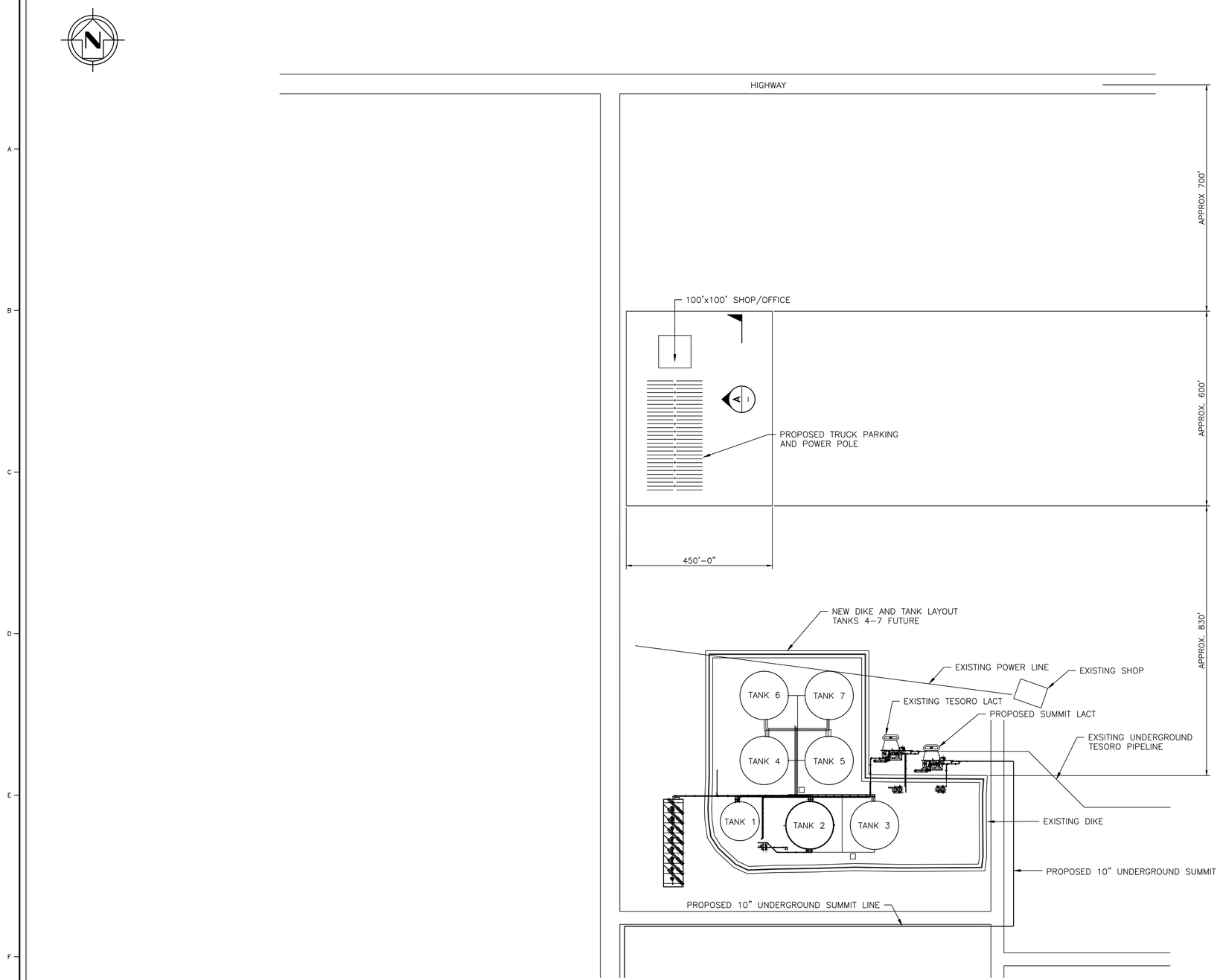
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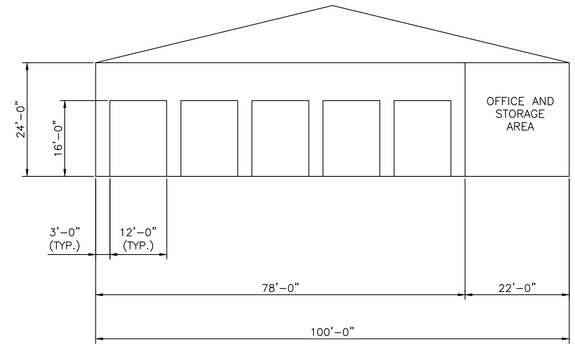
SUMMIT MIDSTREAM

DRAWN BY JJB	DATE 07/23/14
CHECKED BY	DATE
ENGINEERED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE

STAMPEDE OIL TERMINAL
PIPING
GENERAL ARRANGEMENT

CAD FILE	SCALE	DRAWING NUMBER	REV
SK-100.DWG	1"=20'-0"	SK100	0





A – SHOP/OFFICE BUILDING LOOKING EAST

1/16"=1'-0"

DWG. NO.	REFERENCE DRAWINGS	REV	DESCRIPTION	DATE	DESIGNER	CHECKED	ENGINEER	PROJ MGR
		P-A	PROGRESS PRINT	5-7-14	TAB			GSK

PROGRESS PRINT

Progress Print is intended for general concept and reference only, all dimensions and annotation shown are for reference only. This drawing has not been checked.

KESTREL ENGINEERING GROUP

DWG CREATED: 03/26/14	BY: TAB
PROJECT NO: 13-350	SCALE: AS NOTED

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PROJECT:

BASIN TRANSLOAD

STAMPEDE, NORTH DAKOTA

DWG NAME:

STAMPEDE TRANSLOAD FACILITY
GENERAL ARRANGEMENT
TANK AND PIPING ARRANGEMENT

DRAWING NUMBER	SHEET COUNT	REVISION
13350-G-100	– OF –	P-A

Appendix B

Project Maps

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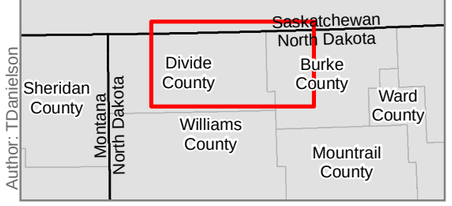
Author: TDanielson

Divide Pump Station
Pig Launcher and Meter Skid

Basin Transload Rail Facility
Pig Receiver and Custody Transfer Meter

Ambrose
Crosby
Noonan
Columbus
Larson

1
5
10
15
20
25
30
35
40
45



Milepost
Block Valve
Pipeline
Corridor (1 Mile)
Federal Land
State Land

N

0 2.25 4.5 9 Miles

1:200,000

Map not to scale, for environmental review purposes only.

E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Topo Overview Map

Divide and Burke Counties, ND

Divide Pump Station
Pig Launcher and Meter Skid

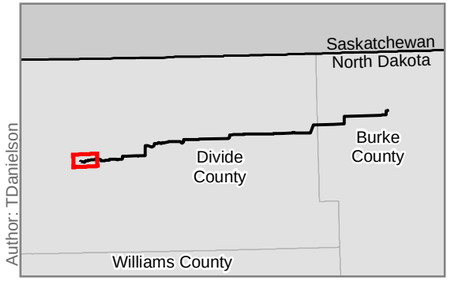
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AWV15
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AWET46
AWET45
AWET46
AWET44

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1
2

Document Path: P:\Summit\GlobalStampede_2014\MXDs\GlobalStampede_11x17_NaturalResource_Aerial.mxd

Date: 11/3/2014

Author: TDanielson



Milepost
Block Valve
Centerline
Survey Corridor
Corridor (1 mile)

Survey Data
Nest
Stream
Noxious Weed
Waterbody
Woody Vegetation
Wetland

Criteria Data
Occupied Structure
Occupied Structure w/in 500ft of Alignment
NDWC Well

E3 Environmental
Enhancing Execution with Experience

N

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Natural Resource - Aerial Map

Page 1 of 16

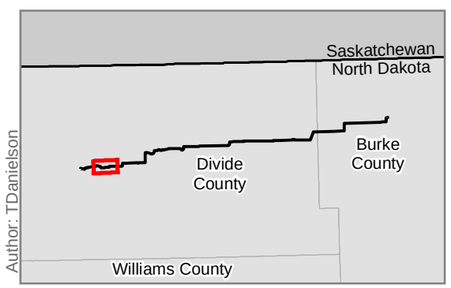
Burke and Divide Counties, North Dakota



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Date: 11/3/2014

Author: TDanielson



- Milepost
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E3 Environmental — Enhancing Execution with Experience

N

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

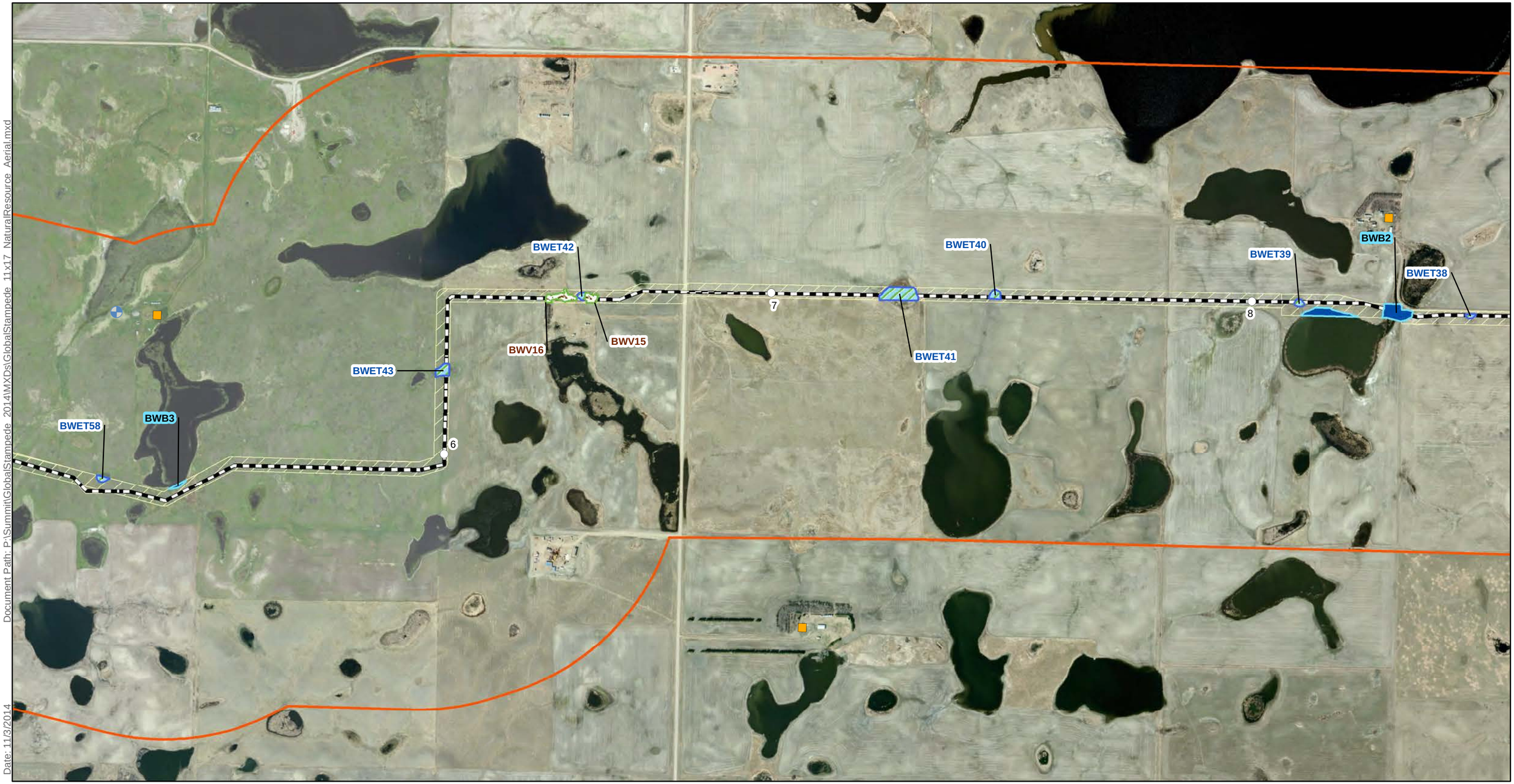
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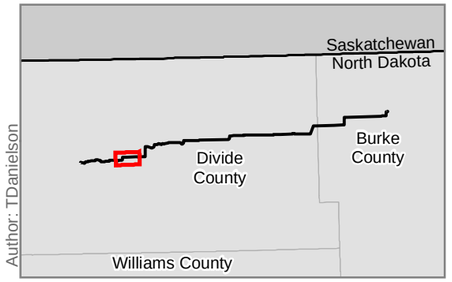
Burke and Divide Counties, North Dakota

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Date: 11/3/2014

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E3 Environmental — Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

Page 3 of 16

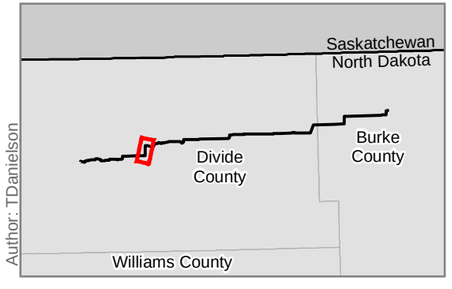
Burke and Divide Counties, North Dakota



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Date: 11/3/2014

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E3 Environmental — Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

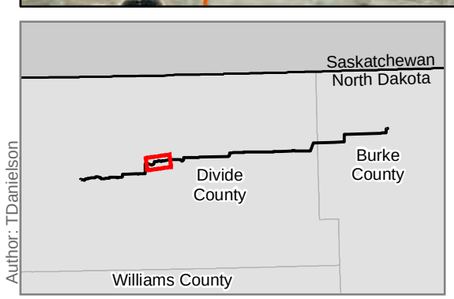
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Burke and Divide Counties, North Dakota

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

Page 5 of 16

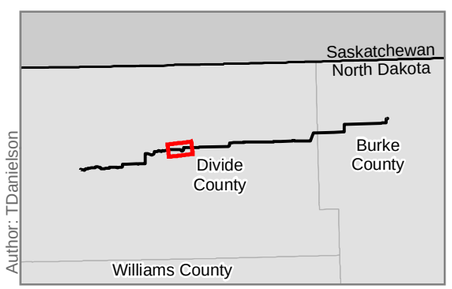
Burke and Divide Counties, North Dakota



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E3 Environmental
Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

Page 6 of 16

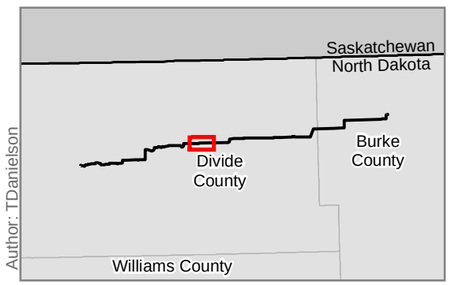
Burke and Divide Counties, North Dakota



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E3 Environmental — Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

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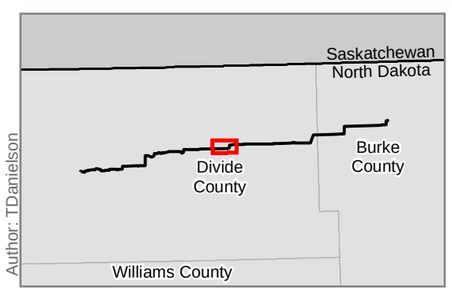
Natural Resource - Aerial Map

Page 7 of 16

Burke and Divide Counties, North Dakota

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E3 Environmental — Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

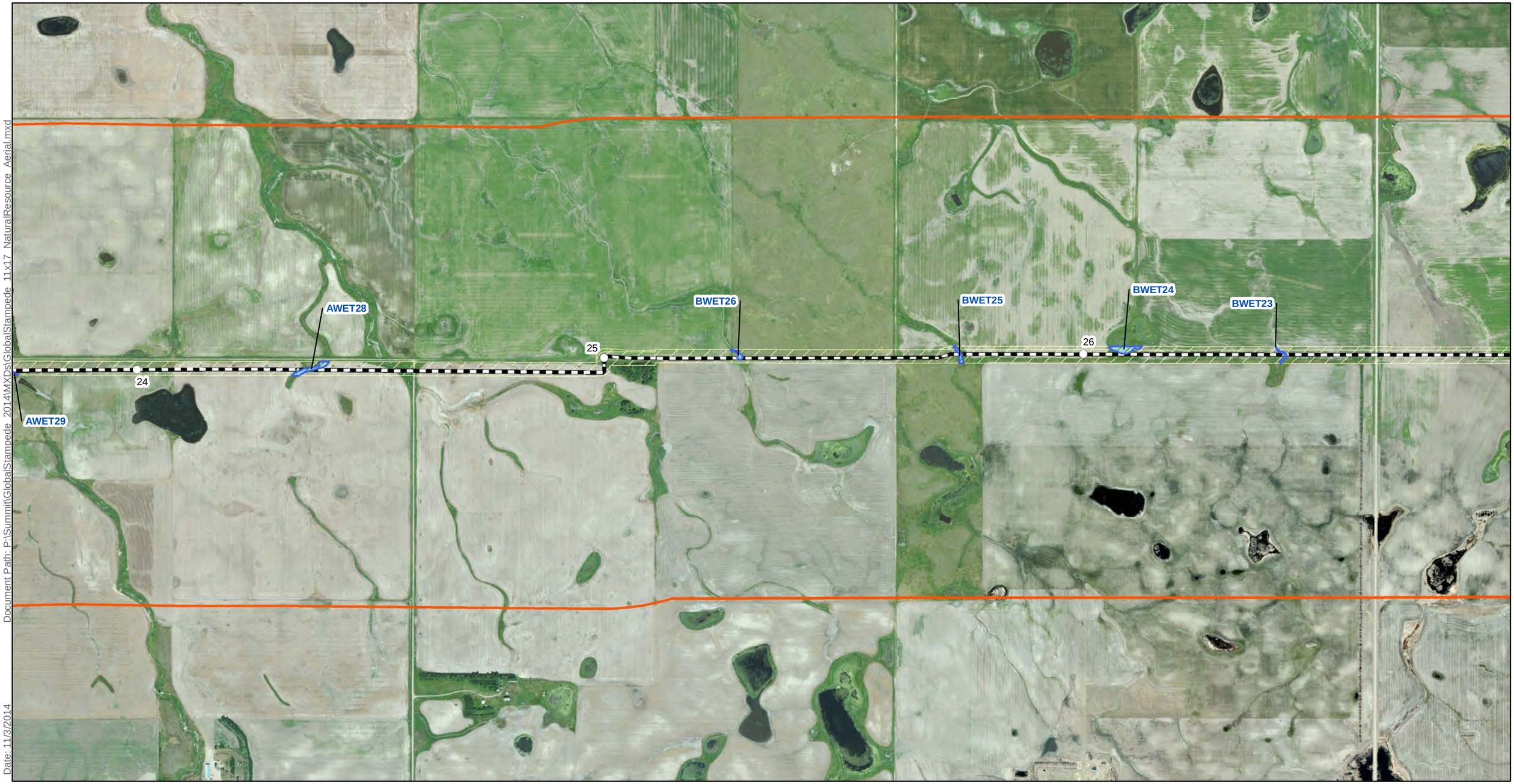
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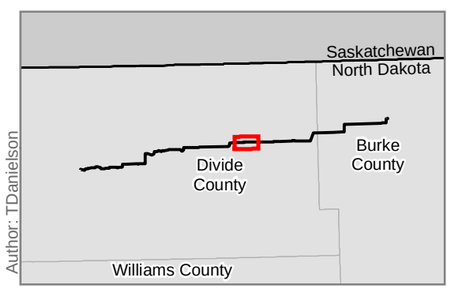
Natural Resource - Aerial Map

Page 8 of 16

Burke and Divide Counties, North Dakota



Author: TDanielson
Date: 11/3/2014
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E3 Environmental — Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

Burke and Divide Counties, North Dakota

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Date: 11/3/2014

Author: TDanielson

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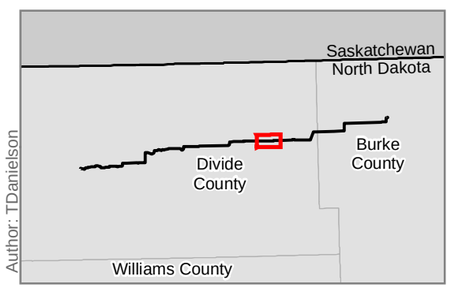
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AWET25

AWET25

AWV12

AWV11



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E3 Environmental
Enhancing Execution with Experience

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Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

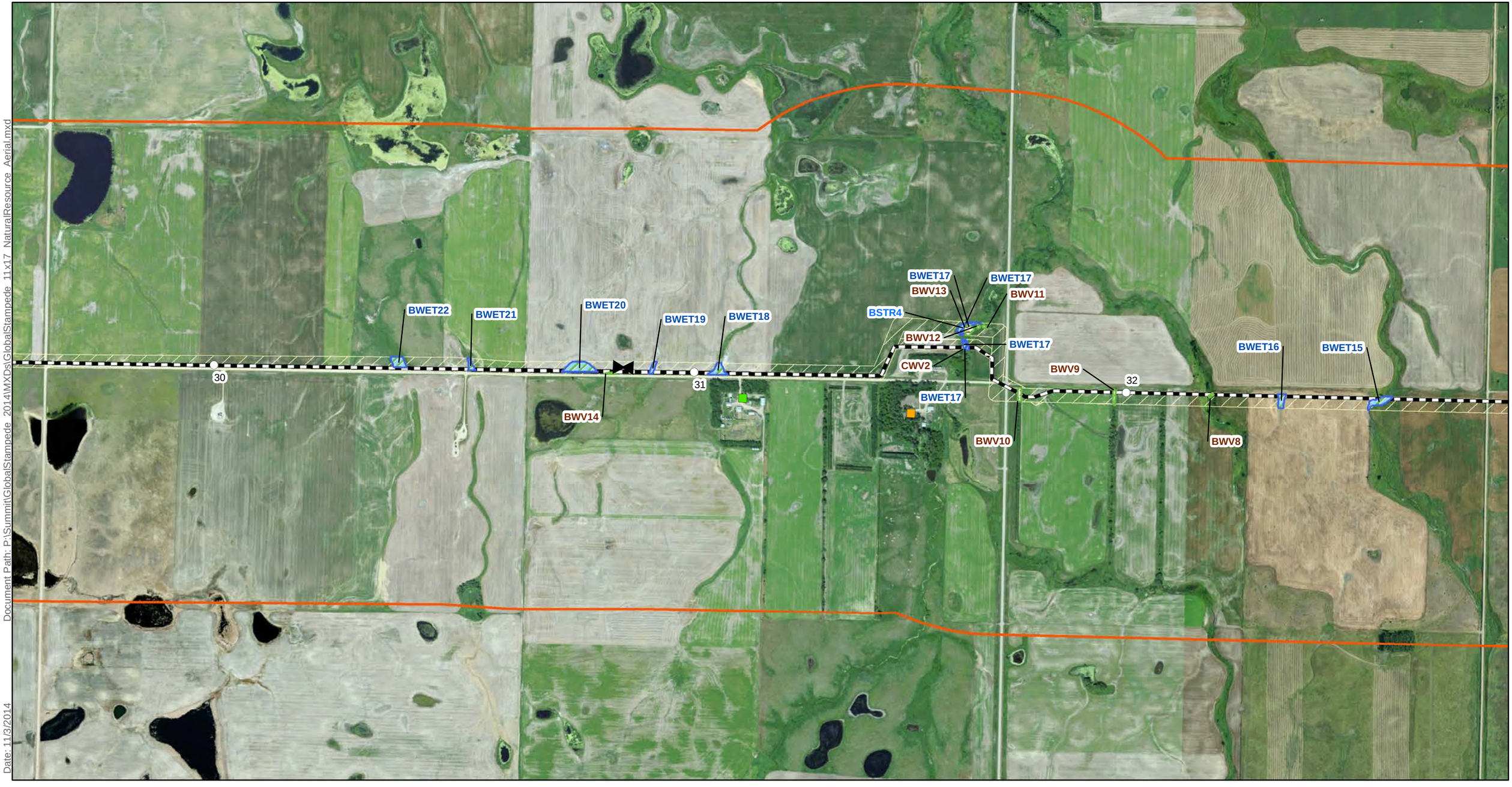
Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

Page 10 of 16

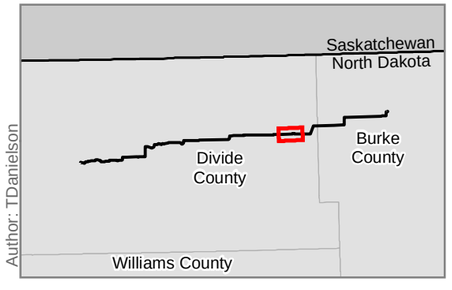
Burke and Divide Counties, North Dakota



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Date: 11/3/2014

Author: TDanielson



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E3 Environmental — Enhancing Execution with Experience

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1:12,000

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

Page 11 of 16

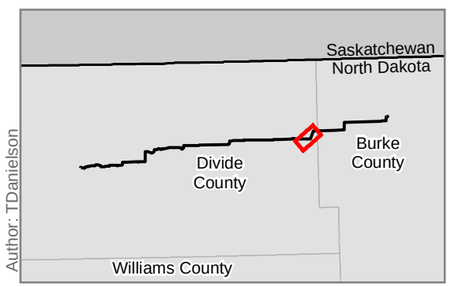
Burke and Divide Counties, North Dakota



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E3 Environmental
Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

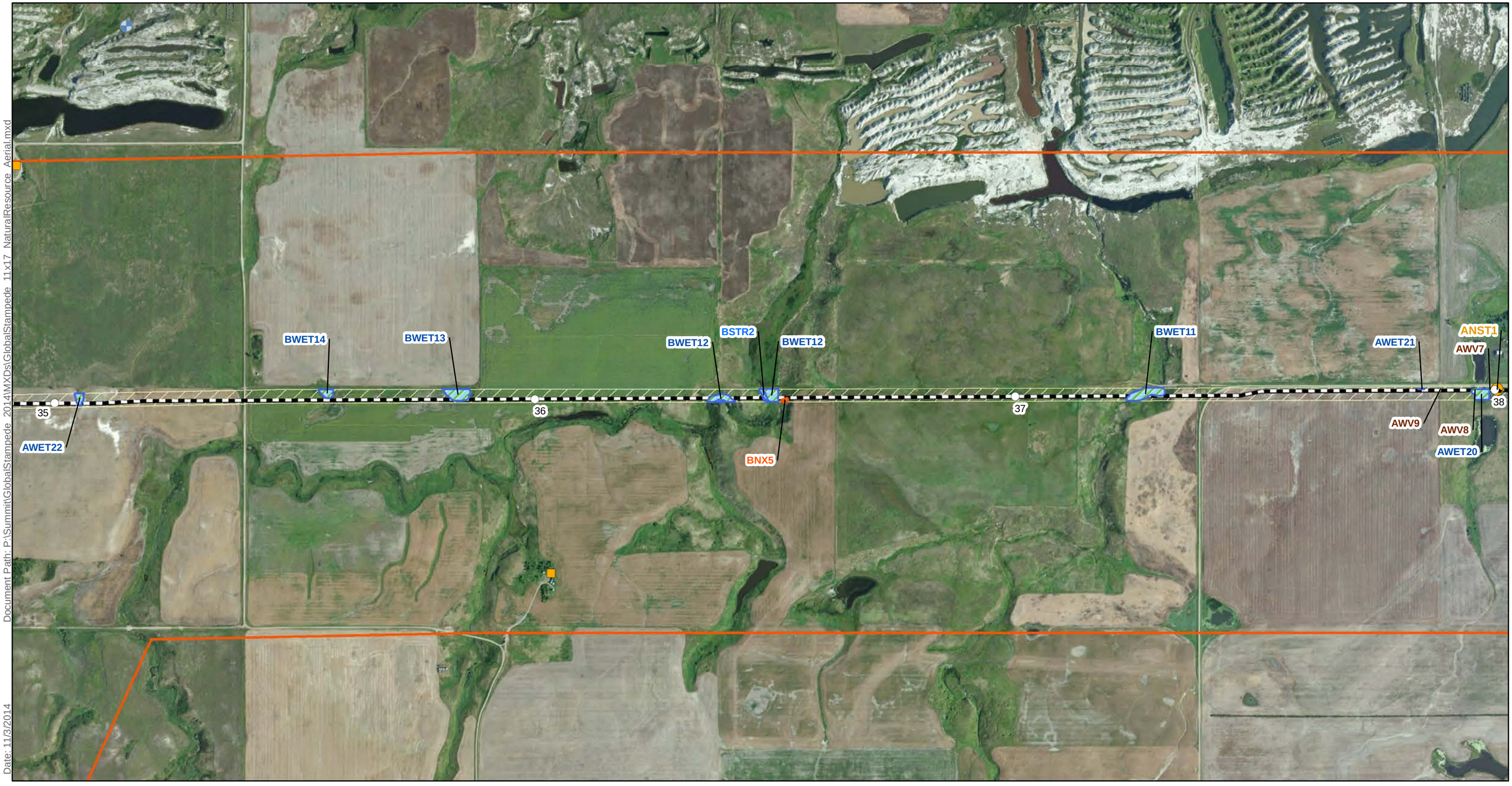
Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

Page 12 of 16

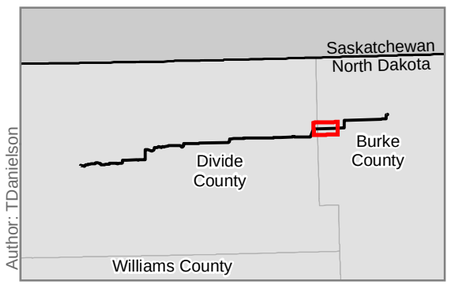
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Enhancing Execution with Experience

N

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Aerial Map

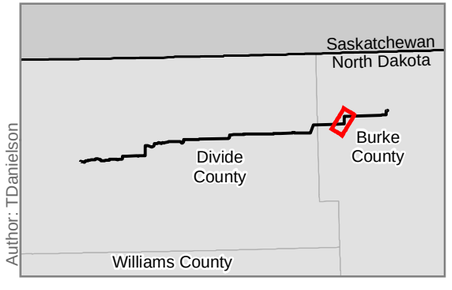
Page 13 of 16

Burke and Divide Counties, North Dakota

Document Path: P:\Summit\GlobalStampede\2014MXDs\GlobalStampede_11x17_NaturalResource_Aerial.mxd

Date: 11/3/2014

Author: TDanielson



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

Survey Data

- Nest
- Stream
- Noxious Weed
- Waterbody
- Woody Vegetation
- Wetland

Criteria Data

- Occupied Structure
- Occupied Structure w/in 500ft of Alignment
- NDWC Well

E3 Environmental — Enhancing Execution with Experience

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

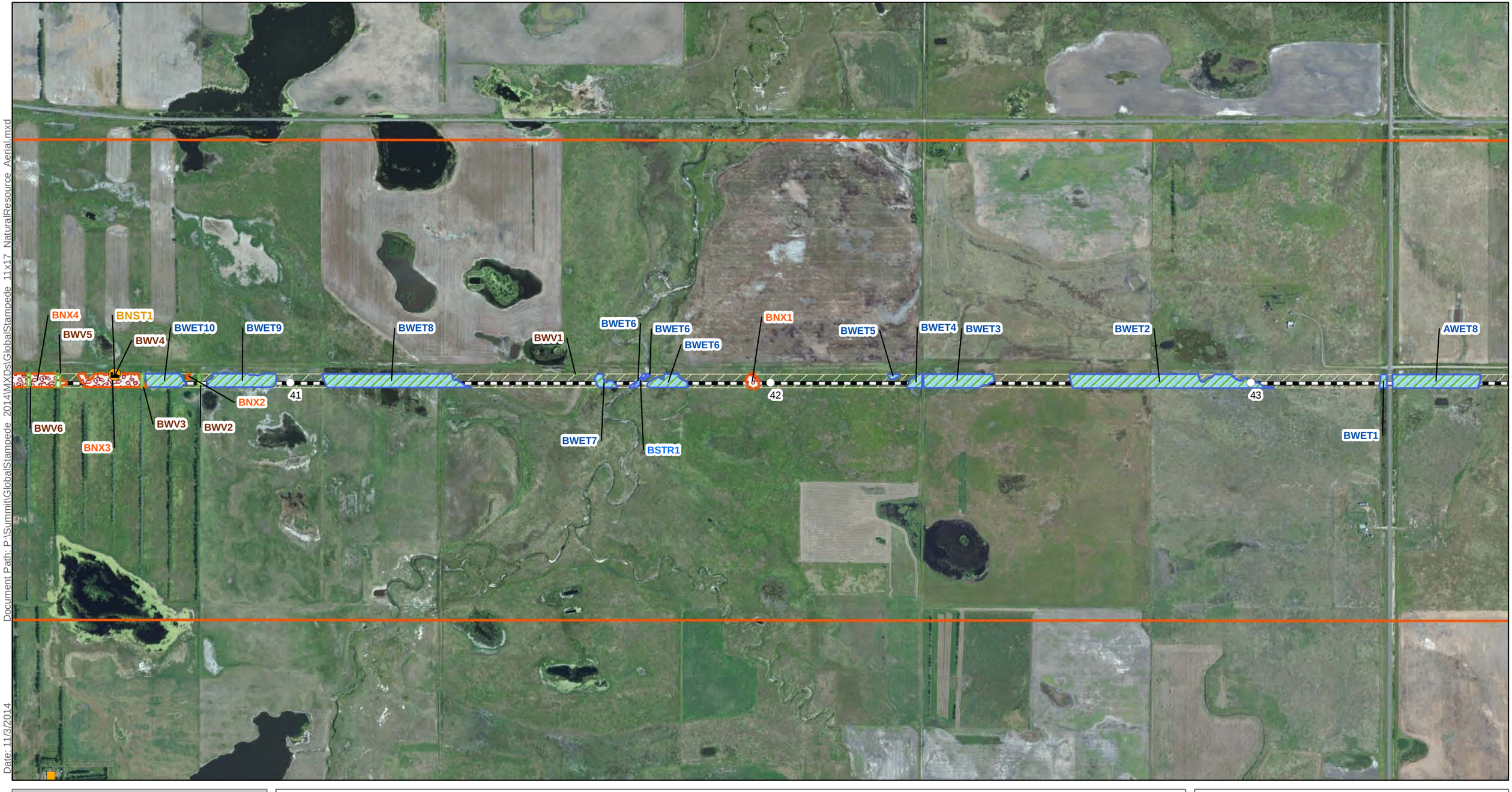
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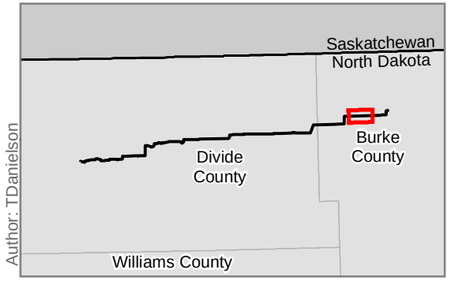
Natural Resource - Aerial Map

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Burke and Divide Counties, North Dakota

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Survey Data

- Nest
- Stream
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- Waterbody
- Woody Vegetation
- Wetland

Criteria Data

- Occupied Structure
- Occupied Structure w/in 500ft of Alignment
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E3 Environmental — Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

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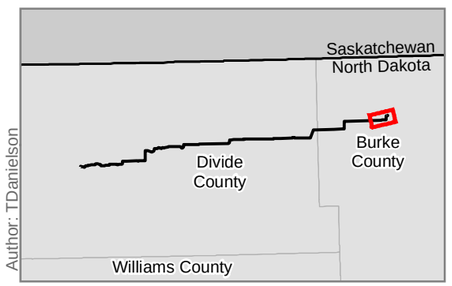
Page 15 of 16

Burke and Divide Counties, North Dakota

Basin Transload Rail Facility
Pig Receiver and Custody Transfer Meter

AWET8
AWET7
ANX1
44
AWET6
CWV1
AWV3
AWET3
45
AWV1
AWV2
AWET5
AWET4
AWET2
AWET1
BWET48
BWET47
46
BWET46
BWET46
BWET46

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Milepost
Block Valve
Centerline
Survey Corridor
Corridor (1 mile)

Survey Data
Nest
Stream
Noxious Weed
Waterbody
Woody Vegetation
Wetland

Criteria Data
Occupied Structure
Occupied Structure w/in 500ft of Alignment
NDWC Well

E3 Environmental
Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Natural Resource - Aerial Map

Burke and Divide Counties, North Dakota

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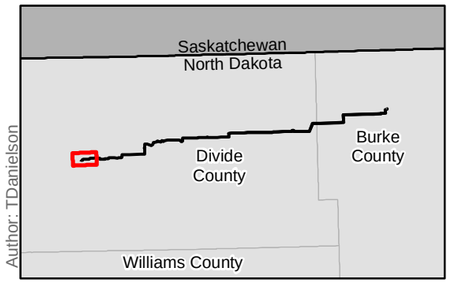
Date: 11/3/2014

Author: TDanielson

ND Surface Trust Land

Divide Pump Station
Pig Launcher and Meter Skid

Storage Bin



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

Criteria Data

- Federal Land
- State Land
- PLOTS Land
- North Dakota Mineral Trust Lands
- NHD Waterway
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- Abandoned Mines
- USFWS Wetland Basin

E3 Environmental
Enhancing Execution with Experience

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Global Stampede Pipeline Project

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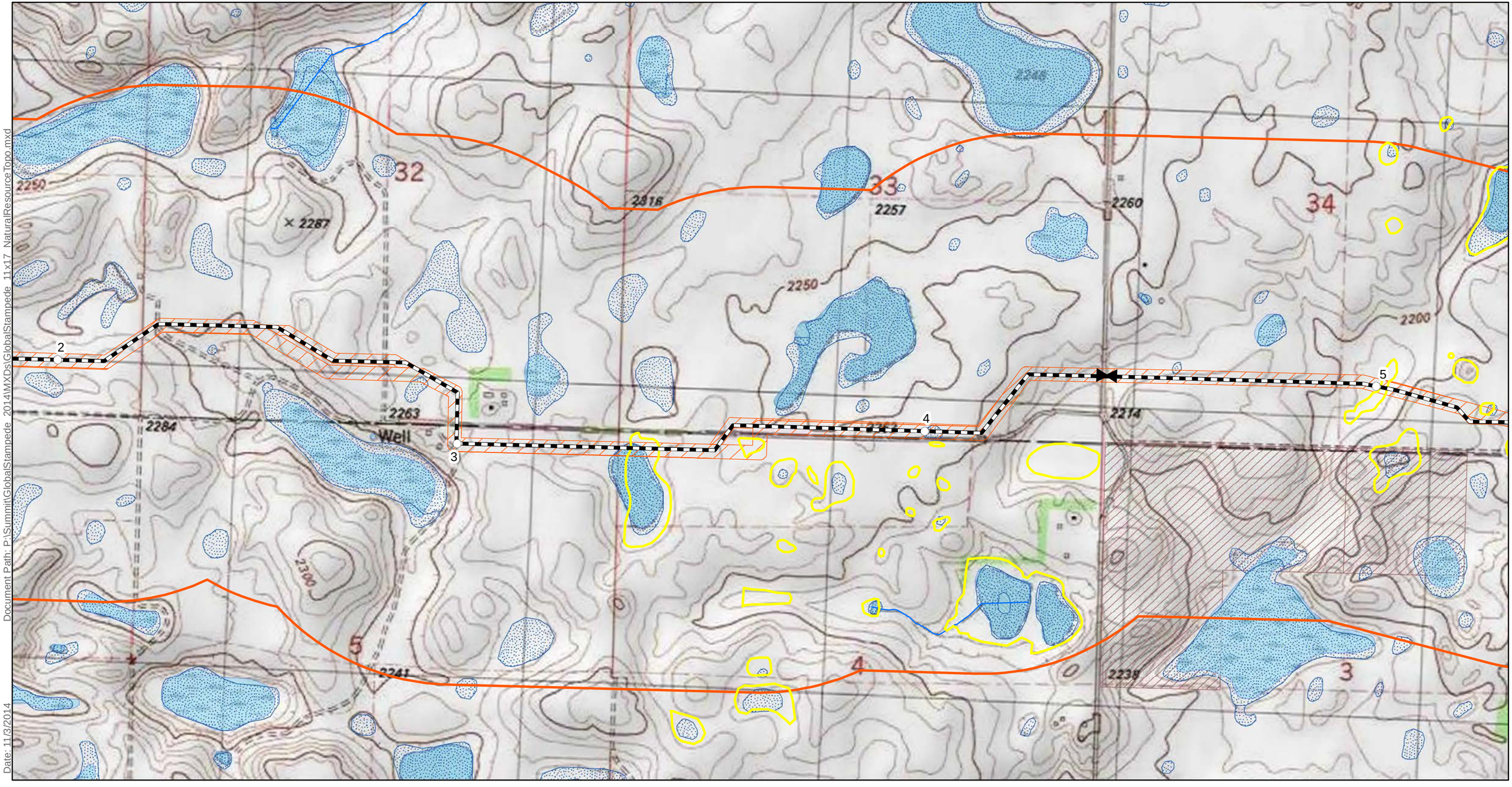
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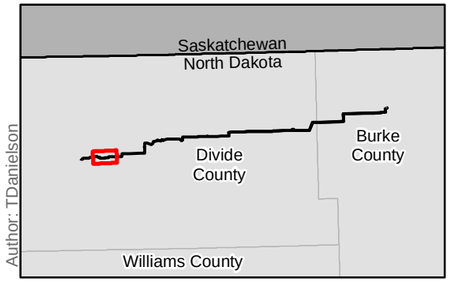
Burke and Divide Counties, North Dakota

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Topo Map

Page 2 of 16

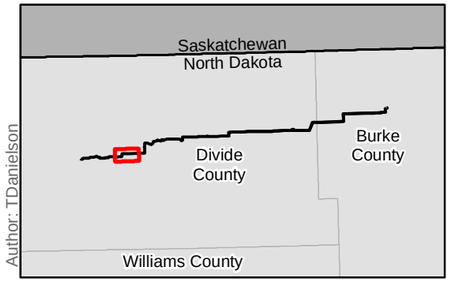
Burke and Divide Counties, North Dakota

Divide County
Waterfowl
Production Area

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Criteria Data

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E3 Environmental
Enhancing Execution with Experience

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0 500 1,000 2,000 Feet

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Topo Map

Page 3 of 16

Burke and Divide Counties, North Dakota

Divide County Waterfowl Production Area

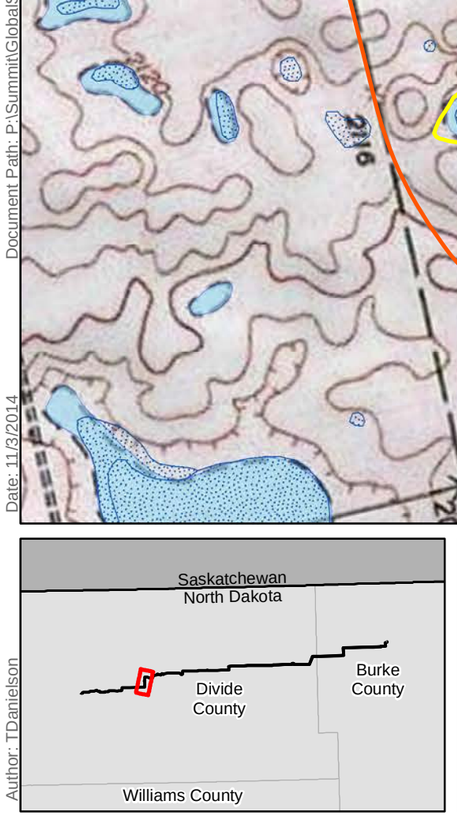
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10

11

Troy Ch

BM 2113



Criteria Data

- Milepost
- Block Valve
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- Survey Corridor
- Corridor (1 mile)
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E3 Environmental — Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Topo Map

Page 4 of 16

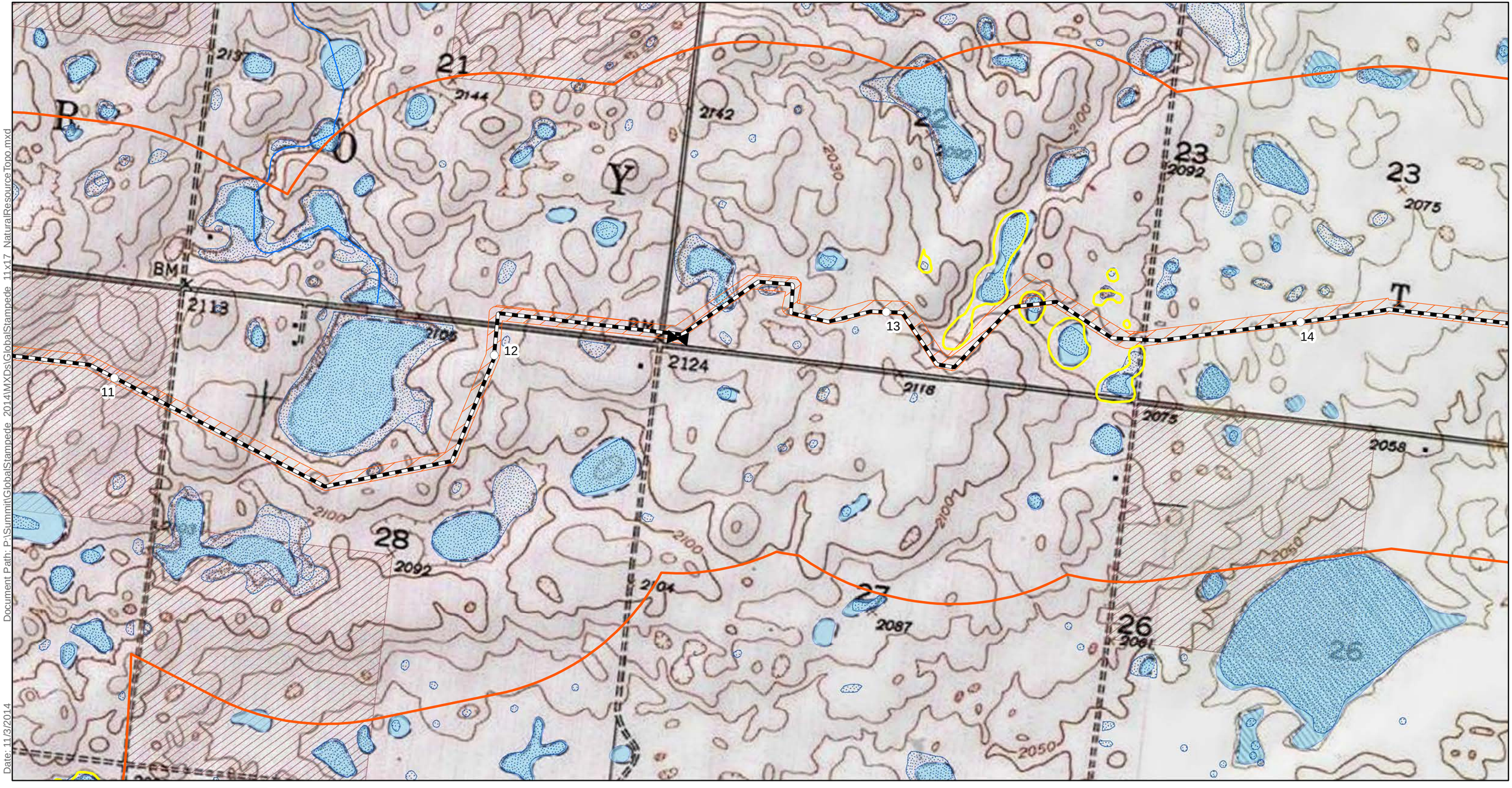
Burke and Divide Counties, North Dakota

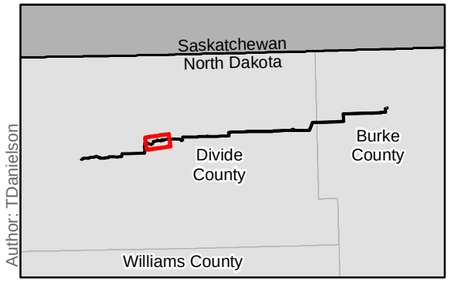
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Milepost
Block Valve
Centerline
Survey Corridor
Corridor (1 mile)

Criteria Data

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E3 Environmental
Enhancing Execution with Experience

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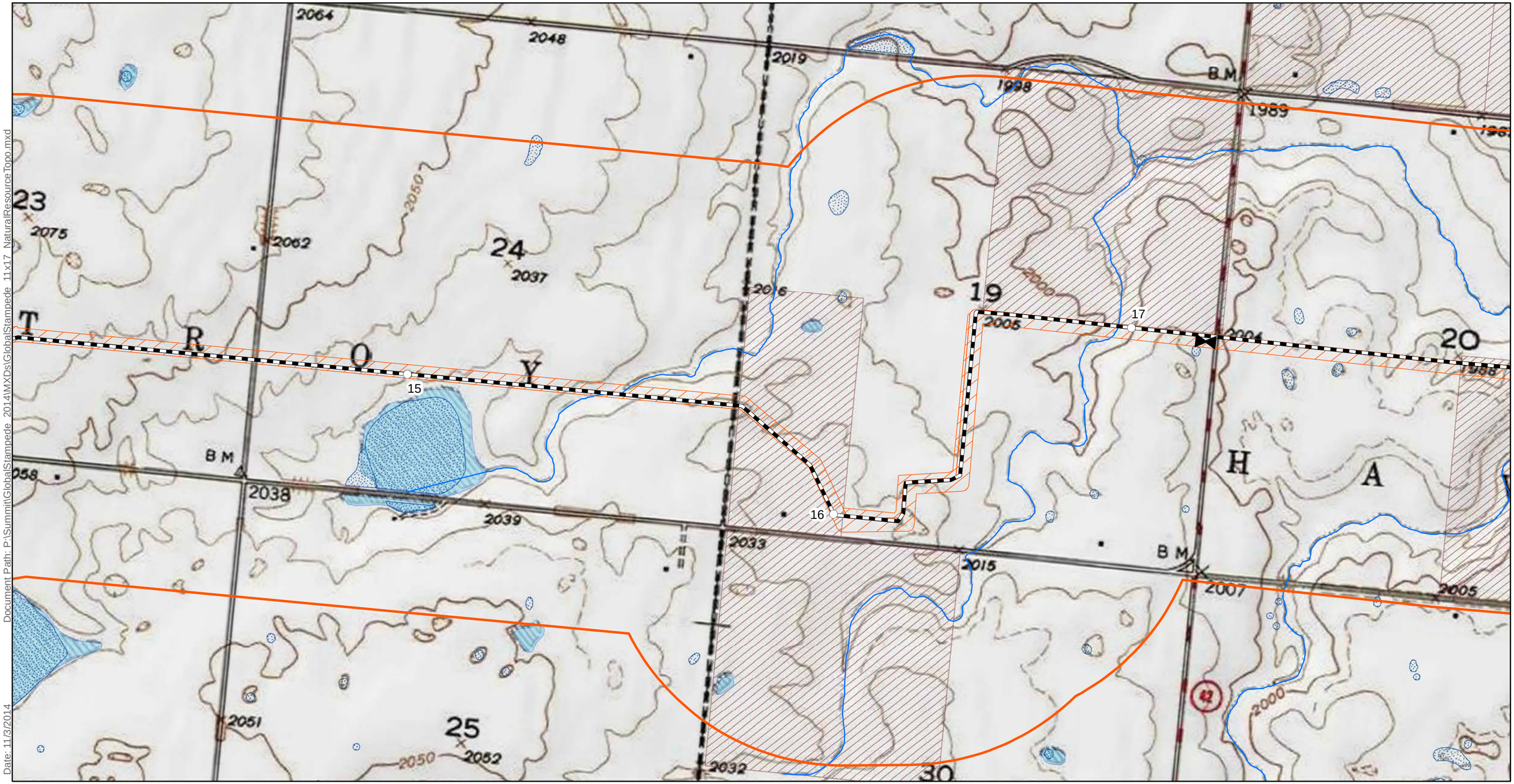
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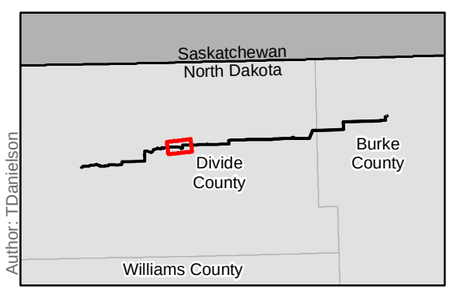
Global Stampede Pipeline Project

Siting Criteria
Natural Resource - Topo Map

Burke and Divide Counties, North Dakota

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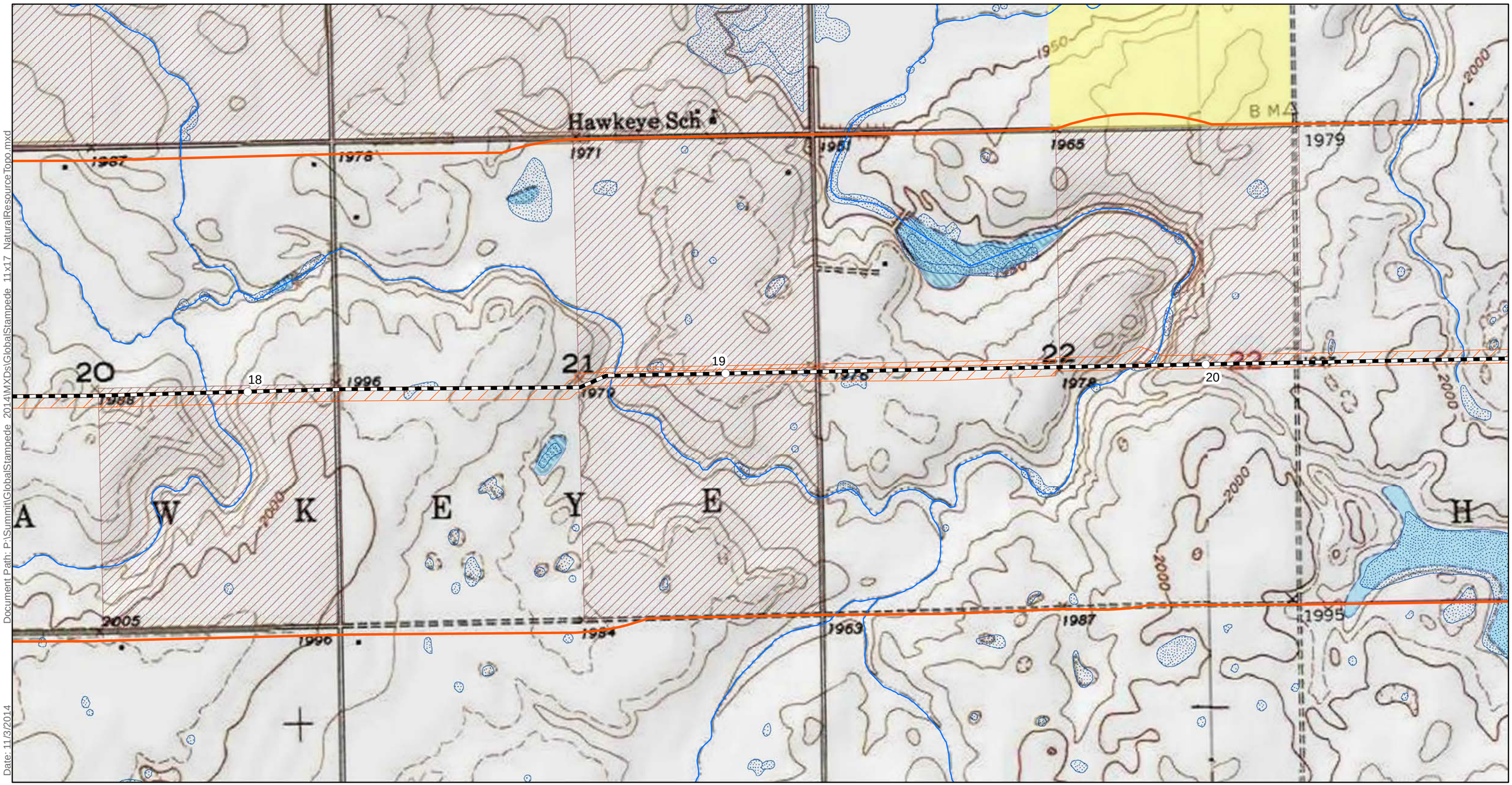
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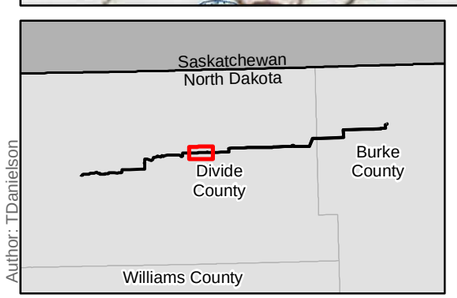
Burke and Divide Counties, North Dakota

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Milepost
Block Valve
Centerline
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Corridor (1 mile)

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Federal Land
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E3 Environmental
Enhancing Execution with Experience

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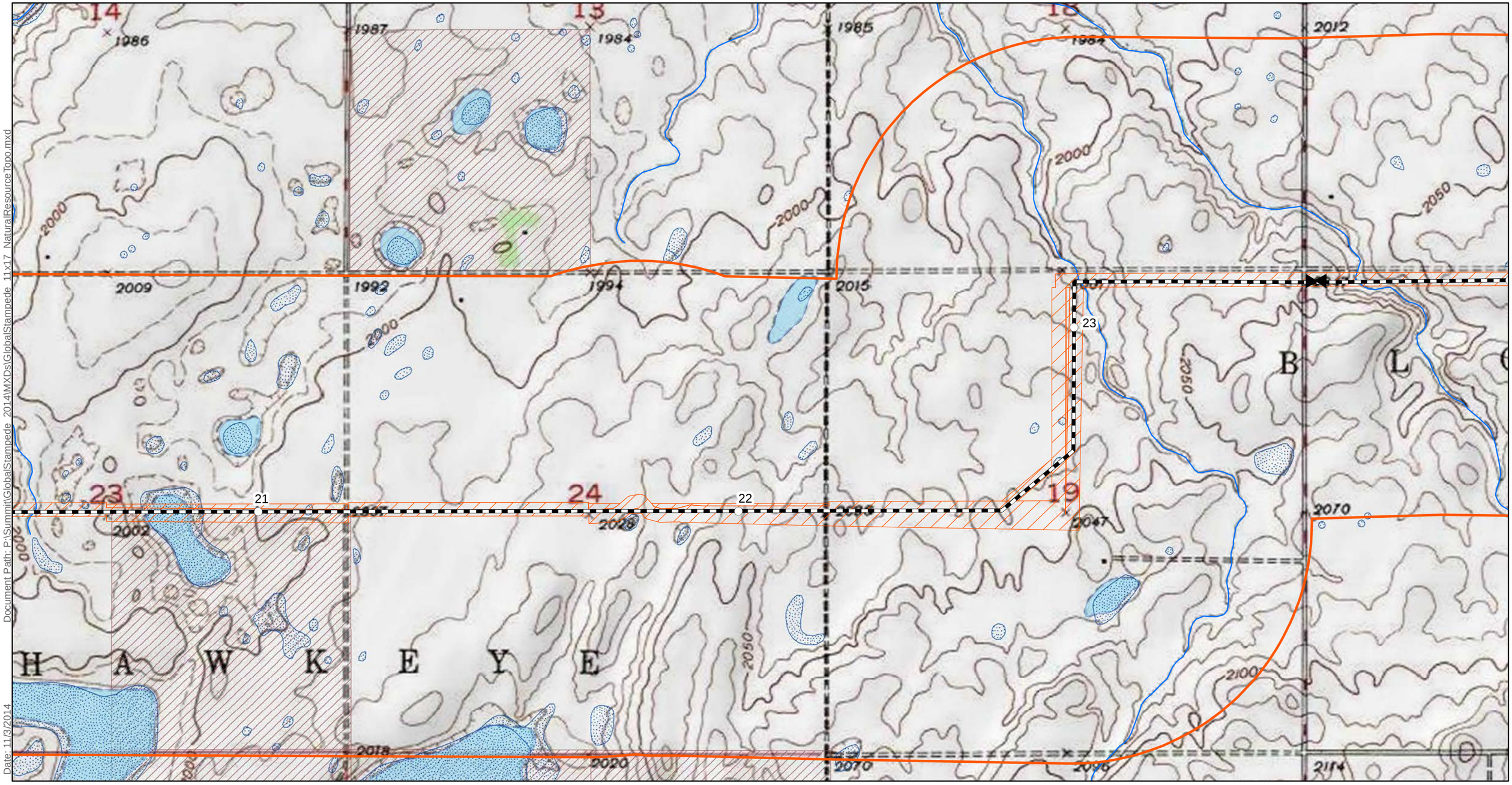
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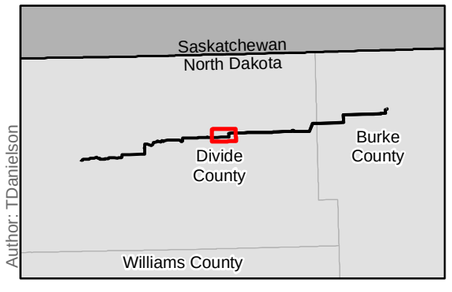
Siting Criteria

Natural Resource - Topo Map

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Burke and Divide Counties, North Dakota





Milepost
Block Valve
Centerline
Survey Corridor
Corridor (1 mile)

Criteria Data

Federal Land
State Land
PLOTS Land
North Dakota Mineral Trust Lands
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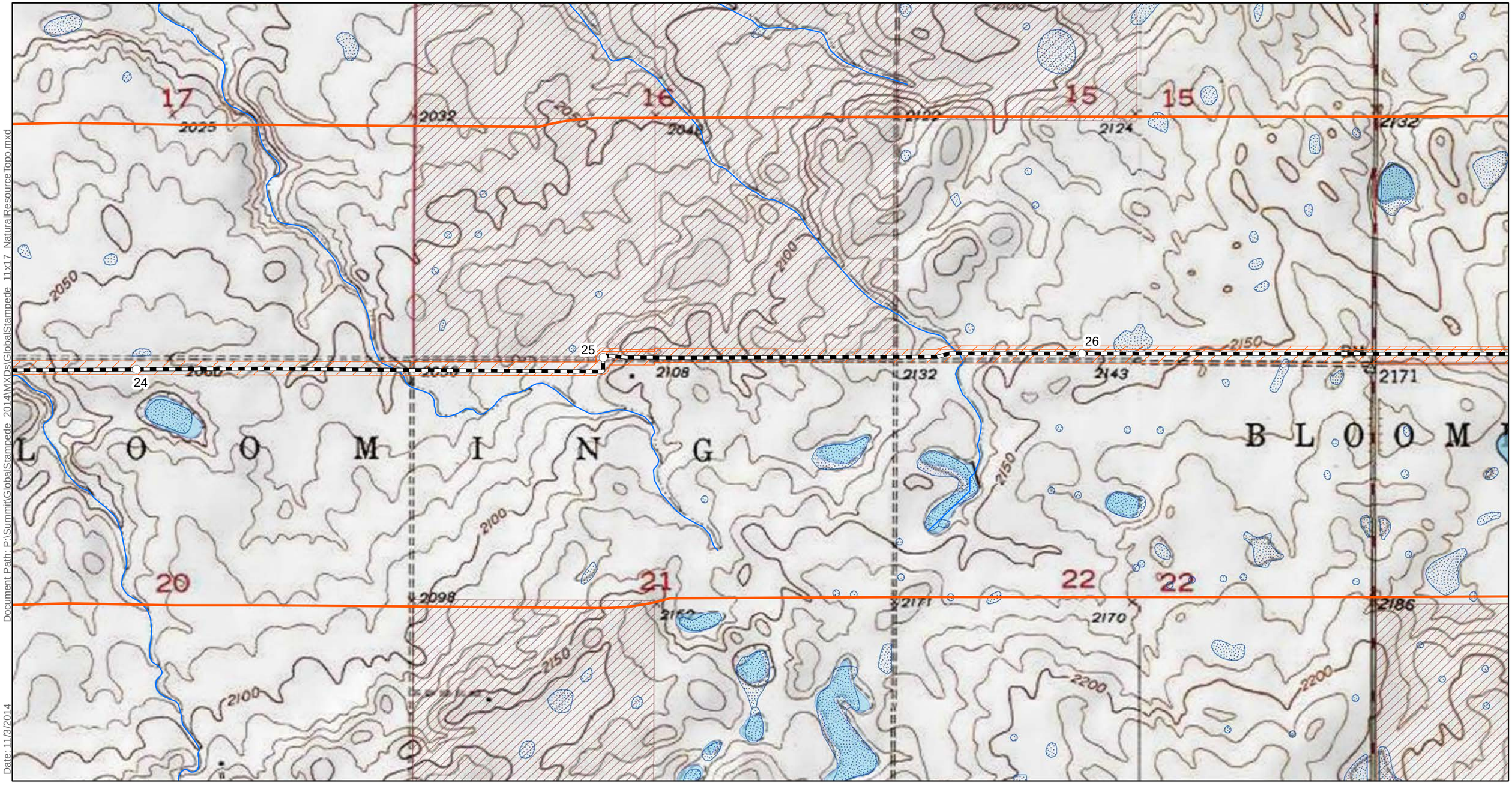
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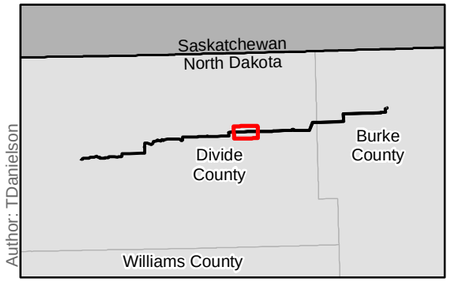
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Natural Resource - Topo Map

Burke and Divide Counties, North Dakota

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Milepost
Block Valve
Centerline
Survey Corridor
Corridor (1 mile)

Criteria Data

Federal Land
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Enhancing Execution with Experience

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Global Stampede Pipeline Project

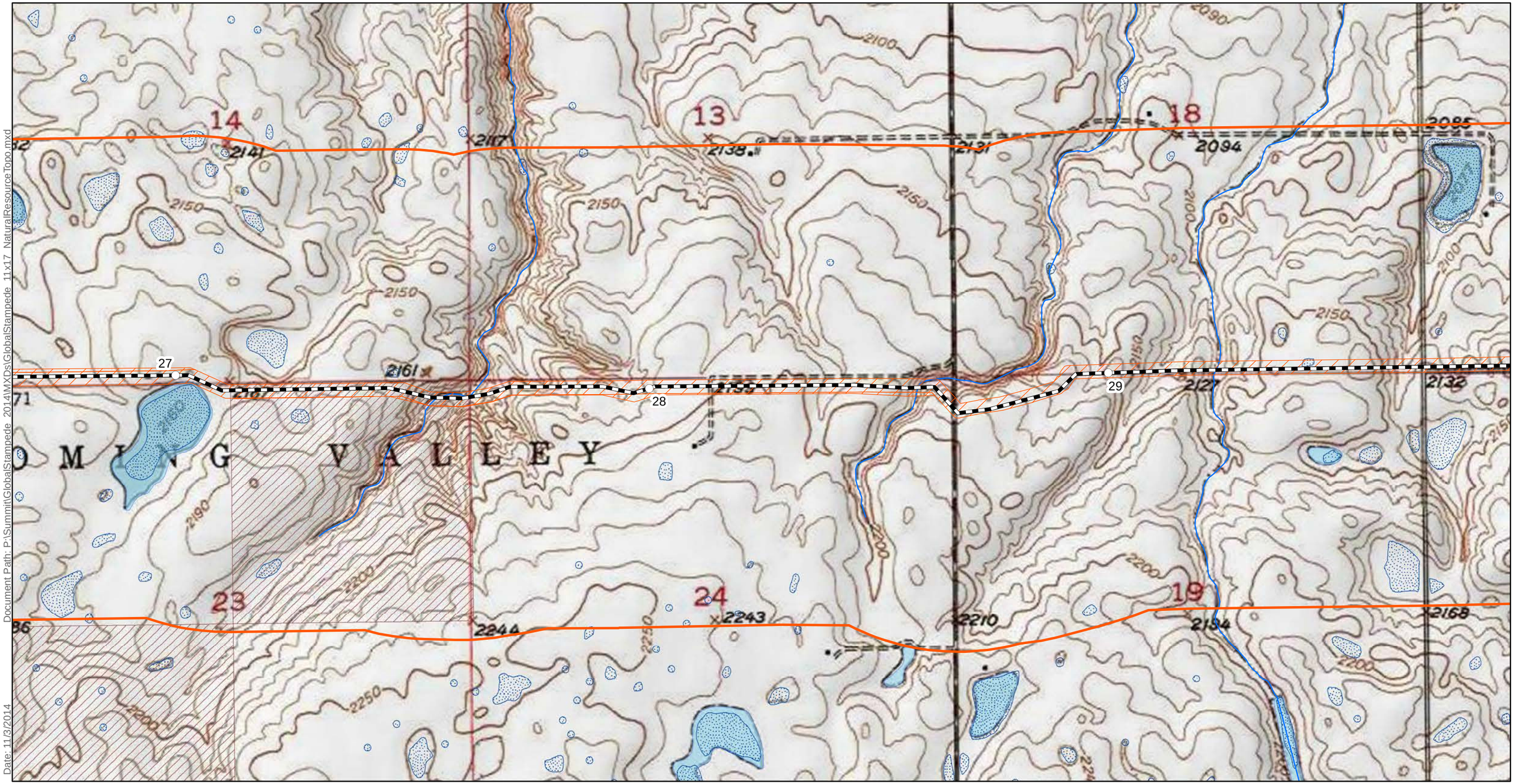
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Natural Resource - Topo Map

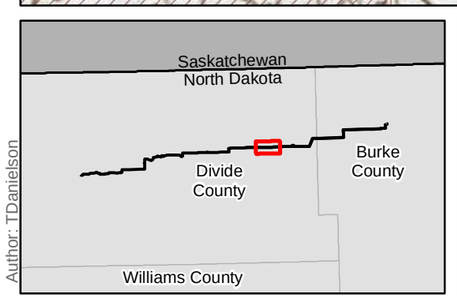
Burke and Divide Counties, North Dakota

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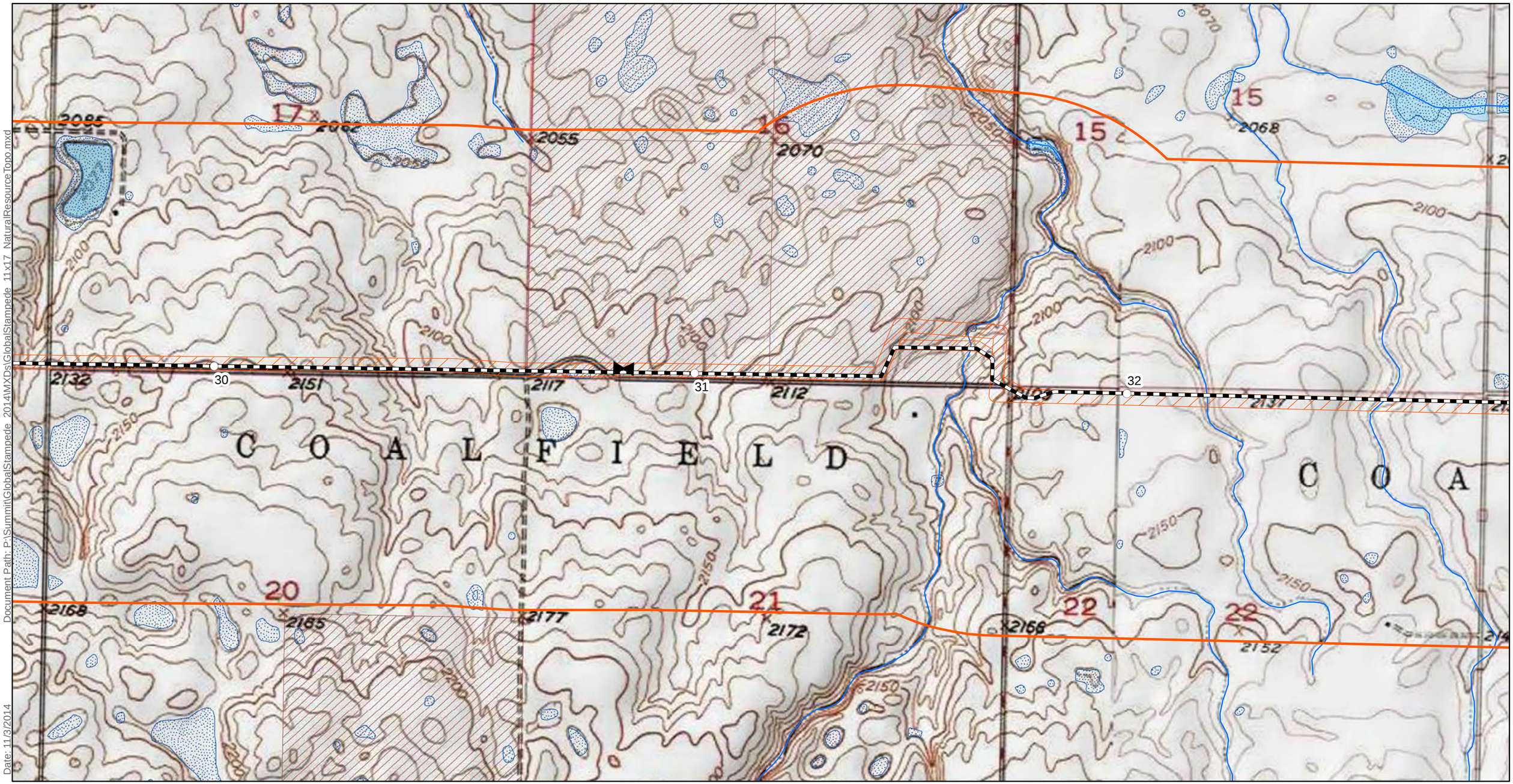
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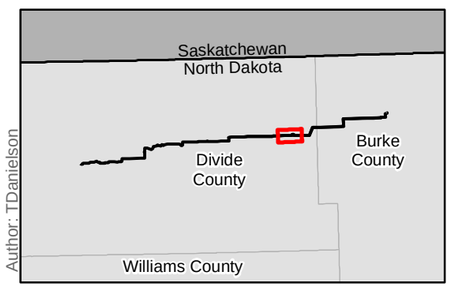
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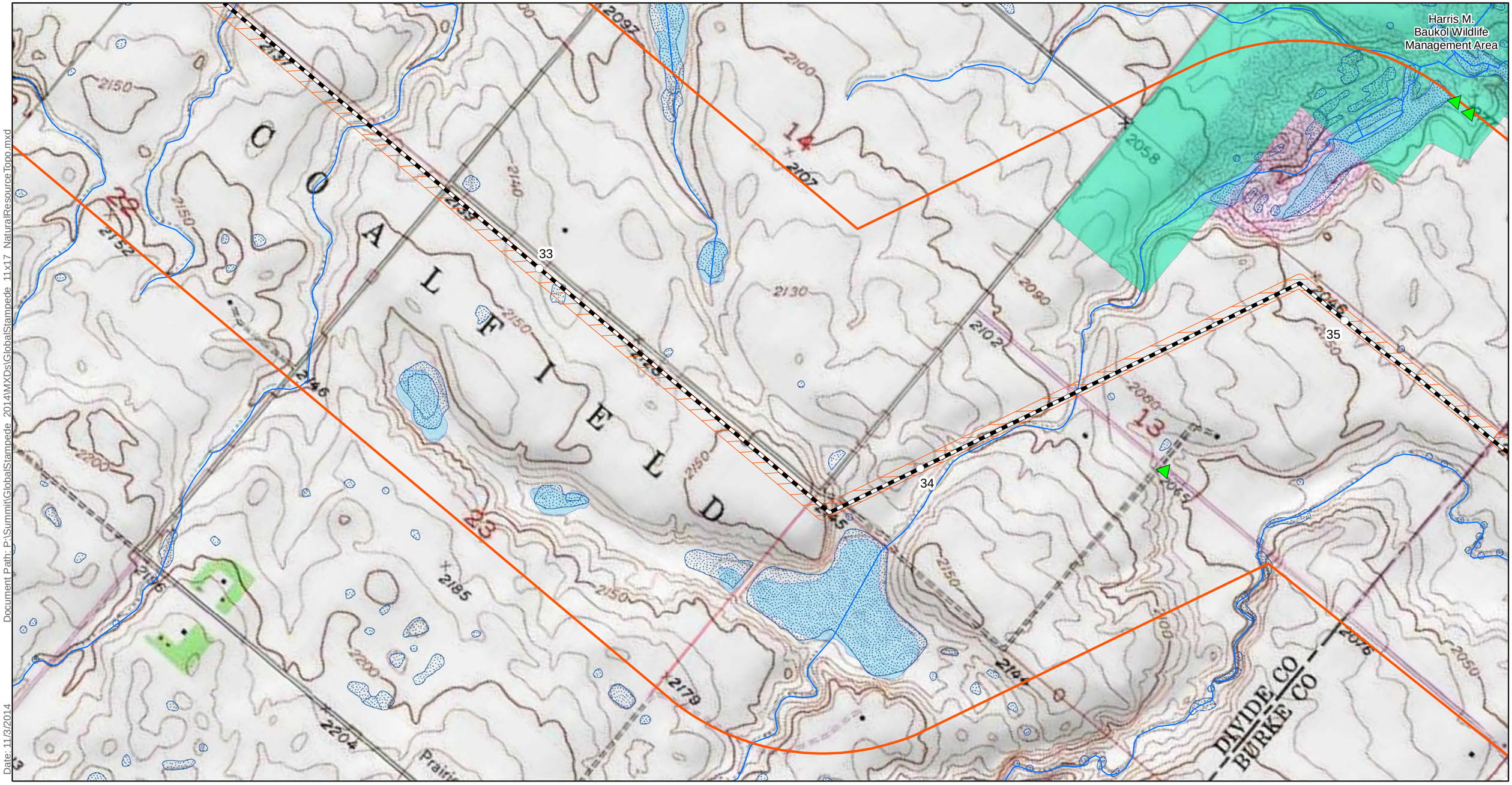
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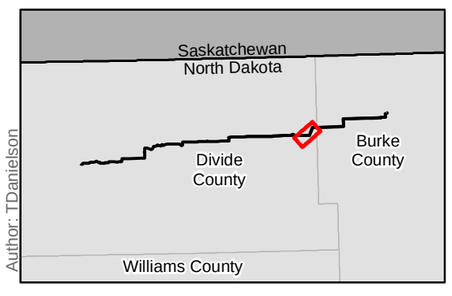
Natural Resource - Topo Map

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Burke and Divide Counties, North Dakota



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E3 Environmental
Enhancing Execution with Experience

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Topo Map

Page 12 of 16

Burke and Divide Counties, North Dakota

Harris M. Baukol Wildlife Management Area

STRIP MINE

Strip Mine

Strip Mine

2000

1989

1975

2000

2000

1950

1990

1970

BM

2012

School No 1

1987

2046

2001

2001

35

36

37

38

2050

2030

2010

2000

2050

2050

West Branch Short Creek

18

17

16

2065

2076

2040

1995

2006

2050

2070

2100

DIVIDE CO

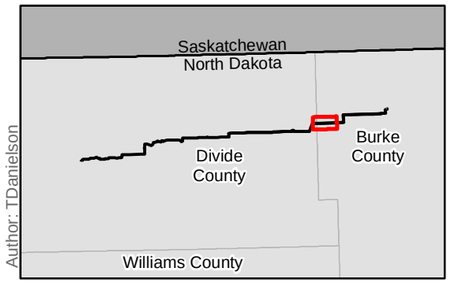
BURKE CO

ND Surface Trust Land

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Author: TDanielson



Milepost

Block Valve

Centerline

Survey Corridor

Corridor (1 mile)

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PLOTS Land

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NWI Wetland

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E3 Environmental
Enhancing Execution with Experience

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Global Stampede Pipeline Project

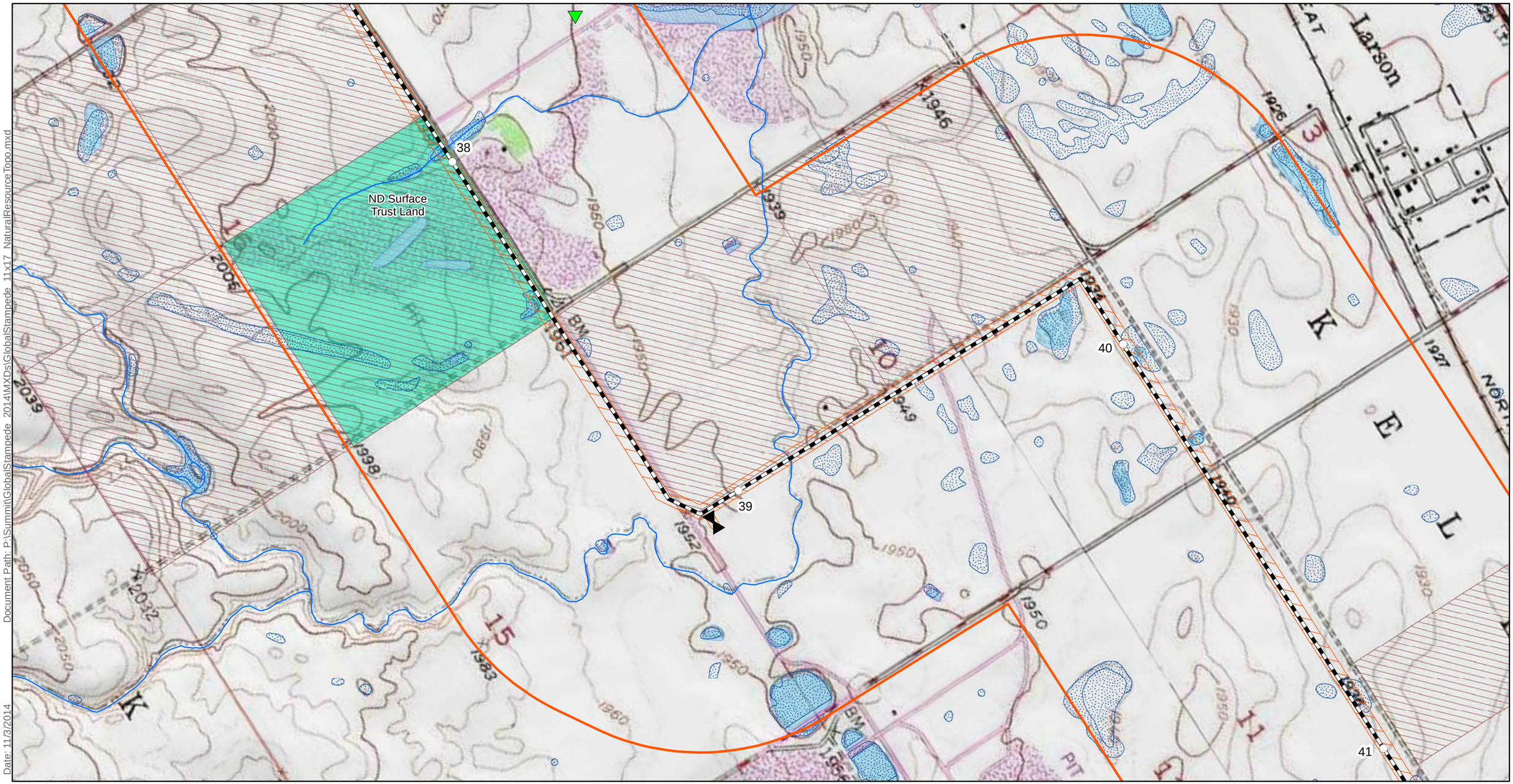
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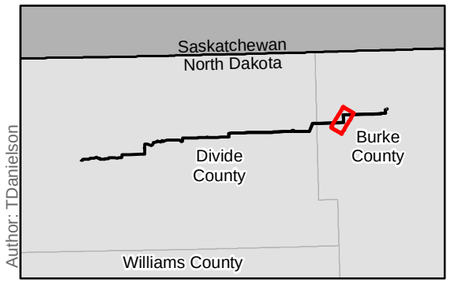
Natural Resource - Topo Map

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Burke and Divide Counties, North Dakota

Document Path: P:\Summit\GlobalStampede_2014\MXDs\GlobalStampede_11x17_NaturalResourceTopo.mxd
Date: 11/3/2014
Author: TDanielson





Milepost
Block Valve
Centerline
Survey Corridor
Corridor (1 mile)

Criteria Data

Federal Land
State Land
PLOTS Land
North Dakota Mineral Trust Lands
NHD Waterway
NWI Wetland
NHD Waterbody
Abandoned Mines
USFWS Wetland Basin

E3 Environmental
Enhancing Execution with Experience

0 500 1,000 2,000 Feet

1:12,000

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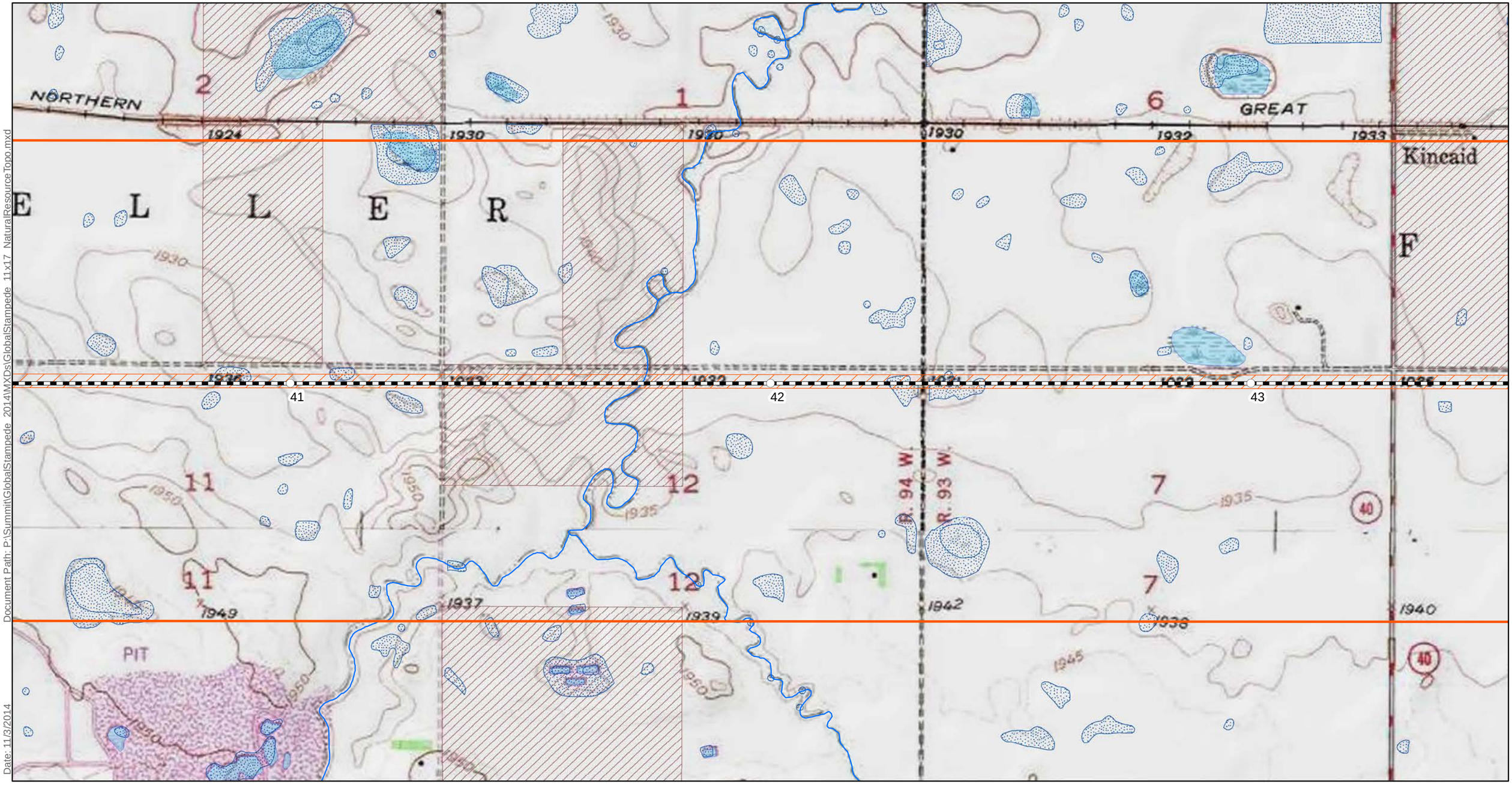
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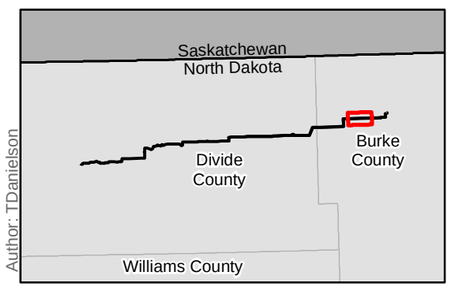
Global Stampede Pipeline Project

Siting Criteria
Natural Resource - Topo Map

Burke and Divide Counties, North Dakota

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Milepost
Block Valve
Centerline
Survey Corridor
Corridor (1 mile)

Criteria Data

Federal Land
State Land
PLOTS Land
North Dakota Mineral Trust Lands
NHD Waterway
NWI Wetland
NHD Waterbody
Abandoned Mines
USFWS Wetland Basin

E3 Environmental
Enhancing Execution with Experience

N

0 500 1,000 2,000 Feet

1:12,000

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria

Natural Resource - Topo Map

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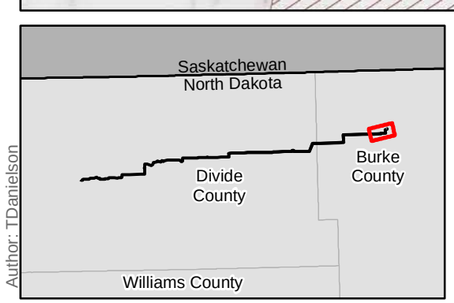
Burke and Divide Counties, North Dakota

Basin Transload Rail Facility
Pig Receiver and Custody Transfer Meter

46

44

45



Criteria Data

- Milepost
- Block Valve
- Centerline
- Survey Corridor
- Corridor (1 mile)
- Federal Land
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- North Dakota Mineral Trust Lands
- NHD Waterway
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- NHD Waterbody
- Abandoned Mines
- USFWS Wetland Basin

E3 Environmental
Enhancing Execution with Experience

N

0 500 1,000 2,000 Feet

1:12,000

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

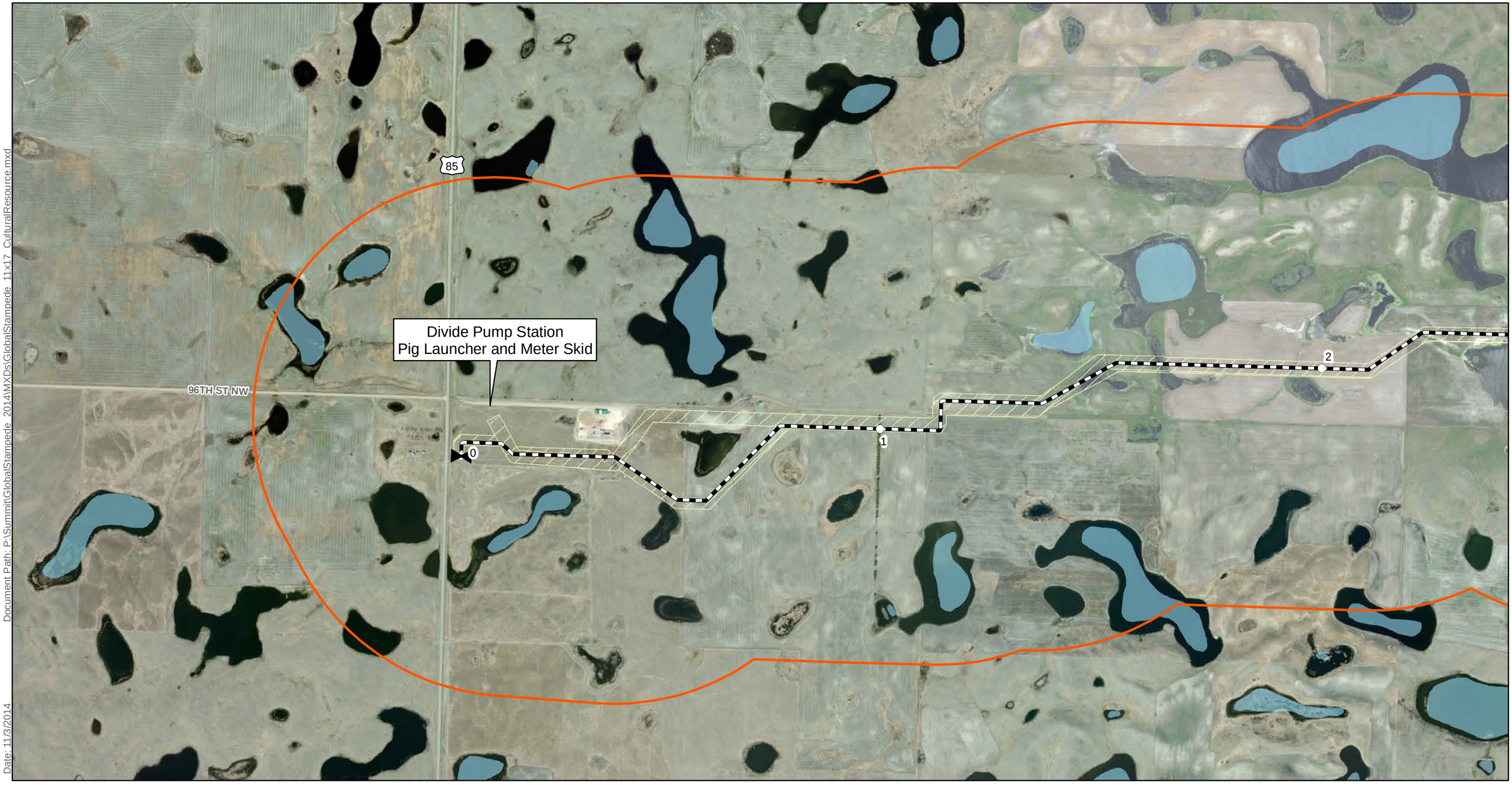
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Page 16 of 16
Burke and Divide Counties, North Dakota

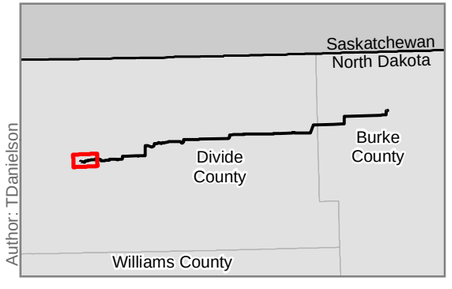
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Date: 11/3/2014

Author: TDanielson





- Milepost
- Block Valve
- Centerline
- Survey Corridor
- Corridor (1 mile)
- NHD Waterways
- NHD Waterbody
- Cultural Avoidance

N

E3 Environmental
Enhancing Execution with Experience

0 875 1,750 3,500 Feet

1:12,000

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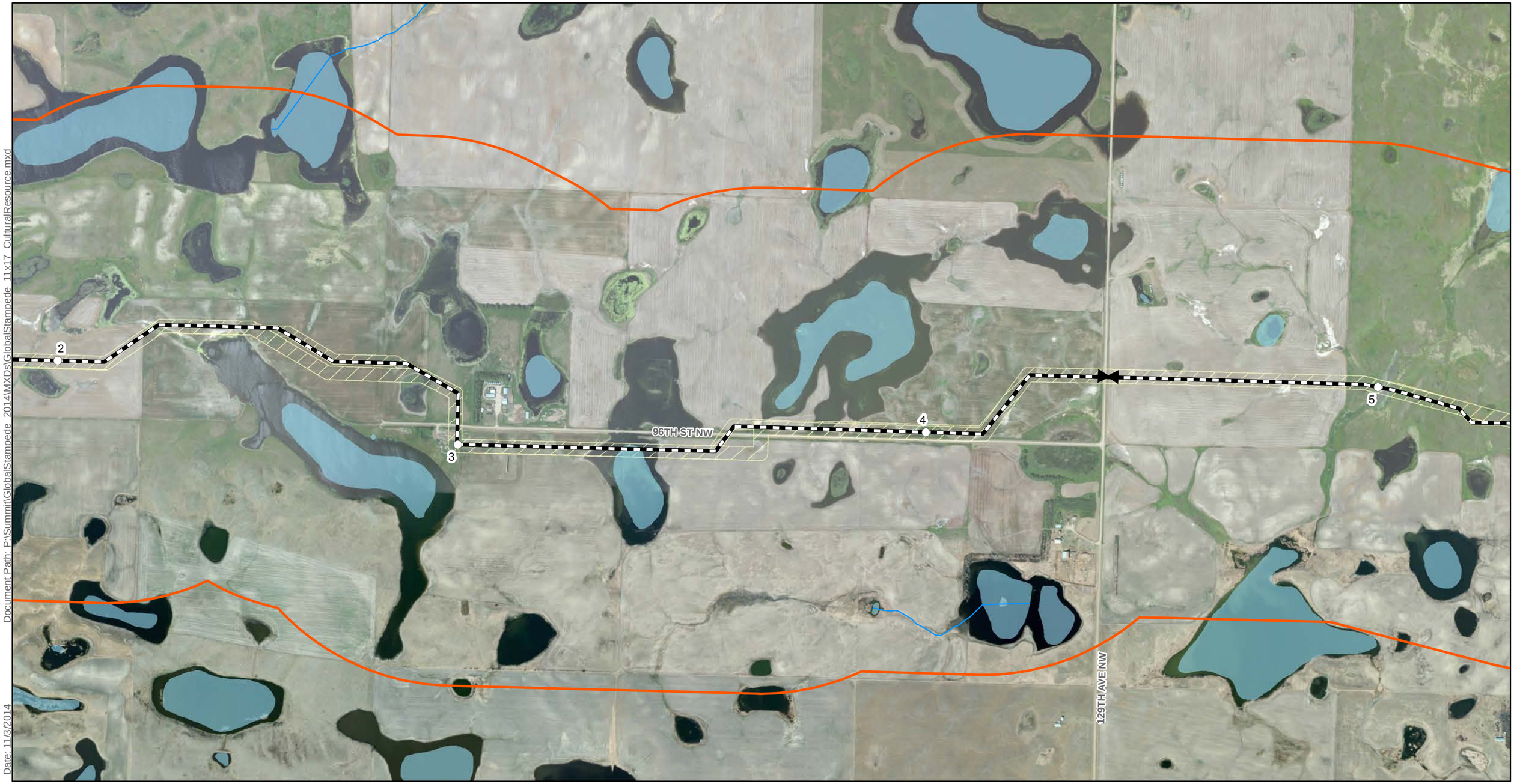
Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

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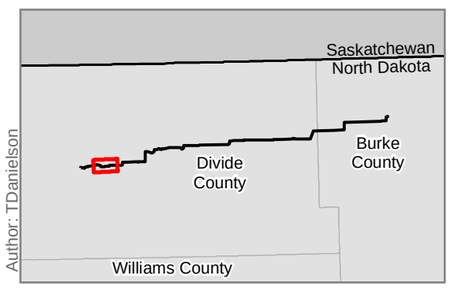
Burke and Divide Counties, North Dakota



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- Milepost
- Block Valve
- Centerline
- Survey Corridor
- Corridor (1 mile)
- NHD Waterways
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0 875 1,750 3,500 Feet

1:12,000

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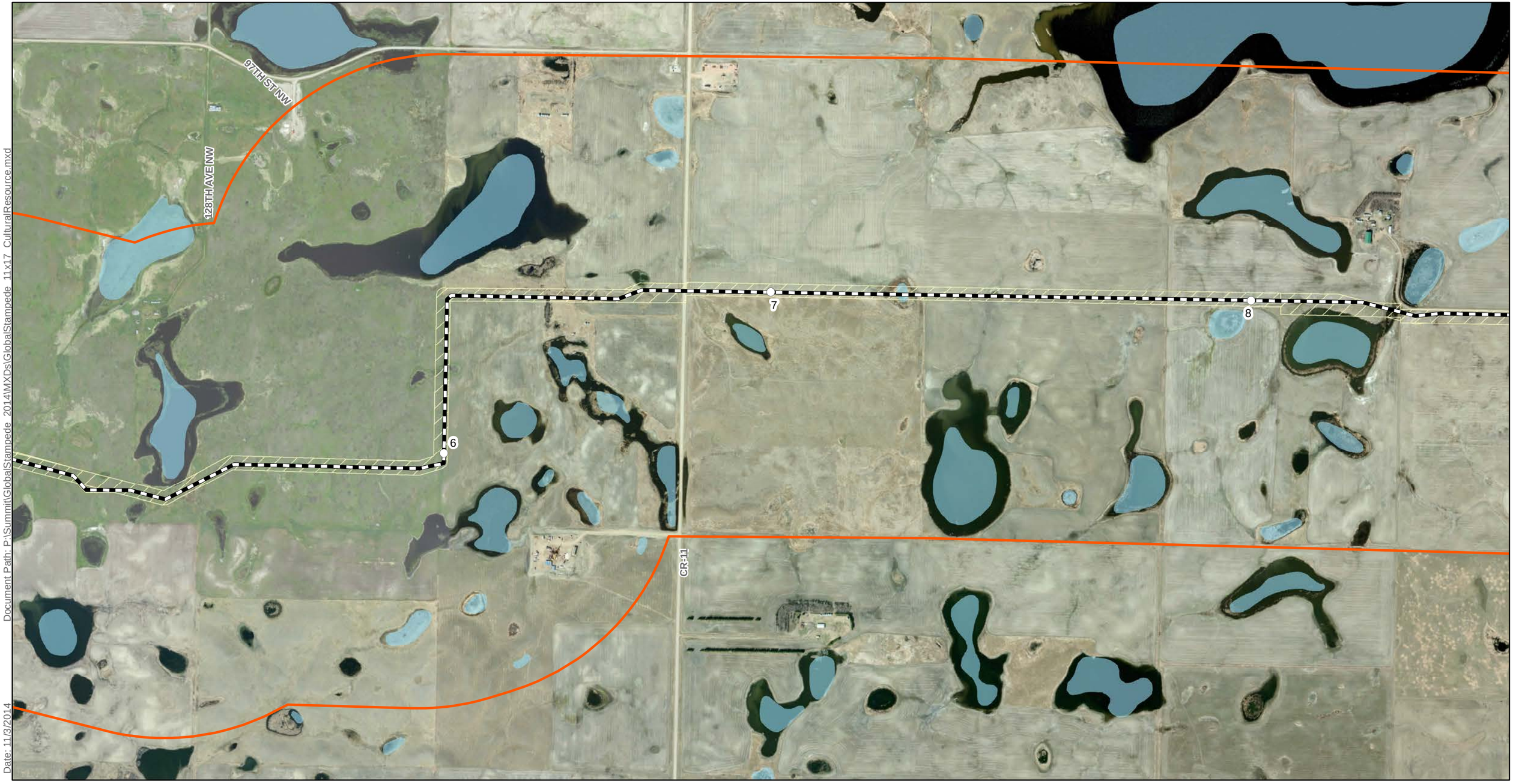
E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

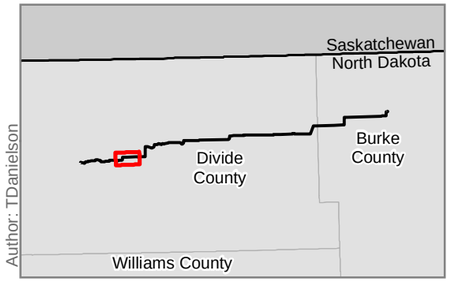
Burke and Divide Counties, North Dakota



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Author: TDanielson



- Milepost
- Block Valve
- Centerline
- Survey Corridor
- Corridor (1 mile)
- NHD Waterways
- NHD Waterbody
- Cultural Avoidance

N

0 875 1,750 3,500 Feet

1:12,000

Map not to scale, for environmental review purposes only.

E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

Burke and Divide Counties, North Dakota



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- Milepost
- Block Valve
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N

E3 Environmental
Enhancing Execution with Experience

0 875 1,750 3,500 Feet

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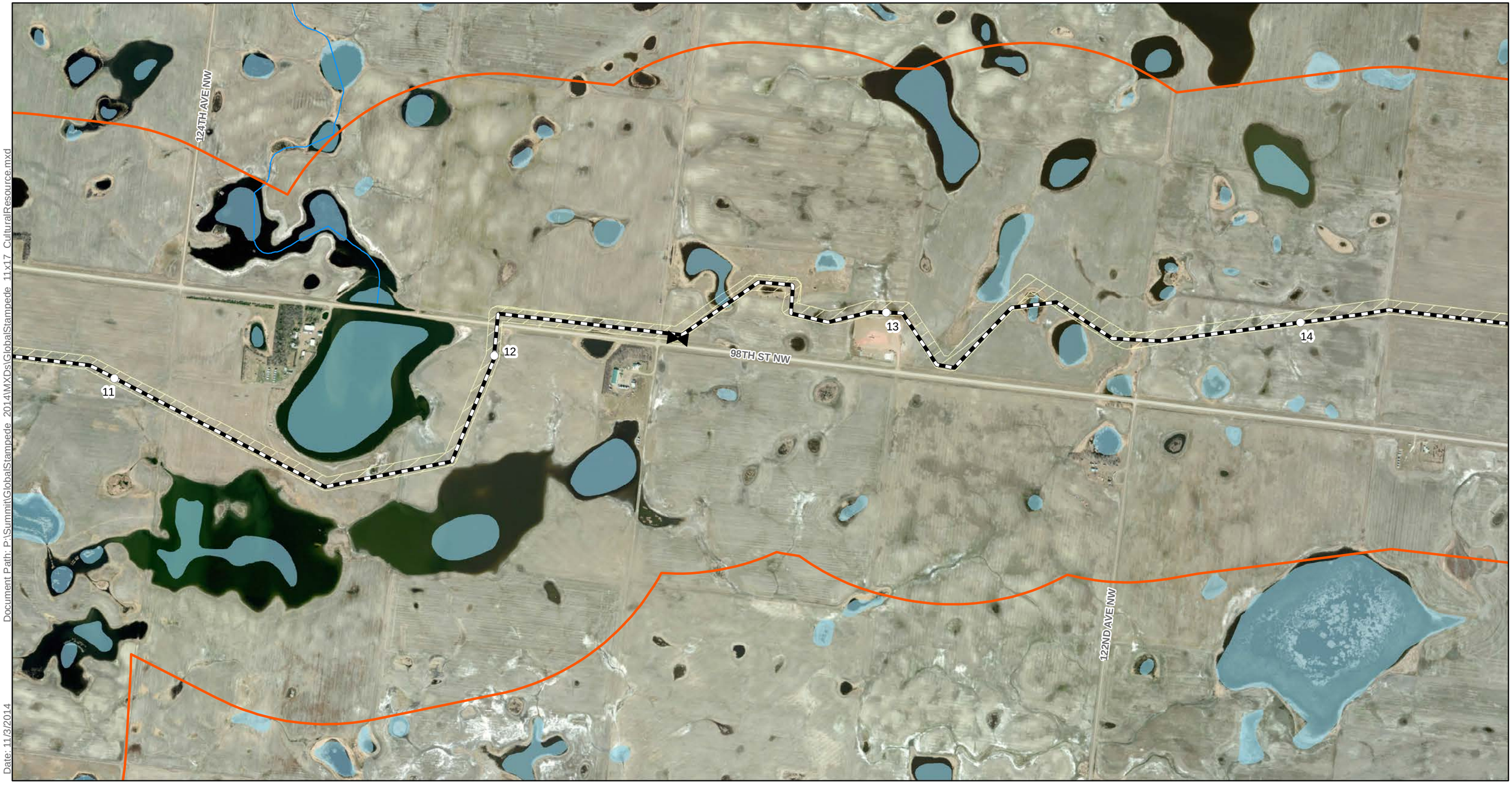
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Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

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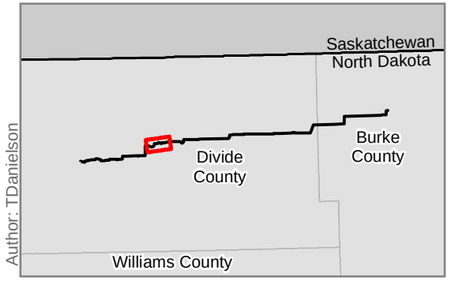
Burke and Divide Counties, North Dakota



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- Milepost
- Block Valve
- Centerline
- Survey Corridor
- Corridor (1 mile)
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- NHD Waterbody
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N

E3 Environmental
Enhancing Execution with Experience

0 875 1,750 3,500 Feet

1:12,000

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

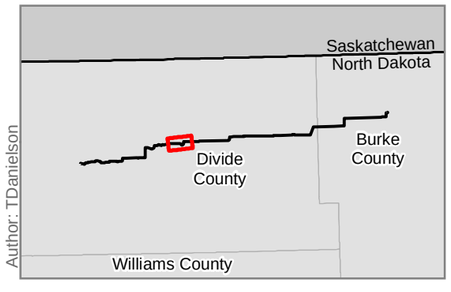
Burke and Divide Counties, North Dakota



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- Milepost
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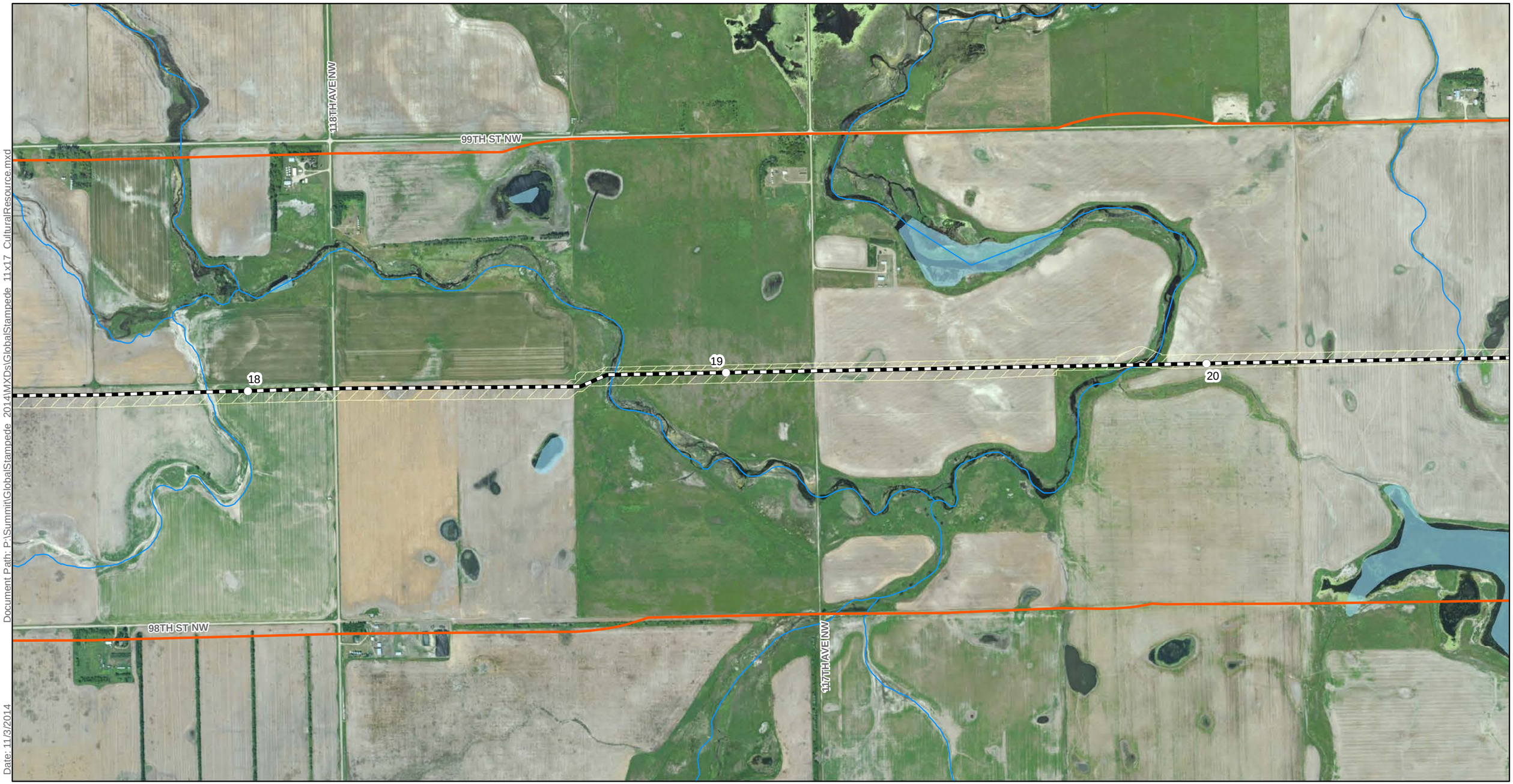
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Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

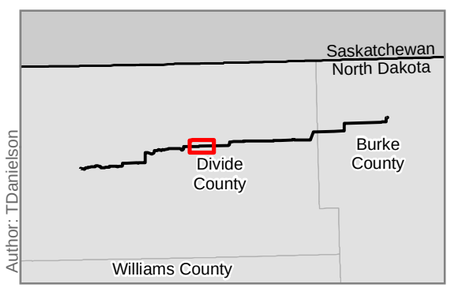
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- Milepost
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Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

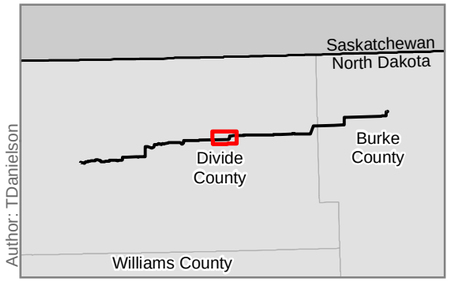
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Burke and Divide Counties, North Dakota

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Author: TDanielson



- Milepost
- Block Valve
- Centerline
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- Corridor (1 mile)
- NHD Waterways
- NHD Waterbody
- Cultural Avoidance

N

0 875 1,750 3,500 Feet

1:12,000

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E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

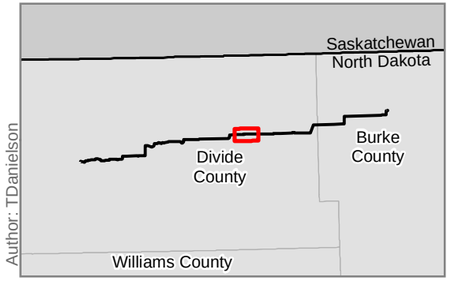
Burke and Divide Counties, North Dakota



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- Milepost
- Block Valve
- Centerline
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- Corridor (1 mile)
- NHD Waterways
- NHD Waterbody
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N

0 875 1,750 3,500 Feet

1:12,000

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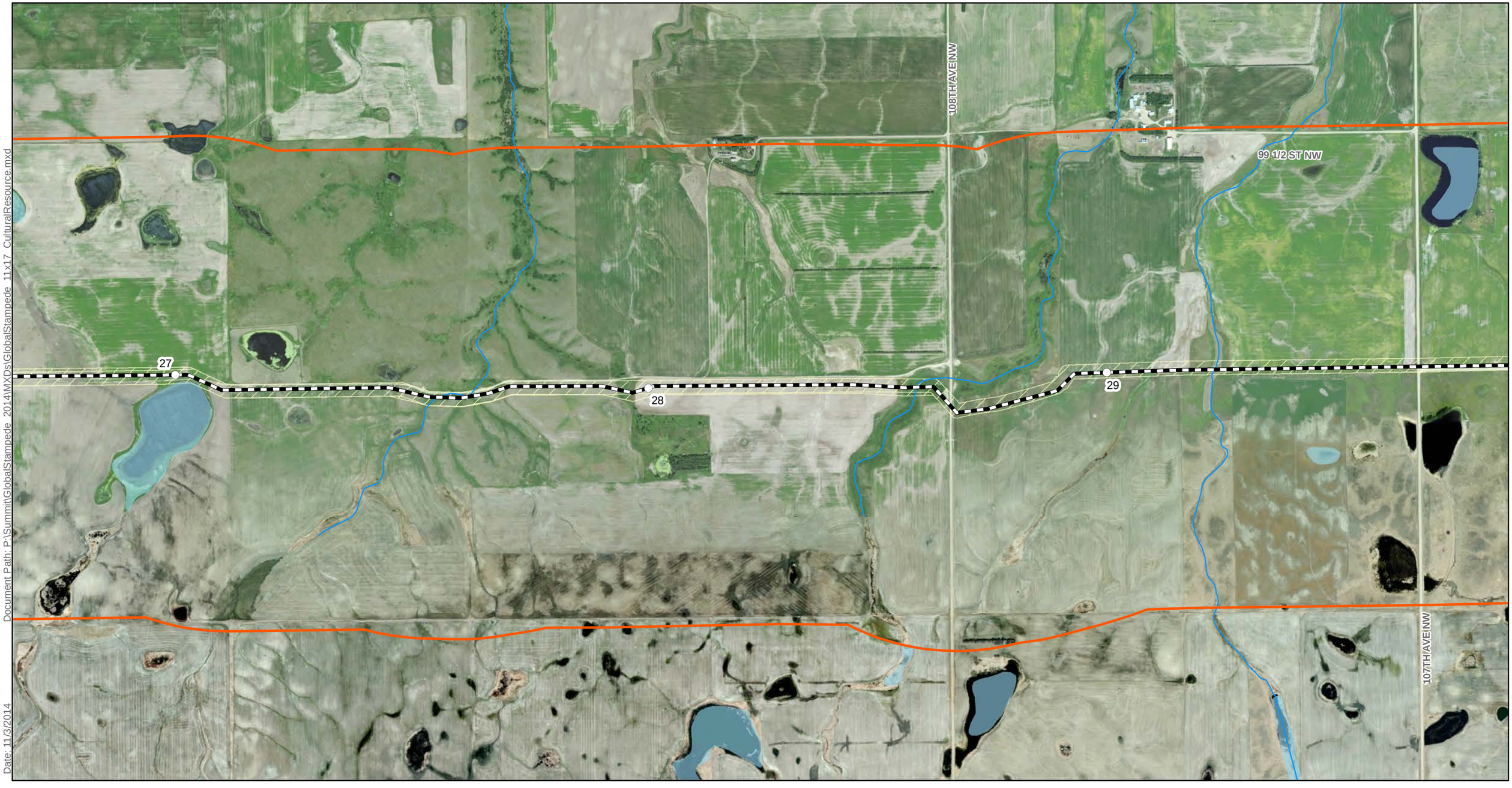
E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

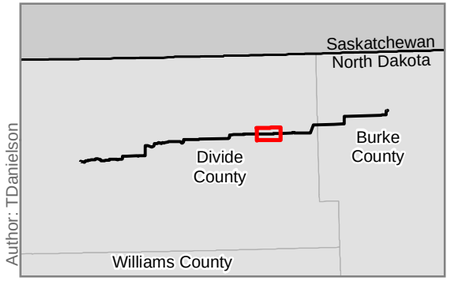
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- NHD Waterbody
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N

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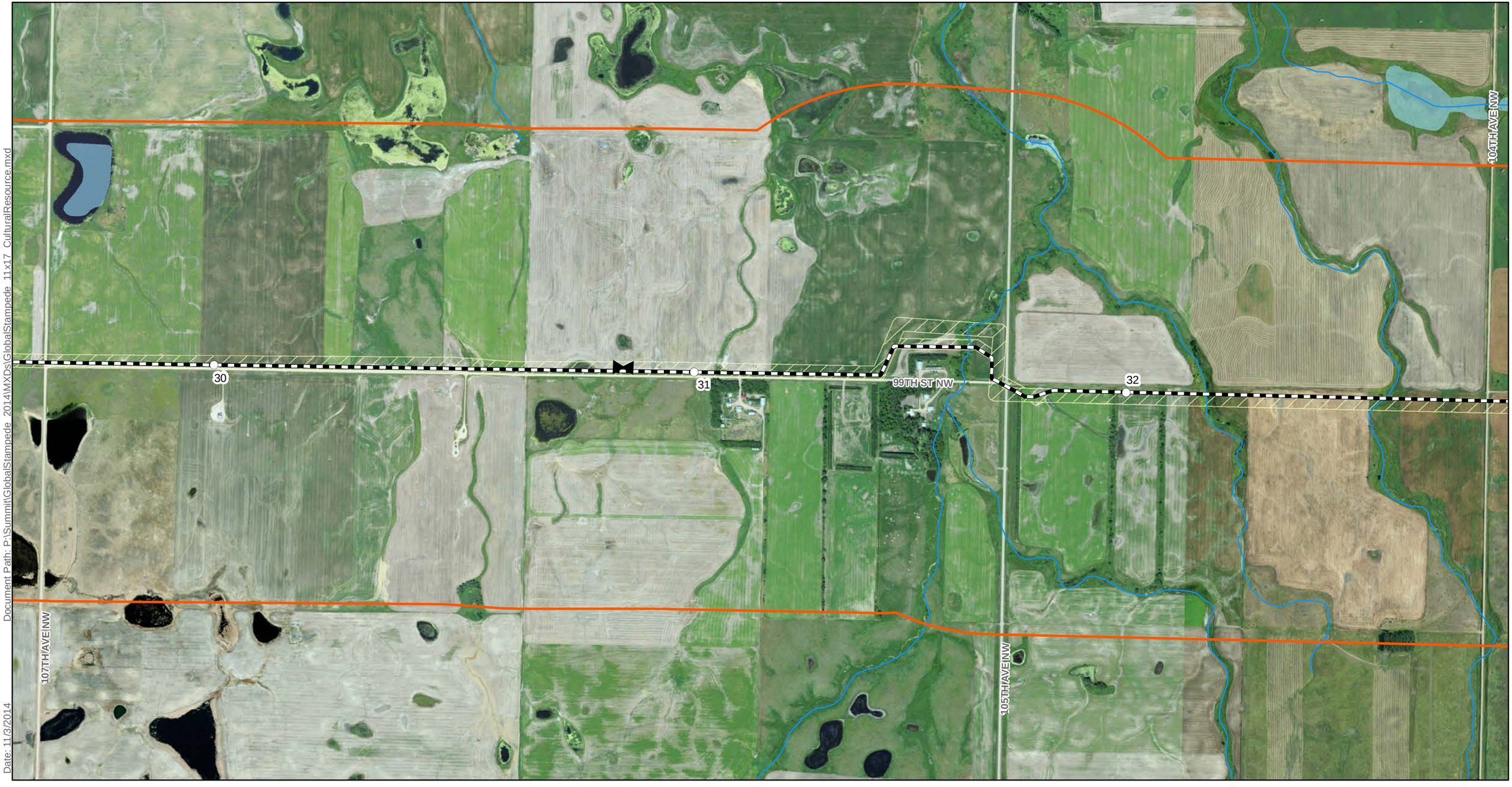
E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

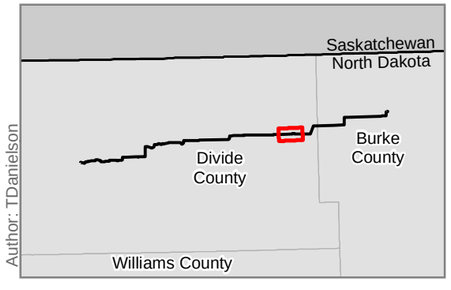
Burke and Divide Counties, North Dakota



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Author: TDanielson



- Milepost
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- Centerline
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- Corridor (1 mile)
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- NHD Waterbody
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E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

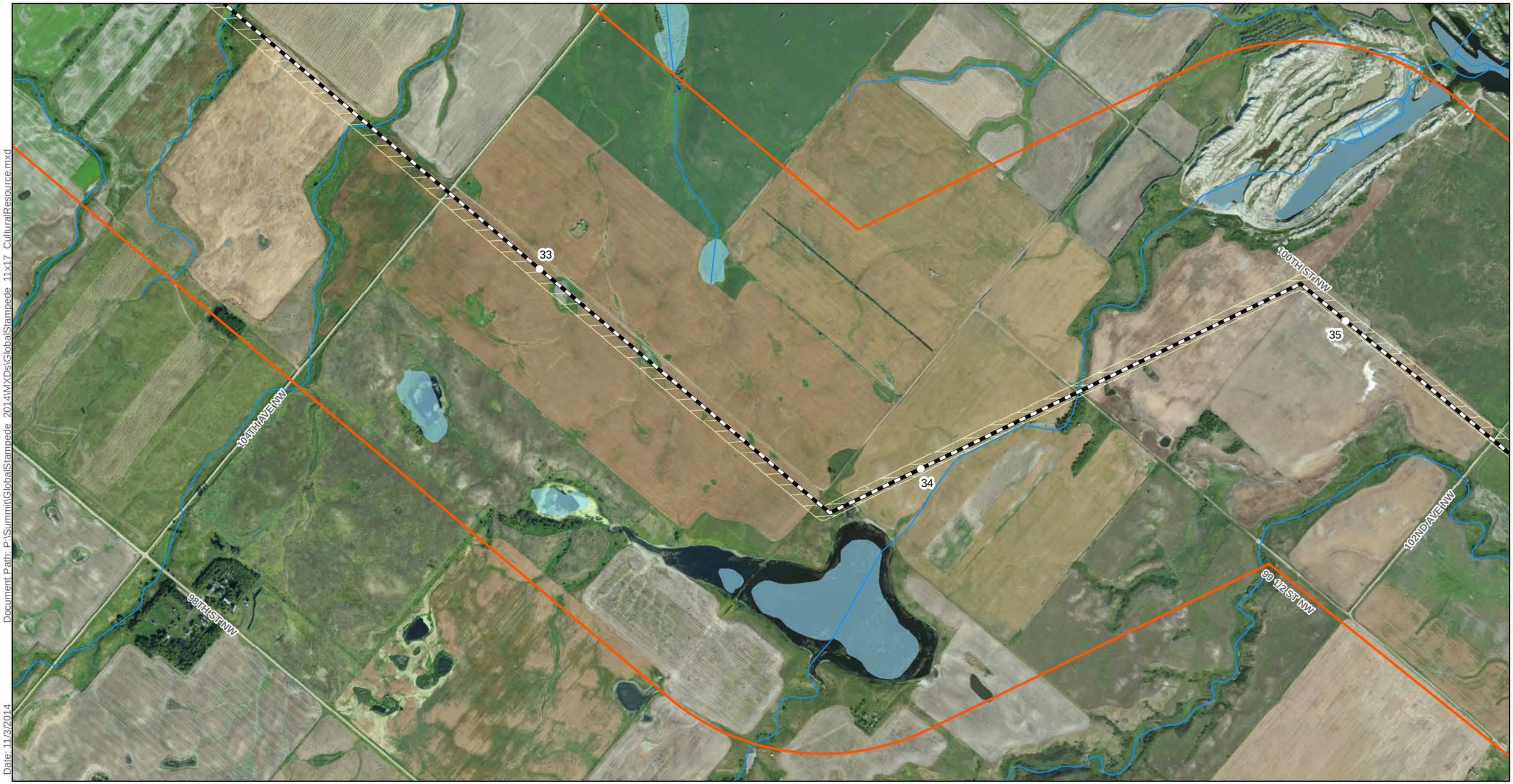
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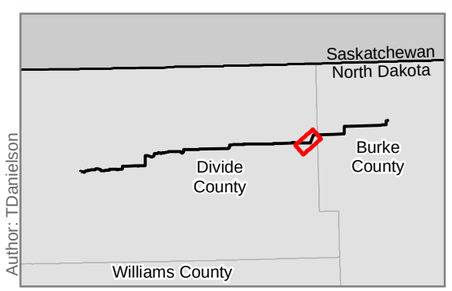
Burke and Divide Counties, North Dakota

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E3 Environmental
Enhancing Execution with Experience

0 875 1,750 3,500 Feet

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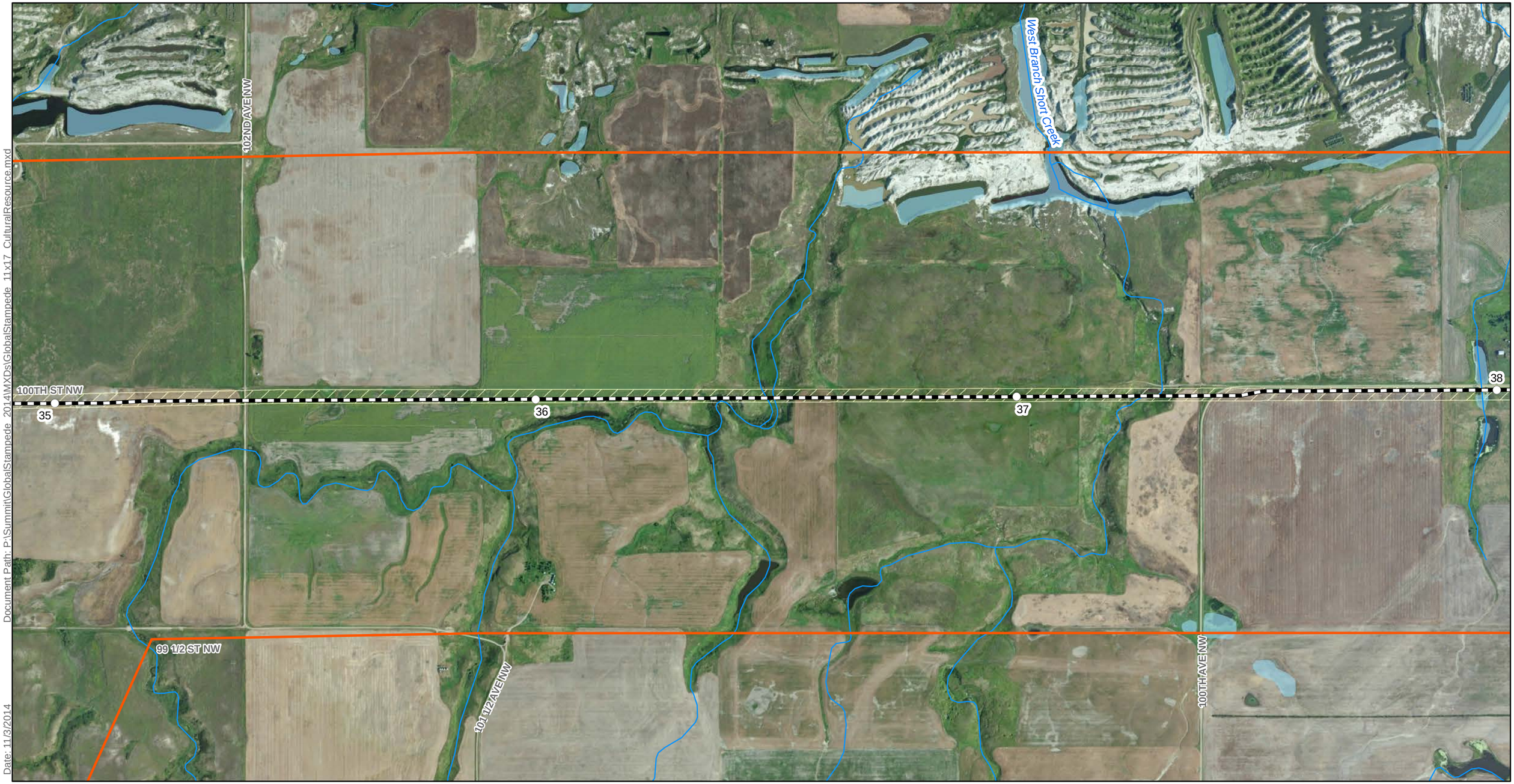
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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

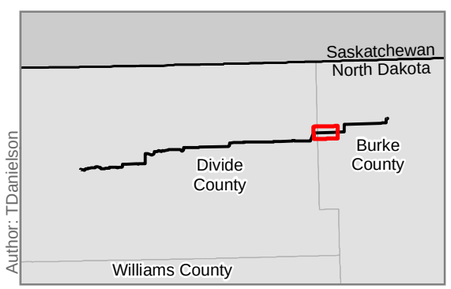
Burke and Divide Counties, North Dakota



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- Milepost
- Block Valve
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- Survey Corridor
- Corridor (1 mile)
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- NHD Waterbody
- Cultural Avoidance

N

0 875 1,750 3,500 Feet

1:12,000

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E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

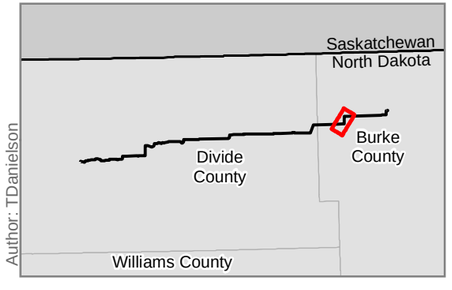
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Burke and Divide Counties, North Dakota

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- Milepost
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E3 Environmental
Enhancing Execution with Experience

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1:12,000

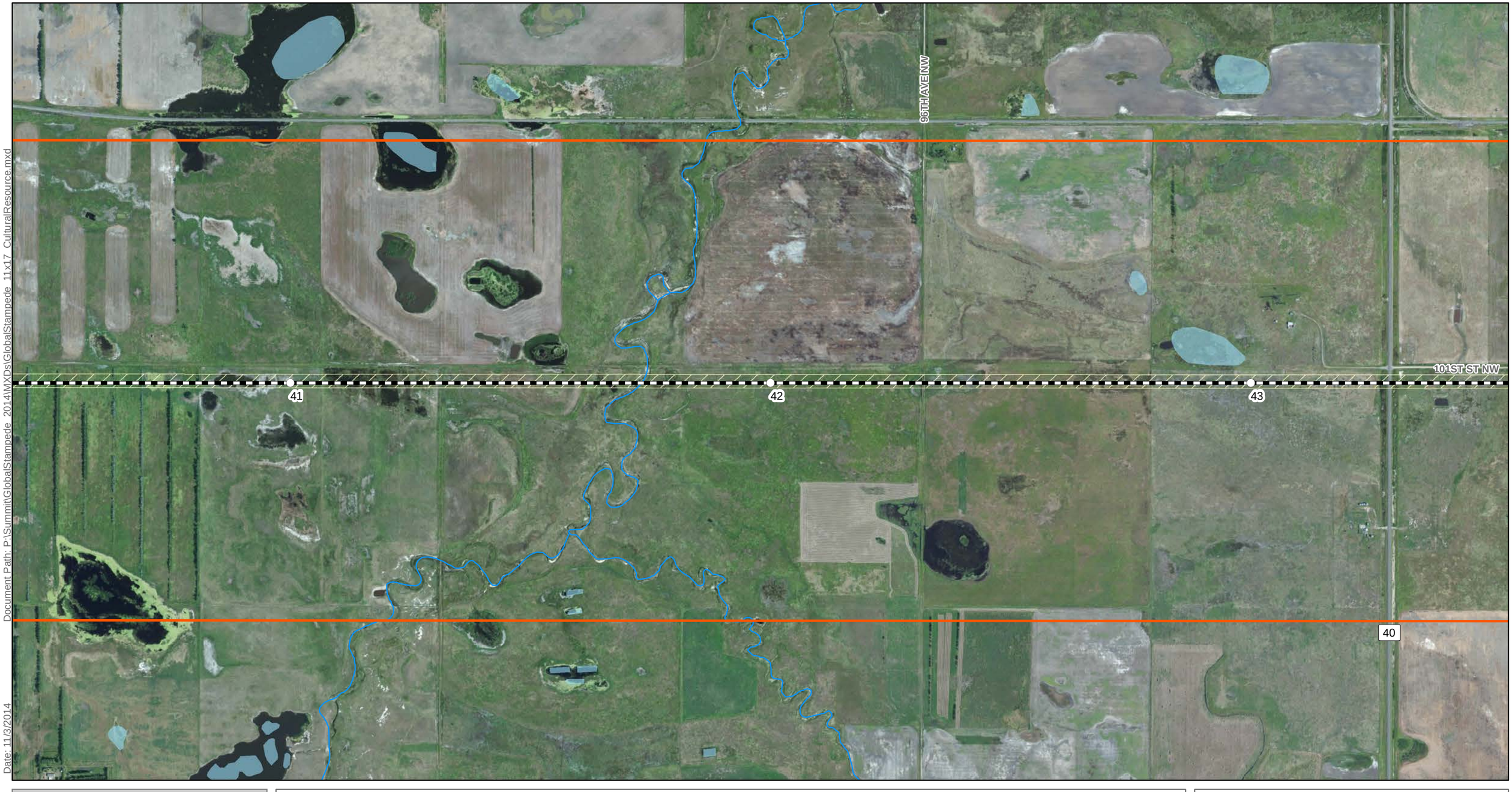
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Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

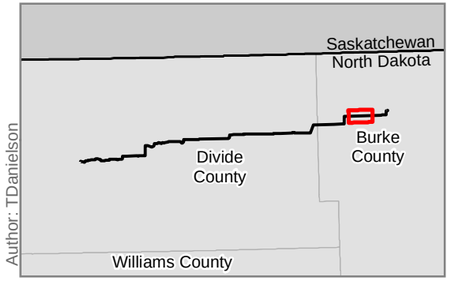
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E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

Burke and Divide Counties, North Dakota

Basin Transload Rail Facility
Pig Receiver and Custody Transfer Meter

40
5
44
45
46
32BK68
94TH AVE NW
93RD AVE NW
92ND AVE NW
101ST ST NW

Saskatchewan
North Dakota
Divide County
Burke County
Williams County

Milepost
Block Valve
Centerline
Survey Corridor
Corridor (1 mile)
NHD Waterways
NHD Waterbody
Cultural Avoidance

N

0 875 1,750 3,500 Feet

1:12,000

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E3 Environmental
Enhancing Execution with Experience

Meadowlark Midstream Company, LLC

Global Stampede Pipeline Project

Siting Criteria
Cultural Resource

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Burke and Divide Counties, North Dakota

Author: TDanielson
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Document Path: P:\Summit\GlobalStampede\2014MXDs\GlobalStampede_11x17_CulturalResource.mxd

Appendix C

Consultations

U.S. Fish and Wildlife Service

Consultation

Chris Schmidt

From: Katie Schmidt
Sent: Wednesday, October 15, 2014 12:53 PM
To: Heidi Riddle
Cc: Chris Schmidt
Subject: RE: Global Stampede
Attachments: USFWS_Wetland Easement Consultation_Global Stampede_20141001.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Attached.

Let me know if you require any additional information.

Katie

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881



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From: Heidi Riddle [mailto:heidi_riddle@fws.gov]
Sent: Wednesday, October 15, 2014 12:04 PM
To: Katie Schmidt
Cc: Chris Schmidt
Subject: RE: Global Stampede

Katie,

Would you please provide the response from the District for our files?

Thanks,
Heidi

From: Katie Schmidt [mailto:KSchmidt@go2e3.com]
Sent: Wednesday, October 15, 2014 9:52 AM
To: Heidi Riddle
Cc: Chris Schmidt
Subject: RE: Global Stampede

Heidi,

Good morning. We received a response from the Lostwood Wetland Management District Complex, however a response from your office would be great. We have coordinated with the Lostwood office to avoid impacts to lands under their jurisdiction.

Let me know if you have any further questions or concerns.

Thanks-Katie

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881

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From: Heidi Riddle [mailto:heidi_riddle@fws.gov]
Sent: Monday, October 6, 2014 5:35 PM
To: Katie Schmidt
Subject: Global Stampede

Hi Katie,

Can you give me a status update on the Global Stampede project? Are you requesting a response from the Service?

Thank you,
Heidi

Heidi Riddle
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
3425 Miriam Ave
Bismarck, ND 58501
701-355-8503

United States Department of the Interior
FISH AND WILDLIFE SERVICE

Lostwood Wetland Management District Complex
8315 Hwy 8
Kenmare, ND 58746
Refuges: Lostwood
Wetland Districts: Crosby, Lostwood

September 25, 2014

Attn: Stoney Goodman
Summit Midstream Partners
999 18th St., Suite 3400S
Denver, CO 80202

Dear Mr. Goodman:

This letter is in reference to Meadowlark Midstream Company, LLC proposed Stampede pipeline in Section 4, T. 161 N., R. 99 W., Sections 31, 34, 35, 36 T.162 N. 99 W., Sections 22, 31, 32 T. 162 N. R. 98 W. Divide County, North Dakota. Mr. Darren Wheeling of the U.S. Fish and Wildlife Service (Service) received GIS shape files for the pipeline from Mr. Stoney Goodman of Summit Midstream Partners on September 19th, 2014. The pipeline crosses Service wetland easement tracts. Darren Wheeling reviewed the survey information and found that the pipeline route is in an area in which no wetland basins will be impacted directly by either avoiding altogether or boring under the wetland basins. In addition to avoiding wetland basins with access roads and all machinery, the Service recommends that either straw wattles or silt fence be used on the upslope of all wetland basins.

Please notify the Crosby Wetland Management District Office 48 hours before planned excavation of the Stampede Pipeline.

This letter does not supersede any required permits from landowners, local, state, and federal entities.

Please be advised of other federal laws including the Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA), the National Wildlife Refuge System Improvement Act and the Bald and Golden Eagle Protection Act (BGEPA) when planning your proposal. The ESA, MBTA, and BGEPA prohibit the unauthorized take of federally-listed threatened and endangered species, all migratory birds, and bald and golden eagles, respectively. You must ensure that your activities do not violate these laws. The best way to do that is through early coordination of your plans with the Ecological Services office for North Dakota. Please contact the acting ND field supervisor, Mr. Scott Larson, 420 South Garfield Ave., Pierre SD 57501; by phone 605-224-8693 x224, or email at Scott_larson@fws.gov. Additional information on these wildlife resources and potential

impacts and requirements for oil and gas development is available at website www.fws.gov/northdakotafieldoffice/.

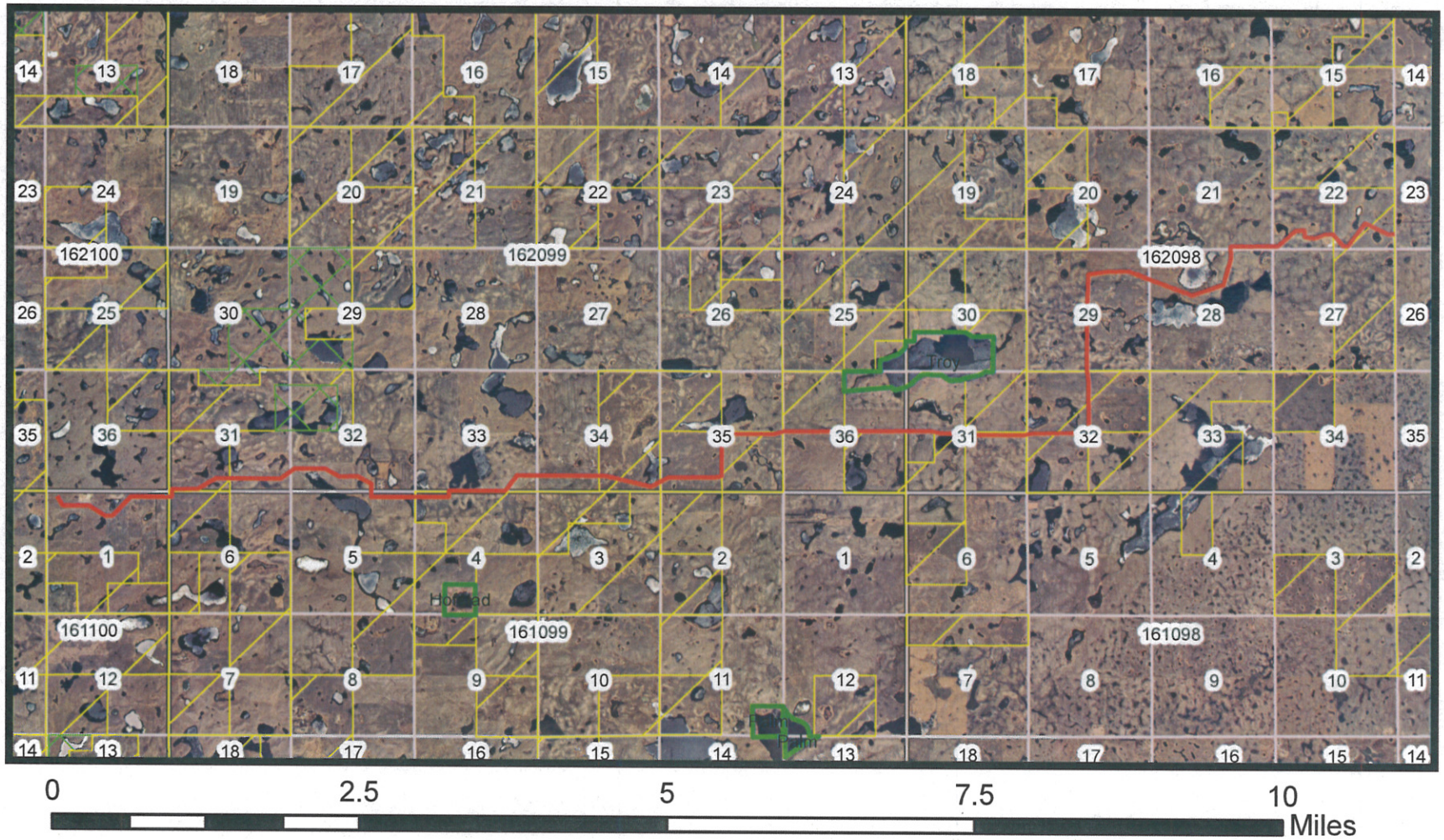
If you have any questions please contact Darren Wheeling or myself at Lostwood Wetland Management District Complex, telephone 701-965-6488, from 7 a.m. to 4:30 p.m. Thank you for your cooperation.

Sincerely,

David Gillund
Project Leader

Enclosure: Stampede Pipeline Maps

Stampede Pipeline



FWS INTEREST TYPE

OIL & GAS INTEREST

Stampede Pipeline

Wetland Easement

Grassland and Wetland Easement

Waterfowl Production Area

N
W
E
S

Disclaimer: The ONLY purpose of this map is to aid in the siting of oil and/or gas facilities. THIS MAP IS NOT AN OFFICIAL MAP OF U.S. FISH AND WILDLIFE SERVICE PROTECTED WETLANDS AND IS NOT INTENDED TO BE USED FOR ANY OTHER PURPOSE BESIDES THE PLANNING AND SITING OF OIL AND/OR GAS FACILITIES.

Aerial Photography: 2012
Map Prepared: 9/22/2014

Stampede Pipeline

Divide County
T. 161 N. R. 99 W.
Section 4, N1/2



0 0.25 0.5 0.75 1 Miles

Stampede Pipeline

Approximate Wetland Location

Wetland Easement

Grassland and Wetland Easement

Waterfowl Production Area

N
W E
S

Aerial Photography: 2012
Map Prepared: 9/22/2014

Disclaimer: The ONLY purpose of this map is to aid in the siting of oil and/or gas facilities. THIS MAP IS NOT AN OFFICIAL MAP OF U.S. FISH AND WILDLIFE SERVICE PROTECTED WETLANDS AND IS NOT INTENDED TO BE USED FOR ANY OTHER PURPOSE BESIDES THE PLANNING AND SITING OF OIL AND/OR GAS FACILITIES.

Stampede Pipeline

Divide County
T. 162 N. R. 99 W.
Section 31, S1/2



0 0.25 0.5 0.75 1 Miles

Stampede Pipeline

Approximate Wetland Location

Wetland Easement

Grassland and Wetland Easement

Waterfowl Production Area

N
W E
S

Aerial Photography: 2012
Map Prepared: 9/22/2014

Disclaimer: The ONLY purpose of this map is to aid in the siting of oil and/or gas facilities. THIS MAP IS NOT AN OFFICIAL MAP OF U.S. FISH AND WILDLIFE SERVICE PROTECTED WETLANDS AND IS NOT INTENDED TO BE USED FOR ANY OTHER PURPOSE BESIDES THE PLANNING AND SITING OF OIL AND/OR GAS FACILITIES.

Stampede Pipeline

Divide County
T. 162 N. R. 99 W.
Section 34, S1/2



0 0.25 0.5 0.75 1 Miles

Stampede Pipeline

Approximate Wetland Location

Wetland Easement

Grassland and Wetland Easement

Waterfowl Production Area

N W E S

Aerial Photography: 2012
Map Prepared: 9/22/2014

Disclaimer: The ONLY purpose of this map is to aid in the siting of oil and/or gas facilities. THIS MAP IS NOT AN OFFICIAL MAP OF U.S. FISH AND WILDLIFE SERVICE PROTECTED WETLANDS AND IS NOT INTENDED TO BE USED FOR ANY OTHER PURPOSE BESIDES THE PLANNING AND SITING OF OIL AND/OR GAS FACILITIES.

Stampede Pipeline

Divide County
T. 162 N. R. 99 W.
Section 35, S1/2



0 0.25 0.5 0.75 1 Miles

Stampede Pipeline

Approximate Wetland Location

Wetland Easement

Grassland and Wetland Easement

Waterfowl Production Area

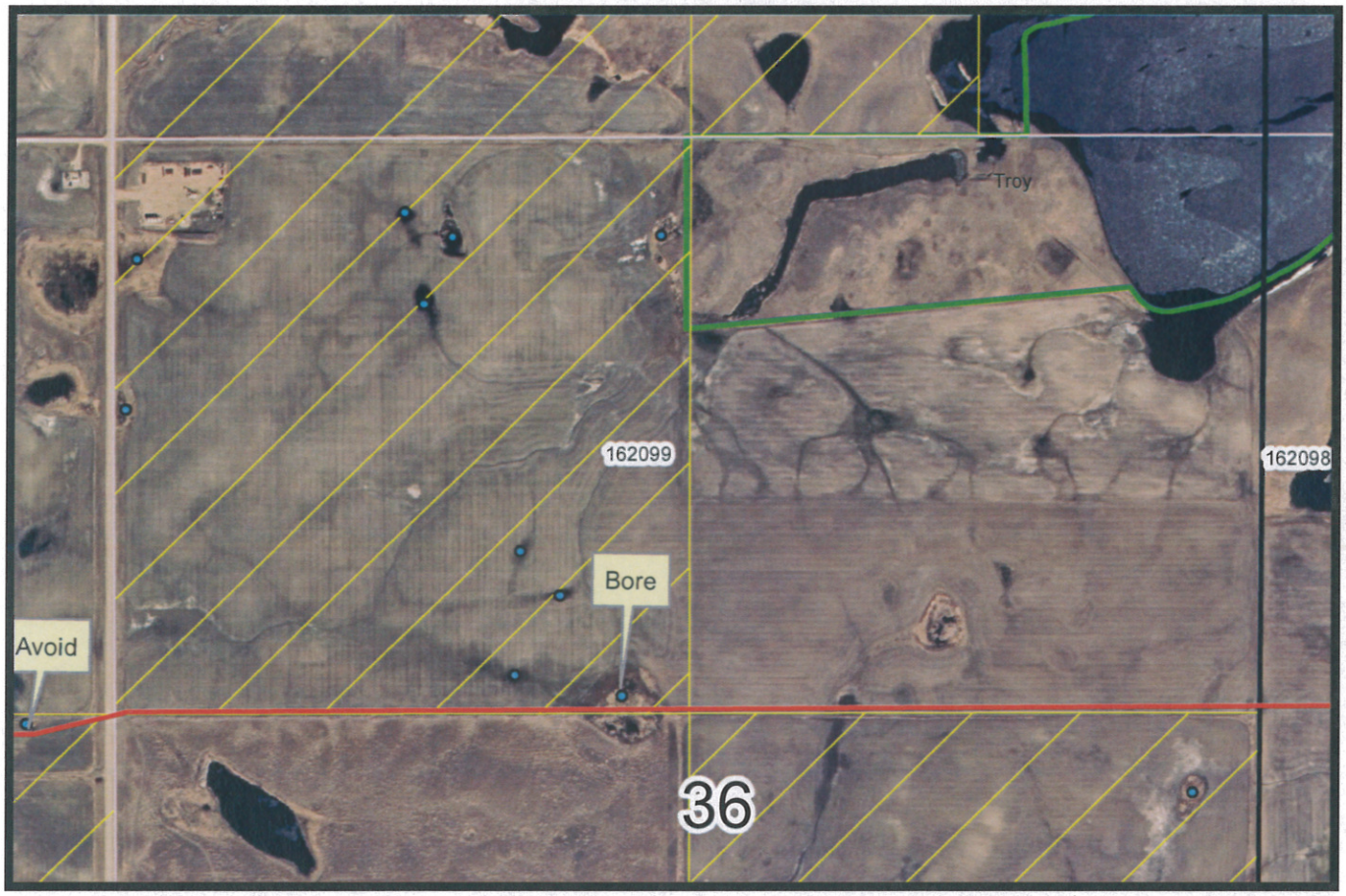
N
W E
S

Aerial Photography: 2012
Map Prepared: 9/22/2014

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Stampede Pipeline

Divide County
T. 162 N. R. 99 W.
Section 36, N1/2



0 0.25 0.5 0.75 1 Miles

Stampede Pipeline

Approximate Wetland Location

Wetland Easement

Grassland and Wetland Easement

Waterfowl Production Area

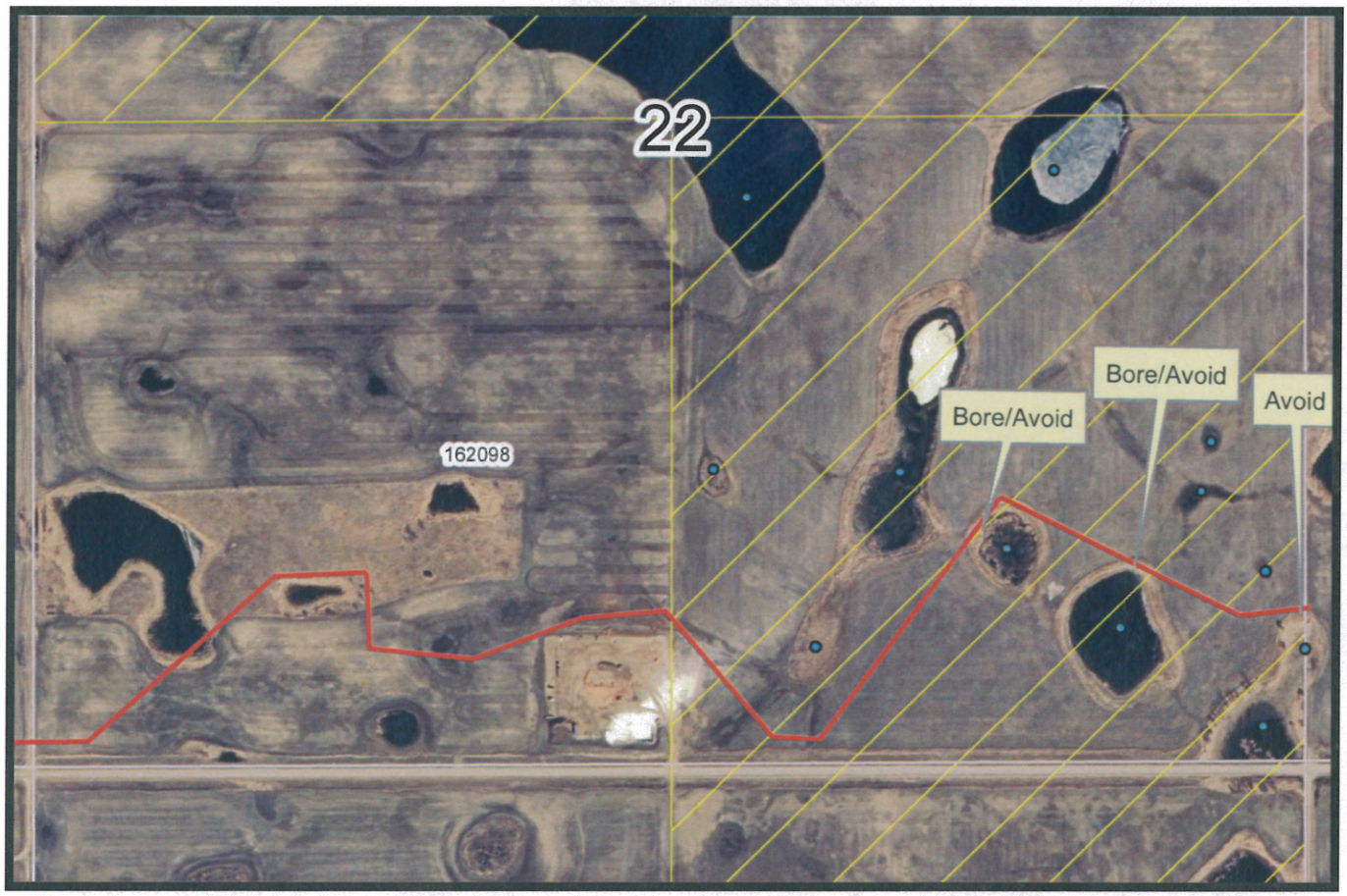
N
W E
S

Aerial Photography: 2012
Map Prepared: 9/22/2014

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Stampede Pipeline

Divide County
T. 162 N. R. 98 W.
Section 22, S1/2



0 0.25 0.5 0.75 1 Miles

Stampede Pipeline

Approximate Wetland Location

Wetland Easement

Grassland and Wetland Easement

Waterfowl Production Area

N
W E
S

Aerial Photography: 2012
Map Prepared: 9/22/2014

Disclaimer: The ONLY purpose of this map is to aid in the siting of oil and/or gas facilities. THIS MAP IS NOT AN OFFICIAL MAP OF U.S. FISH AND WILDLIFE SERVICE PROTECTED WETLANDS AND IS NOT INTENDED TO BE USED FOR ANY OTHER PURPOSE BESIDES THE PLANNING AND SITING OF OIL AND/OR GAS FACILITIES.

Stampede Pipeline

Divide County
T. 162 N. R. 98 W.
Section 31, S1/2



0 0.25 0.5 0.75 1 Miles

Stampede Pipeline

Approximate Wetland Location

Wetland Easement

Grassland and Wetland Easement

Waterfowl Production Area

N
W E
S

Aerial Photography: 2012
Map Prepared: 9/22/2014

Disclaimer: The ONLY purpose of this map is to aid in the siting of oil and/or gas facilities. THIS MAP IS NOT AN OFFICIAL MAP OF U.S. FISH AND WILDLIFE SERVICE PROTECTED WETLANDS AND IS NOT INTENDED TO BE USED FOR ANY OTHER PURPOSE BESIDES THE PLANNING AND SITING OF OIL AND/OR GAS FACILITIES.

Stampede Pipeline

Divide County
T. 162 N. R. 98 W.
Section 32



0 0.25 0.5 0.75 1 Miles

Stampede Pipeline

Approximate Wetland Location

Wetland Easement

Grassland and Wetland Easement

Waterfowl Production Area

N
W E
S

Aerial Photography: 2012
Map Prepared: 9/22/2014

Disclaimer: The ONLY purpose of this map is to aid in the siting of oil and/or gas facilities. THIS MAP IS NOT AN OFFICIAL MAP OF U.S. FISH AND WILDLIFE SERVICE PROTECTED WETLANDS AND IS NOT INTENDED TO BE USED FOR ANY OTHER PURPOSE BESIDES THE PLANNING AND SITING OF OIL AND/OR GAS FACILITIES.

July 21, 2014

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

RE: Meadowlark Midstream Company, LLC – Global Stampede Pipeline Project
Threatened and Endangered Species, Migratory Bird, and Managed Lands Review.

Dear Mr. Towner,

Meadowlark Midstream Company, LLC (MMC), a wholly owned subsidiary of Summit Midstream Partners, LLC, is proposing the construction of the Global Stampede Pipeline Project (Project). The proposed Project is a new 46.1-mile; 10-inch diameter Crude Oil Pipeline that will originate 9.5 miles SE of Fortuna, ND at Meadowlark Midstream Company's Divide Pump Station and will terminate at the Basin Transload Rail Facility approximately 2 miles SE of Columbus, ND. Pipeline construction activities would typically occupy a 110-foot right-of-way. Following construction, the pipeline would be operated within a 25-foot permanent easement. Pipeline construction involves temporary impacts, with a post-construction restoration standard of restoring disturbed areas to their original pre-construction condition.

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

<u>Divide County, North Dakota the pipeline crosses:</u>

- Township 161N, Range 100W, Section 1
- Township 161N, Range 99W, Sections 4, 5, and 6
- Township 162N, Range 99W, Sections 31, 32, 33, 34, 35, and 36
- Township 162N, Range 98W, Sections 21, 22, 23, 24, 28, 29, 31, and 32
- Township 162N, Range 97W, Sections 19, 20, 21, 22, 23, and 24
- Township 162N, Range 96W, Sections 14, 15, 16, 19, 20, 21, 23, and 24
- Township 162N, Range 95W, Sections 13, 16, 17, 18, 19, 21, 22, 23, and 24

<u>Burke County, North Dakota the pipeline crosses</u>

- Township 162N, Range 94W, Sections 10, 11, 12, 15, 16, 17, and 18
- Township 162N, Range 93W, Sections 3, 4, 7, 8, and 9

The purpose of this request is to compile U.S. Fish and Wildlife Service's (USFWS) comments on environmental topics that are relevant to the North Dakota Public Service Commission's (PSC) siting requirements for Energy Transmission Facility

E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

Siting. This request has been prepared to augment that effort and facilitate a thorough project review.

Federally Listed Species Analysis:

Results of the review of the USFWS Information Planning and Conservation System (IPaC) database, at http://ecos.fws.gov/ipac, on June 25th, 2014 listed the following species to be considered in an effects analysis for the Project:

Federally Listed Species
Gray wolf (*Canis lupus*) – Endangered
Whooping crane (*Grus americana*) – Endangered
Piping plover (*Charadrius melodus*) – Threatened
Designated Critical Habitat – Missouri River

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

Gray wolf: Historical records show that wolf sightings are very rare within North Dakota. Sightings in proximity to the project have been reported in the Killdeer Mountains in Dunn County (Johnson 1999). The Killdeer Mountains are about 60 miles to the southeast of the survey area. Most wolves in North Dakota are likely dispersed animals that originated in northern Minnesota, Riding National Park or Spruce Woods Reserve, Manitoba. Currently, wolves are not known to inhabit the project area. The proposed project will have **no effect** on the gray wolf.

Whooping crane: The whooping crane is a large bodied marsh species that breeds primarily in Canada and winters in the Gulf of Mexico. This species has been closely studied and monitored in recent years due to its small population. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. This species prefers larger wetland complexes for roosting habitat, typically using adjacent uplands for foraging opportunities. The proposed project will not result in a loss of crane habitat. Pipeline construction involves temporary impacts, with a post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Potential impacts are anticipated to be limited to the time period during active construction should it coincide with the spring migration period. Spring migration by the Aransas/Wood Buffalo population from the Texas Gulf Coast begins between the end of March and mid-April, with the last birds generally leaving Texas by the first of May. Experienced breeders are among the first to arrive in Canadian nesting areas in late April, with the rest of the birds arriving throughout the following 6-8 weeks.

Project precautionary measures would be implemented if a whooping crane is sighted in or near the project area. MMC would voluntarily suspend all heavy equipment operation activities and notify the USFWS should a whooping crane be spotted within 0.5 mile of the project area. Heavy equipment activities would resume upon the departure of the individual(s). The pipeline is a buried utility and will not have a direct impact on this species. As a result, the proposed pipeline would have **no effect** on the species.

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871 Jefferson Avenue
St. Paul, MN 55102

Piping plover: The piping plover is associated with shorelines along small alkaline lakes, large reservoir beaches, and river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25% of the area. Current breeding range on the Northern Great Plains extends south along major prairie rivers including the Yellowstone and Missouri, and in alkali wetlands including those in northeastern Montana and North Dakota. The project will intersect prairie pothole wetlands, some of which may be suitable alkali wetland habitat, particularly in low-water years. Wetland, waterbody and habitat surveys will be conducted for the project and best management practices will be implemented to avoid impacts to the piping plover. This will be achieved by avoiding and minimizing impacts to potential habitat and by observing sensitive timing windows. The nearest federally designated critical habitat is Miller Lake located approximately 15 miles west. The project is approximately 46 miles from the Missouri River and Lake Sakakawea. The proposed project will have **no effect** on piping plovers or designated critical habitat for the piping plover.

USFWS Managed Lands:

Conservation programs such as Waterfowl Production Areas and wetland and grassland easements represent an important tool used by USFWS to identify and manage high quality wildlife habitat. MMC requests confirmation regarding the presence or absence of USFWS managed lands within the proposed study area.

Migratory Bird Consultation:

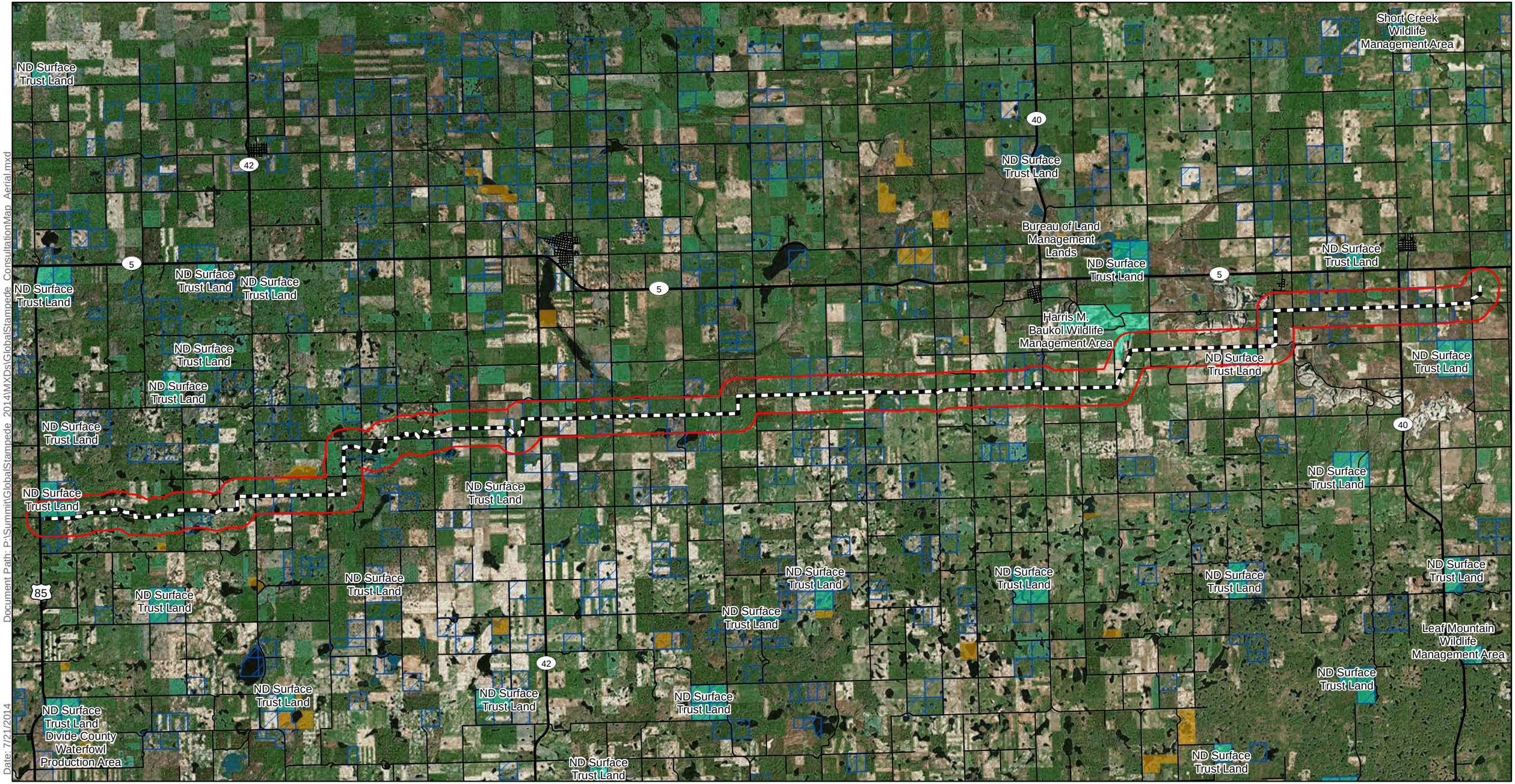
USFWS administers various wildlife related mandates of national concern including the Migratory Bird Treaty Act (MBTA). MMC understands that unlike the Endangered Species Act, the MBTA has no provisions for the allowance of a take and therefore compliance may best be achieved by avoiding or minimizing the potential to interact with migratory species during the active breeding season. MMC also understands that in North Dakota, the breeding season is typically defined as occurring annually from February 1 through July 15.

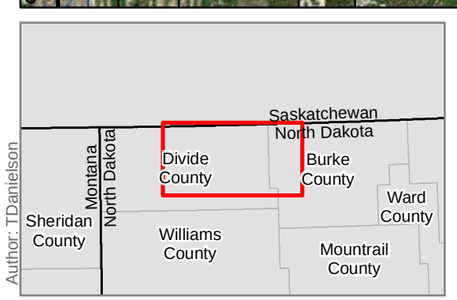
E3 Environmental, LLC (E3) has been retained by MMC to provide environmental consulting support for this project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Sincerely,

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

Enclosures: Project maps – USGS topographic and aerial photography
cc: E3 Project Files





Pipeline
Corridor (1 Mile)
Mineral Trust Land
Federal Land
State Land

N

E3 Environmental
Enhancing Execution with Experience

0 1.75 3.5 7 Miles

1:160,500

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline

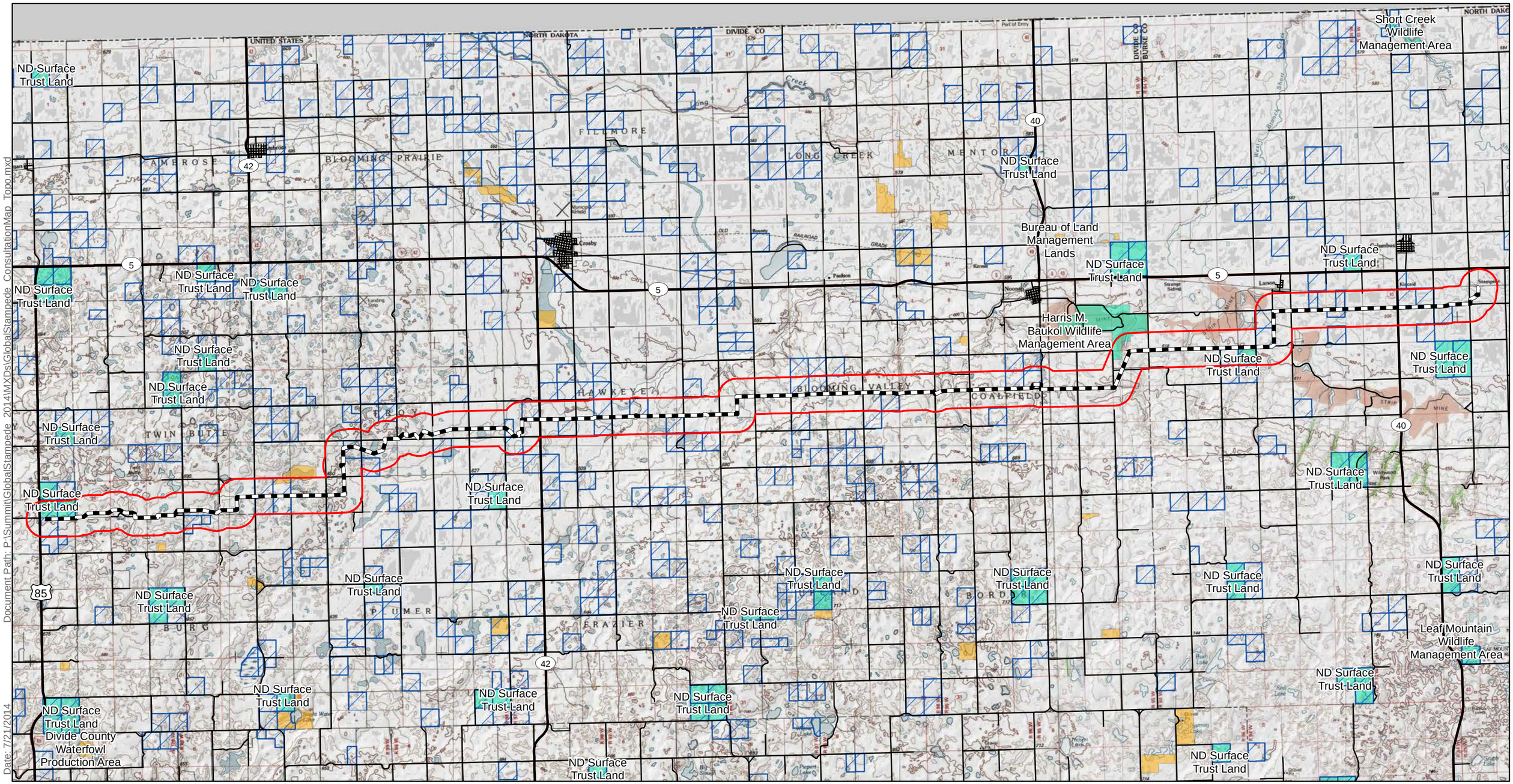
Aerial Overview Map

Divide and Burke Counties, ND

Author: TDanielson

Date: 7/21/2014

Document Path: P:\Summit\GlobalStampede_2014\MXDs\GlobalStampede_ConsultationMap_Aerial.mxd



Saskatchewan
North Dakota
Montana
North Dakota
Divide County
Burke County
Ward County
Sheridan County
Williams County
Mountrail County

Pipeline
Corridor (1 Mile)
Mineral Trust Land
Federal Land
State Land

N

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Enhancing Execution with Experience

0 1.75 3.5 7 Miles

1:160,500

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline

Aerial Overview Map

Divide and Burke Counties, ND

Author: TDanielson

Date: 7/21/2014

Document Path: P:\Summit\GlobalStampede_2014\MXDs\GlobalStampede_ConsultationMap_Topo.mxd

North Dakota Game and Fish Department

Consultation

"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

August 15, 2014

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

Dear Ms. Schmidt:

RE: Meadowlark Midstream Company, LLC – Global Stampede Pipeline Project

Meadowlark Midstream Company, LLC (MMC) is proposing the construction of the Global Stampede Pipeline, a new 46.1-mile 10-inch diameter crude oil pipeline that will originate 9.5 miles SE of Fortuna, ND at MMC's Divide Pump Station and will terminate at the Basin Transload Rail Facility approximately 2 miles SE of Columbus, ND.

The Harris M. Baukol Wildlife Management Area is located within the proposed project corridor in the SW¼ Section 12 & NW¼ Section 13, T162N, R95W. A special use permit would be required if these lands will be impacted by construction activity. Mr. Kent Luttschwager, Wildlife Resource Management Supervisor for the district, can be contacted at 701-770-0918 for additional information on permit requirements.

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

The National Wetland Inventory indicates various wetlands within the proposed project corridor. Steps should be taken to protect any wetlands that cannot be avoided, no alterations should be made to existing drainage patterns, and above-ground appurtenances should not be placed in wetland areas.

We do not believe this project will have significant adverse effects on wildlife or wildlife habitat, including species of conservation priority, provided any unavoidable destruction or degradation of wetland acres is mitigated in kind, and disturbed areas are reclaimed to pre-project conditions.

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

Sincerely,

Steve Dyke

(for) Greg Link
Chief
Conservation & Communication Division

js

July 21, 2014

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

RE: Meadowlark Midstream Company, LLC – Global Stampede Pipeline Project
State Conservation Priority Species Consultation, State Plots Land Review

Dear Mr. Link,

Meadowlark Midstream Company, LLC (MMC), a wholly owned subsidiary of Summit Midstream Partners, LLC, is proposing the construction of the Global Stampede Pipeline Project (Project). The proposed Project is a new 46.1-mile; 10-inch diameter Crude Oil Pipeline that will originate 9.5 miles SE of Fortuna, ND at Meadowlark Midstream Company's Divide Pump Station and will terminate at the Basin Transload Rail Facility approximately 2 miles SE of Columbus, ND. Pipeline construction activities would typically occupy a 110-foot right-of-way. Following construction, the pipeline would be operated within a 25-foot permanent easement. Pipeline construction involves temporary impacts, with a post-construction restoration standard of restoring disturbed areas to their original pre-construction condition.

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

<u>Divide County, North Dakota the pipeline crosses:</u>

- Township 161N, Range 100W, Section 1
- Township 161N, Range 99W, Sections 4, 5, and 6
- Township 162N, Range 99W, Sections 31, 32, 33, 34, 35, and 36
- Township 162N, Range 98W, Sections 21, 22, 23, 24, 28, 29, 31, and 32
- Township 162N, Range 97W, Sections 19, 20, 21, 22, 23, and 24
- Township 162N, Range 96W, Sections 14, 15, 16, 19, 20, 21, 23, and 24
- Township 162N, Range 95W, Sections 13, 16, 17, 18, 19, 21, 22, 23, and 24

<u>Burke County, North Dakota the pipeline crosses</u>

- Township 162N, Range 94W, Sections 10, 11, 12, 15, 16, 17, and 18
- Township 162N, Range 93W, Sections 3, 4, 7, 8, and 9

E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

E3 has accessed http://gf.nd.gov/hunting/private-land-open-sportsmen to review the proposed Project corridor for the presence of PLOTS Lands. The results of this search concluded that no PLOTS Lands will be intersected by the project in Burke and Divide Counties.

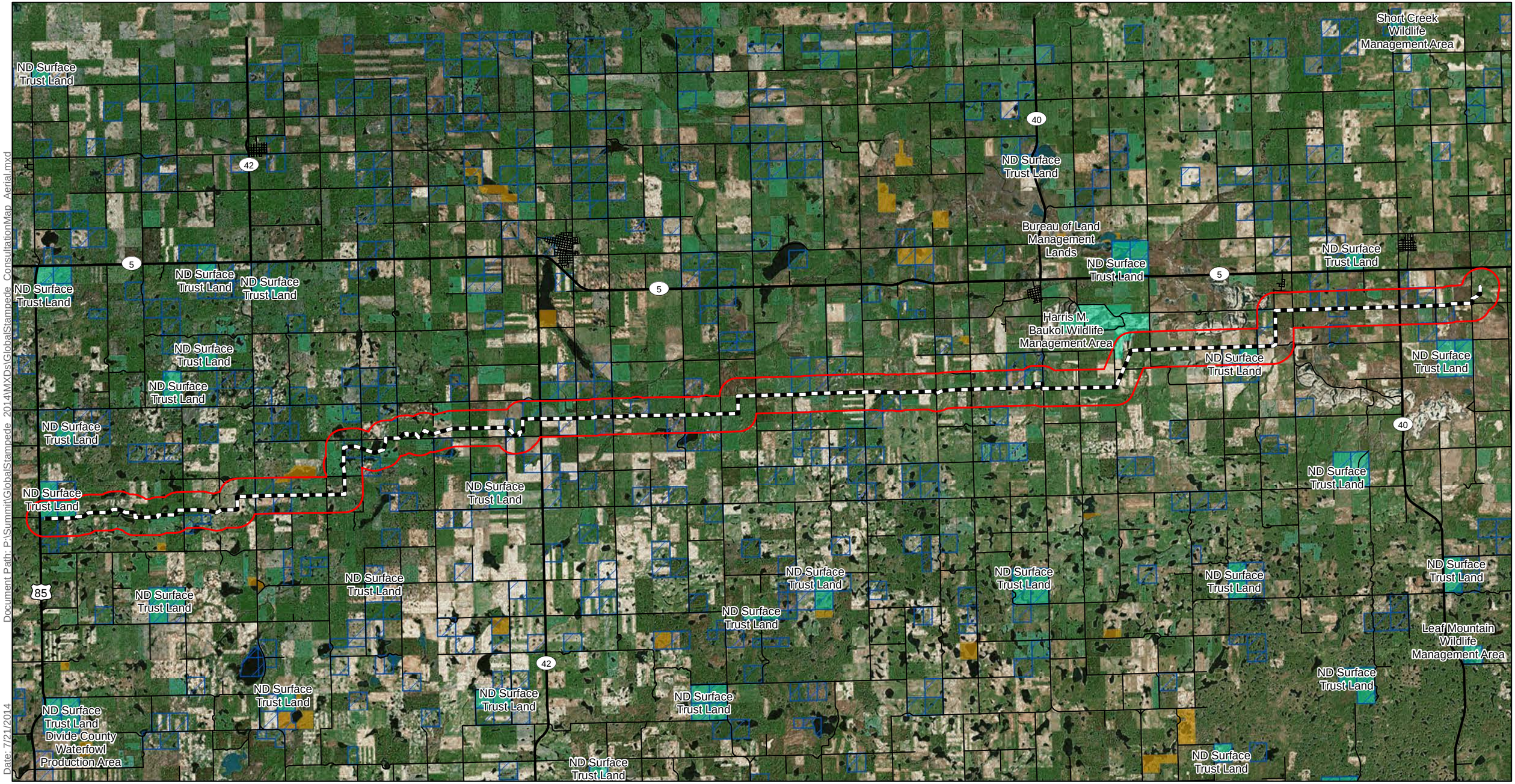
The purpose of this correspondence is twofold: to request a review of the proposed Project for presence or absence of State Conservation Priority Species; and to request confirmation of the presence or absence of North Dakota Game and Fish Department PLOTS Lands within the proposed pipeline corridor. This information will be included in a North Dakota Public Service Commission application for the Project. E3 Environmental, LLC (E3) has been retained by MMC to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

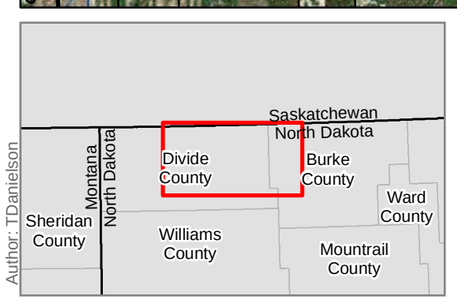
Sincerely,

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

Enclosures: Project Maps

cc: E3 Project Files





Pipeline
Corridor (1 Mile)
Mineral Trust Land
Federal Land
State Land

N

E3 Environmental
Enhancing Execution with Experience

0 1.75 3.5 7 Miles

1:160,500

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline

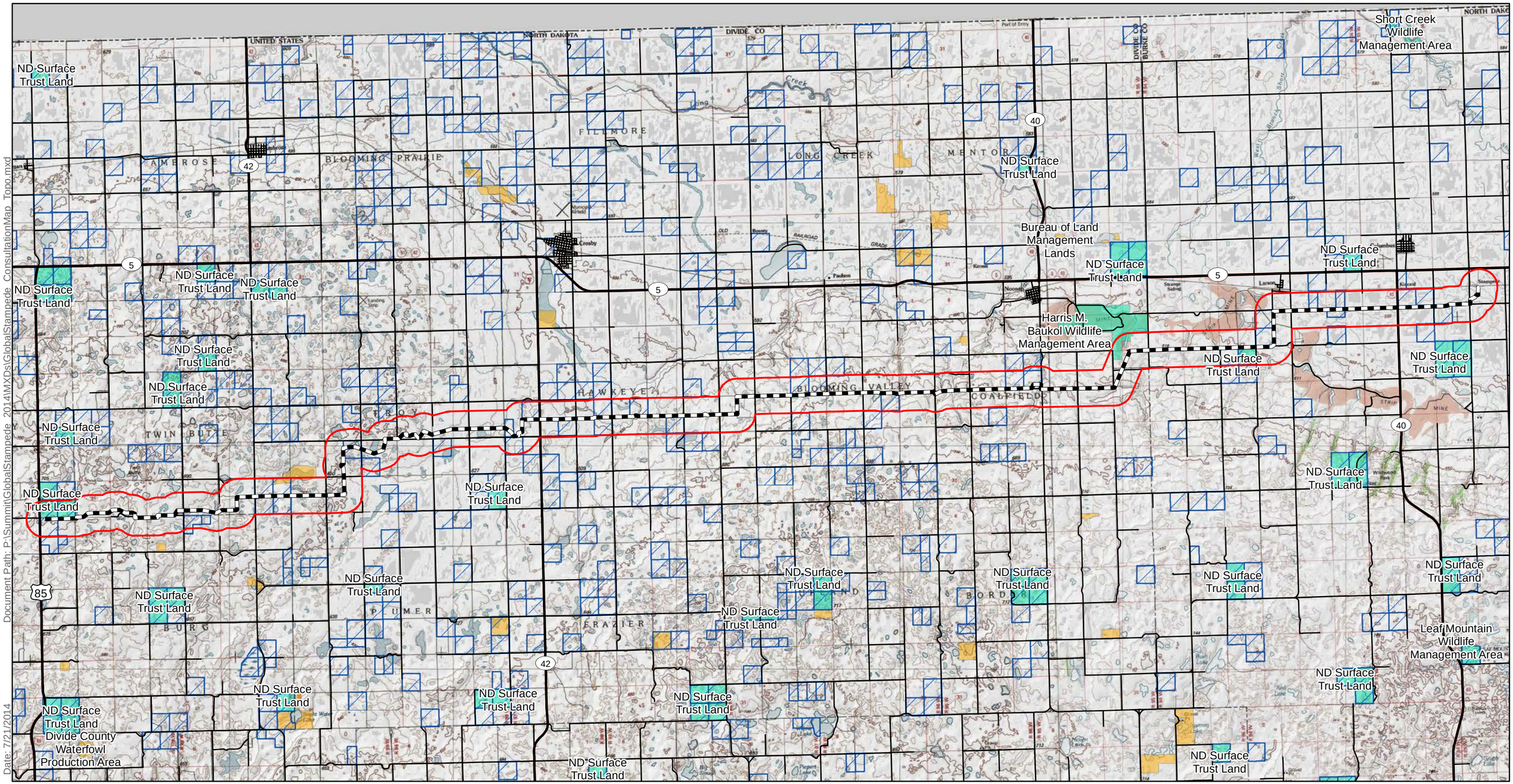
Aerial Overview Map

Divide and Burke Counties, ND

Author: TDanielson

Date: 7/21/2014

Document Path: P:\Summit\GlobalStampede_2014\MXDs\GlobalStampede_ConsultationMap_Aerial.mxd



Saskatchewan
North Dakota
Montana
North Dakota
Divide County
Burke County
Ward County
Sheridan County
Williams County
Mountrail County

Pipeline
Corridor (1 Mile)
Mineral Trust Land
Federal Land
State Land

N

E3 Environmental
Enhancing Execution with Experience

0 1.75 3.5 7 Miles

1:160,500

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline

Aerial Overview Map

Divide and Burke Counties, ND

Author: TDanielson

Date: 7/21/2014

Document Path: P:\Summit\GlobalStampede_2014\MXDs\GlobalStampede_ConsultationMap_Topo.mxd

North Dakota Parks and Recreation Department

Consultation

July 21, 2014

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

RE: Meadowlark Midstream Company, LLC – Global Stampede Pipeline Project
State Conservation Priority Species Consultation

Dear Ms. Duttenhefner,

Meadowlark Midstream Company, LLC (MMC), a wholly owned subsidiary of Summit Midstream Partners, LLC, is proposing the construction of the Global Stampede Pipeline Project (Project). The proposed Project is a new 46.1-mile; 10-inch diameter Crude Oil Pipeline that will originate 9.5 miles SE of Fortuna, ND at Meadowlark Midstream Company's Divide Pump Station and will terminate at the Basin Transload Rail Facility approximately 2 miles SE of Columbus, ND. Pipeline construction activities would typically occupy a 110-foot right-of-way. Following construction, the pipeline would be operated within a 25-foot permanent easement. Pipeline construction involves temporary impacts, with a post-construction restoration standard of restoring disturbed areas to their original pre-construction condition.

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

<u>Divde County, North Dakota the pipeline crosses:</u>

- Township 161N, Range 100W, Section 1
- Township 161N, Range 99W, Sections 4, 5, and 6
- Township 162N, Range 99W, Sections 31, 32, 33, 34, 35, and 36
- Township 162N, Range 98W, Sections 21, 22, 23, 24, 28, 29, 31, and 32
- Township 162N, Range 97W, Sections 19, 20, 21, 22, 23, and 24
- Township 162N, Range 96W, Sections 14, 15, 16, 19, 20, 21, 23, and 24
- Township 162N, Range 95W, Sections 13, 16, 17, 18, 19, 21, 22, 23, and 24

<u>Burke County, North Dakota the pipeline crosses</u>

- Township 162N, Range 94W, Sections 10, 11, 12, 15, 16, 17, and 18
- Township 162N, Range 93W, Sections 3, 4, 7, 8, and 9

E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

The purpose of this request is to compile the North Dakota Parks and Recreation Department's (Department) comments on environmental topics that are relevant to the North Dakota Public Service Commission's siting requirements for Energy Transmission Facility Siting. It is our understanding that the Department administers the following state programs:

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

We request a review of the proposed corridor and route (see attached map) for the presence or absence of any lands, projects and/or sensitive species that fall under the purview of these programs.

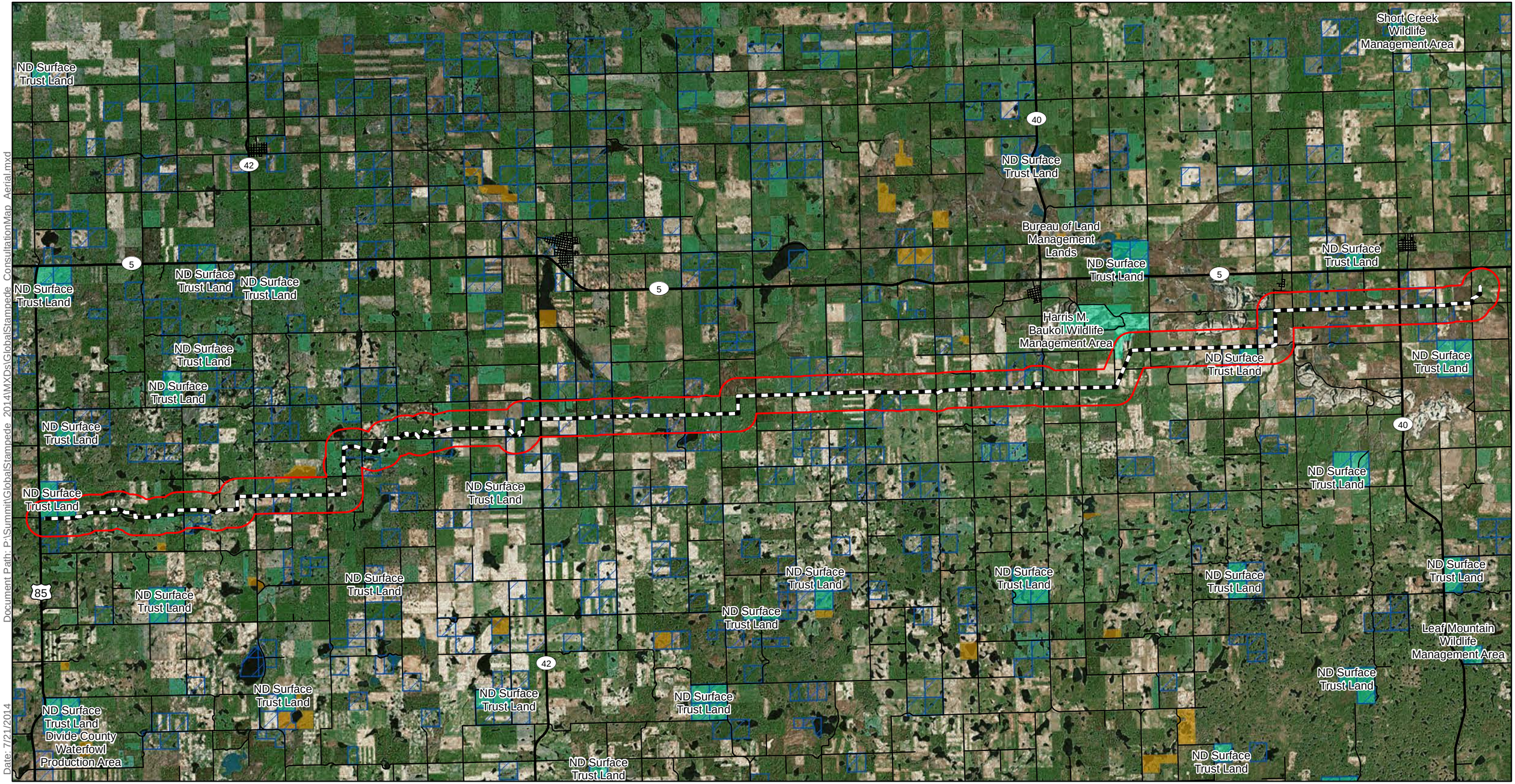
E3 Environmental, LLC has been retained by MMC to provide environmental consulting support for this project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

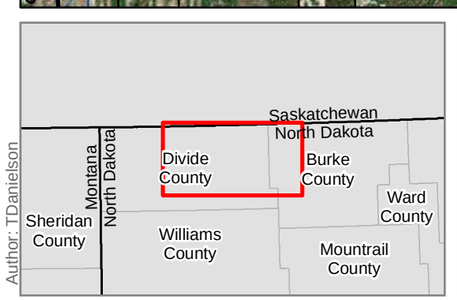
Sincerely,

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

Enclosures: Project map

cc: E3 Project Files





Pipeline
Corridor (1 Mile)
Mineral Trust Land
Federal Land
State Land

N

E3 Environmental
Enhancing Execution with Experience

0 1.75 3.5 7 Miles

1:160,500

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline

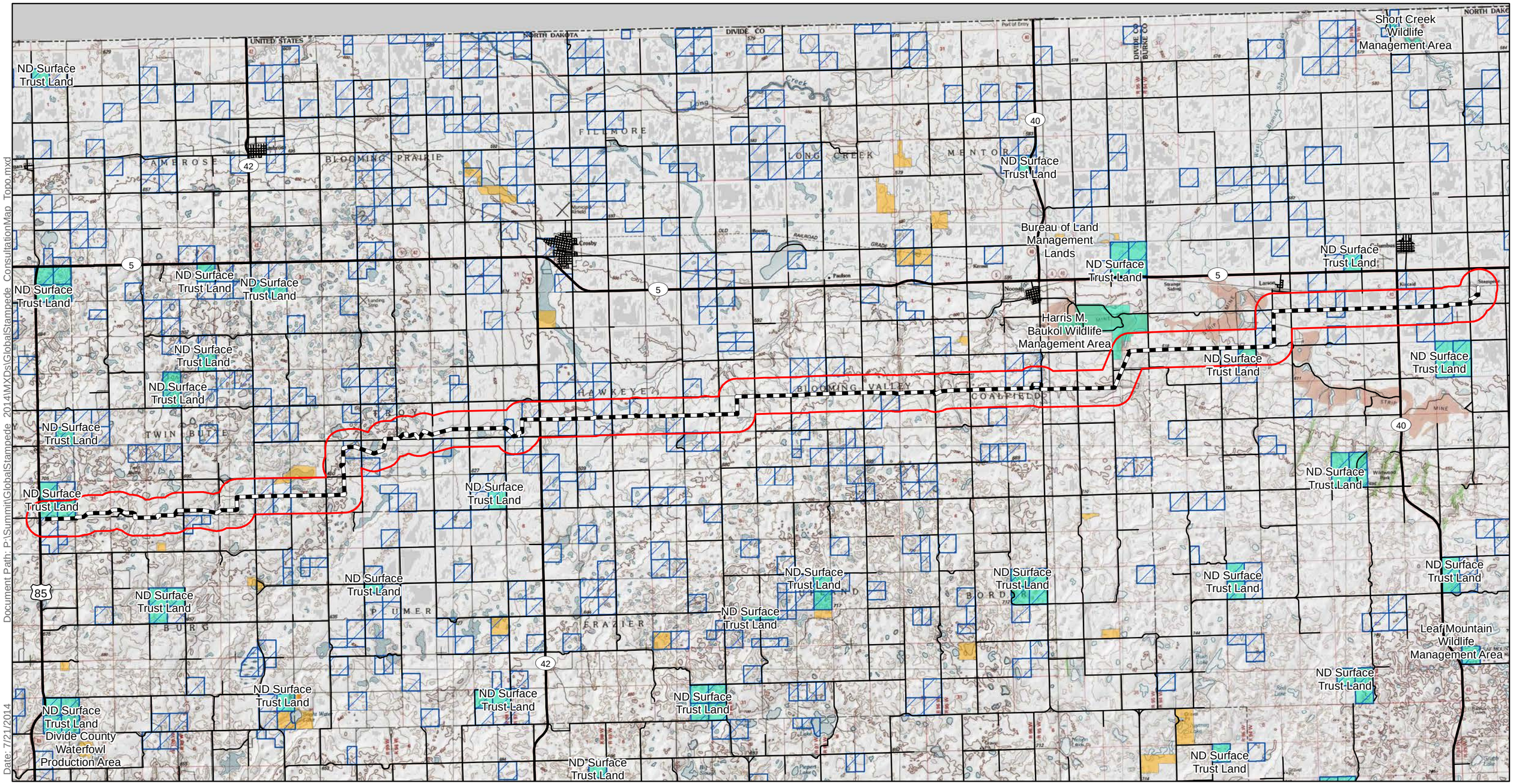
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Author: TDanielson

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Meadowlark Midstream Company, LLC

Global Stampede Pipeline

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Divide and Burke Counties, ND

Author: TDanielson

Date: 7/21/2014

Document Path: P:\Summit\GlobalStampede_2014\MXDs\GlobalStampede_ConsultationMap_Topo.mxd

North Dakota State Lands Department-School Trust Lands

Constulation

Katie Schmidt

From: Haupt, Michael L. <mhaupt@nd.gov>
Sent: Wednesday, July 23, 2014 3:11 PM
To: Katie Schmidt
Cc: Tyler Danielson
Subject: RE: MMC-Global Stampede Project Consultation Request
Attachments: 162-94-16BRKLarsonMine.pdf

Katie,

Good afternoon! We could consider a pipeline corridor near the north section line as shown on the attached aerial photo, however, portions of this tracts were mined for coal and there may be some on-going settling occurring. You may want to ask the reclamation division of the ND Public Service Commission to what extent the surface was affected by coal mining before pursuing a route across this tract. Let me know if you have questions. Thanks.

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

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

From: Katie Schmidt [mailto:KSchmidt@go2e3.com]
Sent: Monday, July 21, 2014 3:54 PM
To: Haupt, Michael L.
Cc: Tyler Danielson
Subject: MMC-Global Stampede Project Consultation Request

Dear Mr. Haupt,

Meadowlark Midstream Company, LLC (MMC), a wholly owned subsidiary of Summit Midstream Partners, LLC, is proposing the construction of the Global Stampede Pipeline Project (Project). The proposed Project is a new 46.1-mile; 10-inch diameter Crude Oil Pipeline that will originate 9.5 miles SE of Fortuna, ND at Meadowlark Midstream Company's Divide Pump Station and will terminate at the Basin Transload Rail Facility approximately 2 miles SE of Columbus, ND. Pipeline construction activities would typically occupy a 110-foot right-of-way. Following construction, the pipeline would be operated within a 25-foot permanent easement. Pipeline construction involves temporary impacts, with a post-construction restoration standard of restoring disturbed areas to their original pre-construction condition.
The location of the proposed Project is described below and depicted on the attached maps.

Divde County, North Dakota the pipeline crosses:

- Township 161N, Range 100W, Section 1
- Township 161N, Range 99W, Sections 4, 5, and 6
- Township 162N, Range 99W, Sections 31, 32, 33, 34, 35, and 36
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- Township 162N, Range 96W, Sections 14, 15, 16, 19, 20, 21, 23, and 24
- Township 162N, Range 95W, Sections 13, 16, 17, 18, 19, 21, 22, 23, and 24

Burke County, North Dakota the pipeline crosses

- Township 162N, Range 94W, Sections 10, 11, 12, 15, 16, 17, and 18
- Township 162N, Range 93W, Sections 3, 4, 7, 8, and 9

E3 has accessed North Dakota Geographic Information Systems downloadable data at http://www.nd.gov/gis/mapsdata/ to review the proposed Project corridor for the presence of State School Trust Lands. The results of this search concluded that the following sections intersect State Lands in Burke and Divide County:

Burke County, North Dakota the pipeline crosses:

- Township 162N, Range 94W, Section 16

Divide County, North Dakota the pipeline crosses:

- None

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

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

Sincerely,

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

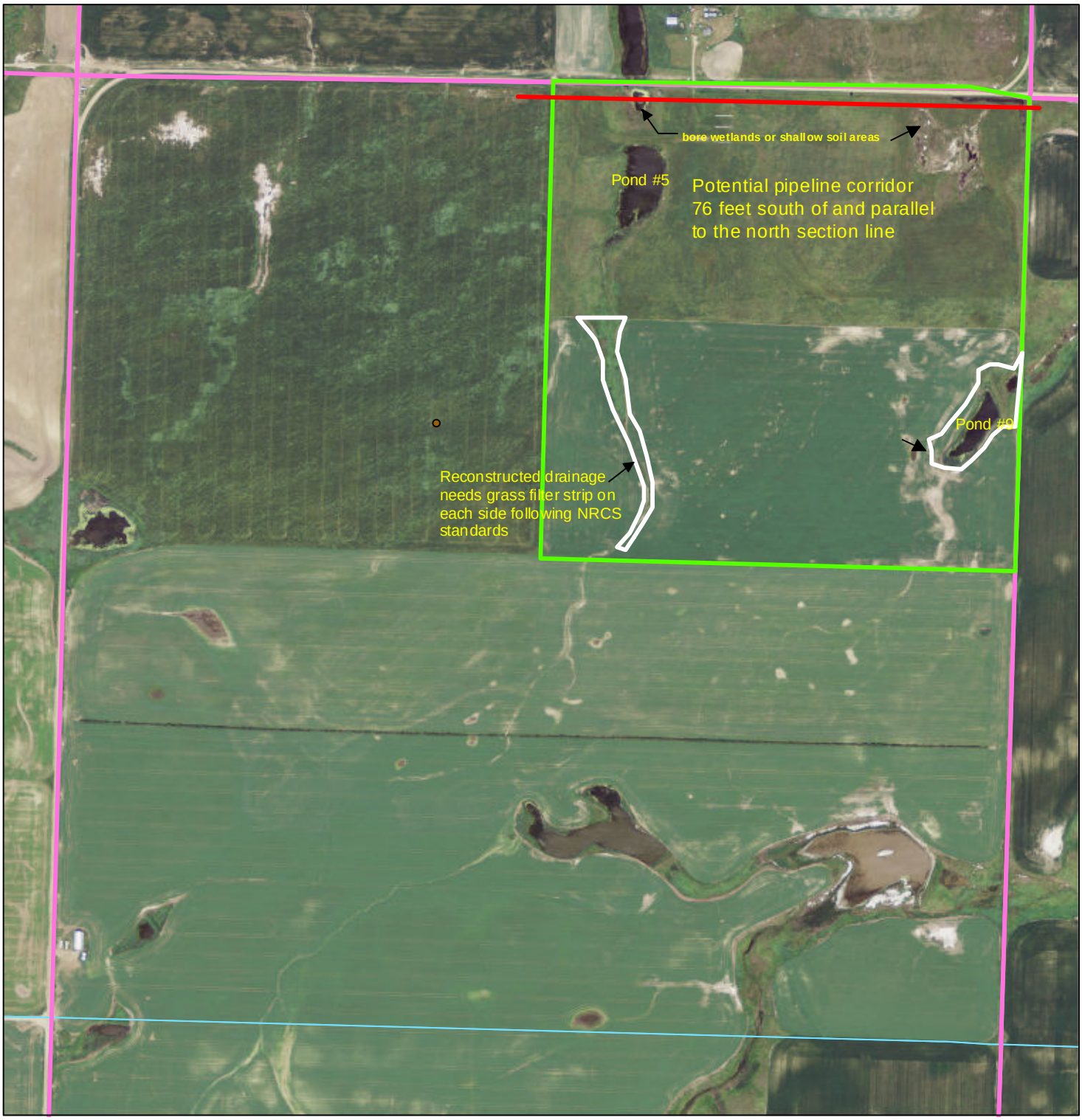


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16-T162-R94

Burke County

Township: Keller



N
W E
S

Map Datum is WGS 84 (same as NAD 83)

0 0.5 1 Miles

Printed: 9/27/2006 -- ND State Land Dept.

Katie Schmidt

From: Katie Schmidt
Sent: Monday, July 21, 2014 3:54 PM
To: mhaupt@nd.gov
Cc: Tyler Danielson (tdanielson@go2e3.com)
Subject: MMC-Global Stampede Project Consultation Request
Attachments: Maps.pdf

Dear Mr. Haupt,

Meadowlark Midstream Company, LLC (MMC), a wholly owned subsidiary of Summit Midstream Partners, LLC, is proposing the construction of the Global Stampede Pipeline Project (Project). The proposed Project is a new 46.1-mile; 10-inch diameter Crude Oil Pipeline that will originate 9.5 miles SE of Fortuna, ND at Meadowlark Midstream Company's Divide Pump Station and will terminate at the Basin Transload Rail Facility approximately 2 miles SE of Columbus, ND. Pipeline construction activities would typically occupy a 110-foot right-of-way. Following construction, the pipeline would be operated within a 25-foot permanent easement. Pipeline construction involves temporary impacts, with a post-construction restoration standard of restoring disturbed areas to their original pre-construction condition.
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- Township 162N, Range 97W, Sections 19, 20, 21, 22, 23, and 24
- Township 162N, Range 96W, Sections 14, 15, 16, 19, 20, 21, 23, and 24
- Township 162N, Range 95W, Sections 13, 16, 17, 18, 19, 21, 22, 23, and 24

Burke County, North Dakota the pipeline crosses

- Township 162N, Range 94W, Sections 10, 11, 12, 15, 16, 17, and 18
- Township 162N, Range 93W, Sections 3, 4, 7, 8, and 9

E3 has accessed North Dakota Geographic Information Systems downloadable data at http://www.nd.gov/gis/mapsdata/ to review the proposed Project corridor for the presence of State School Trust Lands. The results of this search concluded that the following sections intersect State Lands in Burke and Divide County:

Burke County, North Dakota the pipeline crosses:

- Township 162N, Range 94W, Section 16

Divide County, North Dakota the pipeline crosses:

- None

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

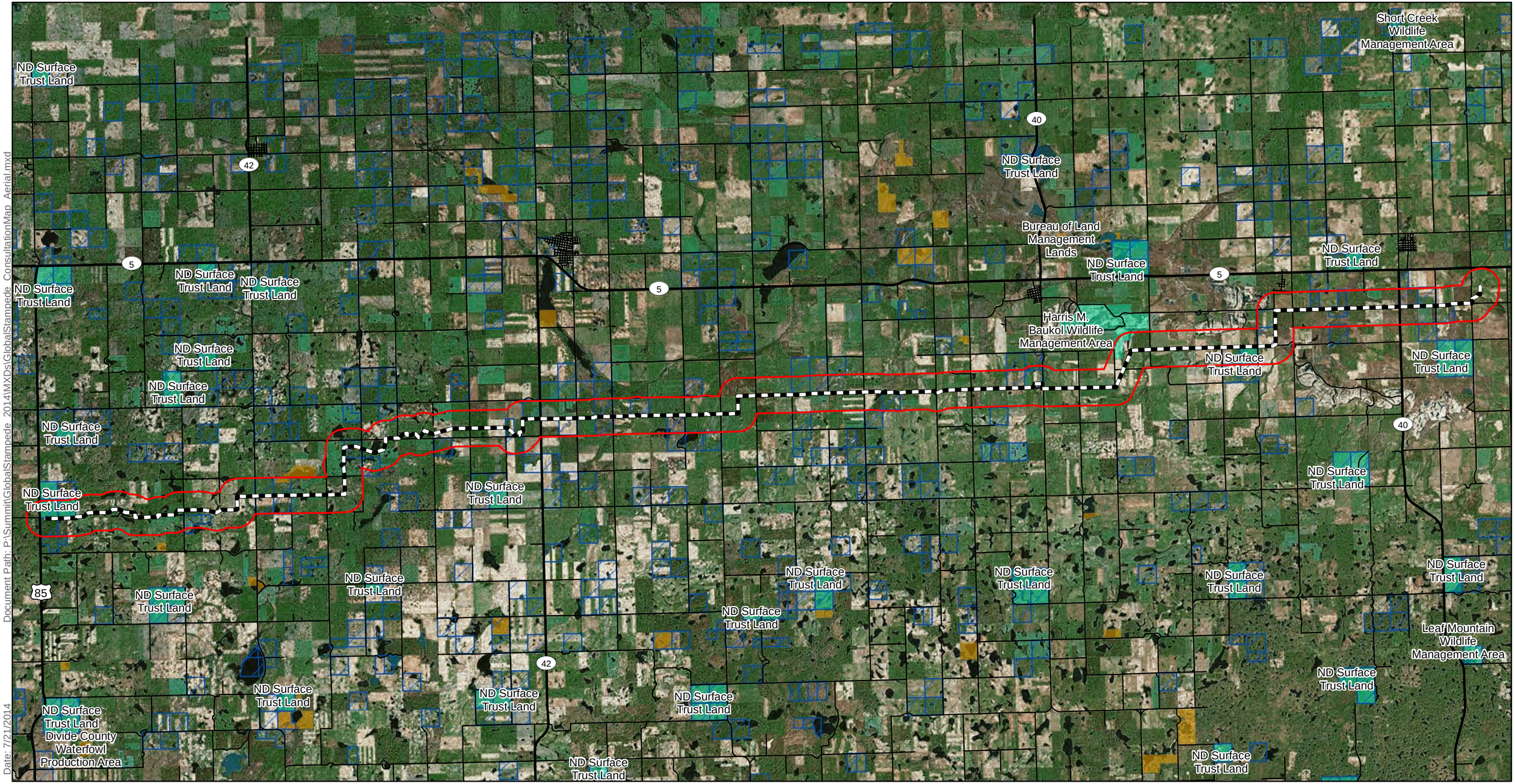
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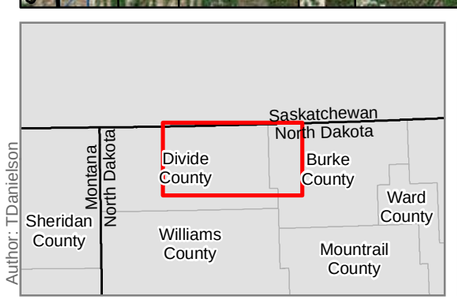
Sincerely,

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com



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Pipeline
Corridor (1 Mile)
Mineral Trust Land
Federal Land
State Land

N

E3 Environmental
Enhancing Execution with Experience

0 1.75 3.5 7 Miles

1:160,500

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline

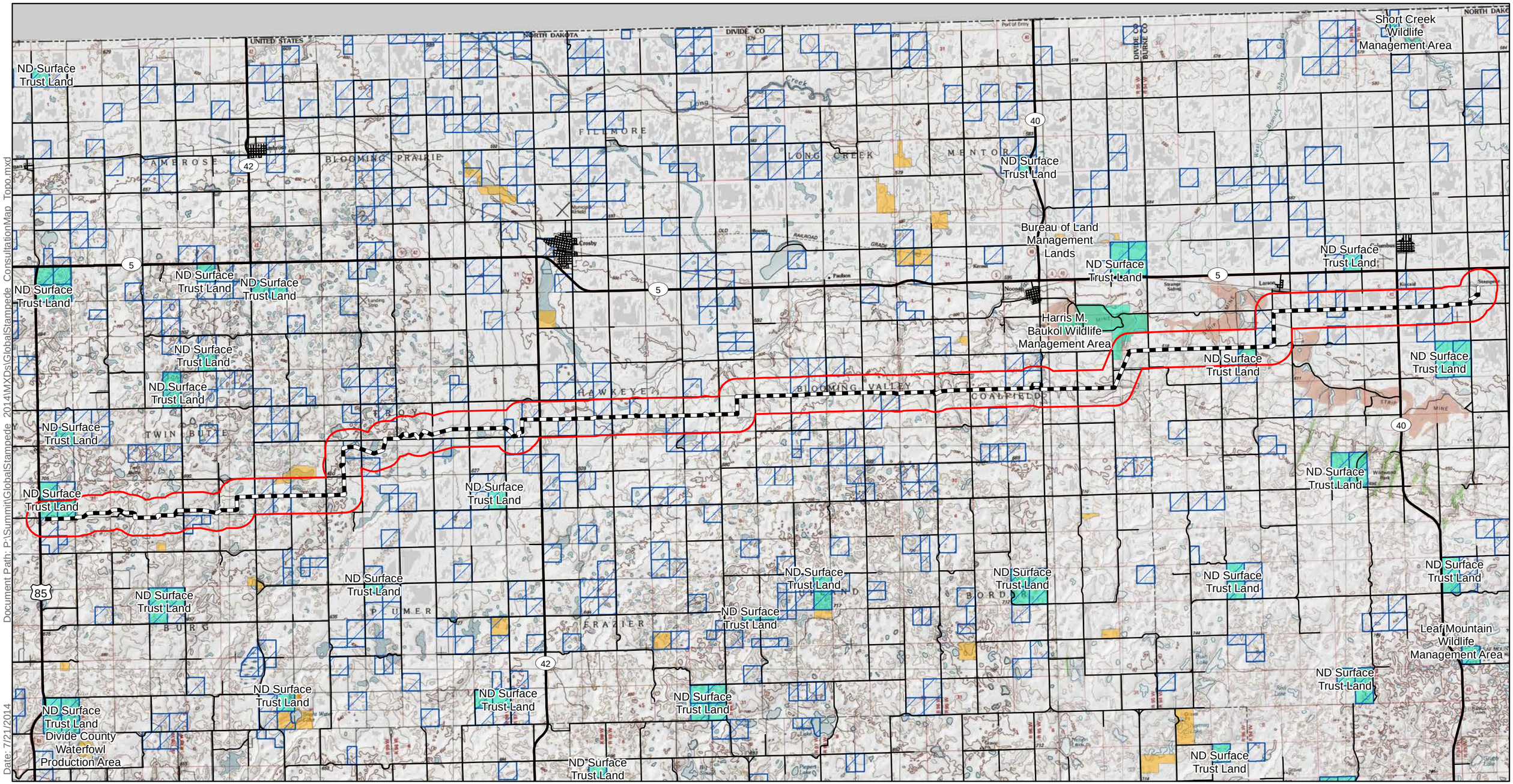
Aerial Overview Map

Divide and Burke Counties, ND

Author: TDanielson

Date: 7/21/2014

Document Path: P:\Summit\GlobalStampede_2014\MXDs\GlobalStampede_ConsultationMap_Aerial.mxd



Saskatchewan
North Dakota
Montana
North Dakota
Divide County
Burke County
Ward County
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Pipeline
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Mineral Trust Land
Federal Land
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Meadowlark Midstream Company, LLC

Global Stampede Pipeline

Aerial Overview Map

Divide and Burke Counties, ND

Author: TDanielson

Date: 7/21/2014

Document Path: P:\Summit\GlobalStampede_2014\MXDs\GlobalStampede_ConsultationMap_Topo.mxd

North Dakota State Lands Department-Mineral Trust Lands

Constulation

Chris Schmidt

From: Chris Schmidt
Sent: Thursday, November 06, 2014 10:11 AM
To: Chris Schmidt
Subject: RE: MMC Global Stampede Project Consultation Request

---

From: Bayley, Keith W.
Sent: Friday, August 01, 2014 2:59 PM
To: 'Katie Schmidt'
Subject: RE: MMC Global Stampede Project Consultation Request

Katie,

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

Keith Bayley
Land Professional
ND Department of Trust Lands
701.328.1912
kbayley@nd.gov

From: Katie Schmidt [mailto:KSchmidt@go2e3.com]
Sent: Friday, August 01, 2014 10:10 AM
To: Bayley, Keith W.
Subject: RE: MMC Global Stampede Project Consultation Request

Keith,

Good morning. Attached you will find the file in the format requested. Let me know if you have any additional information.

Katie

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881



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From: Bayley, Keith W. [mailto:kbayley@nd.gov]
Sent: Thursday, July 31, 2014 4:09 PM
To: Katie Schmidt
Subject: RE: MMC Global Stampede Project Consultation Request

Katie,

Would you resend the gis file. If you zipped it, rename the .zip file to a .txt extension and then it sneak around our server "protection". I can rename it here back to .zip and unzip it. Thanks.

Keith

From: Katie Schmidt [mailto:KSchmidt@go2e3.com]
Sent: Monday, July 21, 2014 3:51 PM
To: Bayley, Keith W.
Cc: Tyler Danielson
Subject: MMC Global Stampede Project Consultation Request

Dear Mr. Bayley,

Meadowlark Midstream Company, LLC (MMC), a wholly owned subsidiary of Summit Midstream Partners, LLC, is proposing the construction of the Global Stampede Pipeline Project (Project). The proposed Project is a new 46.1-mile; 10-inch diameter Crude Oil Pipeline that will originate 9.5 miles SE of Fortuna, ND at Meadowlark Midstream Company's Divide Pump Station and will terminate at the Basin Transload Rail Facility approximately 2 miles SE of Columbus, ND. Pipeline construction activities would typically occupy a 110-foot right-of-way. Following construction, the pipeline would be operated within a 25-foot permanent easement. Pipeline construction involves temporary impacts, with a post-construction restoration standard of restoring disturbed areas to their original pre-construction condition.
The location of the proposed Project is described below and depicted on the attached maps. Attached you will also find a zip file containing the ESRI GIS data for the centerline and 1-mile corridor.

Burke County, North Dakota the pipeline crosses:

- Township 162N, Range 94W, Sections 10, 11, 12, 15, 16, 17, and 18
- Township 162N, Range 93W, Sections 3, 4, 7, 8, and 9

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- Township 161N, Range 100W, Section 1
- Township 161N, Range 99W, Sections 4, 5, and 6
- Township 162N, Range 99W, Sections 31, 32, 33, 34, 35, and 36
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- Township 162N, Range 97W, Sections 19, 20, 21, 22, 23, and 24
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- Township 162N, Range 95W, Sections 13, 16, 17, 18, 19, 21, 22, 23, and 24

E3 has accessed www.land.nd.gov to review the proposed Project corridor for the presence of State Mineral Trust Lands. The results of this search concluded that the following sections intersect State Lands in Burke and Divide County:

Burke County, North Dakota the pipeline crosses:

- Township 162N, Range 93W, Section 9
- Township 162N, Range 94W, Sections 10, 12, and 16

Divide County, North Dakota the pipeline crosses:

- Township 161N, Range 100W, Section 1
- Township 162N, Range 95W, Section 16
- Township 162N, Range 96W, Sections 16 and 23
- Township 162N, Range 97W, Sections 19, 20, 21, 22, and 23
- Township 162N, Range 98W, Section 29
- Township 162N, Range 99W, Section 36

The purpose of this consultation is to seek your concurrence with this analysis. This information will be included in a North Dakota Public Service Commission application for the Project. For your convenience, please refer to the attached map and shape files, which depicts the Project corridor and State Mineral Trust Lands.

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

Sincerely,

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881
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St. Paul, MN 55102
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From: Katie Schmidt [mailto:KSchmidt@go2e3.com]
Sent: Monday, July 21, 2014 3:51 PM
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Cc: Tyler Danielson
Subject: MMC Global Stampede Project Consultation Request

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- Township 162N, Range 96W, Sections 14, 15, 16, 19, 20, 21, 23, and 24
- Township 162N, Range 95W, Sections 13, 16, 17, 18, 19, 21, 22, 23, and 24

E3 has accessed www.land.nd.gov to review the proposed Project corridor for the presence of State Mineral Trust Lands. The results of this search concluded that the following sections intersect State Lands in Burke and Divide County:

Burke County, North Dakota the pipeline crosses:

- Township 162N, Range 93W, Section 9
- Township 162N, Range 94W, Sections 10, 12, and 16

Divide County, North Dakota the pipeline crosses:

- Township 161N, Range 100W, Section 1
- Township 162N, Range 95W, Section 16

- Township 162N, Range 96W, Sections 16 and 23
- Township 162N, Range 97W, Sections 19, 20, 21, 22, and 23
- Township 162N, Range 98W, Section 29
- Township 162N, Range 99W, Section 36

The purpose of this consultation is to seek your concurrence with this analysis. This information will be included in a North Dakota Public Service Commission application for the Project. For your convenience, please refer to the attached map and shape files, which depicts the Project corridor and State Mineral Trust Lands.

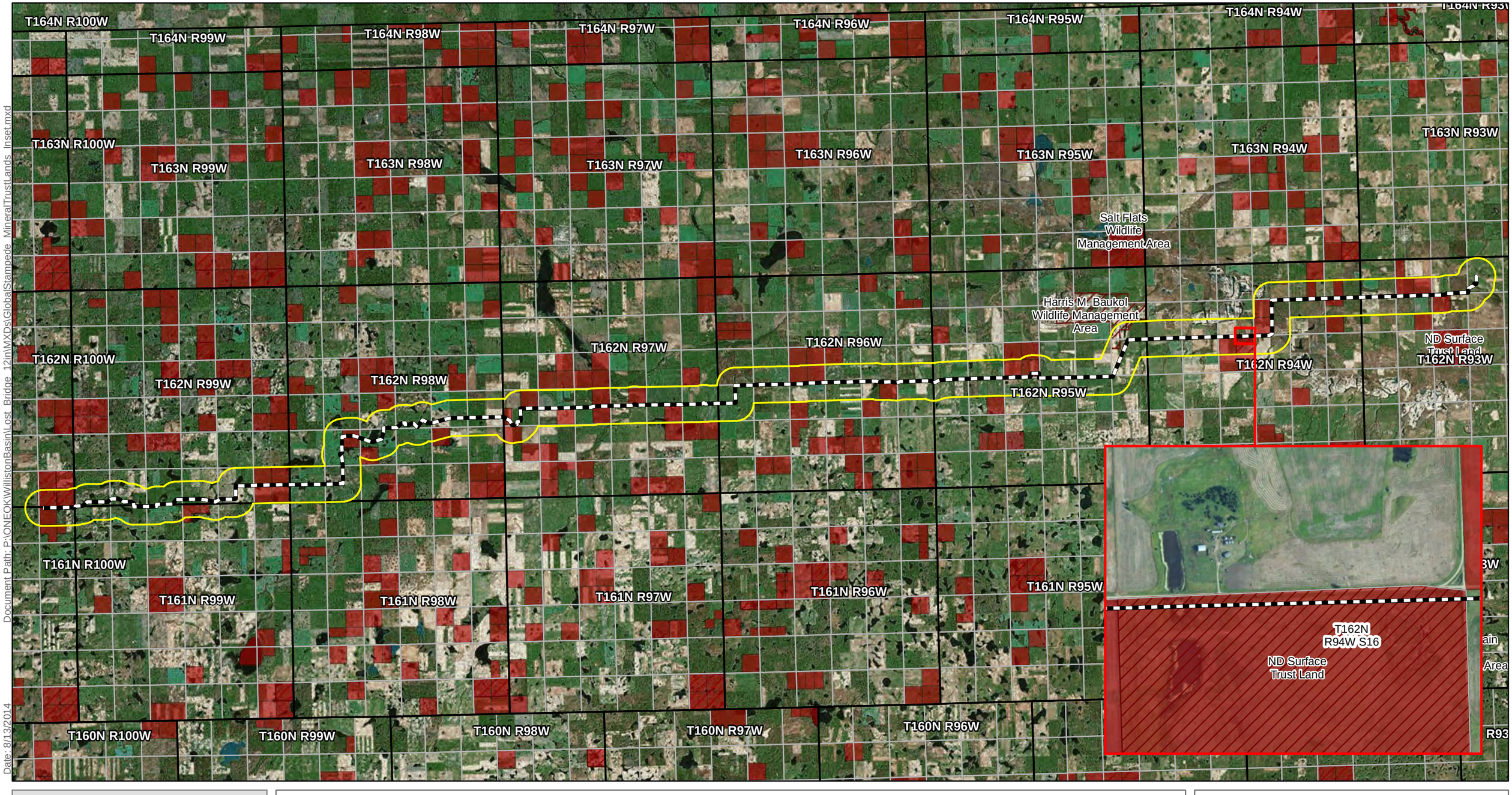
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Sincerely,

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881
871 Jefferson Avenue
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www.go2e3.com



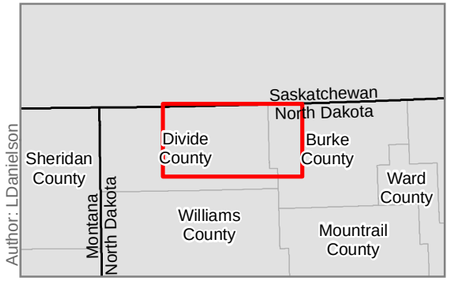
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Document Path: P:\ONEOK\WillistonBasin\Lost Bridge 12in\MXDs\GlobalStampede_MineralTrustLands_Inset.mxd

Date: 8/13/2014

Author: LDanielson



- Pipeline
- Corridor (1 Mile)
- Mineral Trust Land
- State Land

N

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0 1.75 3.5 7 Miles

1:160,500

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline

ND Mineral Trust Lands

Divide and Burke Counties, ND

North Dakota State Historic Preservation Office

Constulation

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

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Department of Transportation

Merlan E. Paaverud, Jr.
Director

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November 4, 2014

Ms. Chris Schmidt, Consultant
E3 Environmental, LLC
871 Jefferson Avenue
St. Paul, MN 55102

ND SHPO REF.: 14-1626A PSC Case No.PU-14-223 "Addendum to a Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota, for Pipeline Alignment Reroutes"

Dear Mr. Schmidt,

We reviewed ND SHPO REF.: 14-1626A PSC Case No.PU-14-223 "Addendum to a Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota, for Pipeline Alignment Reroutes," and find the report acceptable.

We concur with a "No Significant Sites" determination for the project, provided the project remains as described and mapped in your above-captioned report dated October 22, 2014.

Thank you for the opportunity to review this project. If you have questions please contact Susan Quinnell at squinnell@nd.gov or (701) 328-3576.

Sincerely,

Merlan E. Paaverud, Jr.
Director, State Historical Society of North Dakota

October 22nd, 2014

Paul Picha
Chief Archaeologist
State Historical Society of North Dakota
Archeology & Historic Preservation Division
North Dakota Heritage Center
612 East Boulevard Avenue
Bismarck, ND 58505-0830

RE: Addendum to A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota, for Pipeline Alignment Reroutes

Dear Mr. Picha,

Meadowlark Midstream Company, LLC (MMC), a wholly owned subsidiary of Summit Midstream Partners, LLC, is proposing the construction of the Global Stampede Pipeline Project (Project). This Project includes the construction of a 46-mile crude oil transmission pipeline; as such the Project is subject to the North Dakota Public Service Commissions (PSC) Siting Act. The Project will be located in Burke and Divide Counties, North Dakota. E3 Environmental, LLC (E3), MMC's Environmental Consultant, is preparing the required application materials for the ND PSC; a cultural resource inventory is a required part of this filing. On August 29, 2014, the North Dakota State Historical Preservation Office (ND SHPO) provided concurrence with the findings and recommendations of the original Class I and Class III Cultural Resource Inventory for this Project (NDSHPO REF.: 14-1626). To meet the Project objectives, the alignment of the proposed Project has been altered resulting in the need for an additional Cultural Resource Inventory.

E3 on the behalf of MMC submits the enclosed report titled *Addendum to A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota for Pipeline Alignment Reroutes* (Report). This Report, prepared by SWCA Environmental Consultants (SWCA), documents the results of the cultural resource inventory conducted for the proposed Project in support of reroutes to the proposed Global Stampede pipeline alignment and supplements the previously MMC submitted report: *A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota* for which compliance was received from on August 29, 2014.

Three (3) previously recorded cultural resources were revisited during field work for the current Project. They are described below:

32BK68: Great Northern Railroad – Recommended Eligible
32DV143: Homestead, Cultural Material Scatter – Recommended Not Eligible
32DV144: Cultural Material Scatter – Recommended Not Eligible

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871 Jefferson Avenue
St. Paul, MN 55102

Of the resources outlined above, all but site 32BK68 (Great Northern Railroad) are recommended not eligible for the NRHP, and therefore no further work is necessary. Portions of site 32BK68 have been eligible for the NRHP. Therefore, SWCA and E3 recommends that MMC avoids site 32BK68 through the use of a horizontal directional drill.

One (1) newly-recorded isolated find consisting of a historic automobile body (32 DVX435) was discovered during the Project, and is recommended not eligible and therefore no further work is necessary.

In addition, Nine (9) previously recorded site leads which crossed the Project were revisited but not found during fieldwork. They are described below:

32BKX776: Unknown/Site Lead – Unevaluated
32DVX205: Unknown/Site Lead – Unevaluated
32DVX206: Unknown/Site Lead – Unevaluated
32DVX214: Cultural Material Scatter/Site Lead - Unevaluated
32DVX219: Cultural Material Scatter/Site Lead – Unevaluated
32DVX220: Cultural Material Scatter/Site Lead – Unevaluated
32DVX244: Cultural Material Scatter/Site Lead - Unevaluated
32DVX246: Cultural Material Scatter/Site Lead - Unevaluated
32DVX247: Cultural Material Scatter/Site Lead – Unevaluated

Should you have any project related questions or require additional information, please contact me at 651-282-0654 or by email at cschmidt@go2e3.com.

Sincerely,

Chris Schmidt, Associate Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures:

Addendum to A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota for Pipeline Alignment Reroutes (1 Copy)

cc: Jason Panek, Meadowlark Midstream Company, LLC
Jolene Schleicher, SWCA Environmental Consultants
E3 Project Files

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

Jack Dalrymple
Governor of North Dakota

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Parks and Recreation Department

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Director
Department of Transportation

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August 29, 2014

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

ND SHPO REF.: 14-1626 PSC Case No.?? "A Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota"

Dear Ms. Schmidt,

We reviewed ND SHPO REF.: 14-1626 PSC Case No.?? "A Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota," and find the report acceptable.

We concur with a "No Significant Sites" determination for the project, provided the project remains as described and mapped in your above-captioned report dated July, 2014.

Thank you for the opportunity to review this project. If you have questions please contact Susan Quinnell at squinnell@nd.gov or (701) 328-3576.

Sincerely,

Merlan E. Paaverud, Jr.
Director, State Historical Society of North Dakota

August 26th, 2014

Paul Picha
Chief Archaeologist
State Historical Society of North Dakota
Archeology & Historic Preservation Division
North Dakota Heritage Center
612 East Boulevard Avenue
Bismarck, ND 58505-0830

RE: A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota

Dear Mr. Picha,

Meadowlark Midstream Company, LLC (MMC), a wholly owned subsidiary of Summit Midstream Partners, LLC, is proposing the construction of the Global Stampede Pipeline Project (Project). This Project includes the construction of a 46.1-mile crude oil transmission pipeline; as such the Project is subject to the North Dakota Public Service Commissions (PSC) Siting Act. The Project will be located in Burke and Divide Counties, North Dakota. E3 Environmental, LLC (E3), MMC's Environmental Consultant, is preparing the required application materials for the ND PSC; a cultural resource inventory is a required part of this filing.

MMC submits the enclosed report titled *A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota* (Report). This Report, prepared by SWCA Environmental Consultants (SWCA), documents the results of the cultural resource inventory conducted for the proposed Project.

Ten (10) previously recorded cultural resources were revisited but not found during field work. They are described below:

32BK12: Quarry Mine - Unevaluated
32BKX776: Unknown/Site Lead – Unevaluated
32DVX206: Unknown/Site Lead – Unevaluated
32DVX214: Cultural Material Scatter/Site Lead - Unevaluated
32DVX219: Cultural Material Scatter/Site Lead - Unevaluated
32DVX220: Cultural Material Scatter/Site Lead - Unevaluated
32DVX243: Cultural Material Scatter/Site Lead - Unevaluated
32DVX244: Cultural Material Scatter/Site Lead - Unevaluated
32DVX246: Cultural Material Scatter/Site Lead - Unevaluated
32DVX247: Cultural Material Scatter/Site Lead – Unevaluated

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871 Jefferson Avenue
St. Paul, MN 55102

Fourteen (14) cultural resources were newly recorded and the sites are described below respectively:

32BK68: Great Northern Railroad – Recommended Eligible
32BK155: Depression, Foundation, Cultural Material Scatter – Not Eligible
32BK156: Cultural Material Scatter – Not Eligible
32DV141: Cultural Material Scatter – Not Eligible
32DV142: Buildings, Cultural Material Scatter – Not Eligible
32DV143: Homestead, Cultural Material Scatter – Not Eligible
32BK157: Cultural Material Scatter – Not Eligible
32DV144: Cultural Material Scatter – Not Eligible
32DV145: Cultural Material Scatter – Not Eligible
32BKX1003: Isolated Find/Farm Equipment – Not Eligible
32DVX432: Isolated Find/Farm Equipment – Not Eligible
32BKX1004: Isolated Find/Farm Equipment – Not Eligible
32DVX433: Isolated Find/Wagon – Not Eligible
32DVX434: Isolated Find/Farm Equipment – Not Eligible

Of the resources outlined above, all but site 32BK68 (Great Northern Railroad) are recommended not eligible for the NRHP, and therefore no further work is necessary. Portions of site 32BK68 have been eligible for the NRHP. Therefore, SWCA and E3 recommends that MMC avoids site 32BK68 through the use of a horizontal directional drill.

Should you have any project related questions or require additional information, please contact me at 651-282-0652 or by email at kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

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

Enclosures:

A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota (1 Copy)

cc: Jason Panek, Meadowlark Midstream Company, LLC
Jolene Schleicher, SWCA Environmental Consultants
E3 Project Files

North Dakota State Public Service Commission: Reclamation Division Constulation

Chris Schmidt

To: Katie Schmidt
Subject: RE: Proposed Global Stampede Pipeline route

From: Deutsch, James R. [mailto:jdeutsch@nd.gov]
Sent: Tuesday, August 26, 2014 2:52 PM
To: Fahn, Patrick J.
Cc: Katie Schmidt
Subject: FW: Proposed Global Stampede Pipeline route

Pat,

Attached is the letter and map that I received from Ms. Schmidt about the proposed pipeline route and my response to her. As we discussed, I believe you should respond to her question about any restrictions on constructing the pipeline through the area that may have been disturbed for overburden removal for BNI's coal mining activities in the late 1970's.

Thanks,

Jim

From: Katie Schmidt
Sent: Tuesday, August 26, 2014 2:51 PM
To: Deutsch, James R.
Subject: RE: Proposed Glodbal Stampede Pipeline route

Sounds good, please note we are preparing a Consolidated Application for submittal to the ND PSC in accordance with the Siting Act. Please let Mr. Fahn know that if he has any questions he can reach me directly.

Thanks-Katie

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881

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information contained in it, or (b) to take any action based on the information in it. If you have received this communication in error, please notify us immediately by replying to the message and deleting it from your computer.

From: Deutsch, James R. [mailto:jdeutsch@nd.gov]
Sent: Tuesday, August 26, 2014 2:48 PM
To: Katie Schmidt
Subject: RE: Proposed Glodbal Stampede Pipeline route

Katie,

I will be forwarding your question to Patrick Fahn who is the Director of Compliance and Competitive Markets at PSC. He carries out technical reviews of pipeline siting applications and makes recommendations to the Commission on these matters.

Jim

From: Katie Schmidt [mailto:KSchmidt@go2e3.com]
Sent: Tuesday, August 26, 2014 2:22 PM
To: Deutsch, James R.
Subject: RE: Proposed Glodbal Stampede Pipeline route

Thank you for your quick response. Are there any restrictions or specific concerns your agency may have with proceeding with the construction of this pipeline project through this area?

Katie

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881



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From: Deutsch, James R. [mailto:jdeutsch@nd.gov]
Sent: Tuesday, August 26, 2014 2:16 PM
To: Katie Schmidt
Subject: Proposed Glodbal Stampede Pipeline route

Ms. Schmidt,

Attached is a copy of the letter that is being mailed to you today in response to your August 19th letter about coal mining in the NE¼ of Section 16, T162N, R94W, in Burke County. It appears about 1,000 feet along the proposed Global Stampede Pipeline route in the NE¼NE¼ may have been affected by overburden removal when coal mining occurred in the late 1970's. I checked our records for that maps that may have depicted the actual overburden removal boundary, but did not find a map with that much detail.

Please contact me if you have questions.

Jim Deutsch
Director, Reclamation and AML Divisions
North Dakota Public Service Commission
(701) 328-2251

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Public Service Commission
State of North Dakota

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Randy Christmann
Julie Fedorchak

Executive Secretary
Darrell Nitschke

600 East Boulevard, Dept. 408
Bismarck, North Dakota 58505-0480
Web: www.psc.nd.gov
E-mail: ndpsc@nd.gov
Phone: 701-328-2400
ND Toll Free: 1-877-245-6685
Fax: 701-328-2410
TDD: 800-366-6888 or 711

August 26, 2014

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

Dear Ms. Schmidt:

This is in response to your inquiry about past mining activities along the proposed Global Stampede Pipeline route in the NE¼ of Section 16, T162N, R94W, in Burke County south of Larson, ND. Part of this quarter section was mined by BNI Coal, Ltd (formerly Baukol-Noonan, Inc.) in the late 1970's and it appears the actual surface mine pits may have extended into the proposed pipeline right-of-way in much of the NE¼NE¼ of Section 16. While the mined area has been reclaimed, including the replacement of the topsoil and subsoil that was saved prior to mining, this area may be subject to future settling.

While it is unlikely that major stability problems will occur in this area, some differential settling is possible. Since the proposed pipeline route is on the border of the area that was mined, it is suggested that you conduct soil probing/geotechnical testing to determine the actual limits of the mine disturbance in the NE¼NE¼. Also, it should be noted that the land just across the east-west section line road (southern portion of the SE¼ of Section 9) was also mined by BNI Coal.

Also, I compared the route of the proposed pipeline to our inventory of abandoned surface and underground coal mines in North Dakota and no **known** abandoned underground mines occur along the route. The route appears close to a portion of an obvious abandoned surface mine in Section 13, T162N, R95W, but I assume the proposed pipeline route avoids that area.

Please contact me if you have any questions.

Sincerely,

James R. Deutsch
Director, Reclamation and
Abandoned Mine Lands Divisions

Minedata/GenCorr/2014/Larson_Mine_pipeline_ltr_8-26-14.docx

August 19, 2014

Mr. James Deutsch, Director
Reclamation Division
North Dakota Public Service Commission
600 East Boulevard, Dept. 408
Bismarck, ND 58503-0480

RE: Global Stampede Pipeline Project Consultation Letter

Mr. Deutsch,

Meadowlark Midstream Company, LLC (MMC), a wholly owned subsidiary of Summit Midstream Partners, LLC, is proposing the construction of the Global Stampede Pipeline Project (Project). The proposed Project is a new 46.1-mile; 10-inch diameter Crude Oil Pipeline that will originate 9.5 miles SE of Fortuna, ND at Meadowlark Midstream Company's Divide Pump Station and will terminate at the Basin Transload Rail Facility approximately 2 miles SE of Columbus, ND. Pipeline construction activities would typically occupy a 110-foot right-of-way. Following construction, the pipeline would be operated within a 25-foot permanent easement. Pipeline construction involves temporary impacts, with a post-construction restoration standard of restoring disturbed areas to their original pre-construction condition.

The location of the proposed Project is described below and depicted on the attached map.

<u>Divide County, North Dakota the pipeline crosses:</u>

- Township 161N, Range 100W, Section 1
- Township 161N, Range 99W, Sections 4, 5, and 6
- Township 162N, Range 99W, Sections 31, 32, 33, 34, 35, and 36
- Township 162N, Range 98W, Sections 21, 22, 23, 24, 28, 29, 31, and 32
- Township 162N, Range 97W, Sections 19, 20, 21, 22, 23, and 24
- Township 162N, Range 96W, Sections 14, 15, 16, 19, 20, 21, 23, and 24
- Township 162N, Range 95W, Sections 13, 16, 17, 18, 19, 21, 22, 23, and 24

<u>Burke County, North Dakota the pipeline crosses</u>

- Township 162N, Range 94W, Sections 10, 11, 12, 15, 16, 17, and 18
- Township 162N, Range 93W, Sections 3, 4, 7, 8, and 9

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871 Jefferson Avenue
St. Paul, MN 55102

This Project is subject to the North Dakota Public Service Commission's siting requirements as set forth in the Energy Transmission Facility Siting Act (Act). In accordance with this Act, Project consultations were initiated with other state agencies including the North Dakota State Lands-School Trust group. In this consultation, it was identified that portions of Section 16, Township 162, Range 94 have been utilized for coal mining. It was recommended that your group be contacted regarding these activities and potential impacts these activities may have to the proposed Project corridor and route (see attached map.)

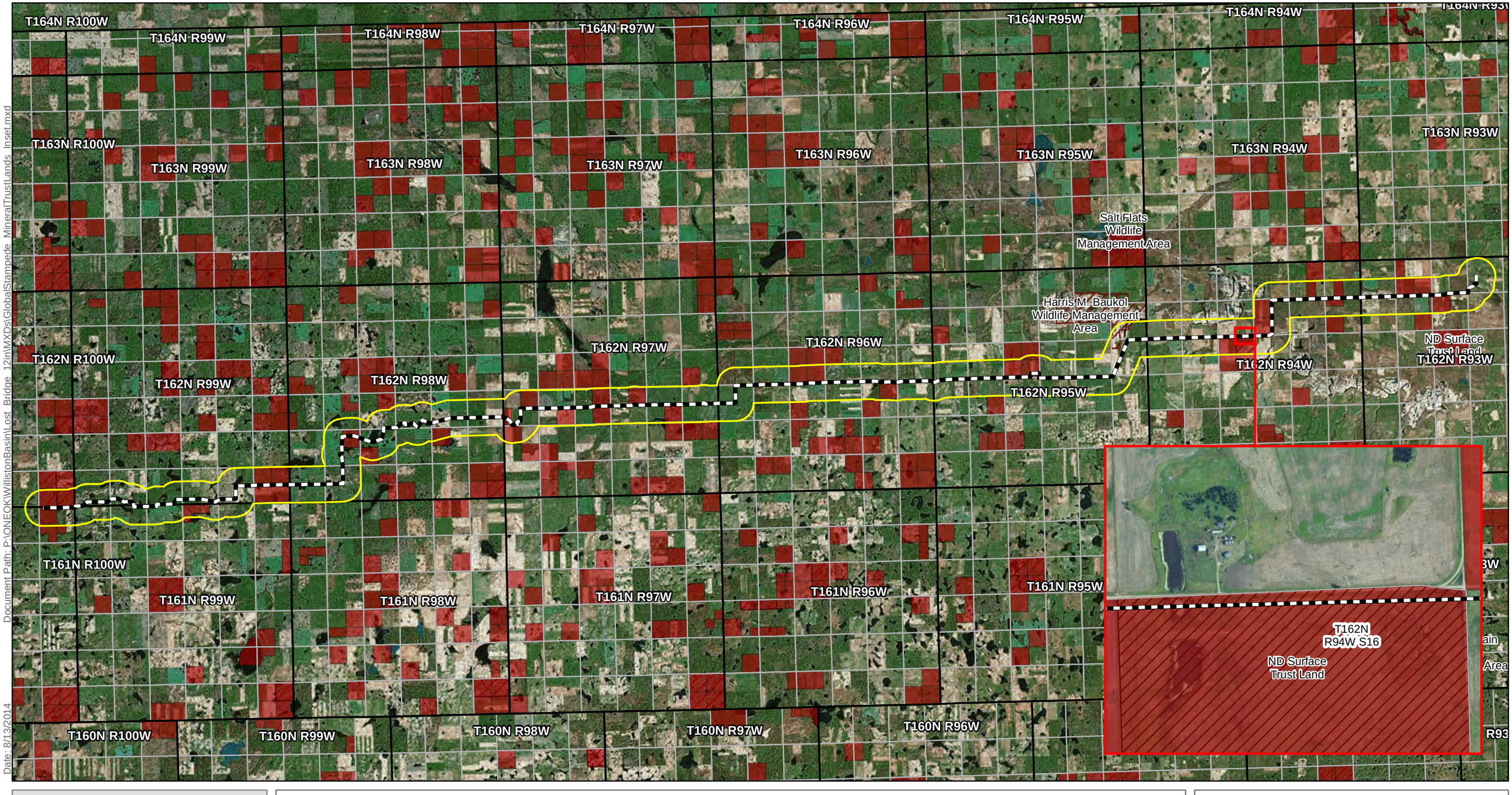
E3 has been retained by MMC to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Sincerely,

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

Enclosures: Project Map

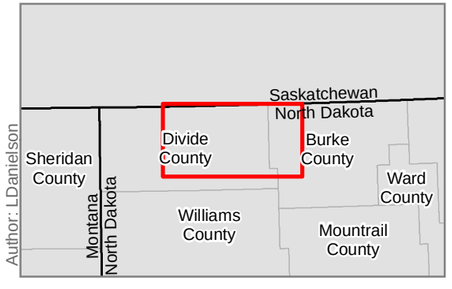
cc: E3 Project Files



Document Path: P:\ONEOK\WillistonBasin\Lost Bridge 12in\MXDs\GlobalStampede_MineralTrustLands_Inset.mxd

Date: 8/13/2014

Author: LDanielson



- Pipeline
- Corridor (1 Mile)
- Mineral Trust Land
- State Land

N

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0 1.75 3.5 7 Miles

1:160,500

Map not to scale, for environmental review purposes only.

Meadowlark Midstream Company, LLC

Global Stampede Pipeline

ND Mineral Trust Lands

Divide and Burke Counties, ND

Appendix D

Natural Resource Report

Natural Resources and Wetland Determination Report for the Global Stampede Pipeline, Divide and Burke Counties, North Dakota

Prepared for

E3 Environmental, LLC

On behalf of

Meadowlark Midstream, LLC

Prepared by

SWCA Environmental Consultants

November 2014

Natural Resources and Wetland Determination Report for the Global Stampede Pipeline, Divide and Burke Counties, North Dakota

Prepared for:

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

On behalf of:

Meadowlark Midstream, LLC
1512 Larimer Street, Suite 540
Denver, Colorado 80202

Prepared by:

Kate Kenninger, M.S.
Natural Resource Specialist

Reviewed by:

Tom Furgason
Sr. Principal, Rocky Mountain Plains Offices

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

SWCA Project No. 29469

November 5, 2014

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1.0 INTRODUCTION

1.1 BACKGROUND

Meadowlark Midstream, LLC (Meadowlark) proposes to construct an approximately 46-mile-long pipeline in Divide and Burke Counties, North Dakota. SWCA Environmental Consultants (SWCA) conducted natural resources field surveys to identify exclusion and avoidance areas as specified in North Dakota Administrative Code 69-06-08-02 for the proposed Global Stampede pipeline project.

As proposed, the Global Stampede pipeline is approximately 46 miles long, spanning private and state lands in North Dakota (Appendix A). The project falls under the jurisdiction of the North Dakota Public Service Commission (NDPSC). E3 Environmental, LLC is assisting Meadowlark with their application to the NDPSC for a certificate of corridor compatibility and route permit for the project.

SWCA conducted field surveys, including reroutes, of a 150-foot-wide survey corridor (110-foot-wide right-of-way [ROW]) on June 16–19, September 30, and October 1–2, 2014, to determine the potential presence and extent of wetlands and waterbodies, including potentially jurisdictional waters of the U.S., within the proposed survey area. Concurrently with the wetland/waterbody determinations, SWCA conducted a cursory threatened and endangered species survey and habitat assessment; a tree, sapling, and shrub enumeration survey; and a noxious weed survey. Site layout maps of the survey area and natural resource features identified during the field surveys are provided in Appendix A.

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

1.2 REGULATORY BACKGROUND

1.2.1 Clean Water Act, Section 404

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

1.2.2 USACE Nationwide Permit 12

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

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

- The activity involves mechanized land clearing in a forested wetland.
- A Section 10 permit is required to cross a navigable waterbody (Rivers and Harbors

Act).

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

1.2.3 USACE Regional Conditions

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

2.0 METHODS

2.1 SURVEY AREA

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

The proposed project is located in the Great Plains (level I) ecoregion. Further, the proposed project is located in the West-Central Semi-Arid Prairies and Temperate Prairies (level II) ecoregions, Northwestern Glaciated Plains and Aspen Parkland/Northern Glaciated Plains (level III) ecoregions, and the Northern Missouri Coteau and Northern Dark Brown Prairie (level IV) ecoregions. These ecoregions are characterized by glaciated topography, are hummocky, with stream drainages absent or uncommon and prairie pothole wetlands are present. Primary land uses are grazing, small grain agriculture, and recreation (Bryce et al. 1998). Figures 1 and 2 are overviews of the project area.



Figure 1. Project area overview depicting general topography towards eastern end of pipeline corridor, facing west.



Figure 2. Project area overview depicting general topography towards western end of pipeline corridor, facing east.

The inventoried area for the North Dakota portion of the project area discussed herein is situated on the U.S. Geological Survey Stampede (1959), Columbus (1959), Columbus SE (1982), Columbus SW (1982), Noonan SE (1959), Noonan SW (1959), Crosby SE (1959), Crosby SW (1959), and Colgan SE (1984), North Dakota, quadrangles. The proposed project corridor that was surveyed on June 16–19, September 30, and October 1–2, 2014, encompasses portions of 58 sections within 9 townships and ranges.

- Sections 4, 5, 6, Township (T) 161 North (N), Range (R) 99 West (W)
- Section 1, T161N, R100W
- Sections 3, 4, 7, 8, 9, T162N, R93W
- Sections 9, 10, 11, 12, 15, 16, 17, 18, T162N, R94W
- Sections 13, 15, 16, 17, 18, 19, 21, 22, 23, 24, T162N, R95W
- Sections 14, 15, 16, 19, 20, 21, 22, 23, 24, T162N, R96W
- Sections 19, 20, 21, 22, 23, 24, T162N, R97W
- Sections 21, 22, 23, 24, 28, 29, 31, 32, T162N, R98W
- Sections 31, 32, 33, 34, 35, 36, T162N, R99W

2.2 WETLANDS

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

2.2.1 Hydrophytic Vegetation

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

SWCA recorded the binomial scientific name and percent cover of all plants within a 30-foot radius for the tree stratum, a 15-foot radius for the sapling/shrub stratum, a 5-foot radius for the herbaceous stratum, and a 30-foot radius for the woody vine stratum. SWCA ecologists noted each plant species' respective USFWS indicator status (i.e., upland [UPL], facultative upland [FACU], facultative [FAC], facultative wetland [FACW], and obligate [OBL]). In some instances the size and shape of the vegetative sampling plot was manipulated to better encompass each wetland or upland area, though the overall area assessed remained

unchanged. Vegetation communities met the hydrophytic vegetation criterion for wetlands if greater than 50% of dominant species had an indicator status of FAC, FACW, and OBL. SWCA also noted and geospatially referenced all populations of North Dakota state- or county-listed noxious weeds identified within the survey area.

2.2.2 Wetland Hydrology

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

2.3 WATERBODIES

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

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

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

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

2.4 NOXIOUS WEED SURVEYS

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

2.5 TREE, SAPLING, AND SHRUB COUNT

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

2.6 WILDLIFE INCLUDING THREATENED AND ENDANGERED SPECIES

Prior to conducting field surveys, SWCA reviewed information obtained from the USFWS list of threatened and endangered species by North Dakota county (USFWS 2014) regarding the presence of threatened or endangered species that may occur within the survey area. This document does not represent a comprehensive survey, but rather acknowledges the past and/or current presence of listed species. The lack of discovery of threatened or endangered species does not signify their non-existence within the area, but only that no primary or secondary indications of these species were recorded. SWCA completed a random survey for all listed species and suitable habitat.

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

2.7 MAPPING

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

3.0 RESULTS

3.1 VEGETATION

During the field survey, SWCA ecologists identified four general types of vegetative communities within the survey area. These vegetative communities were classified as herbaceous upland, shrubland and upland woody vegetation, cropland, and palustrine emergent (PEM) wetland. PEM wetlands are characterized by the presence of herbaceous hydrophytic or submergent aquatic macrophytes. Photographs of the survey area are provided in Appendix C.

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

3.1.1 Herbaceous Upland

The herbaceous upland community consists of areas dominated by non-woody vegetation such as grasses and forbs. Herbaceous uplands observed were commonly comprised of smooth brome (*Bromus inermis*), western wheatgrass (*Pascopyrum smithii*), crested wheatgrass (*Agropyron cristatum*), Kentucky bluegrass (*Poa pratensis*), quackgrass (*Elymus repens*), alfalfa (*Medicago sativa*), yellow sweetclover (*Melilotus officinalis*), white sage (*Artemisia ludoviciana*), field sowthistle (*Sonchus arvensis*), curlycup gumweed (*Grindelia squarrosa*), common sunflower (*Helianthus annuus*), and white sweetclover (*Melilotus alba*).

3.1.2 Shrubland and Woody Vegetation

Shrubland communities occurring throughout the survey area consisted of upland areas dominated by woody-stemmed vegetation including silver buffaloberry (*Shepherdia argentea*) and western snowberry (*Symphoricarpos occidentalis*).

Forested upland vegetation consisted of green ash (*Fraxinus pennsylvanica*), boxelder (*Acer negundo*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoids*), Siberian elm (*Ulmus pumila*), Siberian peashrub (*Caragana arborescens*), chokecherry (*Prunus virginiana*), silver buffaloberry, and western snowberry.

3.1.3 Cropland

Cropland was confirmed in the survey area and classified as canola (*Brassica napus*), hard red spring wheat (*Triticum aestivum*), and corn (*Zea mays*).

3.1.4 Hydrophytic Vegetation

Aquatic vegetation species confirmed during the survey included foxtail barley (*Hordeum jubatum*), short-awned foxtail (*Alopecurus aequalis*), creeping meadow-foxtail (*Alopecurus arundinaceus*), reed canarygrass (*Phalaris arundinacea*), prairie cordgrass (*Spartina pectinata*), common spikerush (*Eleocharis palustris*), water knotweed (*Polygonum amphibium*), rough barnyardgrass (*Echinochloa muricata*), Indian hemp (*Apocynum cannabinum*), western dock (*Rumex occidentalis*), golden dock (*Rumex fueginus*), sloughgrass (*Beckmannia syzigachne*), water hemlock (*Cicuta maculate*), common reed (*Phragmites*

australis), Baltic rush (*Juncus arcticus*), whitetop (*Scolochloa festucacea*), Dudley's rush (*Juncus dudleyi*), softstem bulrush (*Schoenoplectus tabernaemontani*), and broad-leaf cattail (*Typha latifolia*).

3.2 HYDROLOGY

Wetland communities observed during the determination effort displayed at least one primary or two secondary indicators of wetland hydrology, as defined by the Manual and Supplement. Upland communities either failed to display hydrologic indicators or failed to meet the hydrophytic vegetation criterion, as defined by the Manual and Supplement. Common indicators of wetland hydrology observed during field surveys include Surface Water (A1), Water Marks (B1), Sediment Deposits (B2), Drift Deposits (B3), Algal Mat or Crust (B4), Surface Soil Cracks (B6), Inundation Visible on Aerial Imagery (B7), Water-Stained Leaves (B9), Drainage Patterns (B10), Salt Crust (B11), Aquatic Invertebrates (B13), Saturation Visible on Aerial Imagery (C9), and Geomorphic Position (D2).

According to National Weather Service preliminary climatological data for Williston, North Dakota (approximately 45 miles south from the project area), 9.37 inches of precipitation were recorded from March 1 through October 2, 2014 (Table 1). This amount is 1.90 inches below normal for this time period.

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

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
March 2014	0.32	0.71	-0.39
April 2014	1.71	1.00	0.71
May 2014	1.62	1.92	-0.30
June 2014	1.44	2.52	-1.08
July 2014	0.66	2.54	-1.88
August 2014	2.24	1.45	0.79
September 2014	1.35	1.06	0.29
October 1–2, 2014	0.03	0.07	-0.04
Total	**9.37**	**11.27**	**-1.90**

Source: National Oceanic and Atmospheric Administration 2014

3.3 WETLANDS

SWCA recorded 111 PEM wetlands within the 150-foot survey area, totaling approximately 68.27 acres. Approximately 47.95 acres of PEM wetlands are proposed to be temporarily impacted in the 110-foot-wide construction ROW (Table 2). Twenty-four jurisdictional wetlands will be temporarily impacted; however, the USACE has the final authority to determine jurisdictional status.

Table 2. PEM Wetland Acreage within the Survey Area

Feature ID	Location	USACE Jurisdiction*	Total PEM Size (acres)	Temporarily Impacted Area within 110-foot-wide ROW (acres)	Length of Required Crossing (feet)
AWET1	Depression	Isolated	0.03	0.00	0.00
AWET2	Depression	Isolated	0.03	0.00	0.00
AWET3	Depression	Likely Jurisdictional	1.69	0.94	590.28
AWET4	Depression	Likely Jurisdictional	0.23	0.16	73.84
AWET5	Depression	Likely Jurisdictional	0.18	0.13	91.63
AWET6	Intermittent Drainage	Likely Jurisdictional	0.11	0.07	30.90
AWET7	Depression	Isolated	0.02	0.01	24.54
AWET8	Depression	Isolated	3.28	2.42	971.04
AWET9	Depression	Isolated	0.07	0.04	71.14
AWET10	Depression	Isolated	0.99	0.75	523.88
AWET11	Depression	Isolated	0.20	0.13	92.37
AWET12	Depression	Isolated	0.11	0.06	111.75
AWET13	Depression	Isolated	0.07	0.07	297.06
AWET14	Intermittent Drainage	Likely Jurisdictional	0.12	0.08	48.11
AWET15	Depression	Likely Jurisdictional	0.07	0.05	33.12
AWET16	Depression	Isolated	0.04	0.04	172.37
AWET17	Depression	Isolated	0.04	0.01	49.92
AWET18	Depression	Isolated	0.34	0.31	506.67
AWET19	Depression	Isolated	0.55	0.47	476.47
AWET20	Depression	Likely Jurisdictional	0.46	0.40	202.09
AWET21	Depression	Isolated	0.01	0.01	76.53
AWET22	Depression	Isolated	0.23	0.17	93.56
AWET23	Depression	Isolated	0.11	0.06	85.35
AWET24	Depression	Isolated	0.05	0.03	82.96
AWET25	Intermittent Drainage	Likely Jurisdictional	0.25	0.06	39.63
AWET26	Intermittent Drainage	Likely Jurisdictional	0.30	0.24	292.01
AWET27	Depression	Likely Jurisdictional	0.15	0.00	0.00
AWET28	Intermittent Drainage	Likely Jurisdictional	0.34	0.26	183.77
AWET29	Intermittent Drainage	Likely Jurisdictional	0.58	0.37	279.40
AWET30	Intermittent Drainage	Likely Jurisdictional	0.69	0.42	188.80
AWET31	Depression	Isolated	0.31	0.31	168.23
AWET32	Depression	Likely Jurisdictional	0.14	0.13	65.05
AWET33	Depression	Isolated	2.65	1.22	632.85
AWET34	Depression	Isolated	0.57	0.29	131.45
AWET35	Depression	Isolated	0.09	0.02	60.60

Feature ID	Location	USACE Jurisdiction*	Total PEM Size (acres)	Temporarily Impacted Area within 110-foot-wide ROW (acres)	Length of Required Crossing (feet)
AWET36	Intermittent Drainage	Likely Jurisdictional	0.71	0.59	317.58
AWET37	Depression	Isolated	0.19	0.04	127.02
AWET38	Depression	Isolated	0.53	0.40	256.25
AWET39	Depression	Isolated	1.33	1.02	712.90
AWET40	Depression	Isolated	0.06	0.00	0.00
AWET41	Depression	Isolated	2.28	1.72	768.98
AWET42	Depression	Isolated	0.23	0.19	125.80
AWET43	Depression	Isolated	0.45	0.20	218.94
AWET44	Depression	Isolated	0.37	0.37	367.01
AWET45	Intermittent Drainage	Isolated	0.17	0.17	59.60
AWET46	Depression	Isolated	0.78	0.58	351.23
AWET47	Depression	Isolated	2.06	1.12	458.61
AWET48	Depression	Isolated	0.17	0.00	0.00
BWET1	Depression	Isolated	0.26	0.19	78.95
BWET2	Depression	Isolated	6.56	4.73	2091.56
BWET3	Depression	Isolated	2.51	1.90	773.16
BWET4	Depression	Isolated	0.44	0.31	159.84
BWET5	Depression	Isolated	0.12	0.08	124.37
BWET6	Floodplain	Likely Jurisdictional	1.24	0.88	531.17
BWET7	Depression	Isolated	0.48	0.34	199.24
BWET8	Depression	Isolated	5.06	3.69	1520.04
BWET9	Depression	Isolated	2.45	1.84	749.74
BWET10	Depression	Isolated	1.40	1.04	437.26
BWET11	Intermittent Drainage	Likely Jurisdictional	0.87	0.74	370.92
BWET12	Floodplain	Likely Jurisdictional	0.86	0.68	489.26
BWET13	Depression	Isolated	0.68	0.51	285.41
BWET14	Depression	Isolated	0.26	0.15	137.75
BWET15	Intermittent Drainage	Likely Jurisdictional	0.37	0.35	200.45
BWET16	Depression	Isolated	0.23	0.17	96.63
BWET17	Intermittent Drainage	Likely Jurisdictional	0.30	0.11	61.30
BWET18	Intermittent Drainage	Isolated	0.32	0.29	228.82
BWET19	Depression	Isolated	0.12	0.10	42.76
BWET20	Depression	Isolated	0.73	0.68	398.62
BWET21	Intermittent Drainage	Isolated	0.14	0.11	90.50
BWET22	Depression	Isolated	0.37	0.26	141.72
BWET23	Intermittent Drainage	Isolated	0.08	0.05	27.46

Feature ID	Location	USACE Jurisdiction*	Total PEM Size (acres)	Temporarily Impacted Area within 110-foot-wide ROW (acres)	Length of Required Crossing (feet)
BWET24	Depression	Isolated	0.41	0.41	366.88
BWET25	Intermittent Drainage	Likely Jurisdictional	0.14	0.08	32.00
BWET26	Intermittent Drainage	Isolated	0.11	0.10	63.64
BWET27	Depression	Isolated	0.20	0.20	128.28
BWET28	Depression	Isolated	0.21	0.17	101.22
BWET29	Depression	Isolated	0.14	0.13	70.89
BWET30	Depression	Isolated	0.25	0.20	99.13
BWET31	Intermittent Drainage	Likely Jurisdictional	0.31	0.22	98.14
BWET32	Depression	Isolated	0.23	0.06	143.36
BWET33	Depression	Isolated	0.69	0.69	448.61
BWET34	Depression	Isolated	0.26	0.26	143.72
BWET35	Depression	Isolated	0.12	0.12	80.34
BWET36	Depression	Isolated	0.01	0.00	0.00
BWET37	Intermittent Drainage	Likely Jurisdictional	0.26	0.19	93.69
BWET38	Depression	Isolated	0.10	0.10	122.15
BWET39	Depression	Isolated	0.15	0.10	108.95
BWET40	Depression	Isolated	0.25	0.25	126.82
BWET41	Depression	Isolated	1.29	0.93	430.39
BWET42	Depression	Isolated	0.14	0.14	83.82
BWET43	Depression	Isolated	0.38	0.29	131.01
BWET44	Depression	Isolated	0.14	0.01	57.68
BWET45	Depression	Isolated	0.38	0.33	185.26
BWET46	Depression	Likely Jurisdictional	2.23	1.77	1431.18
BWET47	Depression	Isolated	0.71	0.58	670.56
BWET48	Depression	Isolated	0.49	0.19	347.72
BWET49	Depression	Isolated	0.29	0.05	108.20
BWET50	Depression	Isolated	0.15	0.06	114.29
BWET51	Depression	Isolated	0.94	0.71	300.10
BWET52	Intermittent Drainage	Isolated	0.12	0.00	0.00
BWET53	Depression	Isolated	0.02	0.00	0.00
BWET54	Depression	Isolated	0.33	0.26	125.51
BWET55	Depression	Isolated	0.45	0.04	243.65
BWET56	Depression	Isolated	1.12	0.79	346.28
BWET57	Depression	Isolated	2.23	1.40	745.15
BWET58	Depression	Isolated	0.15	0.00	0.00
BWET59	Intermittent Drainage	Isolated	0.45	0.29	161.71
BWET60	Depression	Isolated	0.08	0.06	147.63
BWET61	Depression	Isolated	0.99	0.70	410.58

Feature ID	Location	USACE Jurisdiction*	Total PEM Size (acres)	Temporarily Impacted Area within 110-foot-wide ROW (acres)	Length of Required Crossing (feet)
BWET62	Depression	Isolated	0.04	0.00	21.77
BWET63	Depression	Isolated	1.03	0.74	373.21
Total			**68.27**	**47.95**	

* The USACE has the final authority on the jurisdictional status of a waterbody.
PEM = palustrine emergent
ROW = right-of-way
USACE = U.S. Army Corps of Engineers

3.4 WATERBODIES

SWCA identified seven waterbodies during the field survey: four intermittent streams and three permanent waterbodies (Table 3). All seven waterbodies are considered to be likely jurisdictional due to the presence of an OHWM. Representative photographs of waterbodies delineated in the field are provided in Appendix C.

In addition, SWCA recorded 17 upland swales and five roadway ditches that are likely to contain flowing water during high rain events or spring run-off; however, no OHWM was present.

Table 3. Waterbody ID, Name, Classification, Acreages, and Jurisdictional Status

Waterbody ID	Waterbody Name	Classification	Total Size (acres)	Temporarily Impacted Area within 110-foot-wide ROW (acres)	Length in Construction ROW (feet)	Average Width of OHWM (feet)	USACE Jurisdictional Status*
ASTR19	Unnamed	Intermittent	0.32	0.23	131.72	3	Jurisdictional
BSTR1	Unnamed	Intermittent	0.14	0.10	51.08	5	Jurisdictional
BSTR2	Unnamed	Intermittent	0.16	0.10	117.06	5	Jurisdictional
BSTR4	Unnamed	Intermittent	0.16	0.02	12.59	4	Jurisdictional
BWB1	Unnamed	Permanent PEM*	3.16	1.85	751.85	0	Jurisdictional
BWB2	Unnamed	Permanent PEM*	1.85	0.72	317.81	0	Jurisdictional
BWB3	Unnamed	Permanent PEM*	0.11	0.05	166.85	0	Jurisdictional
Total			**5.90**	**3.07**			

* The USACE has the final authority on the jurisdictional status of a waterbody.
OHWM = ordinary high water mark
PEM = Perennial Emergent
ROW = right-of-way
USACE = U.S. Army Corps of Engineers

3.5 SOILS

Forty-one soil types are present in the project construction corridor, based on Natural Resources Conservation Service mapping (NRCS 2014; Appendix B). The project area analyzed for soils covers the 110-foot-wide construction corridor. Table 4 lists all soil units within the project area. The following soil component descriptions represent the most prevalent soil series found within the survey area (NRCS 2014).

Table 4. NRCS Derived Soil Series Present within the 110-foot-wide ROW

Soil Types	Slopes (%)	Acres within 110-foot-wide ROW	Percent within Map Unit
Williams-Zahl loams	3 to 6	132.22	21.48
Zahl-Williams-Zahill complex	6 to 9	57.00	9.26
Zahl-Williams loams	9 to 15	47.02	7.64
Zahl-Williams loams	6 to 9	40.34	6.55
Noonan-Niobell loams	0 to 6	38.44	6.24
Harriet, Regan, and Stirum soils	0 to 2	33.30	5.41
Miranda-Noonan loams	0 to 3	33.01	5.36
Williams-Niobell loams	0 to 3	21.87	3.55
Williams-Bowbells loams	0 to 3	20.13	3.27
Williams-Niobell loams	3 to 6	19.77	3.21
Farnuf-Alkabo silt loams	0 to 3	17.54	2.85
Zahl-Williams-Vallers loams	0 to 60	15.08	2.45
Portal-Lihen fine sandy loams	0 to 2	14.24	2.31
Noonan-Niobell-Tonka complex	0 to 3	13.33	2.16
Lihen-Blanchard loamy fine sands	0 to 6	12.44	2.02
Williams-Zahl-Parnell complex	0 to 9	11.30	1.84
Noonan-Niobell-Williams loams	0 to 6	9.86	1.60
Farnuf-Sakakawea loams	2 to 6	9.37	1.52
Zahl-Max-Parnell complex	0 to 35	8.81	1.43
Tonka silt loam	0 to 1	7.75	1.26
Haplustolls-Ustorthents complex, reclaimed	0 to 6	5.85	0.95
Williams-Zahl complex	3 to 6	5.74	0.93
Straw loam	0 to 2	5.60	0.91
Vallers loam, saline	0 to 1	5.14	0.84
Niobell-Noonan-Tonka complex	0 to 6	4.76	0.77
Parshall-Tally-Dooley fine sandy loams	0 to 6	4.34	0.71
Farnuf loam	0 to 2	4.09	0.67
Wabek-Lehr complex	2 to 6	3.23	0.53

Soil Types	Slopes (%)	Acres within 110-foot-wide ROW	Percent within Map Unit
Wabek-Lehr-Appam complex	0 to 6	2.12	0.34
Parshall fine sandy loam	0 to 6	1.93	0.31
Dooley sandy loam	1 to 3	1.92	0.31
Southam silt loam	0 to 1	1.60	0.26
Hamerly-Tonka complex	0 to 3	1.21	0.20
Sakakawea-Farnuf loams	6 to 9	1.20	0.19
Parnell silty clay loam	0 to 1	1.14	0.19
Wabek-Appam complex	6 to 35	0.97	0.16
Vallers, saline-Parnell complex	0 to 1	0.93	0.15
Ustorthents-Haplustolls complex, reclaimed	6 to 9	0.50	0.08
Williams-Zahl-Lihen complex	6 to 15	0.31	0.05
Vallers-Parnell complex	0 to 1	0.13	0.02
Southam silty clay loam	0 to 1	0.03	<0.01
Total		**615.56**	**100.00**

Source: Natural Resources Conservation Service 2014.
ROW = right-of-way

3.5.1 Williams

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

3.5.2 Zahl

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

3.5.3 Zahill

The Zahill series consists of very deep, well-drained soils that formed in till and are found on till plains, hills, moraines and escarpments. Slopes are 0 to 65 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 13 inches and mean annual air temperature is approximately 42°F. This soil type is used in mainly range

and dryland crops. Native vegetation species common to this soil type include western wheatgrass, needle and thread, green needlegrass, little bluestem, prairie sandreed (*Calamovilfa longifolia*), bluebunch wheatgrass (*Pseudoroegneria spicata*), prairie junegrass (*Koeleria macrantha*), blue grama, sedges (*Carex* sp.), and other forbs (NRCS 2014).

3.5.4 Noonan

The Noonan series consists of very deep, well-drained or moderately well-drained soils formed in till. Permeability is moderate on the surface and slow in the Btn horizon. These soils are on till plains and uplands and have slopes of 0 to 15 percent. The mean annual precipitation found throughout the spatial extent of this soil type is 14 inches and mean annual air temperature is 39°F. These soils are used for spring-seeded small grains and pasture. Native vegetation includes western wheatgrass and blue grama (NRCS 2014).

3.5.5 Niobell

The Niobell series consists of very deep, well-drained or moderately well-drained soils that formed in till. Permeability is moderate on the surface and slow in the Btn horizon. These soils are on till plains and uplands and have slopes of 0 to 9 percent. The mean annual precipitation found throughout the spatial extent of this soil type is 14 inches and the mean annual air temperature is 39°F. These soils are used for spring-seeded small grains and pasture. Native vegetation includes green needlegrass, western wheatgrass, needle and thread, blue grama, Sandberg bluegrass (*Poa secunda*), some upland sedges, and a variety of forbs (NRCS 2014).

3.6 TREE, SAPLING, AND SHRUB COUNT

During SWCA's field survey, 35 upland tree and shrubland areas were geographically referenced within the survey area. Table 5 summarizes the number of trees estimated to be impacted by the project as currently proposed. The NDPSC requires a 2:1 post- to pre-construction mitigation for all trees, saplings, and shrubs impacted during the construction of the proposed pipeline. Therefore, SWCA estimates approximately 502 2-year-old sapling individuals would need to be replanted in order to fulfill the 2:1 mitigation requirement.

Table 5. Tree, Sapling, and Shrub Count

Woody Vegetation (WV) ID	Species	Type	Number of Trees*		Estimated Mitigation Commitment
			150-foot-wide Survey Corridor	110-foot-wide Construction ROW	
AWV1	green ash (*Fraxinus pennsylvanica*)	Tree Belt	20	0	0
AWV2	green ash	Natural	6	0	0
AWV3	green ash	Natural	10	0	0
AWV4	Siberian peashrub (*Caragana arborescens*)	Tree Row	50	17	34
AWV5	eastern cottonwood (*Populus deltoids*)	Tree	1	0	0
AWV6	green ash	Natural	2	0	0
AWV7	Russian olive (*Elaeagnus angustifolia*)	Natural	8	8	16
AWV8	peachleaf willow (*Salix amygdaloides*)	Natural	1	0	0
AWV9	Russian olive	Natural	1	0	0
AWV10	chokecherry (*Prunus virginiana*)	Natural	10	7	14
AWV11	green ash chokecherry	Natural	1 30	1 30	2 60
AWV12	chokecherry	Natural	40	24	48
AWV13	blue spruce (*Picea pungens*) lilac (*Syringa* spp.)	Planted	30 40	0 0	0 0
AWV14	green ash chokecherry	Natural	4 16	0 1	0 2
AWV15	ponderosa pine (*Pinus ponderosa*)	Planted	15	10	20
BWV1	eastern cottonwood	Natural	1	0	0
BWV2	green ash Siberian peashrub	Planted	5 13	2 6	4 12
BWV3	Russian olive	Planted	20	16	32
BWV4	Siberian elm (*Ulmus pumila*)	Planted	10	8	16

Woody Vegetation (WV) ID	Species	Type	Number of Trees*		Estimated Mitigation Commitment
			150-foot-wide Survey Corridor	110-foot-wide Construction ROW	
BWV5	green ash Siberian peashrub	Planted	8 6	3 2	6 4
BWV6	Russian olive	Planted	28	21	42
BWV7	green ash	Planted	35	25	50
BWV8	chokecherry	Natural	3	3	6
BWV9	eastern cottonwood chokecherry	Planted	2 10	1 4	2 8
BWV10	green ash American plum (*Prunus americana*)	Planted	12 15	4 5	8 10
BWV11	chokecherry	Natural	5	0	0
BWV12	chokecherry	Natural	10	0	0
BWV13	boxelder (*Acer negundo*) chokecherry	Natural	45 7	0 0	0 0
BWV14	eastern cottonwood	Natural	3	2	4
BWV15	boxelder	Planted	42	36	72
BWV16	green ash American elm (*Ulmus americana*) boxelder Siberian peashrub	Planted	30 12 4 4	7 3 1 1	14 6 2 2
BWV17	peachleaf willow	Natural	1	0	0
BWV18	boxelder	Natural	5	3	6
CWV1	quacking aspen (*Populus tremuloides*)	Natural	4	0	0
CWV2	boxelder	Natural	1	0	0
Total			**626**	**251**	**502**

* Estimated value based off of the observed density of trees.
ROW = right-of-way

3.7 NOXIOUS WEEDS

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

Noxious weeds have the potential to detrimentally affect public health, ecological stability, and agricultural practices. North Dakota Century Code (Chapter 63-01.1) and the North Dakota Department of Agriculture recognize 11 species as noxious, as shown in Table 6 (North Dakota Department of Agriculture 2013). Each county has the authority to add additional species to their list of noxious weeds. Burke County has listed common tansy (*Tanacetum vulgare*) in addition to the 11 state-listed noxious weeds. In 2012, no listed noxious weeds were reported for Divide County. In 2012, five state noxious weed species were found on 14,706 acres in Burke County.

Table 6. Documented Noxious Weed Occupied Area in Divide and Burke Counties, North Dakota

Common Name	Scientific Name	Divide County (acres)	Burke County (acres)
absinth wormwood	*Artemisia absinthium*	0	3,350
Canada thistle	*Cirsium arvense*	0	4,200
diffuse knapweed	*Centaurea diffusa*	0	0
leafy spurge	*Euphorbia esula*	0	7,000
musk thistle	*Carduus nutans*	0	4
purple loosestrife	*Lythrum salicaria*	0	0
Russian knapweed	*Acroptilon repens*	0	0
spotted knapweed	*Centaurea stoebe*	0	0
yellow toadflax	*Linaria vulgaris*	0	152
dalmatian toadflax	*Linaria dalmatica*	0	0
salt cedar	*Tamarix ramosissima*	0	0

Source: North Dakota Department of Agriculture 2013

Six areas of leafy spurge (*Euphorbia esula*) were noted during the survey totaling approximately 6.54 acres (Table 7). Approximately 4.82 acres occurred within the construction corridor.

Table 7. Noxious Weeds Observed during Field Survey of the Pipeline Route

Noxious Weed (ID)	Species	150-foot-wide Survey Corridor (acres)	110-foot-wide Construction Corridor (acres)
ANX1	leafy spurge (*Euphorbia esula*)	0.51	0.40
BNX1	leafy spurge	0.42	0.31
BNX2	leafy spurge	0.03	0.02
BNX3	leafy spurge	2.18	1.61

Noxious Weed (ID)	Species	150-foot-wide Survey Corridor (acres)	110-foot-wide Construction Corridor (acres)
BNX4	leafy spurge	3.35	2.48
BNX5	leafy spurge	0.05	0.00
Total		**6.54**	**4.82**

3.8 WILDLIFE

Several wildlife species that may exist in Divide and Burke Counties are listed as threatened or endangered under the Endangered Species Act (ESA) (16 United States Code 1531 et seq.). According to the USFWS, listed species in Divide and Burke Counties, North Dakota, include the gray wolf (*Canis lupus*), whooping crane (*Grus americana*), and piping plover (*Charadrius melodus*). Candidate species include Sprague's pipit (*Anthus spragueii*). Proposed species include northern long-eared bat (*Myotis septentrionalis*) and rufa red knot (*Calidris canutus rufa*) (USFWS 2014). Burke County, North Dakota, additionally has historical occurrence of the Dakota skipper (*Hesperia dacotae*), which is proposed for listing (USFWS 2014). SWCA conducted a cursory threatened and endangered species survey concurrently with the wetland determination. Ecologists did not observe any primary (i.e., actual sighting) or secondary (i.e., tracks, scat, fur) indication of the presence of threatened or endangered species.

The proposed project would have no effect on the gray wolf. Whooping crane and piping plover have the potential to occur within the project area as migrants. As a result, these species may be, but are not likely to be adversely, affected by the proposed project. The proposed project does not occur within the same watershed as Lake Sakakawea and therefore may affect, but is not likely to adversely affect the designated critical habitat for piping plover. The proposed project is not likely to jeopardize the Sprague's pipit, Dakota skipper, northern long-eared bat, and rufa red knot.

3.8.1 Gray Wolf

Federal Status: Endangered
Affects Determination: No effect

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

The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2013a). Due to a lack of forested habitat and distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and their vulnerability to being shot in open habitats (Licht and Huffman 1996), the re-establishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation may further act as a barrier against wolf recolonization in western North Dakota. Therefore, the proposed project would have **no effect** on the gray wolf.

3.8.2 Whooping Crane

Federal Status: Endangered
Affect Determination: May affect, is not likely to adversely affect

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

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

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

Suitable whooping crane foraging habitat (i.e., cultivated cropland and wetlands >0.04 hectare) was observed within the survey area. In addition, the project area is located within the migratory corridor for the whooping crane, with the nearest sighting approximately 8 feet north of the proposed alignment, approximately 410 feet west of BWB1 (USFWS, M. Tarcha, unpublished data). Several additional sightings have occurred within 1 mile of the project area (Appendix A). SWCA recommends that if construction is to occur within whooping crane spring and fall migration periods, and a whooping crane is observed within 0.5 mile of the

project, to stop construction and notify the USFWS. Therefore, the proposed project **may affect, but is not likely to adversely affect** the endangered whooping crane.

3.8.3 Piping Plover

Federal Status: Threatened
Affect Determination: May affect, is not likely to adversely affect

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

Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands, and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2002, 2012b). The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird. Piping plovers nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2012b). The birds fly south by mid to late August to areas along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988, 2012b).

Piping plovers were observed during the field survey in an area adjacent to a wetland within the proposed ROW. Additionally, nesting behavior was noted and a nest was suspected in the area. SWCA recommends avoidance of wetlands to the extent possible and to construct outside of the migratory bird nesting season. Therefore, the proposed project **may affect, but is not likely to adversely affect** piping plovers.

3.8.4 Designated Critical Habitat of Piping Plover

Affect Determination: May affect, is not likely to adversely affect

The USFWS has designated critical habitat for the Great Lakes and Northern Great Plains populations of piping plover (USFWS 2002). Designated critical habitat for the piping plover includes 183,422 acres and 1,207.5 river miles of habitat including various wetland locations in Burke and Divide Counties, North Dakota (USFWS 2002).

Since the proposed project would not modify, alter, disturb, or affect the shoreline of Lake Sakakawea or the Missouri River, and is not within the same watershed as Lake Sakakawea or the Missouri River, the proposed project **may affect, but is not likely to adversely affect** designated critical habitat of the piping plover.

3.8.5 Sprague's Pipit

Federal Status: Candidate
Affect Determination: Not likely to jeopardize

The Sprague's pipit is a small passerine, 10 to 15 centimeters in length, endemic to the Northern Great Plains (USFWS 2011). The Sprague's pipit requires large tracts of native prairie habitat, unplowed, throughout their life cycle. Because native grasslands are disturbance-dependent, Sprague's pipit prefers grassland habitats that are regularly disturbed. The frequency of disturbance required for habitat maintenance depends on how quickly grasses grow to an intermediate height (4 to 12 inches) following a disturbance event.

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

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

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

3.8.6 Dakota Skipper

Federal Status: Proposed
Affect Determination: Not likely to jeopardize

The Dakota skipper is a small butterfly with a 1-inch wingspan and is found primarily in undisturbed native tall grass and upland dry Northern mixed grass prairie areas with a high diversity of wildflowers and grasses (Committee on the Status of Endangered Wildlife in Canada 2003). The Dakota skipper appears to require a range of precipitation-evaporation ratios between 60 and 105 and a soil pH between 7.20 and 7.90 (McCabe 1981). Larvae feed on grasses, favoring little bluestem. Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*). The species is threatened by conversion of native prairie

to cultivated agriculture or shrublands, over-grazing, invasive species, gravel mining, and inbreeding (USFWS 2005). Suitable habitat does not exist within the proposed project area. Construction activities are not anticipated to negatively impact the species as long as reclamation is conducted as soon as the construction phase is complete. In addition, the use of existing access roads to reach the proposed pipeline location reduces the potential fragmentation of suitable habitat. Lastly, the implementation of a noxious weed management program significantly reduces any potential impacts on the Dakota skipper and its habitat. Therefore, the proposed project **is not likely to jeopardize** this species. The use of best management practices and conservation guidelines (USFWS 2007) during construction and operation and immediate reclamation of short-term disturbance should decrease direct, indirect, and cumulative impacts to this species.

3.8.7 Rufa Red Knot

Federal Status: Proposed
Affect Determination: Not likely to jeopardize

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

Potential habitat along the lake is approximately 46 straight-line miles from the proposed project. Potential spills and sedimentation occurring within the project area are concerns for downstream water quality and could indirectly affect suitable stopover habitat for the rufa red knot. Activities associated with the construction, production, or reclamation of the proposed project are not anticipated to adversely affect suitable stopover habitat for the rufa red knot. Therefore, the proposed project **is not likely to jeopardize** the rufa red knot.

3.8.8 Migratory Birds

Status: Not listed, protected under the Migratory Bird Treaty Act
Effects of Project: No adverse effects anticipated

Suitable habitat for migratory birds exists in the entire project area. Specifically, grassland nesting birds have the potential to occur and nest in the project area, especially during the migratory bird breeding season between February 1 and July 15. Suitable woodland nesting habitat also occurs in the project area. Active mallard (*Anas platyrhynchos*), eastern kingbird (*Tyrannus tyrannus*), and northern shoveler (*Anas clypeata*) nests were discovered during the survey (Appendix A). An inactive raptor nest was also noted. SWCA recommends to construct outside of the migratory bird nesting season. The proposed action is unlikely to cause any adverse effects to migratory birds.

3.8.9 Bald Eagle

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

Effects of Project: No adverse effects anticipated

The bald eagle (*Haliaeetus leucocephalus*) feeds on fish and carrion and typically roosts in large trees near a water source. Bald eagle nesting habitat is typically any mature stands of conifer or cottonwood trees in association with rivers, streams, reservoirs, lakes, or any significant body of water. Bald eagles in North Dakota are usually observed along the Missouri River (Gomes n.d.) and Yellowstone River. Bald eagles frequently migrate through the grassland habitats; however, no bald eagles or nests were observed during the field surveys. Therefore, **no adverse effects** to bald eagles are anticipated.

3.8.10 Golden Eagle

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

Effects of Project: No adverse effects anticipated

The golden eagle (*Aquila chrysaetos*) prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs which provide suitable nesting habitat. Golden eagles may occur within or near the survey area; however, no golden eagles or nests were observed during the field surveys. Therefore, **no adverse effects** to golden eagles are anticipated.

3.8.11 Wildlife Observed

During the field survey, SWCA ecologists observed various wildlife species which utilize wetlands and other habitat within the survey area (Table 8). Common wildlife species may be affected both directly via incidents with construction equipment or indirectly through the temporary fragmentation of habitat as a result of construction activities.

Table 8. Wildlife Observed during Field Surveys at the Proposed Pipeline Route

Common Name	Scientific Name	Observation Type
American avocet	*Recurvirostra americana*	Primary
American badger	*Taxidea taxus*	Primary
American coot	*Fulica americana*	Primary
American crow	*Corvus brachyrhynchos*	Primary
American robin	*Turdus migratorius*	Primary
American wigeon	*Anas Americana*	Primary
American white pelican	*Pelecanus erythrorhynchos*	Primary
Black tern	*Chlidonias niger*	Primary
Black-tailed prairie dog	*Cynomys ludovicianus*	Primary
Blue jay	*Cyanocitta cristata*	Primary
Blue-winged teal	*Anas discors*	Primary

Common Name	Scientific Name	Observation Type
Bobolink	*Dolichonyx oryzivorus*	Primary
Brewer's blackbird	*Euphagus cyanocephalus*	Primary
Brown-headed cowbird	*Molothrus ater*	Primary
California gull	*Larus californicus*	Primary
Canada goose	*Branta canadensis*	Primary
Chipping sparrow	*Spizella passerina*	Primary
Clay-colored sparrow	*Spizella pallida*	Primary
Common goldeneye	*Bucephala clangula*	Primary
Common grackle	*Quiscalus quiscula*	Primary
Common yellowthroat	*Geothlypis trichas*	Primary
Coyote	*Canis latrans*	Primary
Double-crested cormorant	*Phalacrocorax auritus*	Primary
Eared grebe	*Podiceps nigricollis*	Primary
Eastern kingbird	*Tyrannus tyrannus*	Primary – Nest Located
Field sparrow	*Spizella pusilla*	Primary
Franklin's gull	*Larus pipixcan*	Primary
Gadwall	*Anas strepera*	Primary
Grasshopper sparrow	*Ammodramus savannarum*	Primary
Gray partridge	*Perdix perdix*	Primary
Great blue heron	*Ardea herodias*	Primary
Green-winged teal	*Anas crecca*	Primary
Horned lark	*Eremophila alpestris*	Primary
Killdeer	*Charadrius vociferus*	Primary
Lesser scaup	*Aythya affinis*	Primary
Mallard	*Anas platyrhynchos*	Primary – Nest Located
Marbled godwit	*Limosa fedoa*	Primary
Mourning dove	*Zenaida macroura*	Primary
Muskrat	*Ondatra zibethicus*	Primary
Nelson's sparrow	*Ammodramus nelsoni*	Primary
North American beaver	*Castor canadensis*	Secondary – Dam
Northern flicker	*Colaptes auratus*	Primary
Northern harrier	*Circus cyaneus*	Primary
Northern pintail	*Anas acuta*	Primary
Northern shoveler	*Anas clypeata*	Primary – Nest Located
Pied-billed grebe	*Podilymbus podiceps*	Primary

Common Name	Scientific Name	Observation Type
Piping plover	*Charadrius melodus*	Primary
Raccoon	*Procyon lotor*	Secondary – Scat
Red fox	*Vulpes vulpes*	Primary
Redhead	*Aythya americana*	Primary
Red-necked phalarope	*Phalaropus lobatus*	Primary
Red-tailed hawk	*Buteo jamaicensis*	Primary
Red-winged blackbird	*Agelaius phoeniceus*	Primary
Ring-billed gull	*Larus delawarensis*	Primary
Ring-necked duck	*Aythya collaris*	Primary
Ring-necked pheasant	*Phasianus colchicus*	Primary
Ruddy duck	*Oxyura jamaicensis*	Primary
Savannah sparrow	*Passerculus sandwichensis*	Primary
Sharp-tailed grouse	*Tympanuchus phasianellus*	Primary
Sora	*Porzana carolina*	Primary
Striped skunk	*Mephitis mephitis*	Primary
Swainson's hawk	*Buteo swainsoni*	Primary
Thirteen-lined ground squirrel	*Spermophilus tridecemlineatus*	Primary
Upland sandpiper	*Bartramia longicauda*	Primary
Vesper sparrow	*Pooecetes gramineus*	Primary
Western grebe	*Aechmophorus occidentalis*	Primary
Western kingbird	*Tyrannus verticalis*	Primary
Western meadowlark	*Sturnella neglecta*	Primary
White-faced ibis	*Plegadis chihi*	Primary
White-tailed deer	*Odocoileus virginianus*	Primary
White-tailed jackrabbit	*Lepus townsendii*	Primary
Willet	*Catoptrophorus semipalmatus*	Primary
Wilson's phalarope	*Phalaropus tricolor*	Primary
Wilson's snipe	*Gallinago delicata*	Primary
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	Primary

4.0 CONCLUSIONS AND RECOMMENDATIONS

1. SWCA ecologists recorded approximately 68.27 acres of wetlands within the survey area.
2. In total, approximately 47.95 acres of PEM wetland *may* be temporarily impacted by construction activities.
3. Seven waterbodies were observed within the survey area: four intermittent streams and three permanent waterbodies.
4. SWCA estimates 251 trees, saplings, and shrubs may be impacted. Therefore, approximately 502 2-year-old saplings may need to be replanted to fulfill the 2:1 mitigation requirement.

   According to the recommendations of the North Dakota Forest Service, tree species selection for replacement should be accomplished through collaboration with a reputable area nursery. This will allow for species to be selected based on various factors including species hardiness and area soil type.
5. The piping plover, a threatened species, was observed during the field surveys within the proposed ROW. SWCA recommends avoiding wetlands to the extent possible, and to construct outside of the migratory bird nesting season. No other threatened or endangered species were observed during the field survey. Suitable roosting and foraging habitat exists within the project area for the whooping crane, and there have been several previous sightings within 1 mile of the project area (Appendix A). SWCA recommends that if construction is to occur within whooping crane spring and fall migration periods, and a whooping crane is observed within 0.5 mile of the project, to stop construction and notify the USFWS.

   The other listed threatened and endangered species which occur in Divide and Burke Counties are not likely to be detrimentally impacted by construction activities.
6. Migratory birds and habitat were observed throughout the entire project area. Active migratory bird nests (mallard, eastern kingbird, northern shoveler) were observed during the survey. Other types of suitable migratory bird habitat exist throughout the surveyed areas. A 0.5-mile line-of-sight survey was conducted throughout the survey area.

   One inactive raptor nest was observed during the survey. No active raptor nests were observed.
7. Six areas of leafy spurge were recorded within the surveyed areas, totaling approximately 6.54 acres. If noxious weeds are confirmed during construction activities, actions should be taken to reduce the potential to spread any state listed noxious weed species, especially to native areas.

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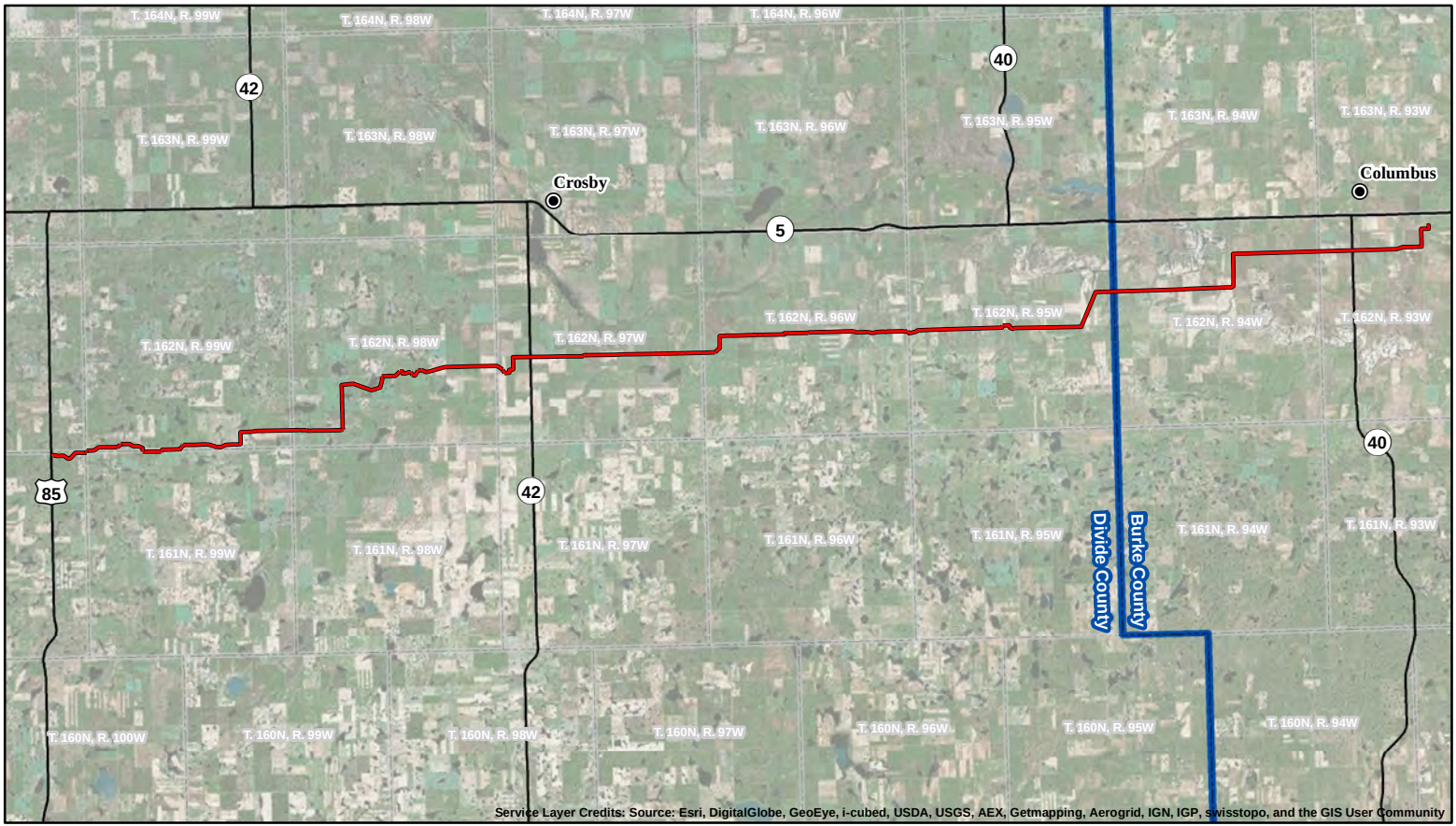
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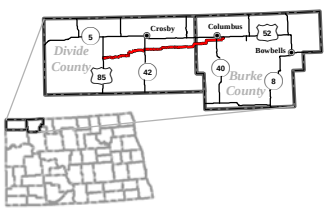
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APPENDIX A
Vicinity and Site Layout Maps



Global Stampede

- City
- Proposed Pipeline
- Existing Road
- County Boundary



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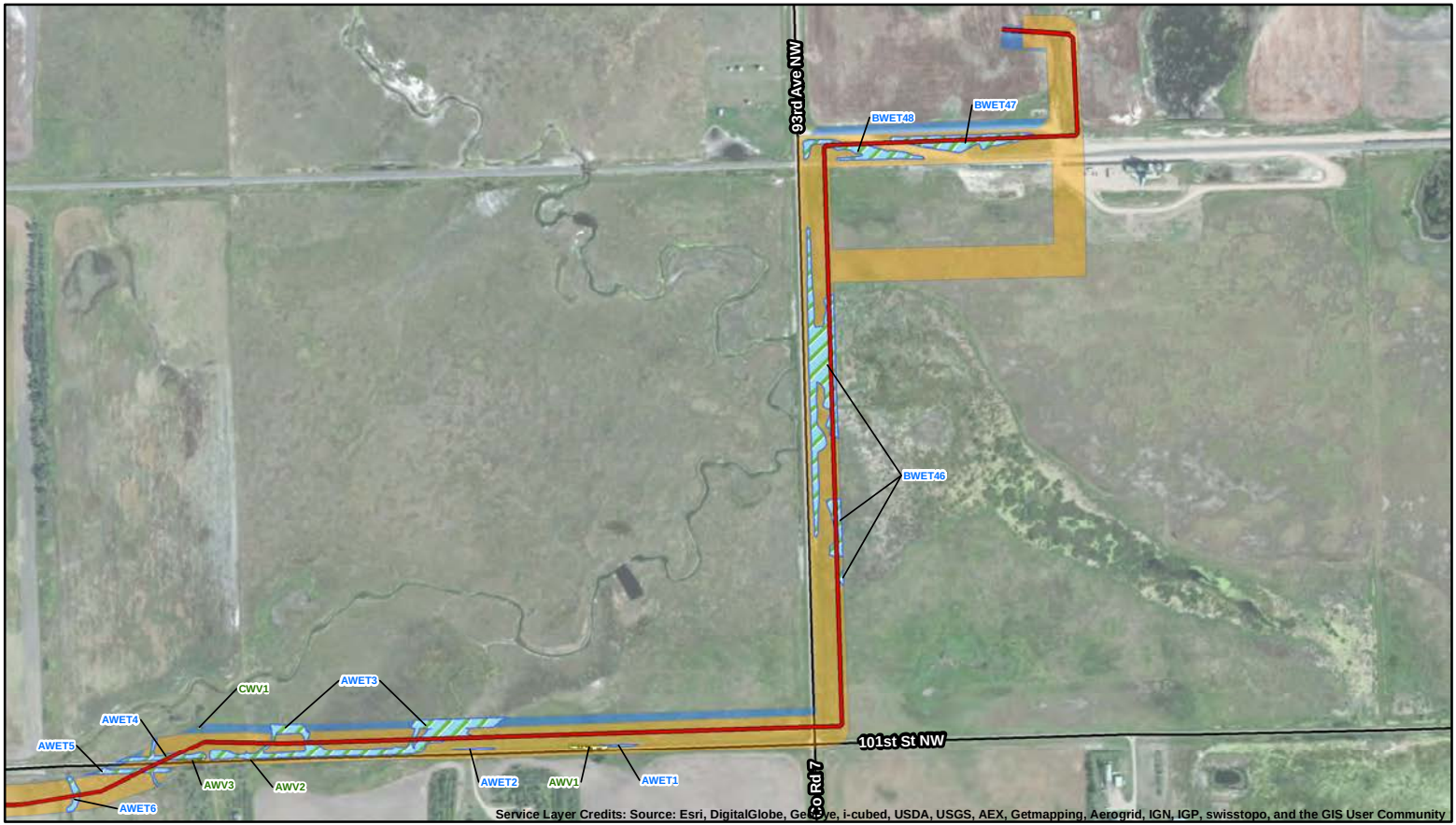
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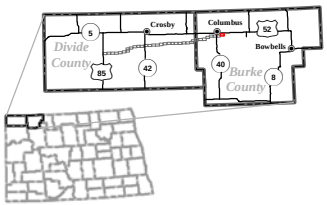
Base Map: Aerial Imagery
Source: ESRI ArcGIS online service
Burke and Divide Counties, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

- Upland Data Point
- Nest
- Proposed Pipeline
- Existing Road
- Survey Area
- Previously Inventoried Area
- Township/Range Boundary
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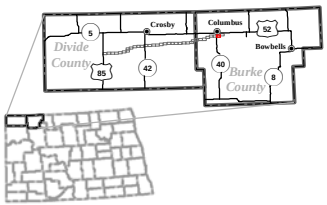
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Quadrangle: Stampede (1959), Columbus (1959)
Township/Range: T162N, R93W
Burke County, North Dakota

Projection: NAD 1983 UTM Zone 13N



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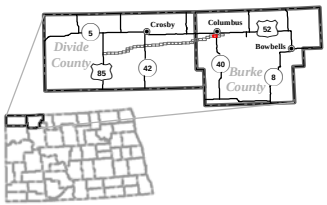
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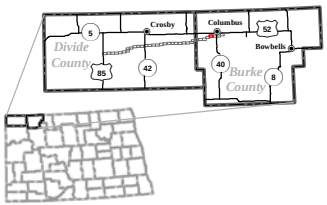
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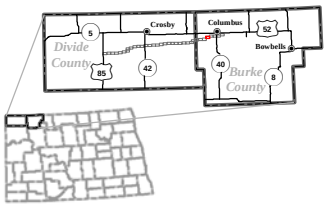
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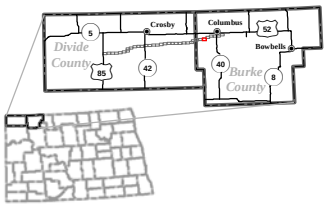
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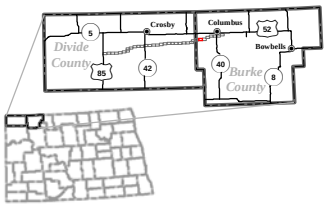
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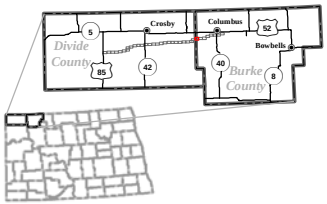
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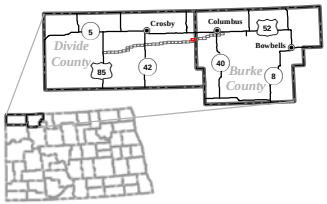
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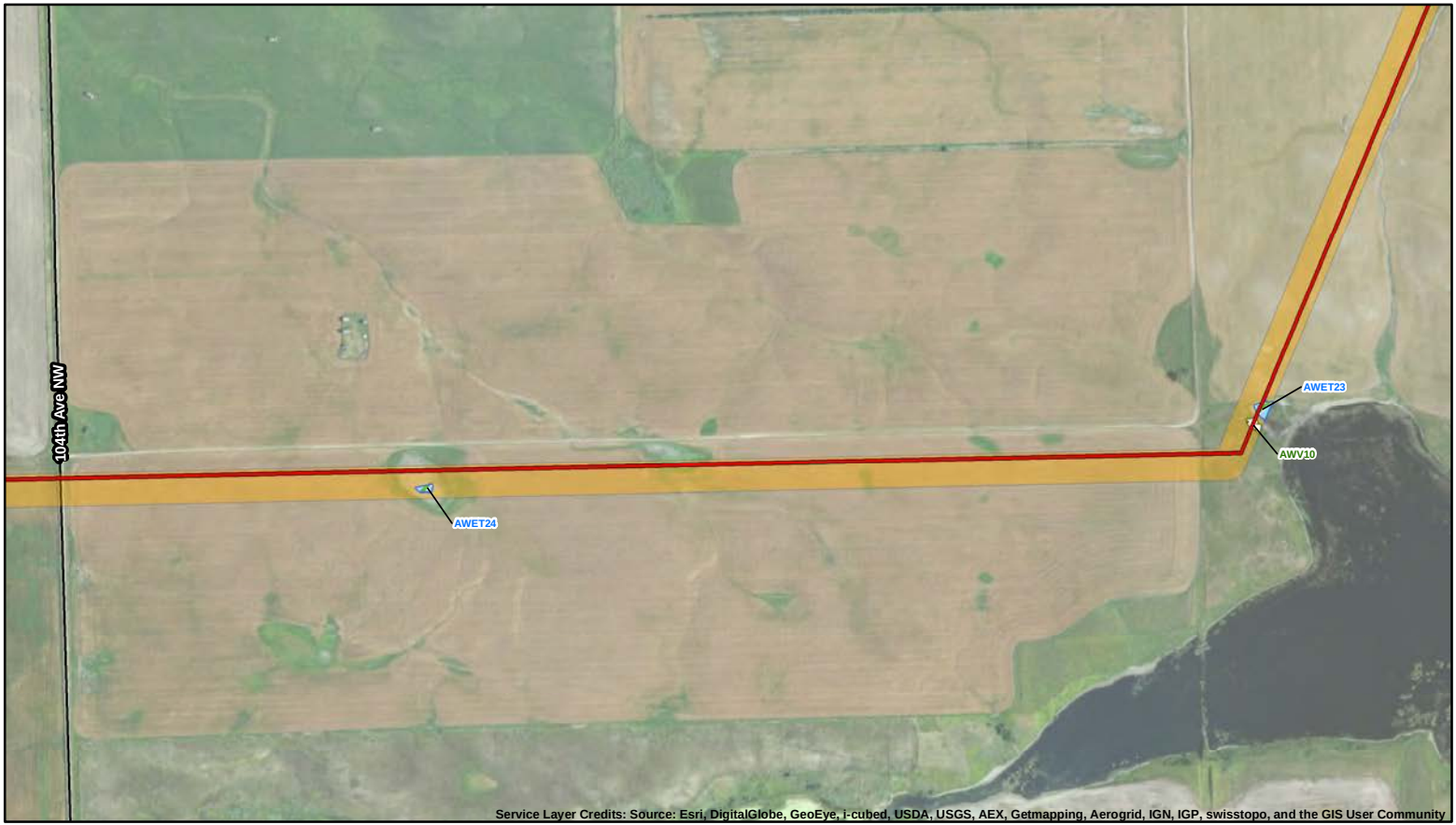
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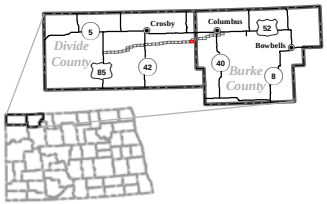
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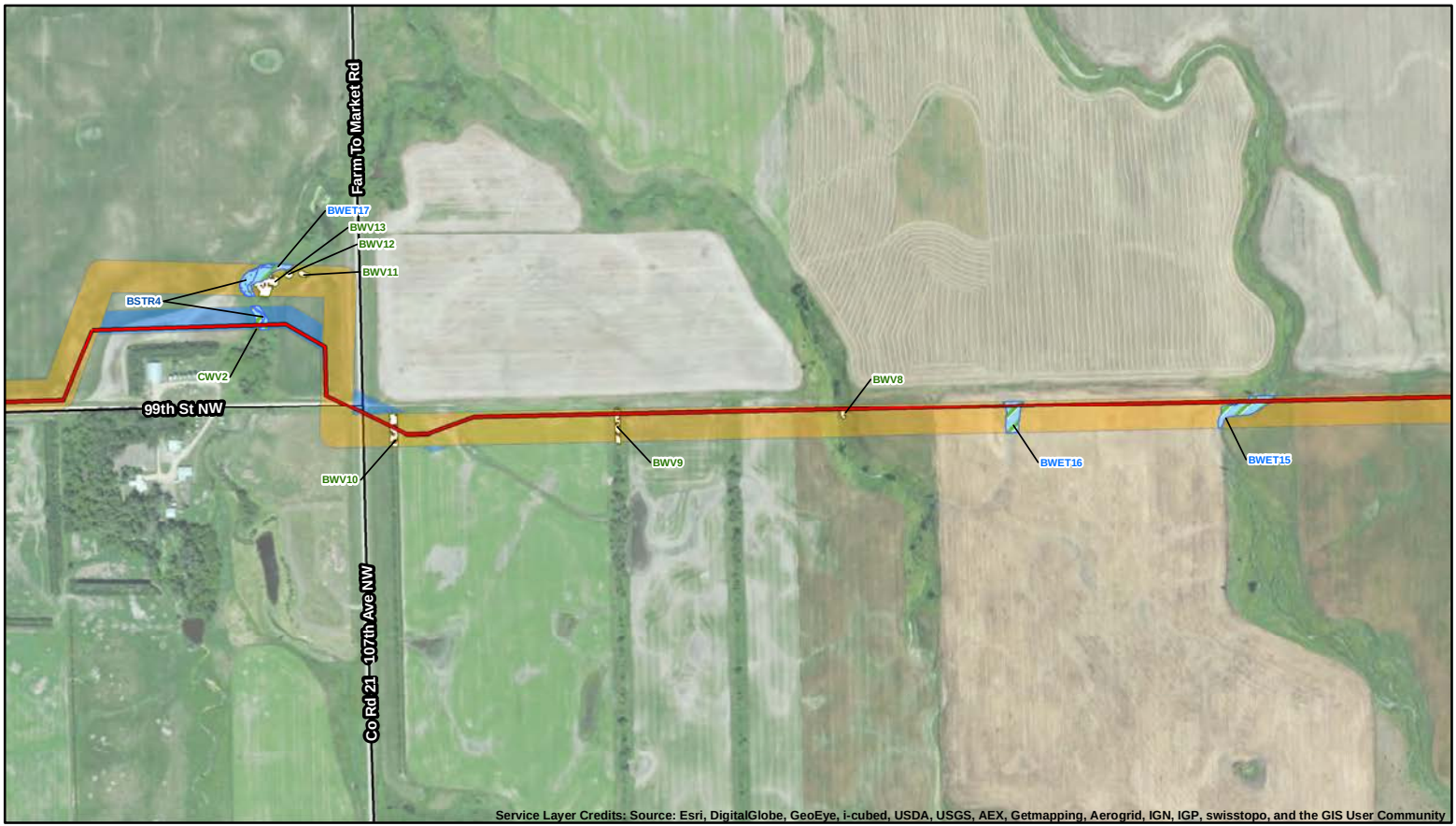
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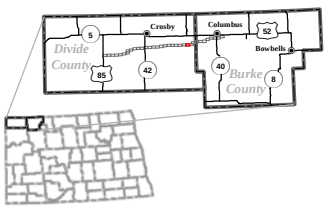
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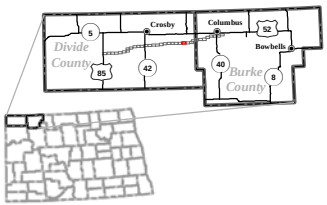
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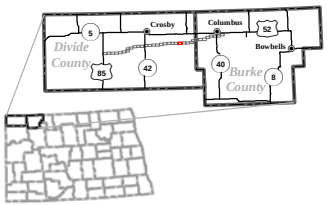
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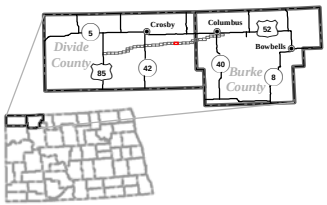
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Projection: NAD 1983 UTM Zone 13N



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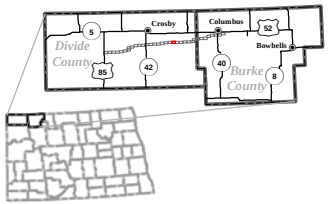
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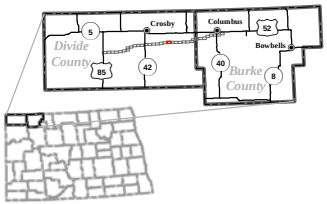
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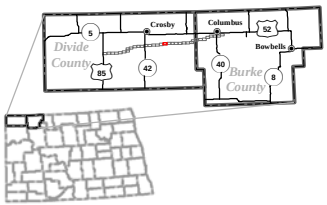
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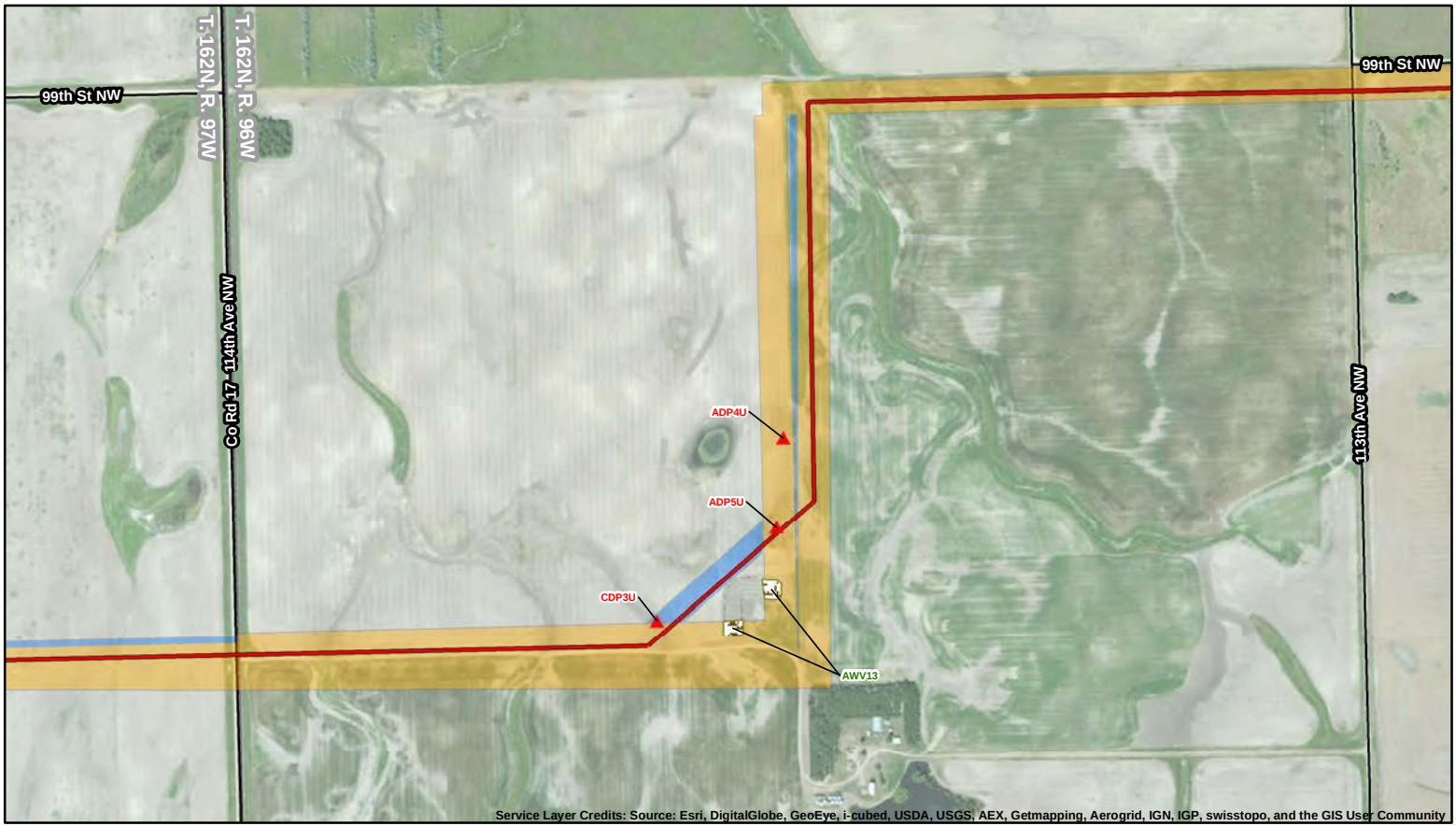
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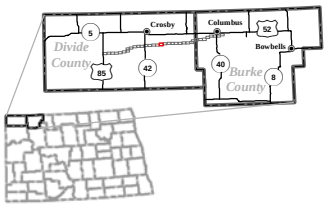
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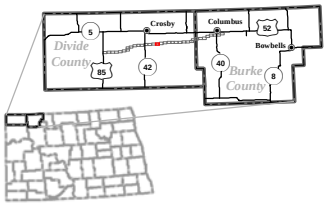
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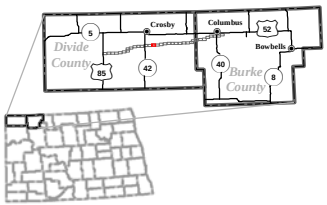
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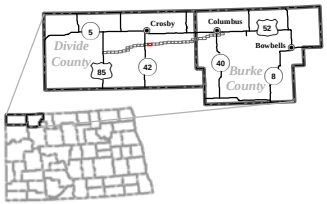
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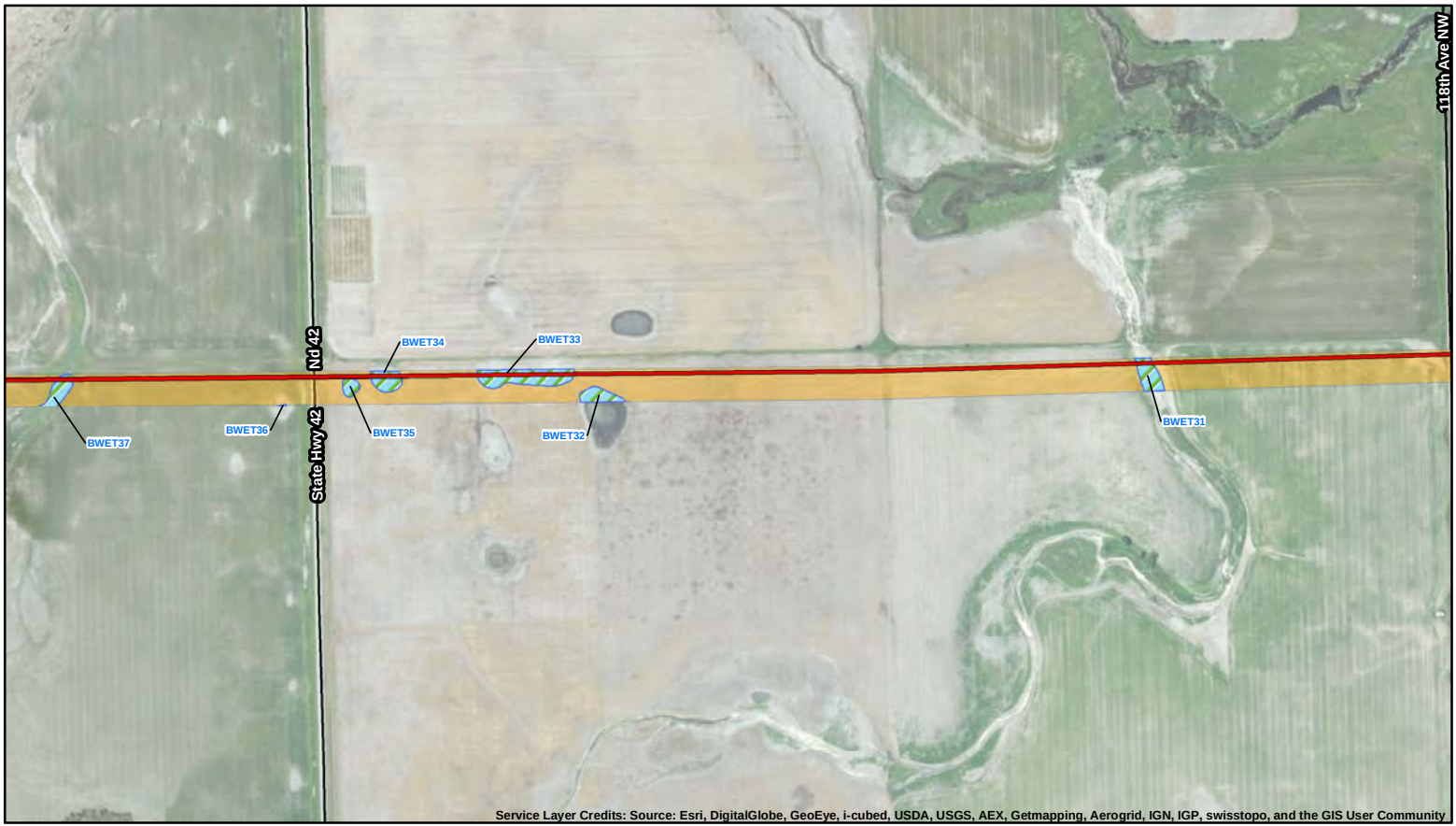
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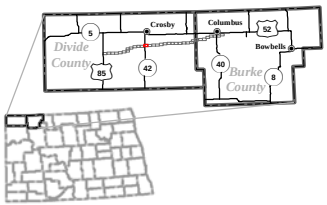
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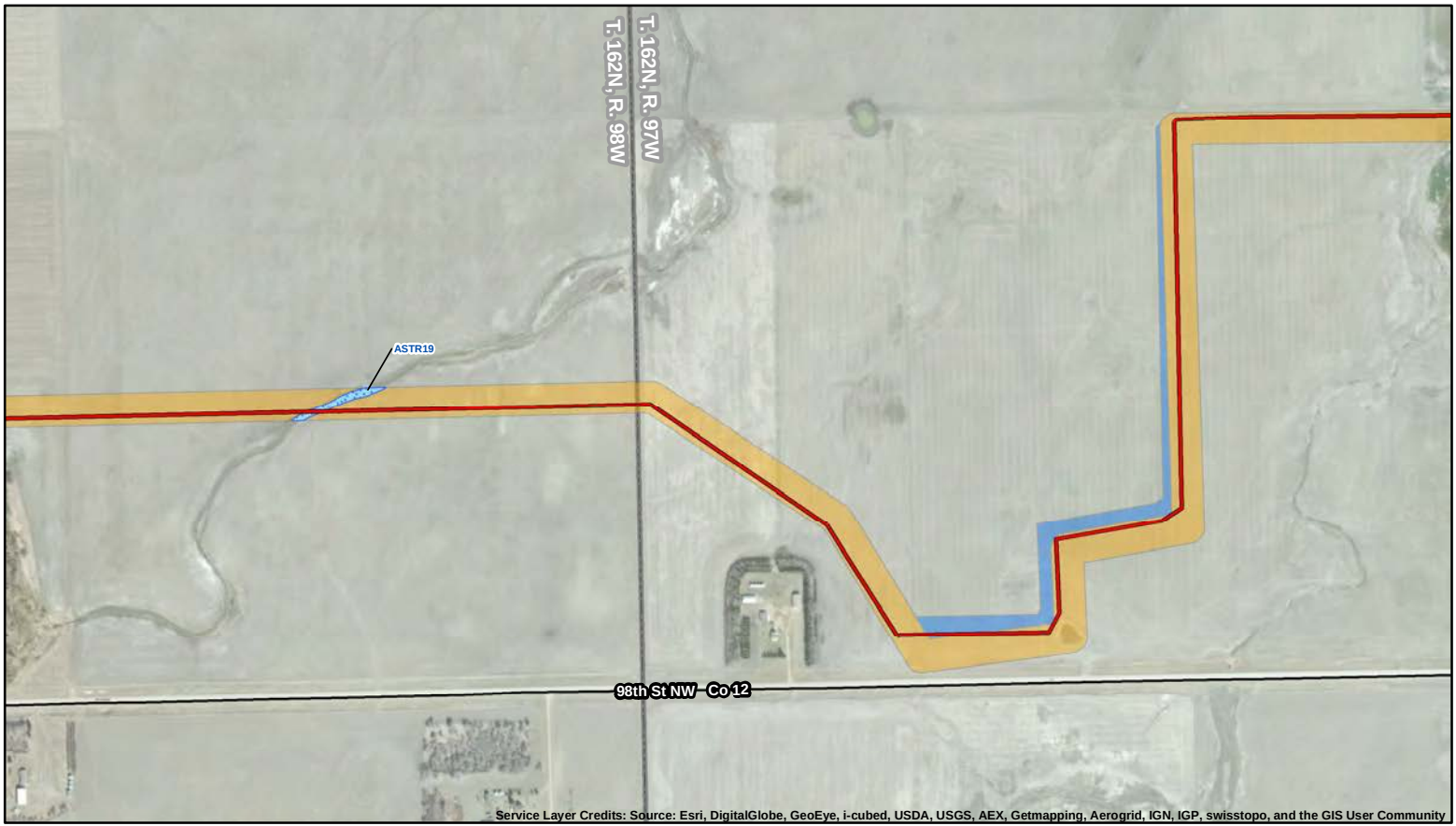
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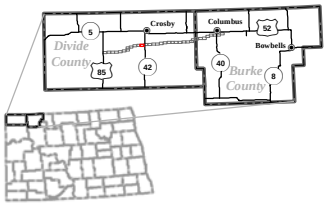
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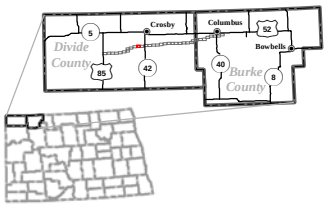
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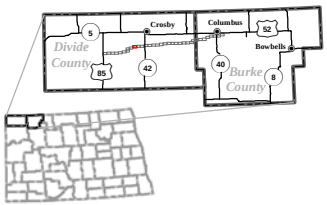
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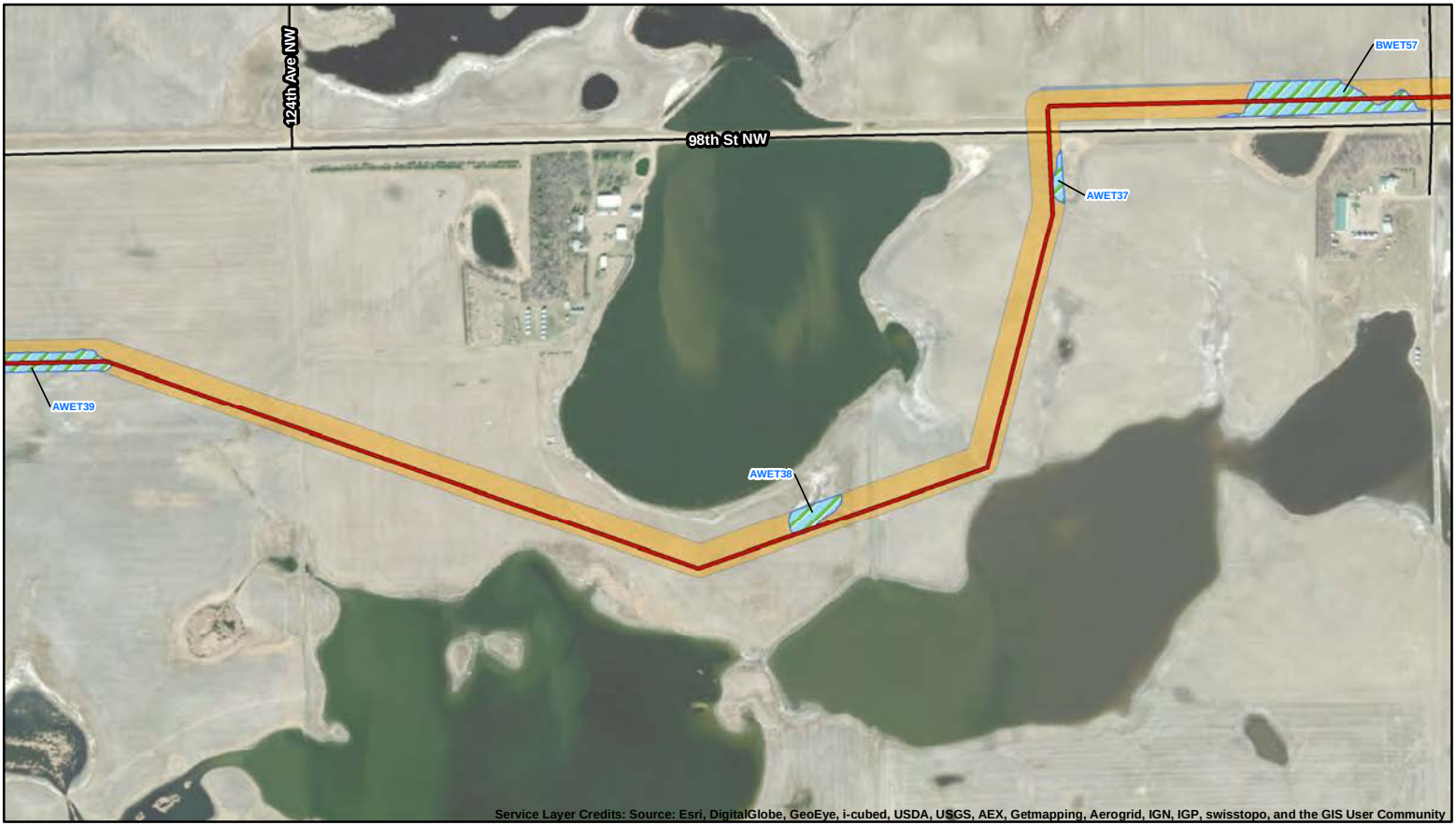
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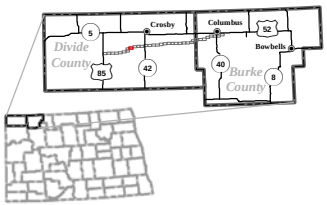
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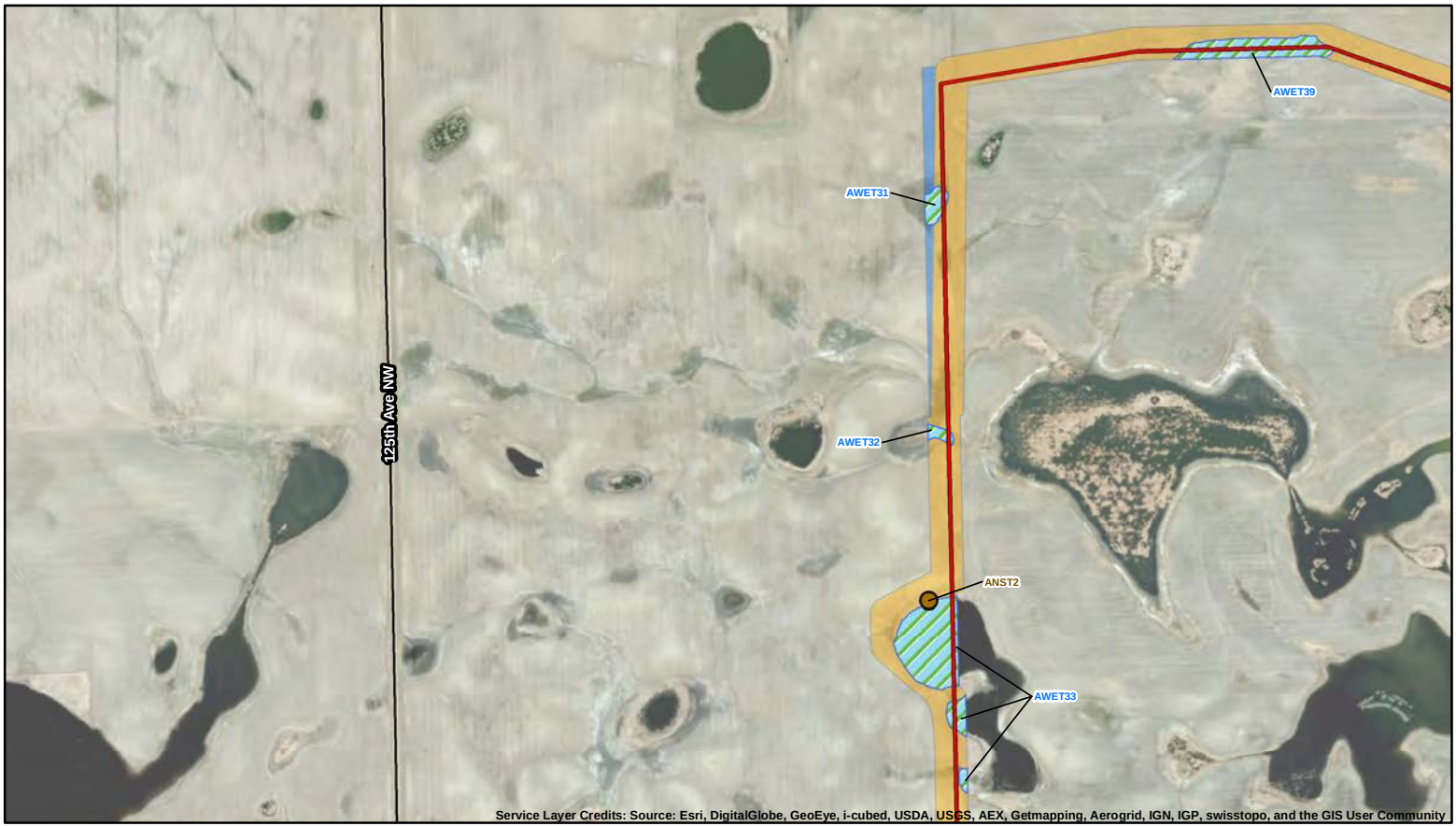
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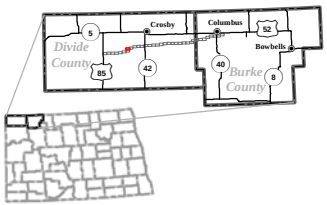
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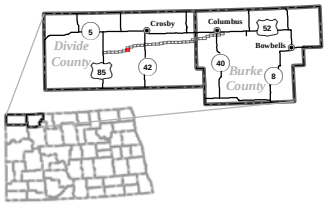
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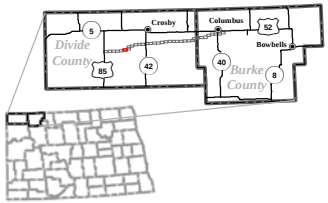
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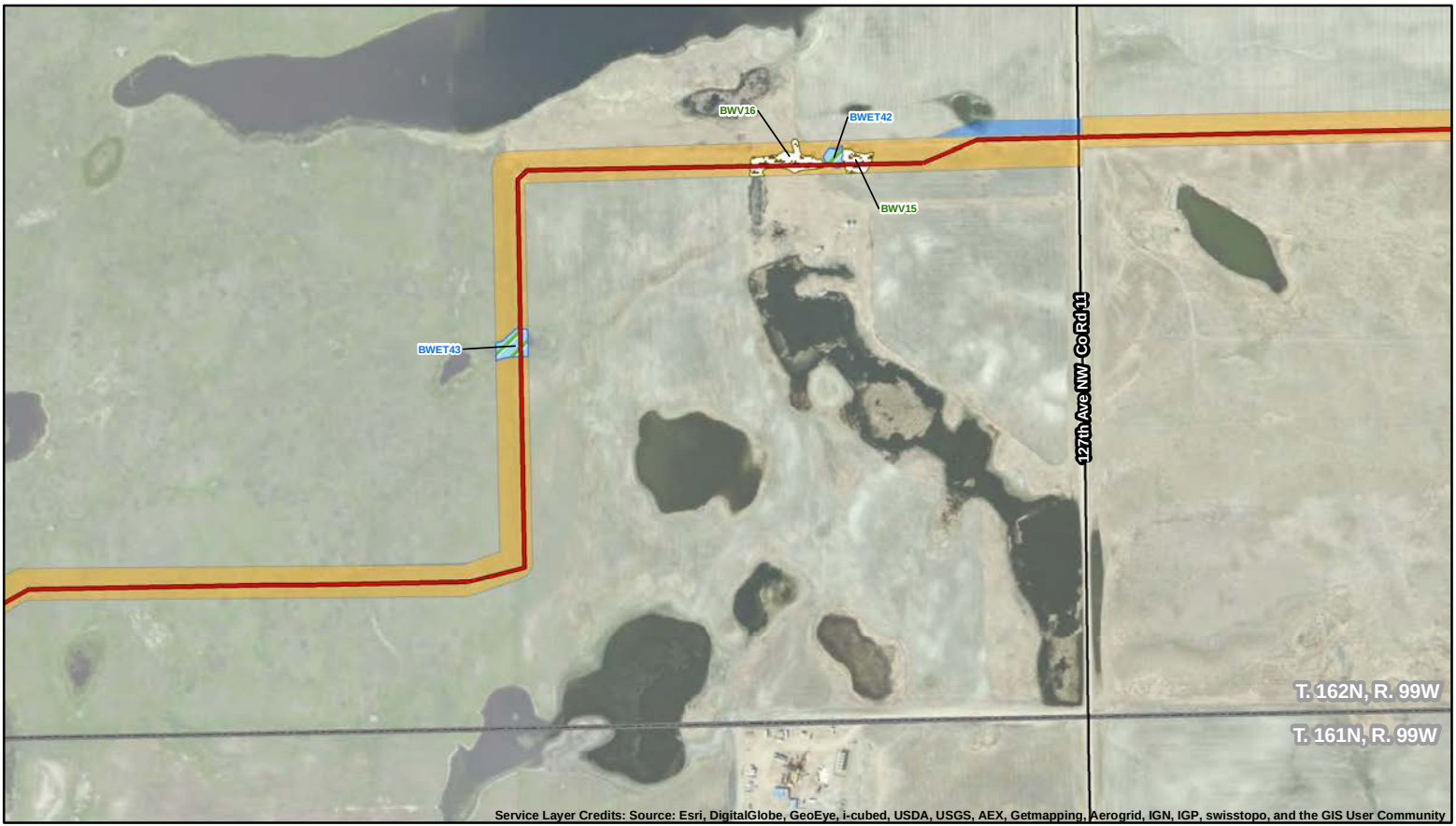
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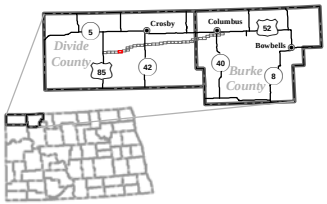
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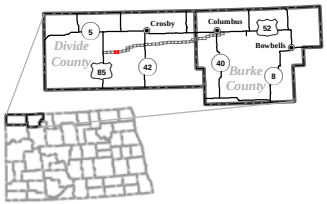
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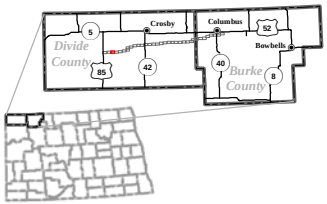
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Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

- Upland Data Point
- Nest
- Proposed Pipeline
- Existing Road
- Survey Area
- Previously Inventoried Area
- Township/Range Boundary
- Wetland
- Intermittent Stream
- Waterbody
- Woody Vegetation
- Noxious Weed
- County Boundary



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Kilometers
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Miles
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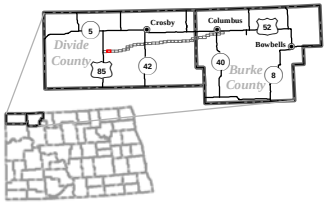
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Source: ESRI ArcGIS online service
Quadrangle: Colgan SE (1984)
Township/Range: T162N, R99W & T161N, R99W
Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

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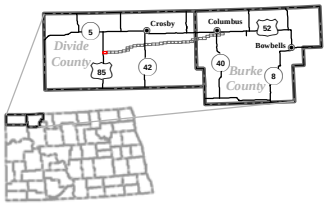
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Township/Range: T162N, R99W
Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

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- Noxious Weed
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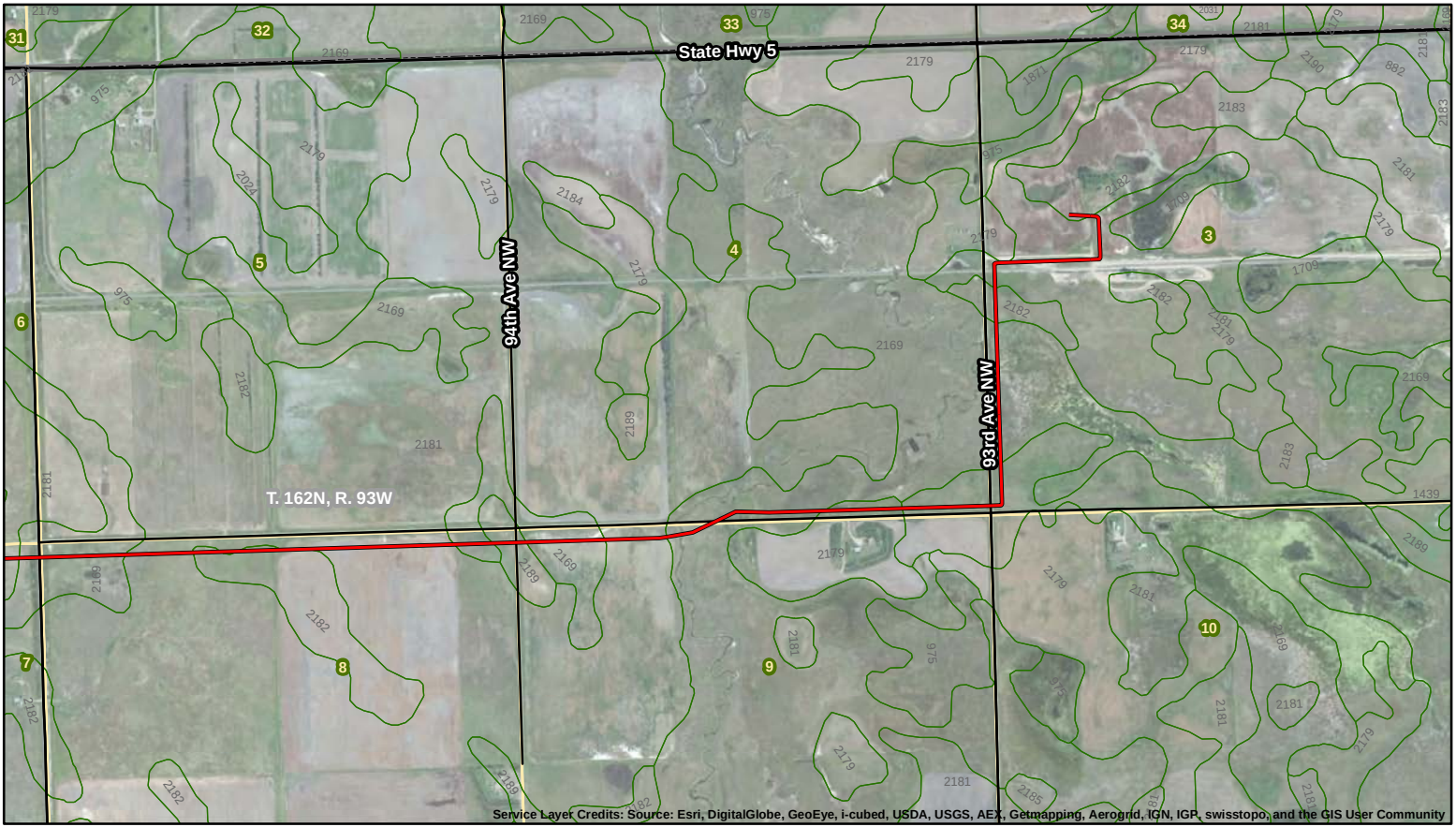
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Kilometers
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Miles
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Base Map: Aerial Imagery
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Quadrangle: Colgan SE (1984)
Township/Range: T162N, R99W & T161N, R99W & T161N, R100W
Divide County, North Dakota

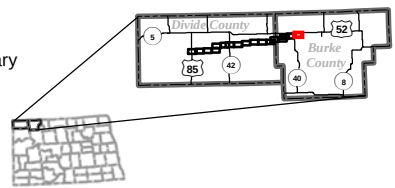
Projection: NAD 1983 UTM Zone 13N

APPENDIX B
Survey Area Soil Series Map



Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
- County Boundary



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Kilometers
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Miles
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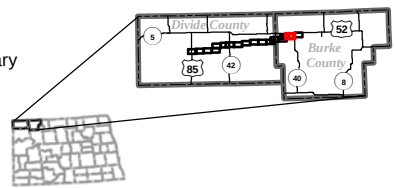
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Quadrangle: Stampede (1959), Columbus (1959)
Township/Range: T162N, R93W
Burke County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

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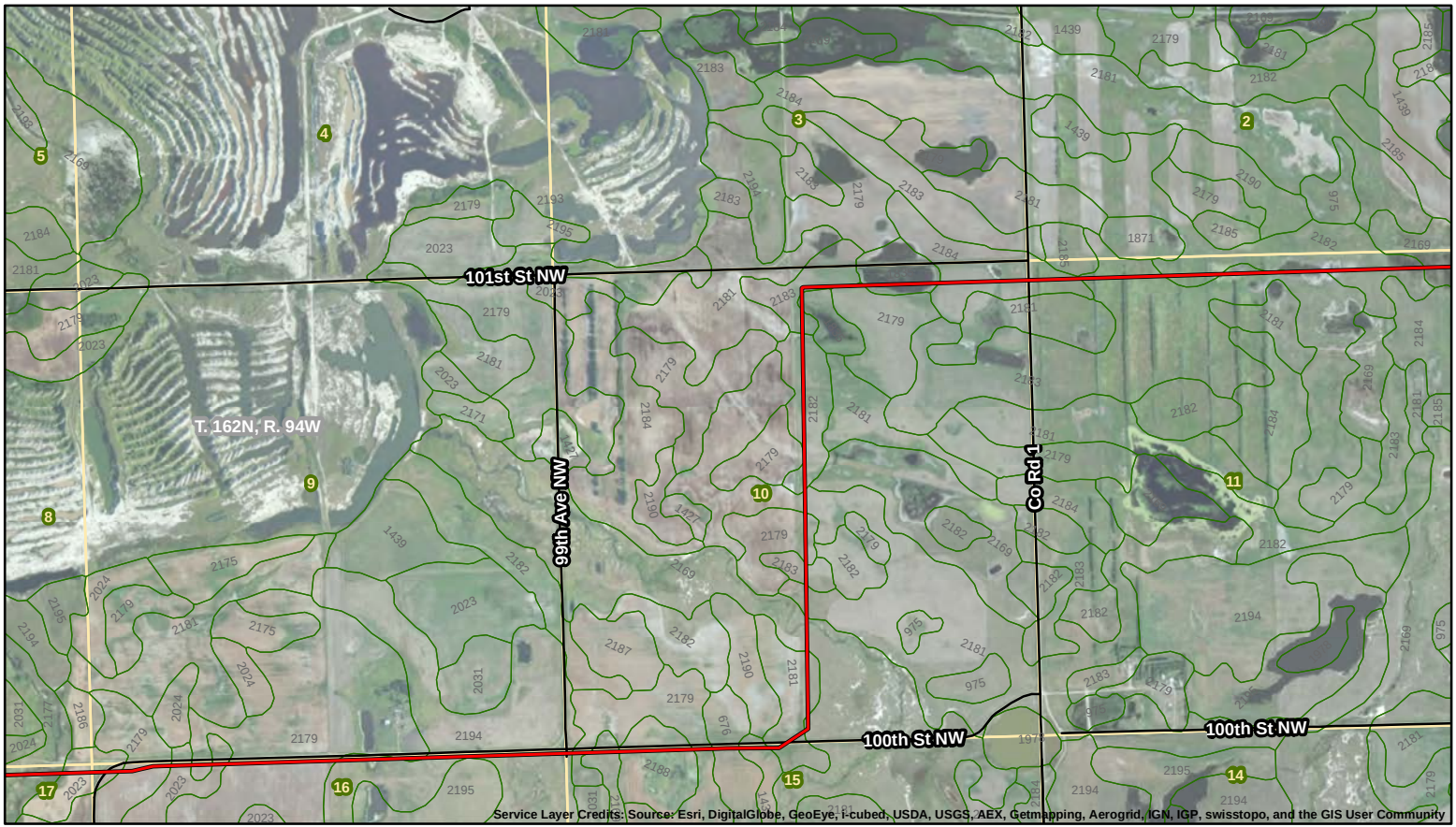
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Miles
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Quadrangle: Columbus (1959)
Township/Range: T162N, R93W & T162N, R94W
Burke County, North Dakota

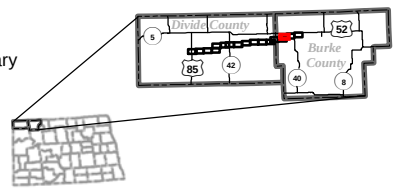
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Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
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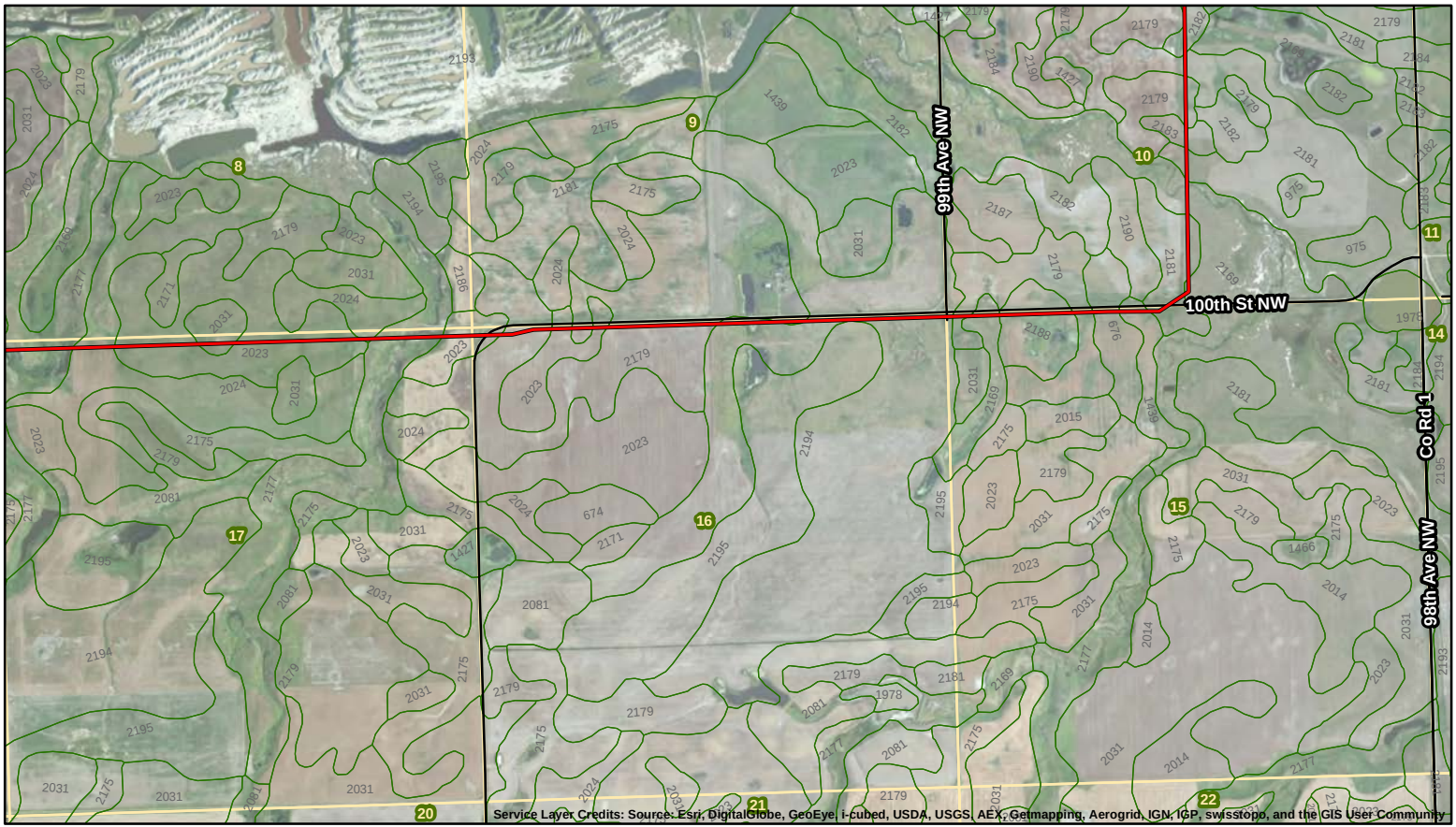
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Miles
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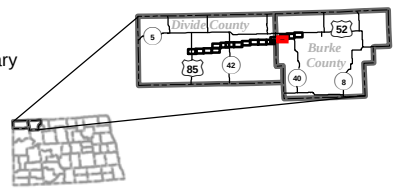
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Source: esri ArcGIS Online service
Quadrangle: Columbus (1959), Columbus SE (1959), Columbus SW (1959)
Township/Range: T162N, R94W
Burke County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
- County Boundary



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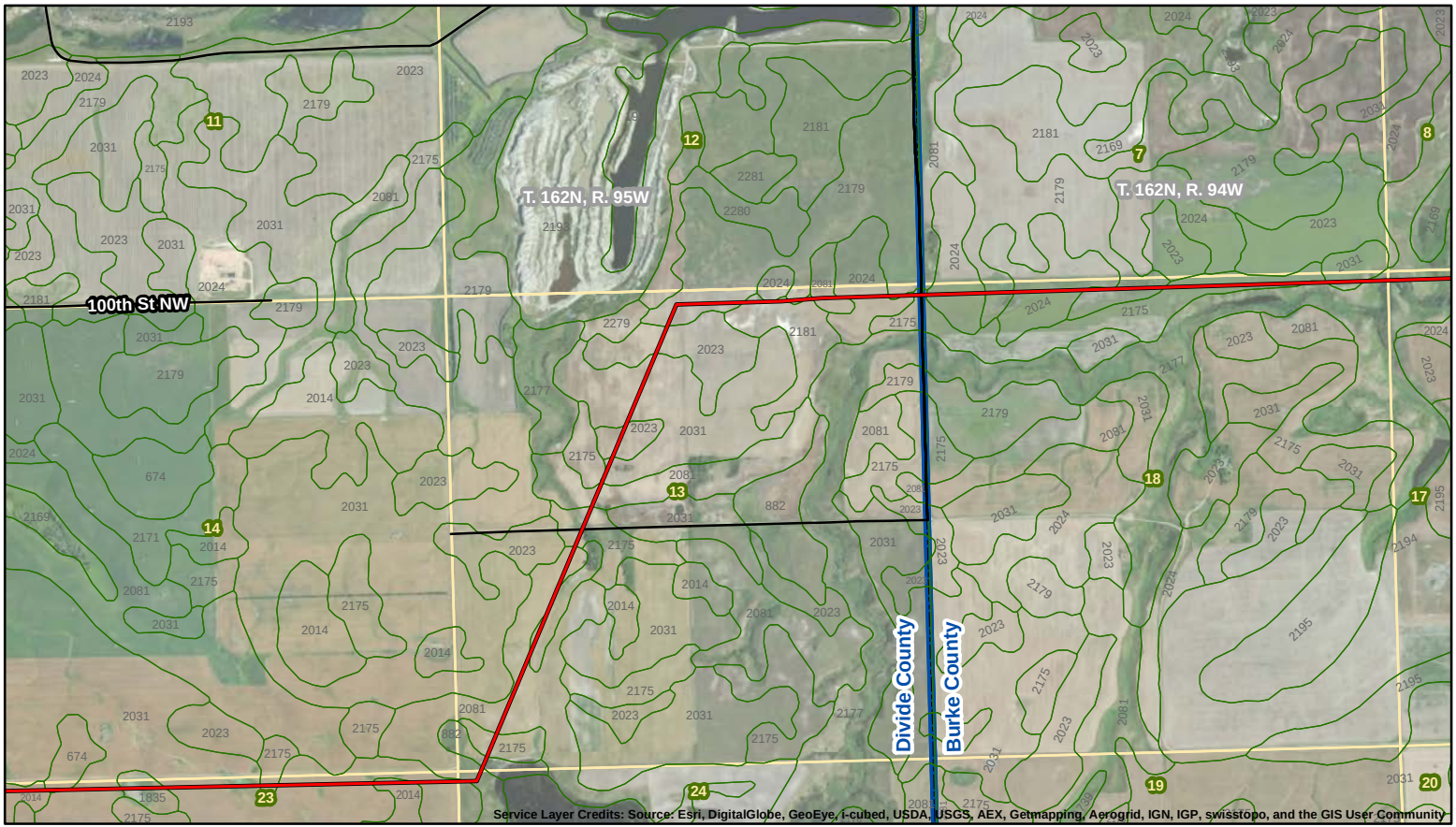
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Kilometers
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Miles
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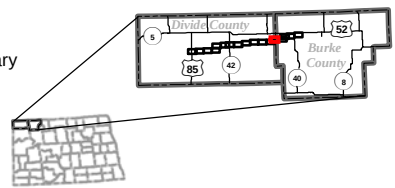
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Quadrangle: Columbus SE (1959), Columbus SW (1959)
Township/Range: T162N, R94W
Burke County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
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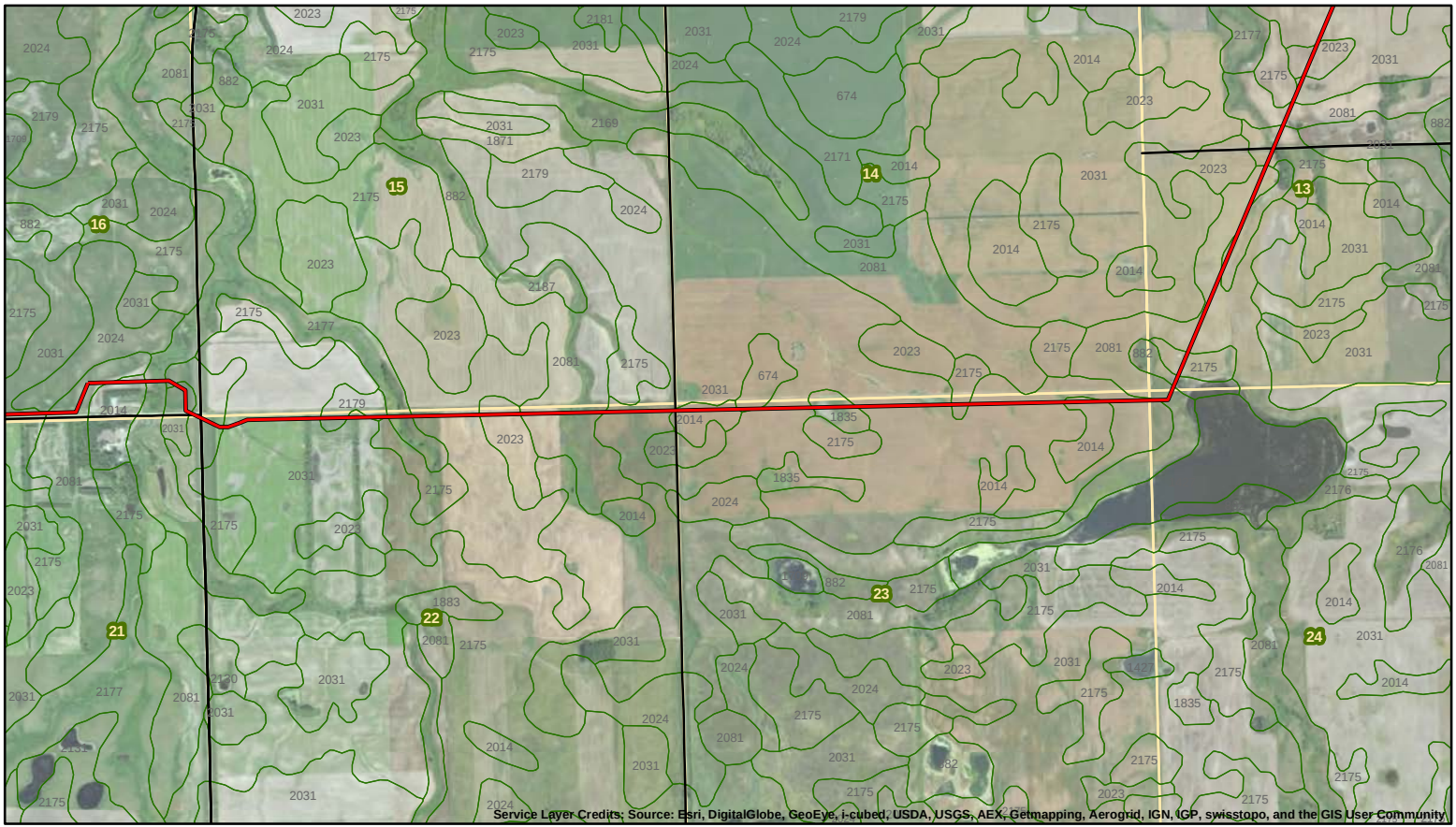
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Township/Range: T162N, R94W & T162N, R95W
Burke and Divide County, North Dakota

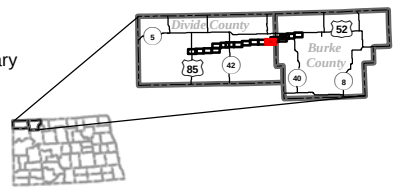
Projection: NAD 1983 UTM Zone 13N

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Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
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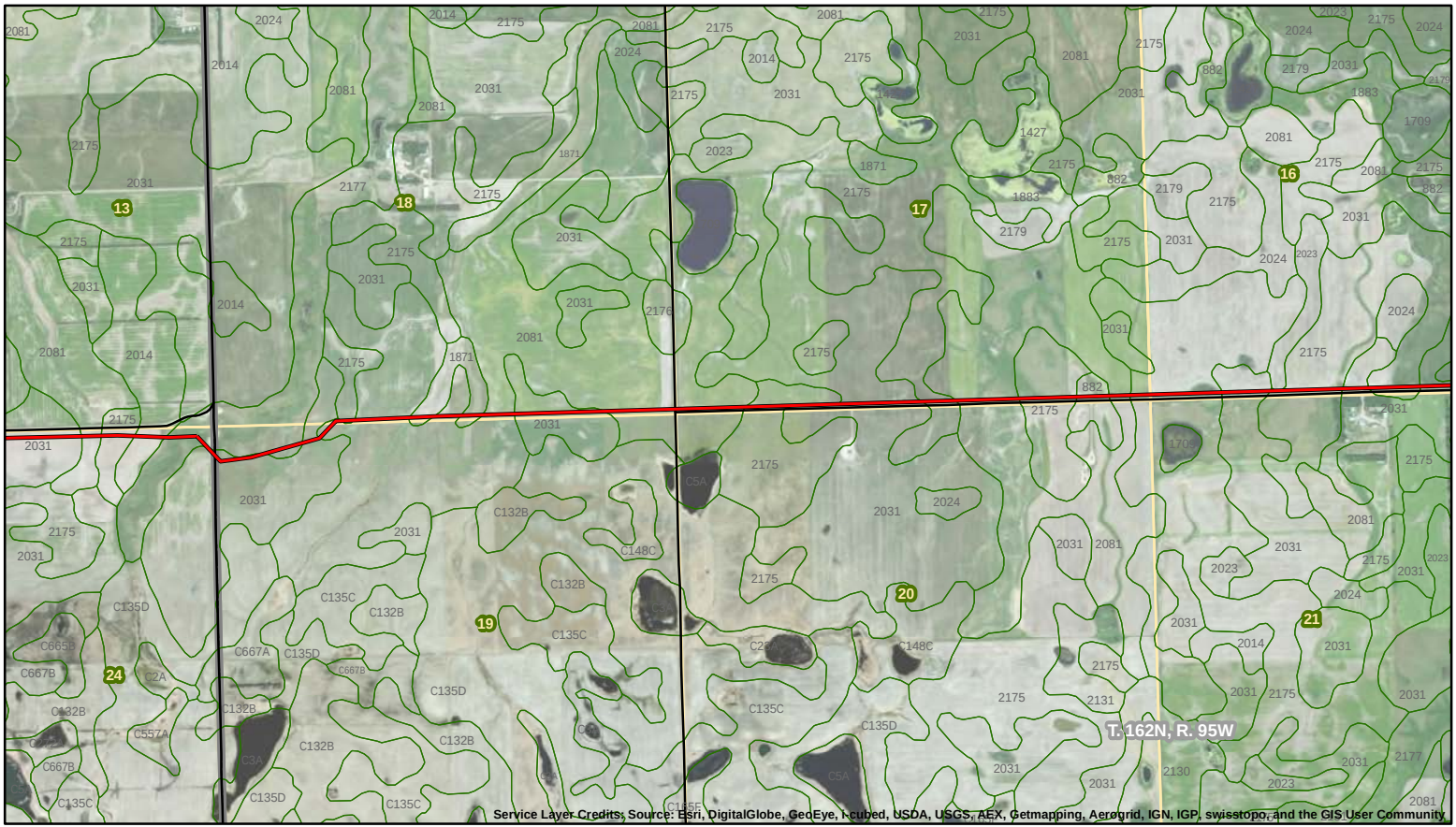
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Township/Range: T162N, R95W
Divide County, North Dakota

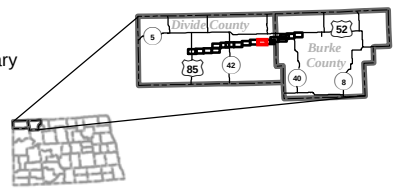
Projection: NAD 1983 UTM Zone 13N

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Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
- County Boundary



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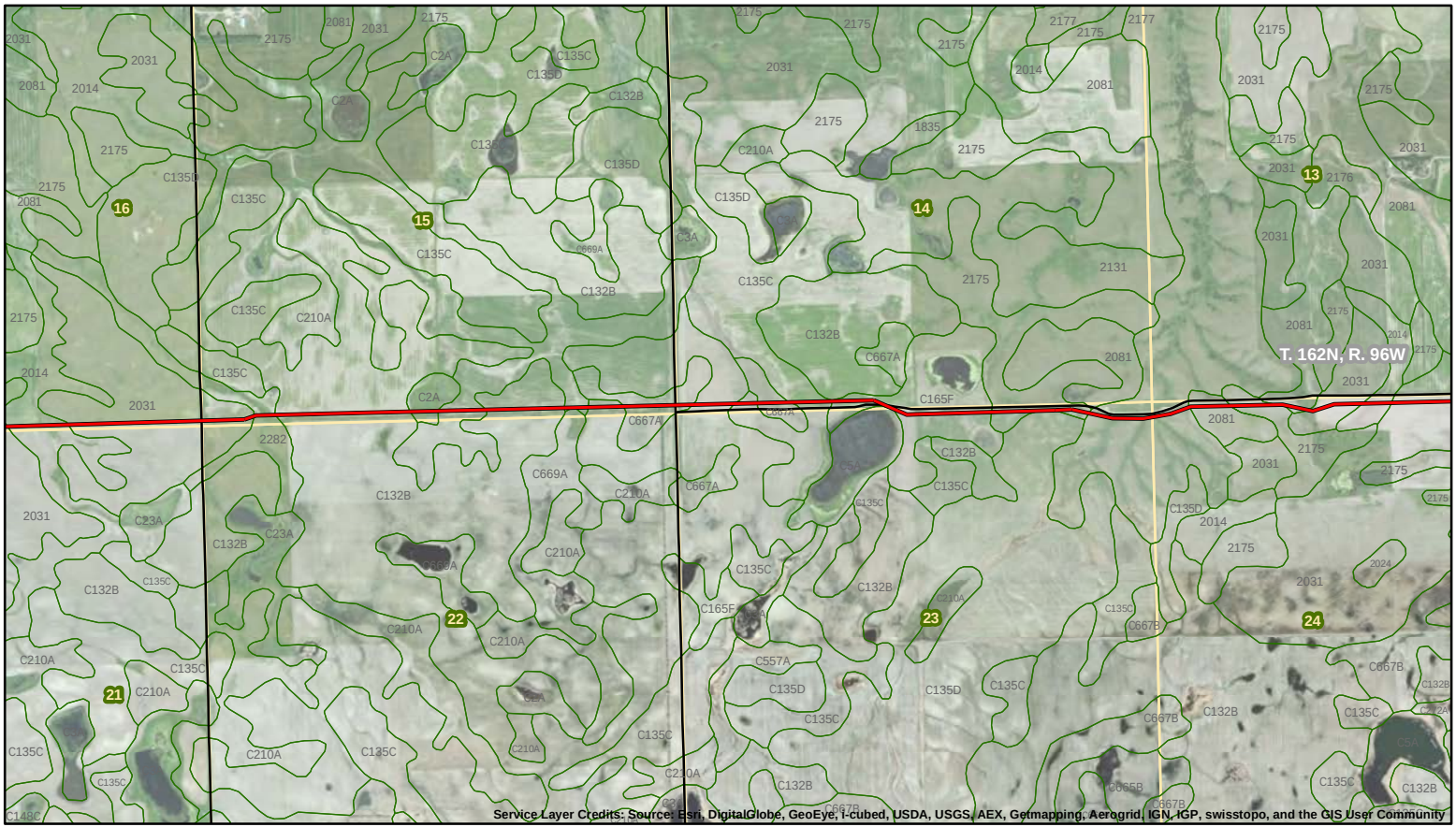
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Divide County, North Dakota

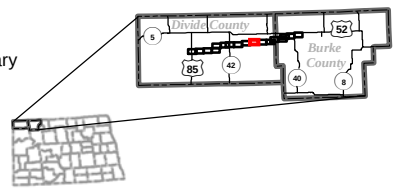
Projection: NAD 1983 UTM Zone 13N

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Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
- County Boundary



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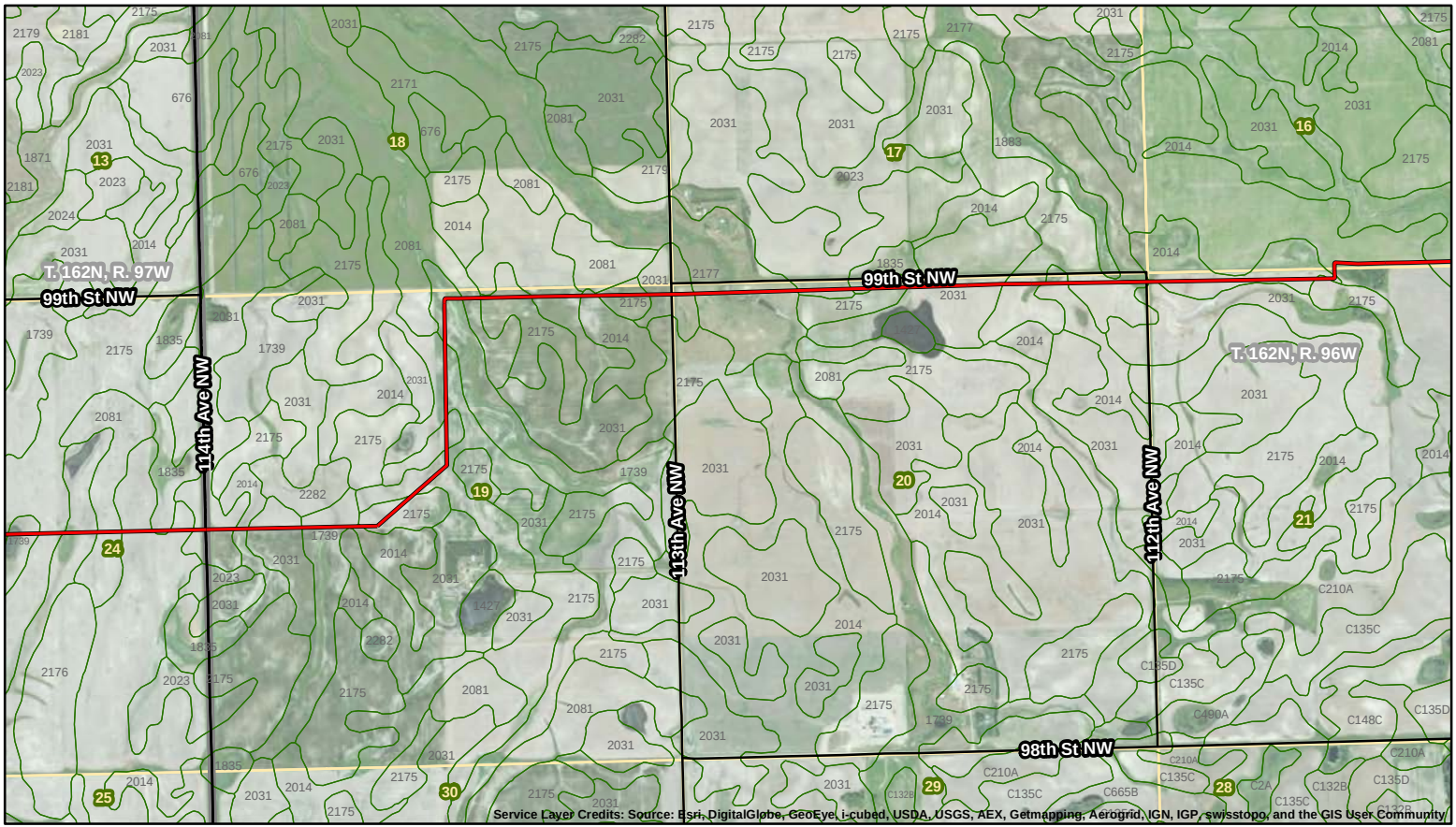
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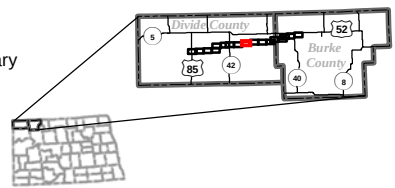
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Township/Range: T162N, R96W
Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

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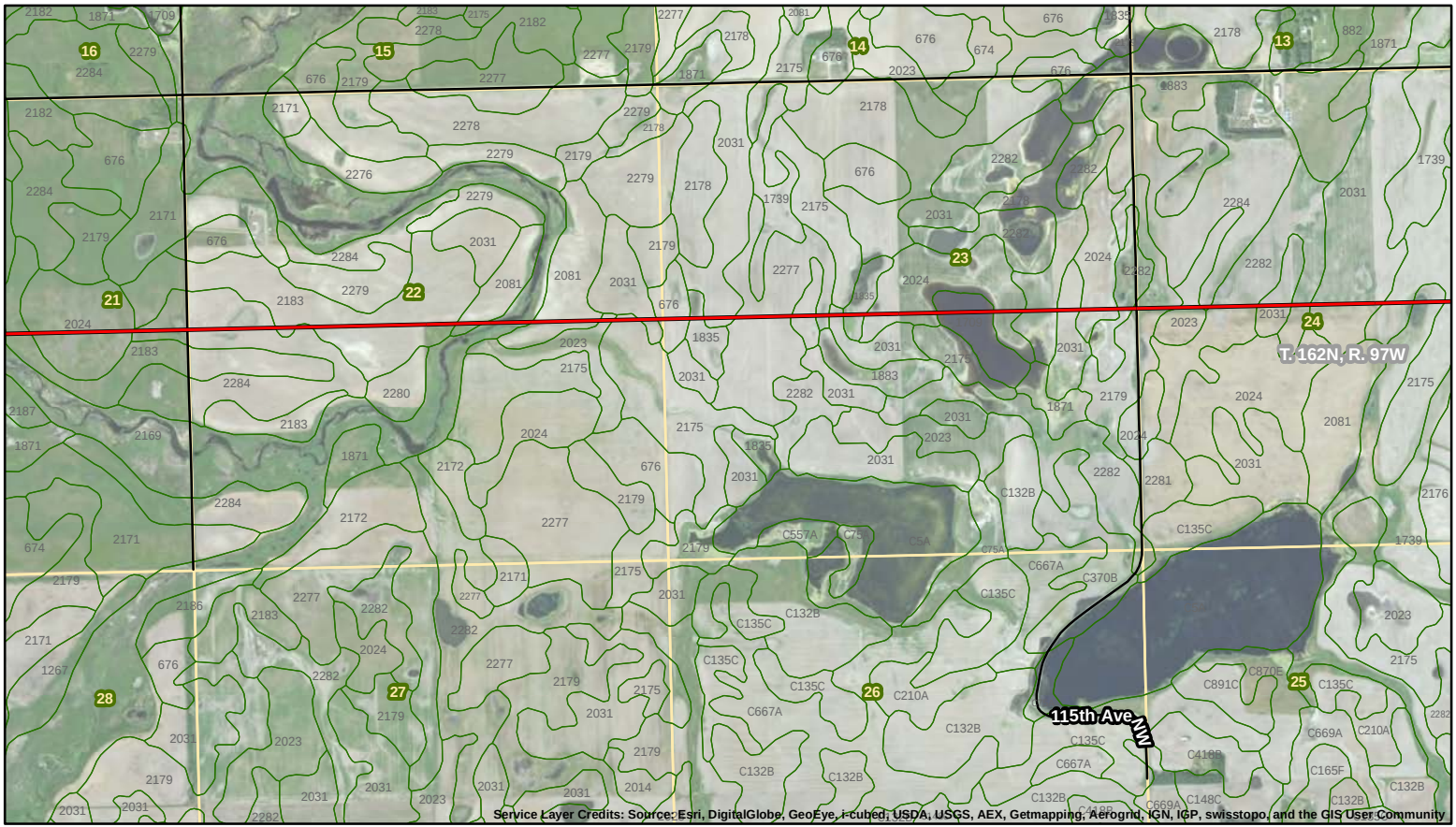
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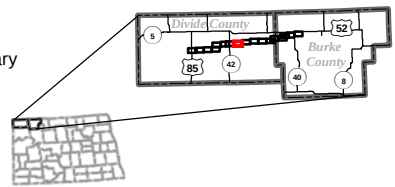
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Divide County, North Dakota

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Global Stampede

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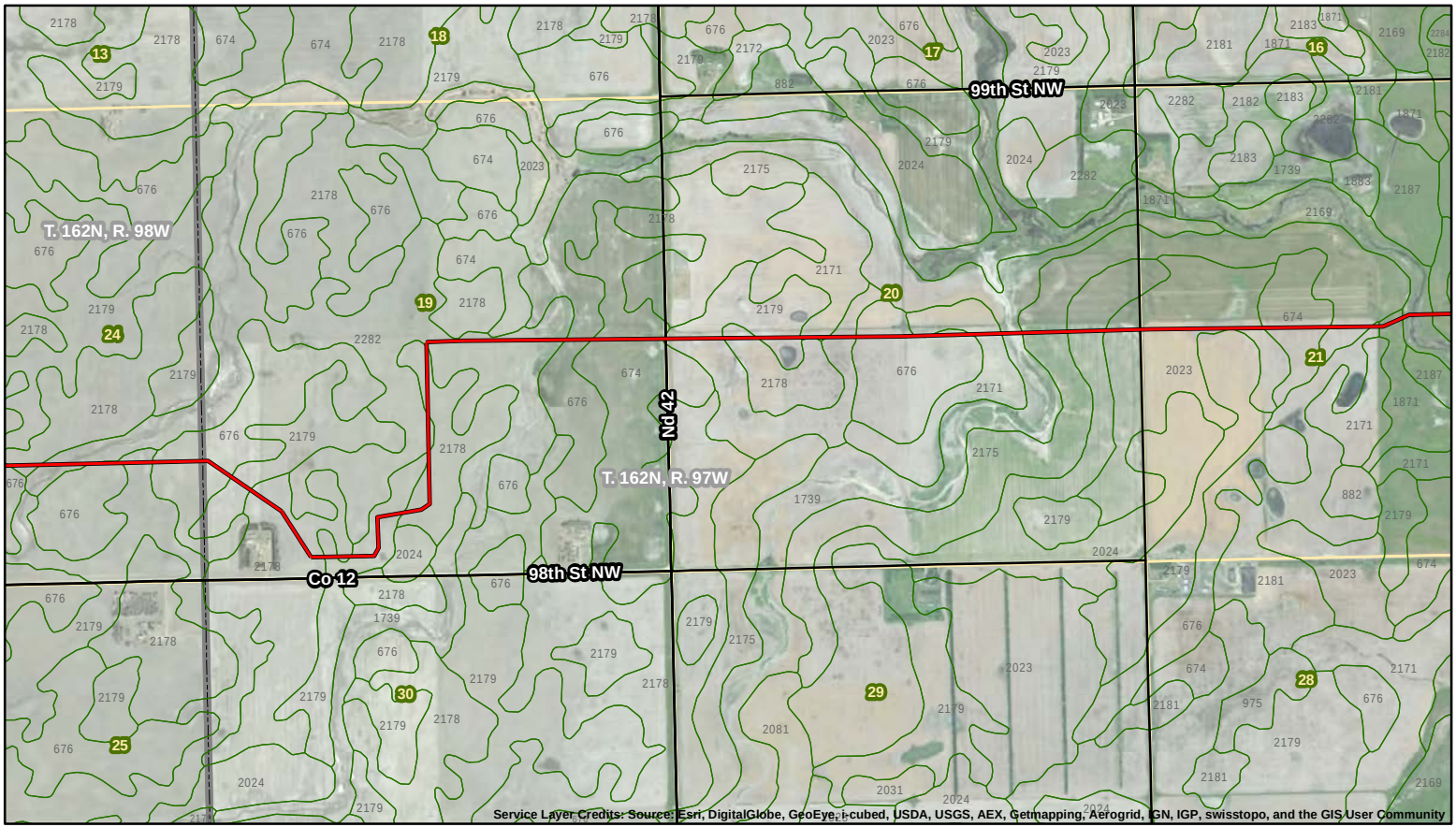
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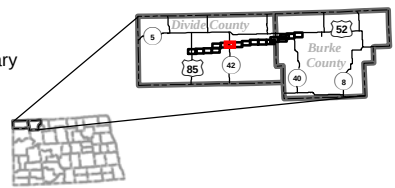
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Township/Range: T162N, R97W
Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
- County Boundary



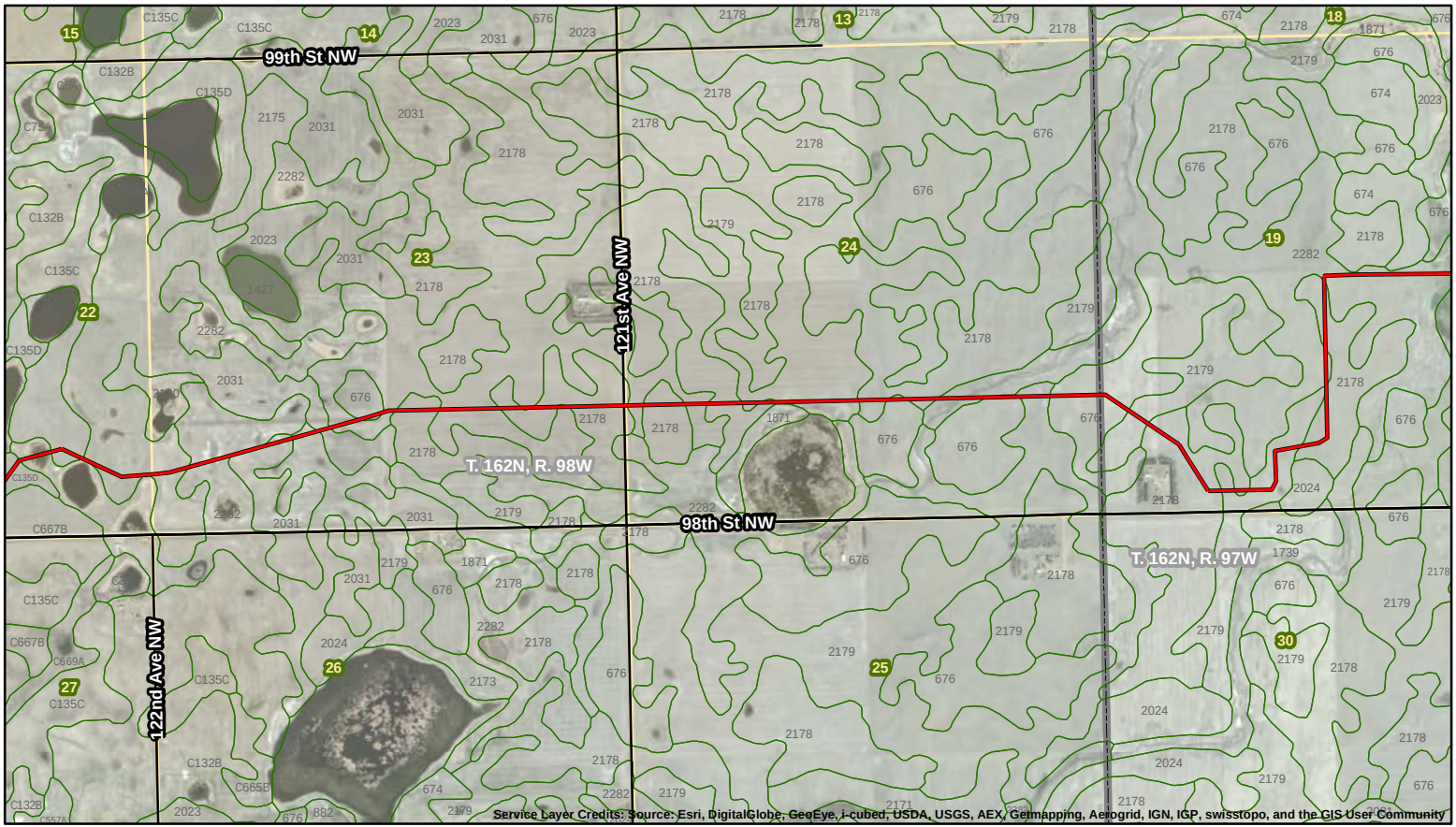
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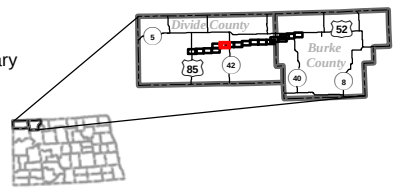
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Source: esri ArcGIS Online service
Quadrangle: Crosby SE (1959)
Township/Range: T162N, R97W & T162N, R98W
Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

- Proposed Pipeline
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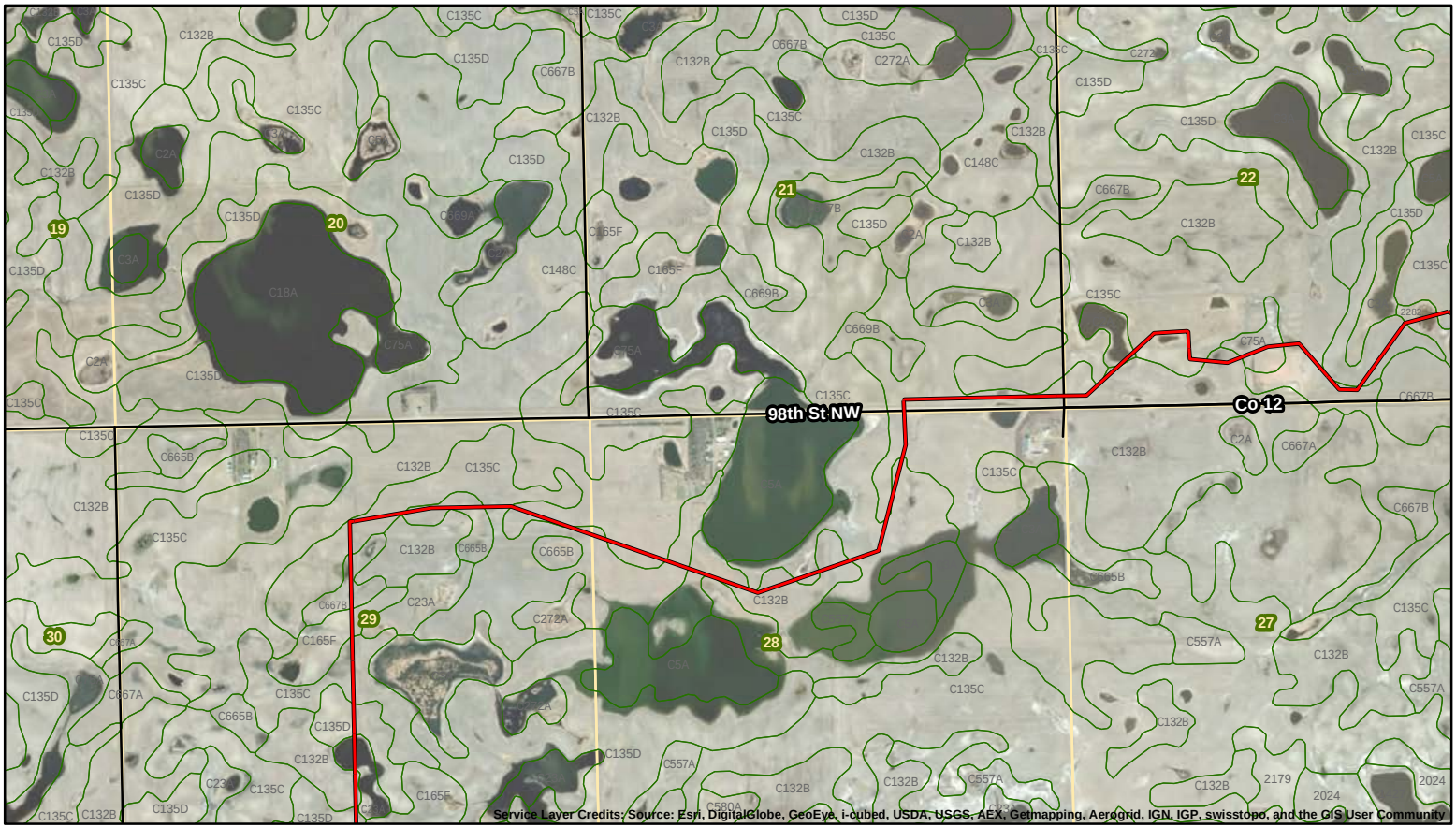
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Kilometers
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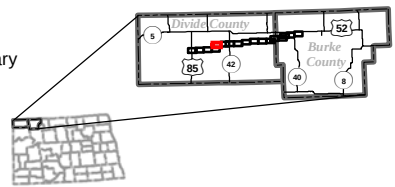
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Source: esri ArcGIS Online service
Quadrangle: Crosby SE (1959), Crosby SW (1959)
Township/Range: T162N, R97W & T162N, R98W
Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

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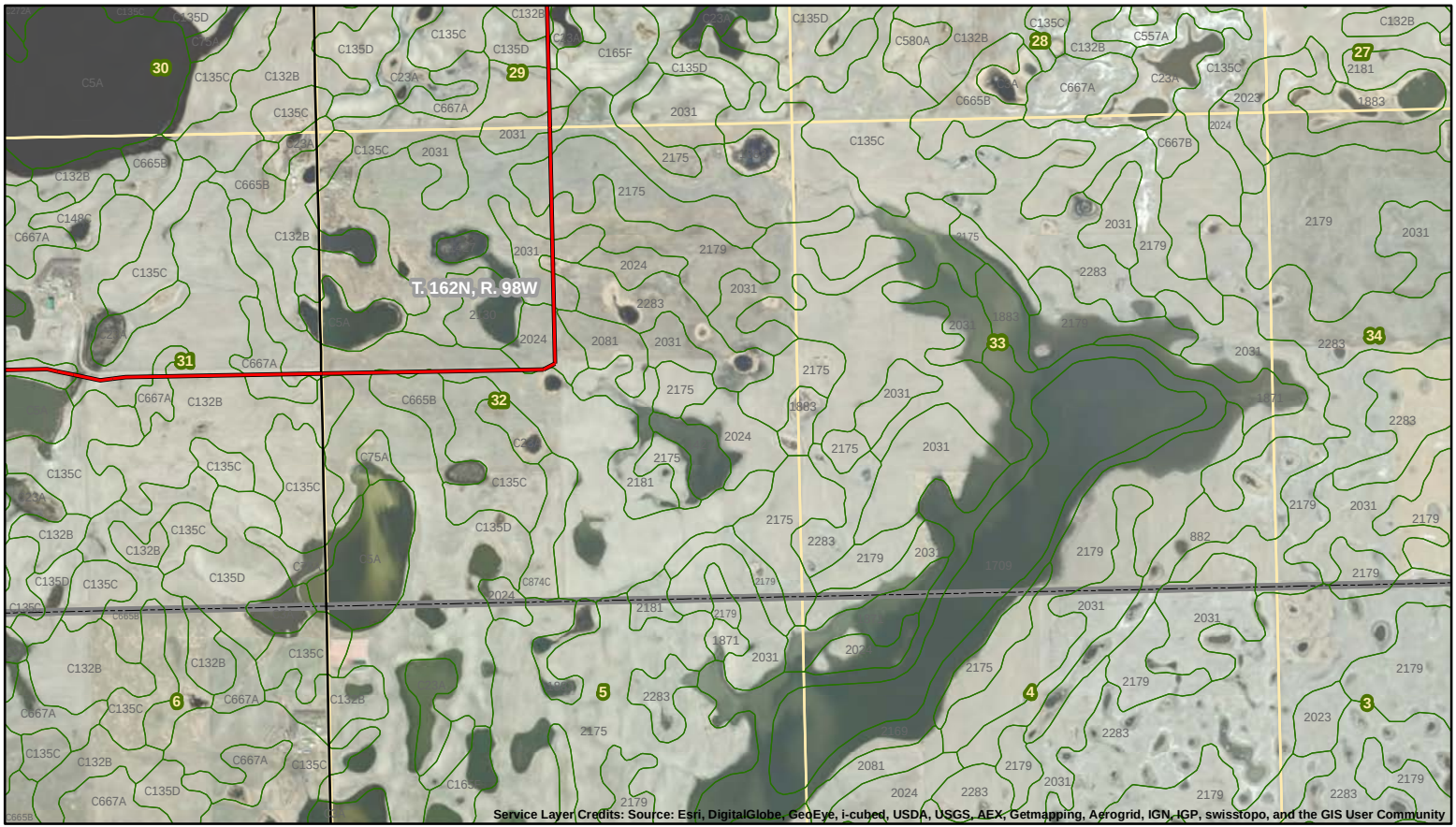
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Divide County, North Dakota

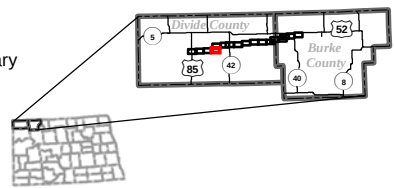
Projection: NAD 1983 UTM Zone 13N

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Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
- County Boundary



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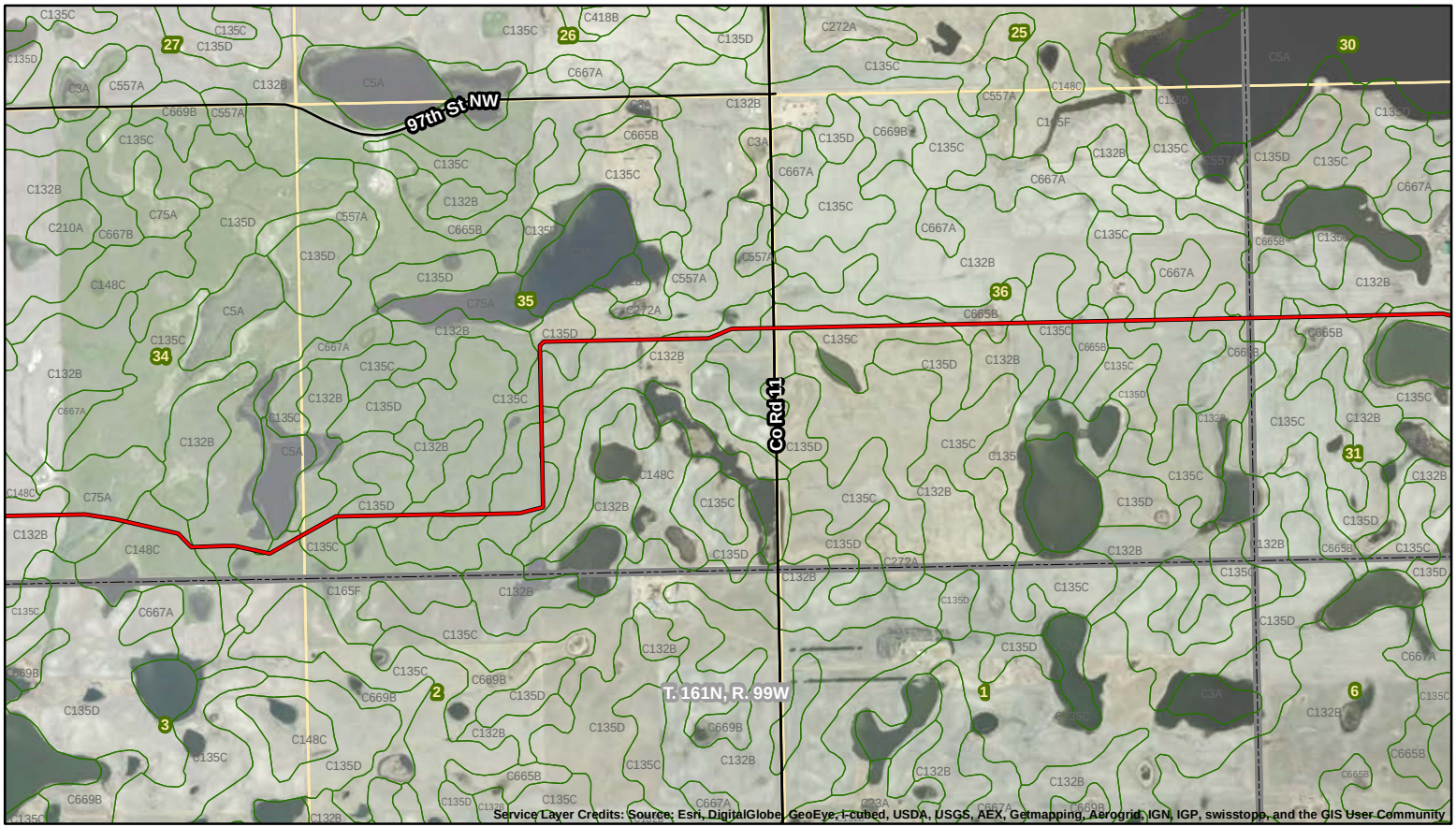
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Kilometers
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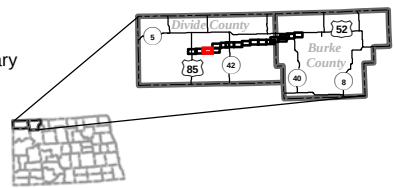
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Quadrangle: Crosby SW (1959)
Township/Range: T162N, R98W
Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
- County Boundary

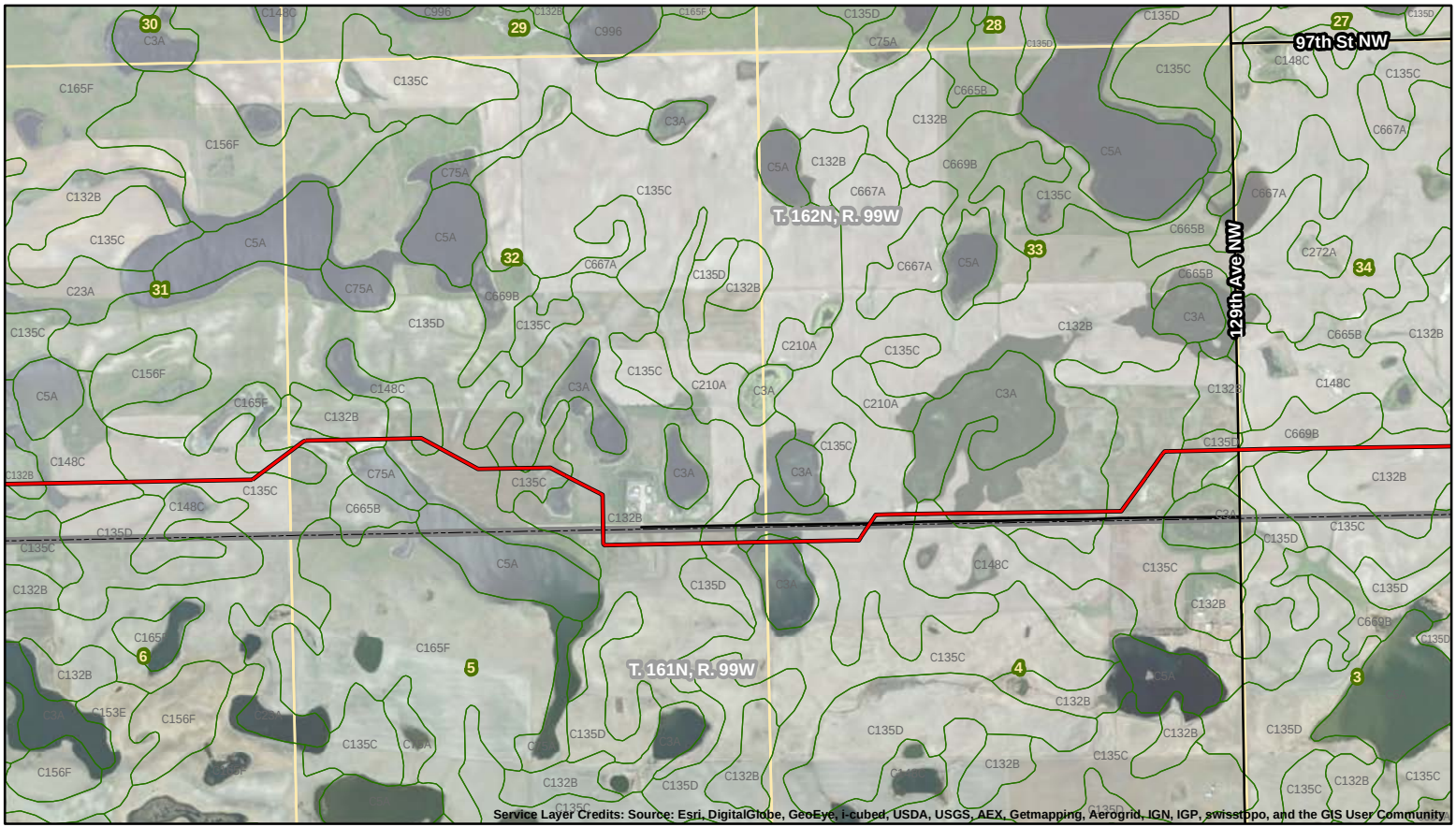


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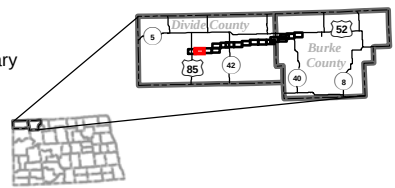
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Source: esri ArcGIS Online service
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Township/Range: T162N, R98W & T162N, R99W
Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N



Global Stampede

- Proposed Pipeline
- Existing Road
- Soil Unit Boundary
- Township/Range Boundary
- County Boundary



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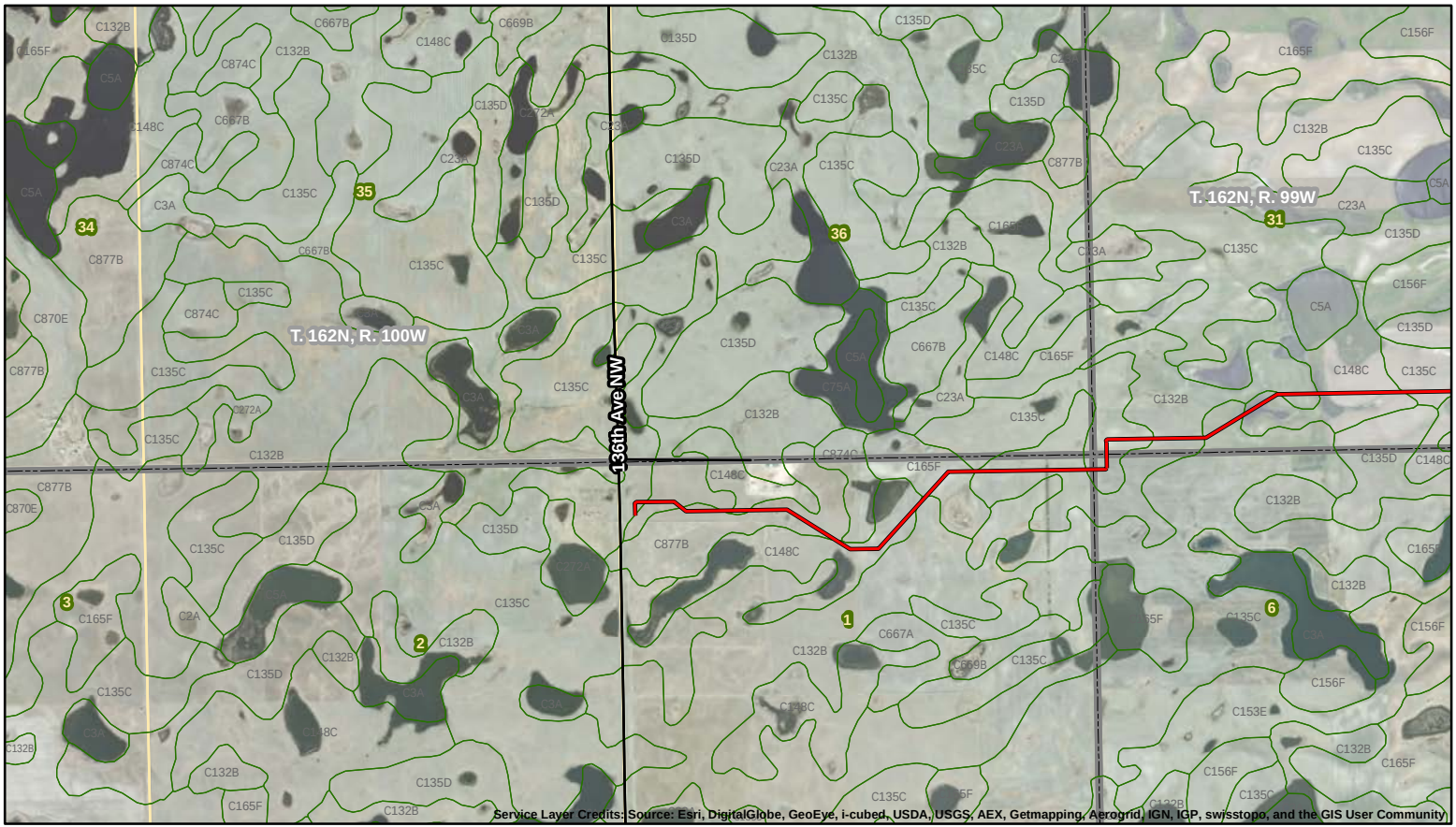
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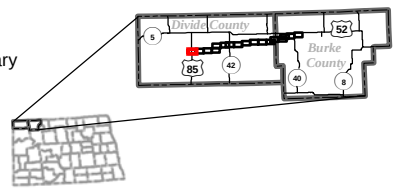
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Source: esri ArcGIS Online service
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Projection: NAD 1983 UTM Zone 13N



Global Stampede

- Proposed Pipeline
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Base Map: Aerial Imagery
Source: esri ArcGIS Online service
Quadrangle: Colgan SE (1984)
Township/Range: T162N, R99W & T161N, R99W & T161N, R100W
Divide County, North Dakota

Projection: NAD 1983 UTM Zone 13N

APPENDIX C
Photographs of Project Area



Figure C.1. Semipermanent wetland (BWET1), facing southeast.



Figure C.2. Semipermanent wetland (BWET2), facing east.



Figure C.3. Patch of leafy spurge (BNX1), facing east.



Figure C.4. Semipermanent wetland (BWET6), facing north.



Figure C.5. Woody vegetation, green ash and Siberian peashrub (BWV5), facing west.



Figure C.6. Intermittent stream (BSTR2), facing south.



Figure C.7. Semipermanent wetland (AWET6), facing south.



Figure C.8. Permanent wetland (BWB1), facing northwest.



Figure C.9. Permanent wetland (AWET33), facing east.



Figure C.10. Permanent wetland (BWB3), facing northeast.

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Appendix E

Cultural Resource Report

Addendum to A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota, for Pipeline Alignment Reroutes

Prepared for

E3 Environmental, LLC

Prepared by

SWCA Environmental Consultants

October 2014

MANUSCRIPT DATA RECORD FORM

1. Manuscript Number:

2. SHPO Reference #:

3. Author(s): Stephanie Lechert

4. Title: Addendum to A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota, for Pipeline Alignment Reroutes

5. Report Date: October 22, 2014

6. Number of Pages: 67

7. Type – I, T, E, O: I

8. Acres: 65.76

9. Legal Location(s) (no quarter sections) with Historic Context Study Unit(s): Consult the township tables in *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component*, (SHSND 2008; available at http://history.nd.gov/hp/hpforms.html) for Study Unit assignments.
Study Units: LM, CB, KN, HE, SM, GA, JA, GR, NR, SR, SO, SH, YE

COUNTY	TWP	RNG	SEC	SU
Burke	162N	93W	3, 4, 9	SO
Burke	162N	94W	10	SO
Divide	162N	95W	15, 16, 21, 22	SO
Divide	162N	96W	14, 15, 16, 19, 20, 21, 23, 24	SO
Divide	162N	97W	19, 21, 22, 23, 24	SO
Divide	162N	98W	21, 22, 29, 31, 32	SO
Divide	162N	99W	31, 32, 33, 34, 35, 36	SO
Divide	161N	99W	4, 5, 6	SO
Divide	161N	100W	1	GA

Addendum to A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota, for Pipeline Alignment Reroutes

Submitted to:

State Historical Society of North Dakota

Prepared for:

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SWCA Cultural Resource Report Number 14-539
Addendum to SWCA Cultural Resource Report Number 14-328
Addendum to NDSHPO Manuscript Number 15380

October 22, 2014

ABSTRACT

This report is an addendum to the Class I and Class III cultural resource inventory report for the proposed Global Stampede pipeline (Schleicher et al. 2014), and presents the results of a Class III cultural resource inventory conducted by SWCA Environmental Consultants (SWCA) on September 30 and October 1 and 2, 2014, on behalf of E3 Environmental, LLC, in support of reroutes to the proposed Global Stampede pipeline alignment. An update to the Class I cultural resource inventory was conducted on September 26, 2014. Meadowlark Midstream Company, LLC, proposes to construct the Global Stampede pipeline on privately owned lands in Burke and Divide Counties, North Dakota.

The proposed Global Stampede pipeline would be located on private land in 36 sections, spanning across Township (T) 162 North (N), Range (R) 93 West (W); T162N, R94W; T192N, R95W; T162N, R96W; T162N, R97W; T162N, R98W; T162N, R99W; T161N, R99W; and T161N, R100W; and is situated on the Stampede (1959), Columbus (1959), Columbus SE (1959), Columbus SW (1959), Noonan SE (1959), Noonan SW (1959), Crosby SE (1959), Crosby SW (1959), and Colgan (1984), North Dakota, U.S. Geological Survey 7.5-minute quadrangles. The inventory area for the pipeline reroutes consists of a non-overlapping linear survey corridor up to 110 feet wide to compensate for shifting the proposed centerline. In total, 65.76 acres were inventoried for the project. Portions of the currently proposed Global Stampede pipeline reroutes are located within areas previously inventoried for the original alignment of the Global Stampede pipeline (Schleicher et al. 2014).

During the inventory, SWCA revisited the mapped locations of 12 previously recorded cultural resources (32BK68, 32DV143, 32DV144, 32BKX776, 32DVX205, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX244, 32DVX246, and 32DVX247). 32BK68 was previously determined eligible for listing in the National Register of Historic Places (NRHP), with concurrence from the North Dakota State Historic Preservation Office on August 29, 2014 (Merlan E. Paaverud, Jr., personal communication 2014). SWCA recommends project disturbance avoid all potentially eligible and unevaluated resources by 50 feet. 32BK68 will be avoided through the use of a horizontal directional drill beneath the site. 32DV143 and 32DV144 were both previously determined not eligible for the NRHP, with concurrence from the North Dakota State Historic Preservation Office on August 29, 2014 (Merlan E. Paaverud, Jr., personal communication 2014). SWCA recommends 32DV143 and 32DV144 both remain not eligible for the NRHP. No further work is recommended for these resources.

The previously recorded site lead resources consist one historic post office site lead (32BKX776), and eight site leads of unknown cultural or temporal origin (32DVX205, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX244, 32DVX246, and 32DVX247). 32BKX776 is recommended to remain not eligible for the NRHP while the remaining eight previously recorded cultural resource site leads remain unevaluated regarding their eligibility for the NRHP. Although attempts were made to relocate the site leads within the project area, after intensive examination, none were relocated during the current inventory; they may be located within the documented site boundary outside the project area. No further work is recommended for these resources.

One historic isolated find (32DVX435) was newly recorded during the inventory. By definition, isolated finds are considered to lack integrity and are not eligible for the NRHP; therefore, 32DVX435 is not eligible for inclusion in the NRHP. No further work is recommended. With the above stipulations, it is recommended that a determination of *No Significant Sites Affected* and *No Historic Properties Affected* be granted for the project to proceed as planned.

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INTRODUCTION

This report is an addendum to the Class I and Class III cultural resource inventory report for the proposed Global Stampede pipeline project (Schleicher et al. 2014), and presents the results of a Class III cultural resource inventory conducted by SWCA Environmental Consultants (SWCA) on September 30 and October 1 and 2, 2014, on behalf of E3 Environmental, LLC (E3), in support of reroutes to the proposed pipeline alignment and associated aboveground appurtenances. Meadowlark Midstream Company, LLC, proposes to construct the Global Stampede pipeline on privately owned land in Burke and Divide Counties, North Dakota.

The only regulatory agencies to be involved are 1) the North Dakota Public Service Commission (NDPSC) under the North Dakota Energy Conversion and Transmission Facility Siting Act (excluding any applicable county or local requirements); and 2) the U.S. Army Corps of Engineers (USACE) through Section 404 of the Clean Water Act (CWA), which regulates discharge into waters of the U.S. regulated by the USACE. Therefore, SWCA's Class I and III inventory of the project area assists E3 in meeting the cultural resource requirements within the NDPSC's Certificate of Corridor Compatibility and Route Permit application. Additionally, SWCA's inventory assisted E3 in achieving compliance with Section 404 of the CWA, including the Nationwide Permit General Conditions pertaining to Section 106 of the National Historic Preservation Act and the Endangered Species Act.

The proposed Global Stampede pipeline would be located on private land in 36 sections, spanning across Sections 3, 4, 9, Township (T) 162 North (N), Range (R) 93West (W); Section 10, T162N, R94W; Sections 15, 16, 21, 22, T162N, R95W; Sections 14–16, 19–21, 23, 24, T162N, R96W; Sections 19, 21–24, T162N, R97W; Sections 21, 22, 29, 31, 32, T162N, R98W; Sections 31–36, T162N, R99W; Sections 4–6, T161N, R99W; and Section 1, T161N, R100W (Figures 1–2n). A full list of the legal locations is provided in Table 1. The inventoried area is situated on the Stampede (1959), Columbus (1959), Columbus SE (1959), Columbus SW (1959), Noonan SE (1959), Noonan SW (1959), Crosby SE (1959), Crosby SW (1959), and Colgan (1984), North Dakota, U.S. Geological Survey 7.5-minute quadrangles. The inventory area for the pipeline reroutes consists of a non-overlapping linear survey corridor up to 110 feet wide to compensate for shifting the proposed centerline. In total, 65.76 acres were inventoried for the project. Portions of the currently proposed Global Stampede pipeline reroutes are located within areas previously inventoried for the original alignment of the Global Stampede pipeline (Schleicher et al. 2014).

For the cultural resource investigation, William Harding served as Principal Investigator. Aiden McCarty, Scott Yost, Dan Shelton, and Natalie Sanford, SWCA archaeologists, conducted all fieldwork. All field notes and photographs are on file at SWCA's Bismarck, North Dakota, office under project number 29469.

Table 1. Summary of Legal Locations for the Project Area

Township	Range	Section	Quarter(s)
161N	99W	4	Lot 4
		5	Lot 1; Lot 2
		6	Lot 4
161N	100W	1	Lots 1–4
162N	93W	3	SW¼ NW¼; NW¼ SW¼
		4	SE¼ SW¼; SW¼ SE¼; SE¼ SE¼
		9	NE¼ NW¼
162N	94W	10	SW¼ SE¼
162N	95W	15	SW¼ SW¼
		16	SE¼ SE¼
		21	NE¼ NE¼
		22	NW¼ NW¼
162N	96W	14	SW¼ SW¼ SE¼ SW¼
		15	SE¼ SE¼; SW¼ SE¼; SE¼ SW¼; SW¼ SW¼
		16	SE¼ SW¼; SW¼ SE¼
		17	SE¼ SE¼; SW¼ SE¼
		19	NW¼ NE¼; SW¼ NE¼; SE¼ NW¼; Lot 2
		21	NE¼ NW¼
		23	NE¼ NE¼
		24	NW¼ NW¼; NE¼ NW¼; NW¼ NE¼; NE¼ NE¼
162N	97W	19	NE¼ SW¼; SE¼ SW¼; Lot 4
		21	SW¼ NE¼; SE¼ NE¼
		22	SW¼ NW¼; SE¼ NW¼; SW¼ NE¼
		23	SE¼ NW¼; SW¼ NE¼; SE¼ NE¼
		24	SW¼ NW¼; SE¼ NW¼; SW¼ NE¼; SE¼ NE¼
162N	98W	21	SE¼ SE¼; SW¼ SE¼
		22	SE¼ SE¼; SW¼ SE¼; SE¼ SW¼; SW¼ SW¼
		29	NE¼ NW¼; SE¼ NW¼; NE¼ SW¼; SE¼ SW¼
		31	SE¼ NW¼; NE¼ SE¼; NW¼ SE¼; NE¼ SW¼
		32	NE¼ NW¼; SE¼ NW¼; NW¼ SW¼; NE¼ SW¼
162N	99W	31	SE¼ SW¼; SW¼ SE¼; SE¼ SE¼; Lot 4
		32	SW¼ SW¼; SE¼ SW¼; SW¼ SE¼
		33	SW¼ SW¼; SE¼ SW¼; SW¼ SE¼; SE¼ SE¼
		34	SW¼ SE¼; SE¼ SE¼
		35	SE¼ NE¼; SE¼ SW¼
		36	SW¼ NW¼

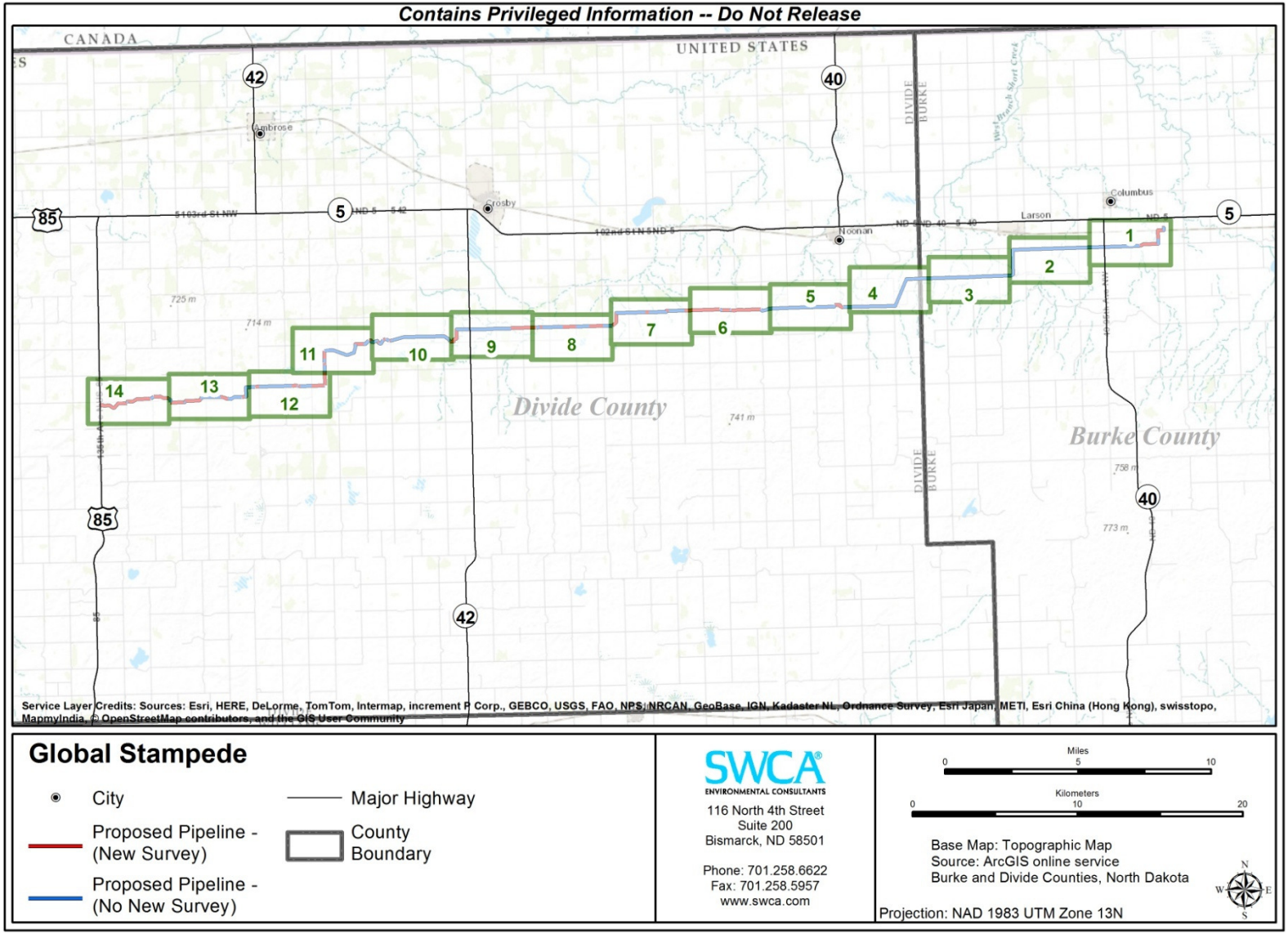


Figure 1. Project area overview map.

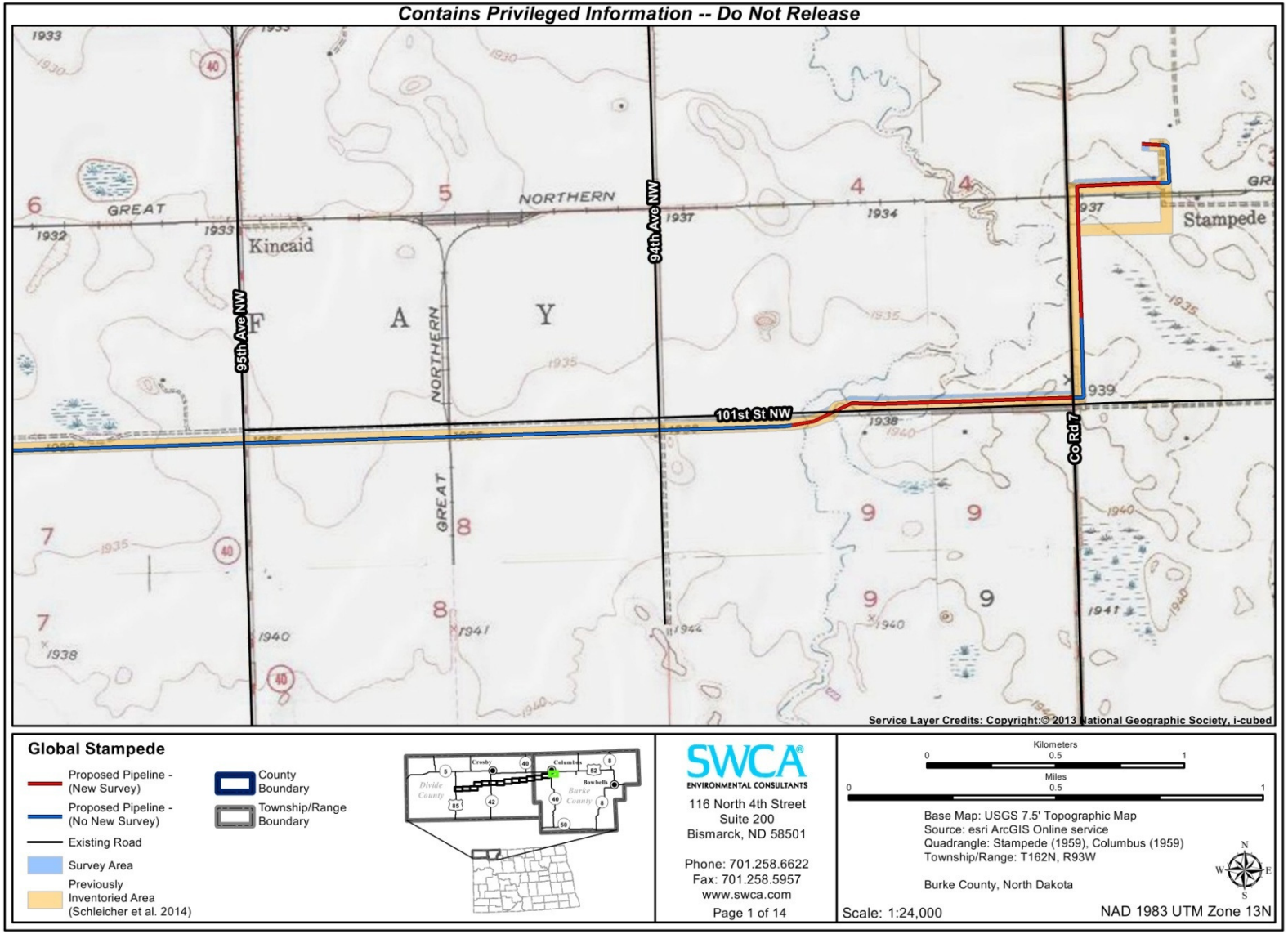


Figure 2a. Project area map, 1 of 14.

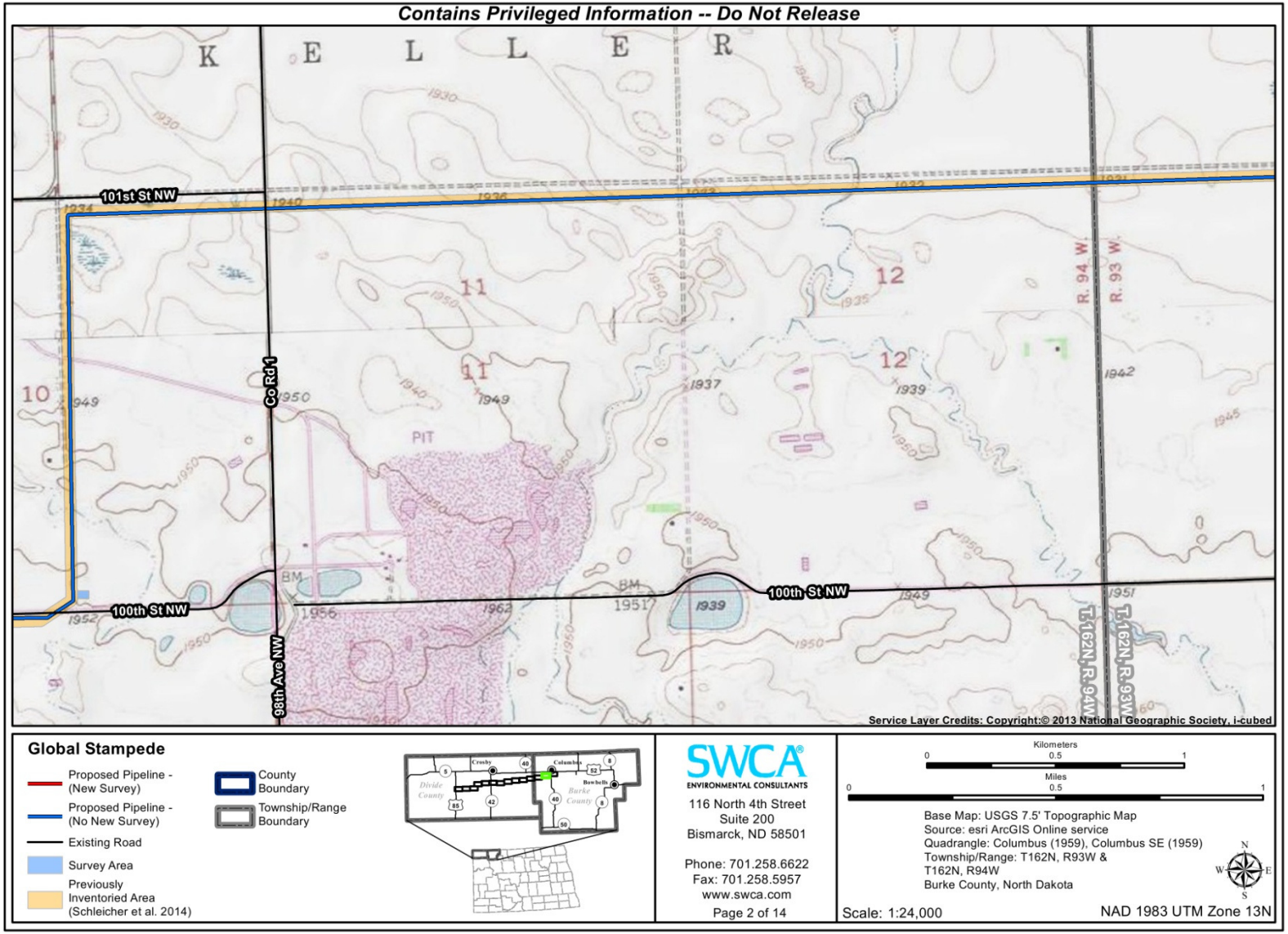


Figure 2b. Project area map, 2 of 14.

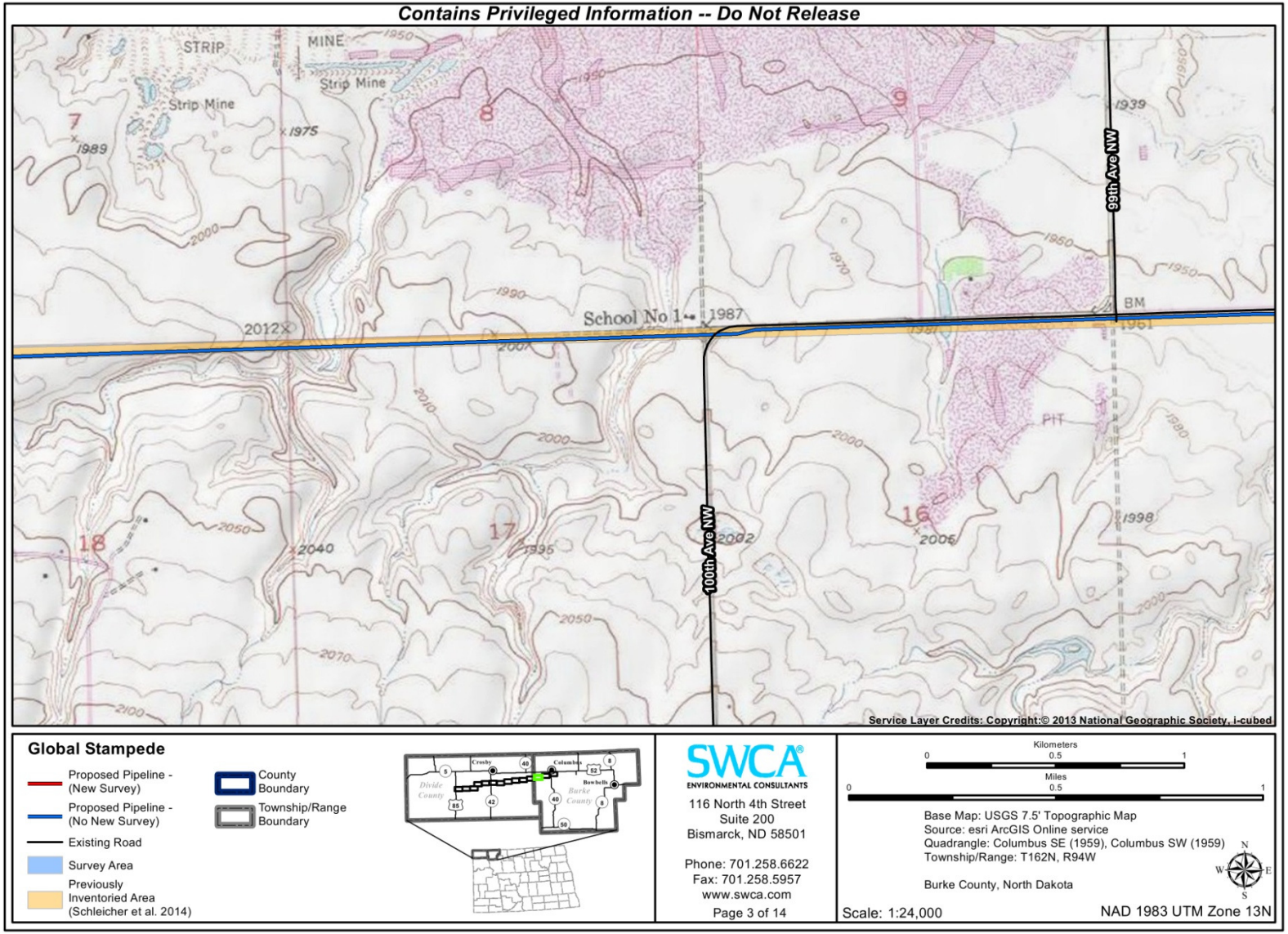


Figure 2c. Project area map, 3 of 14.

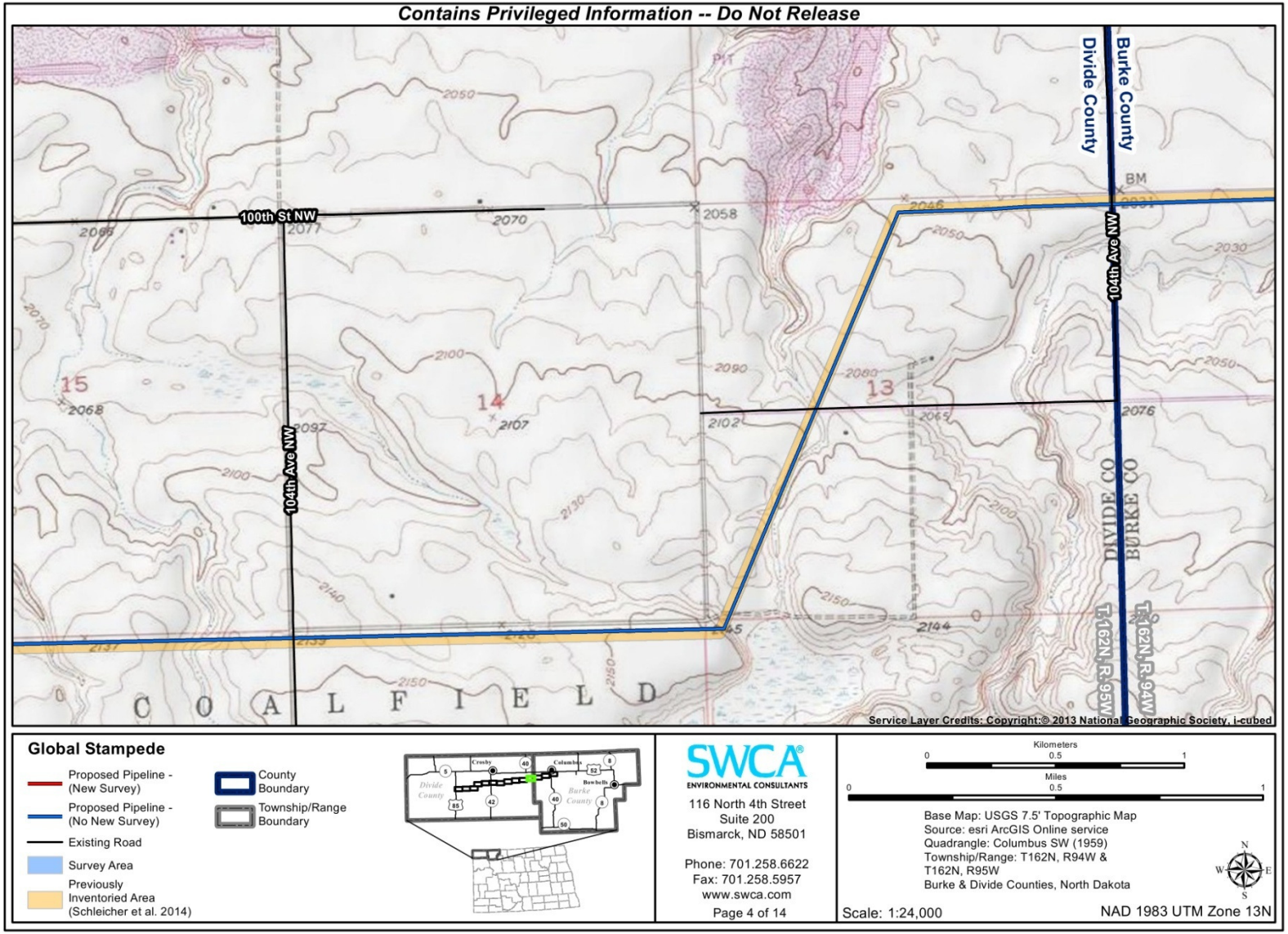


Figure 2d. Project area map, 4 of 14.

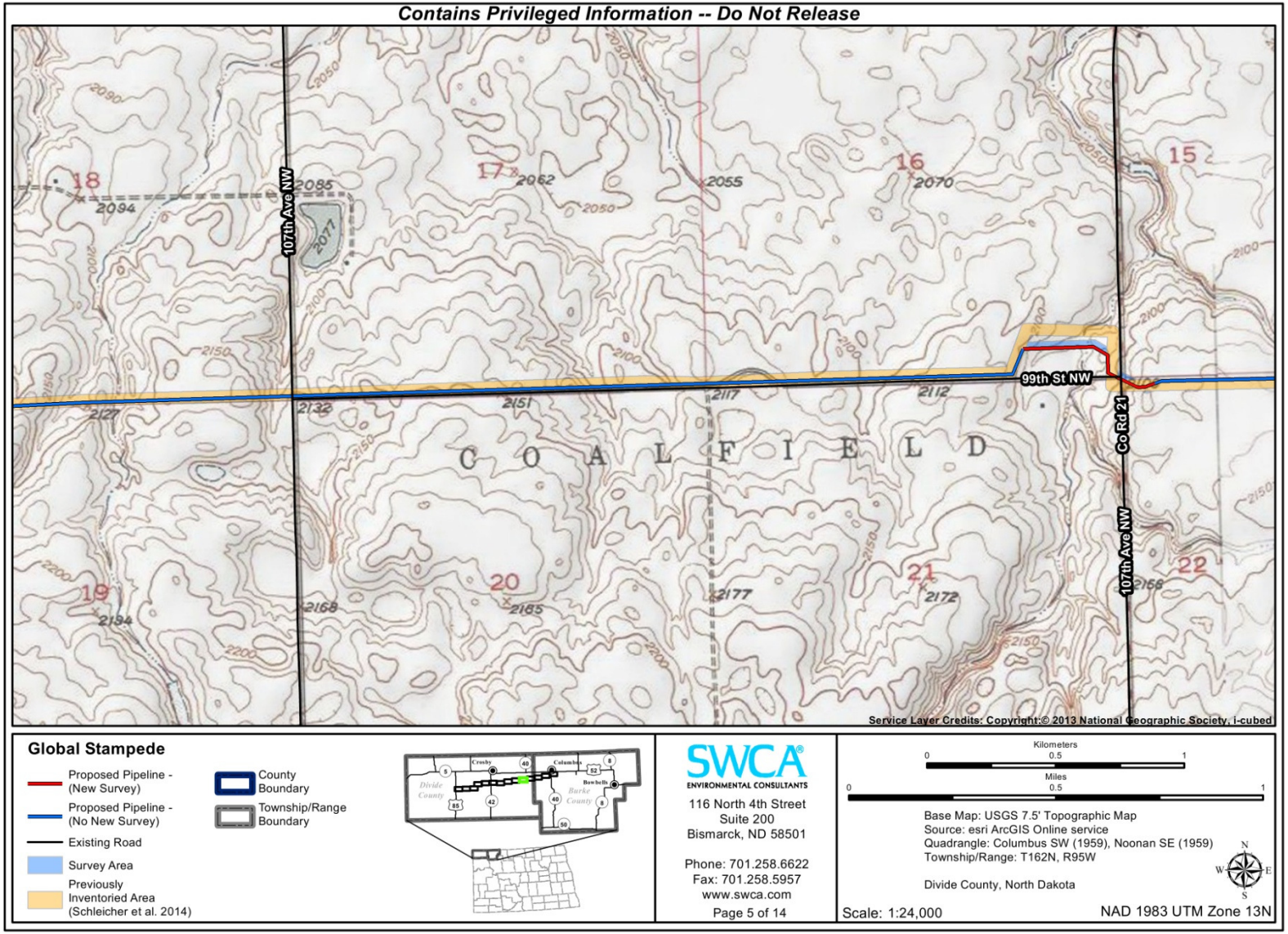


Figure 2e. Project area map, 5 of 14.

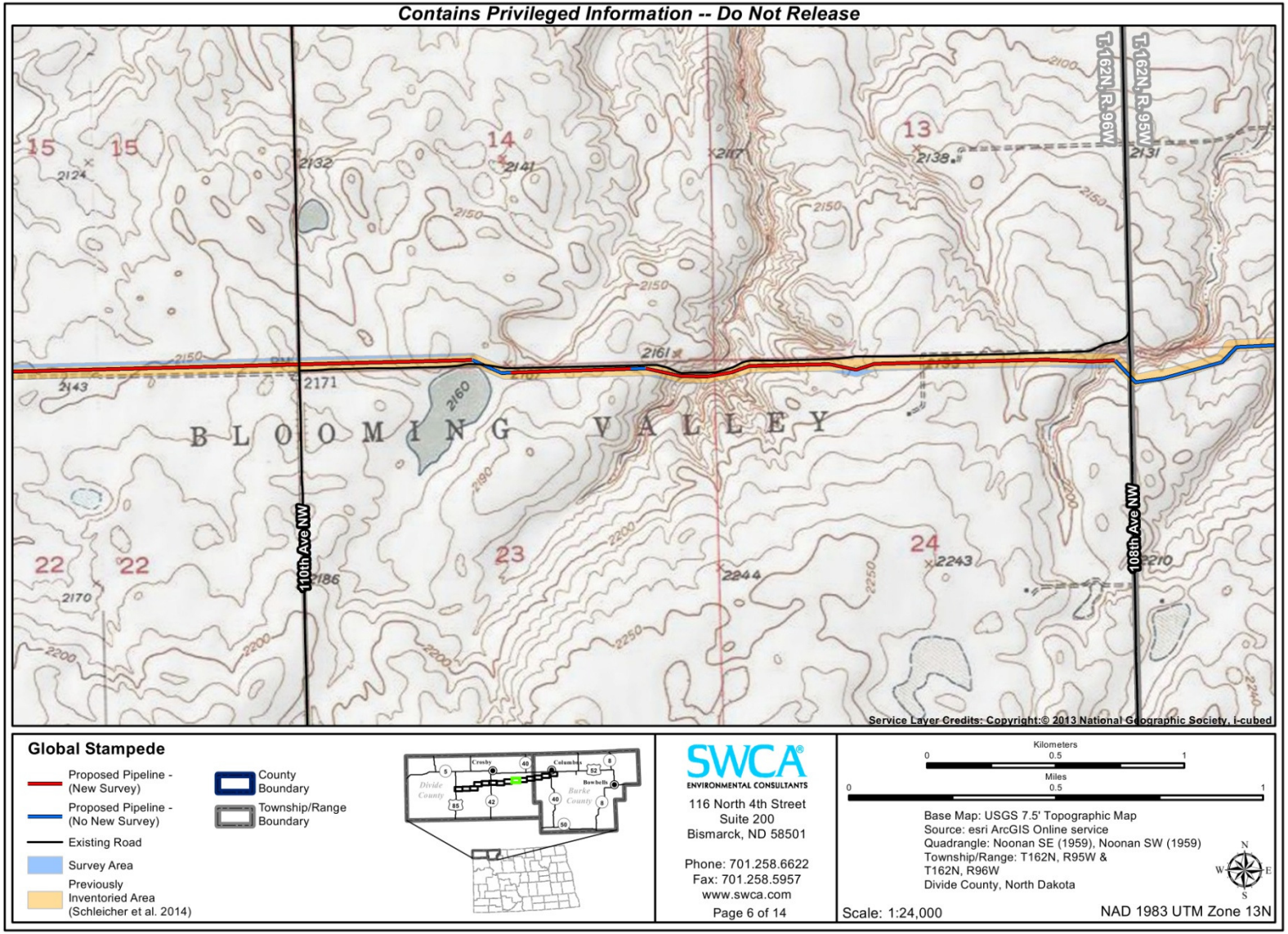


Figure 2f. Project area map, 6 of 14.

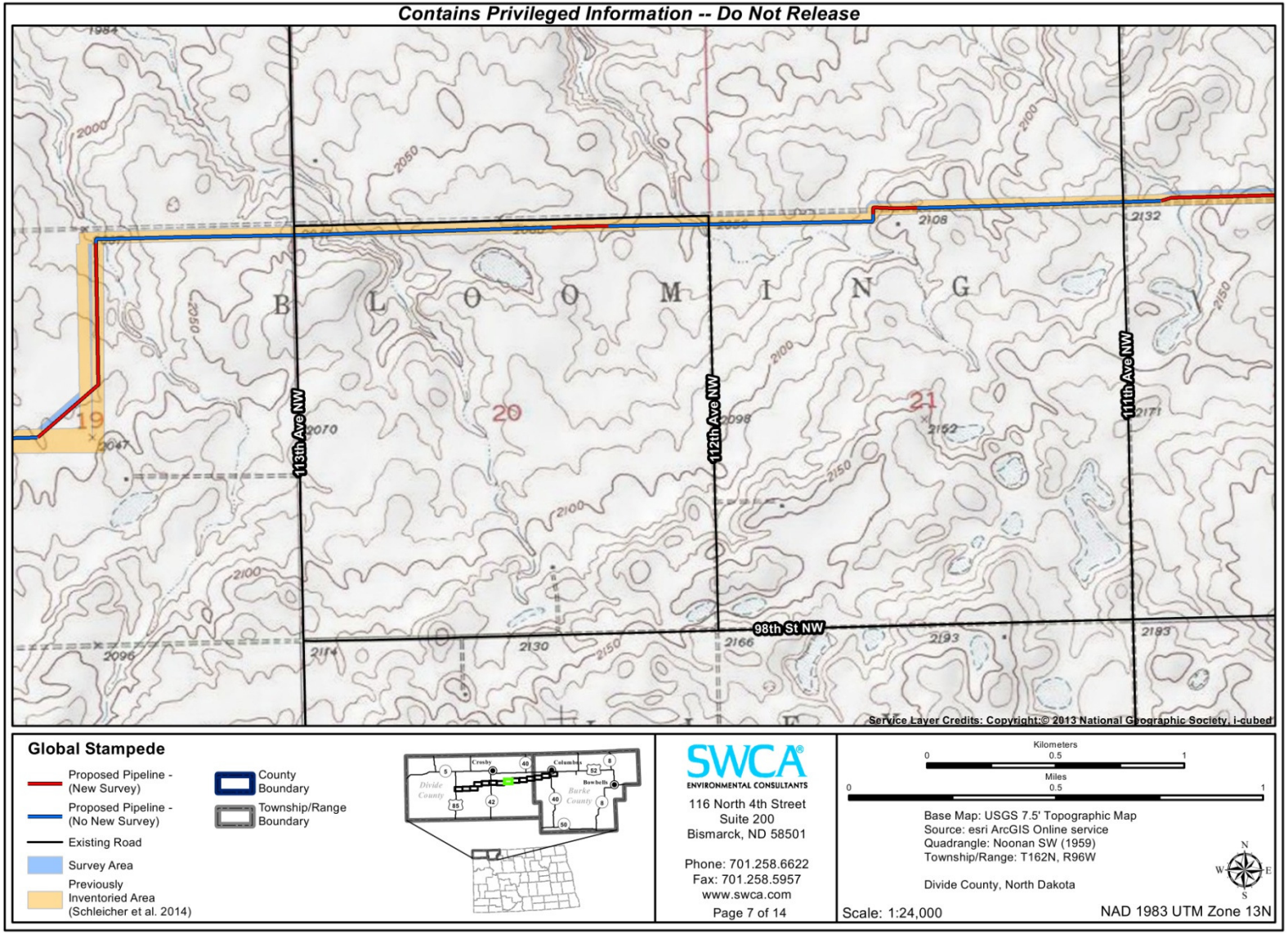


Figure 2g. Project area map, 7 of 14.

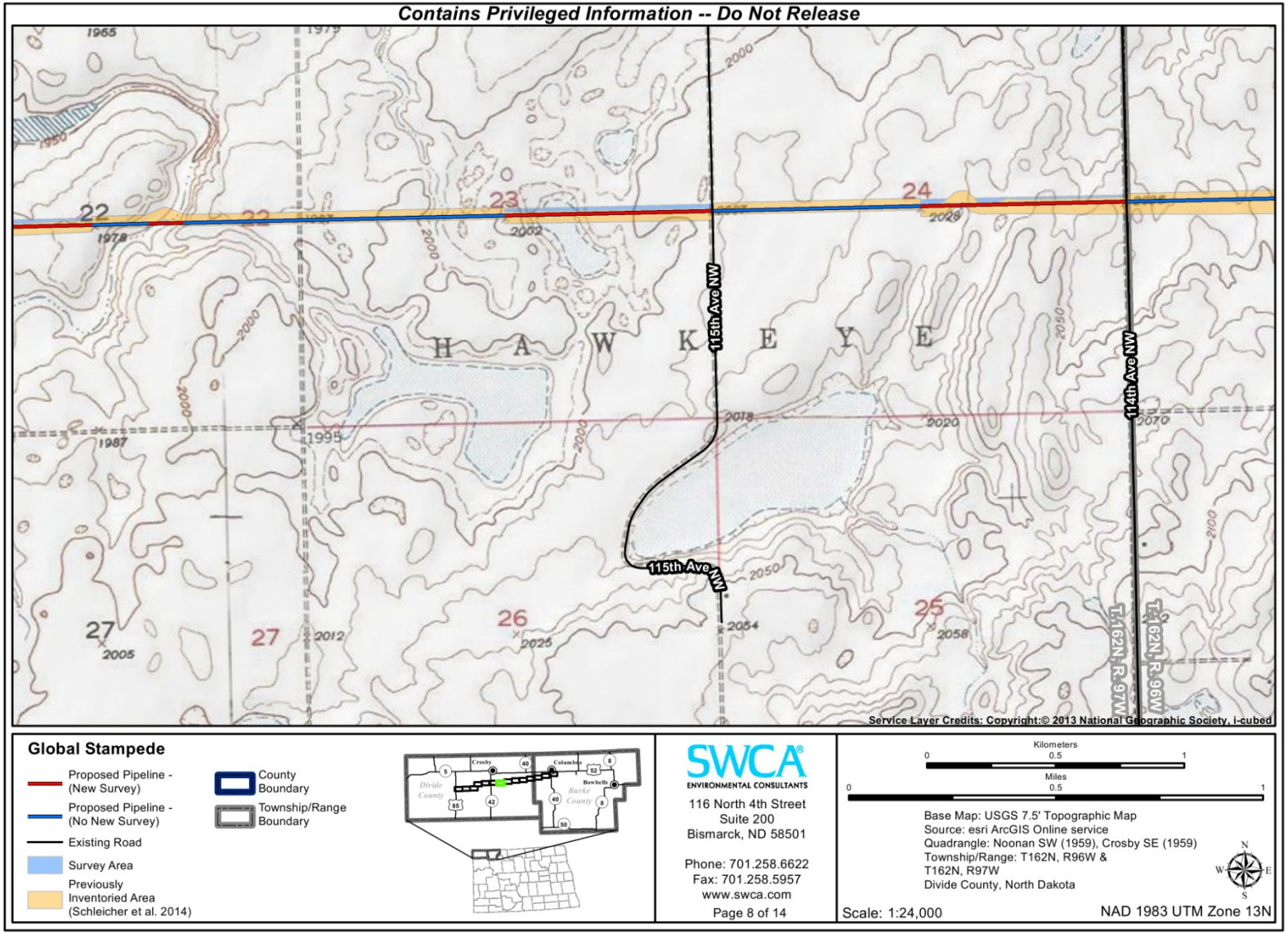


Figure 2h. Project area map, 8 of 14.

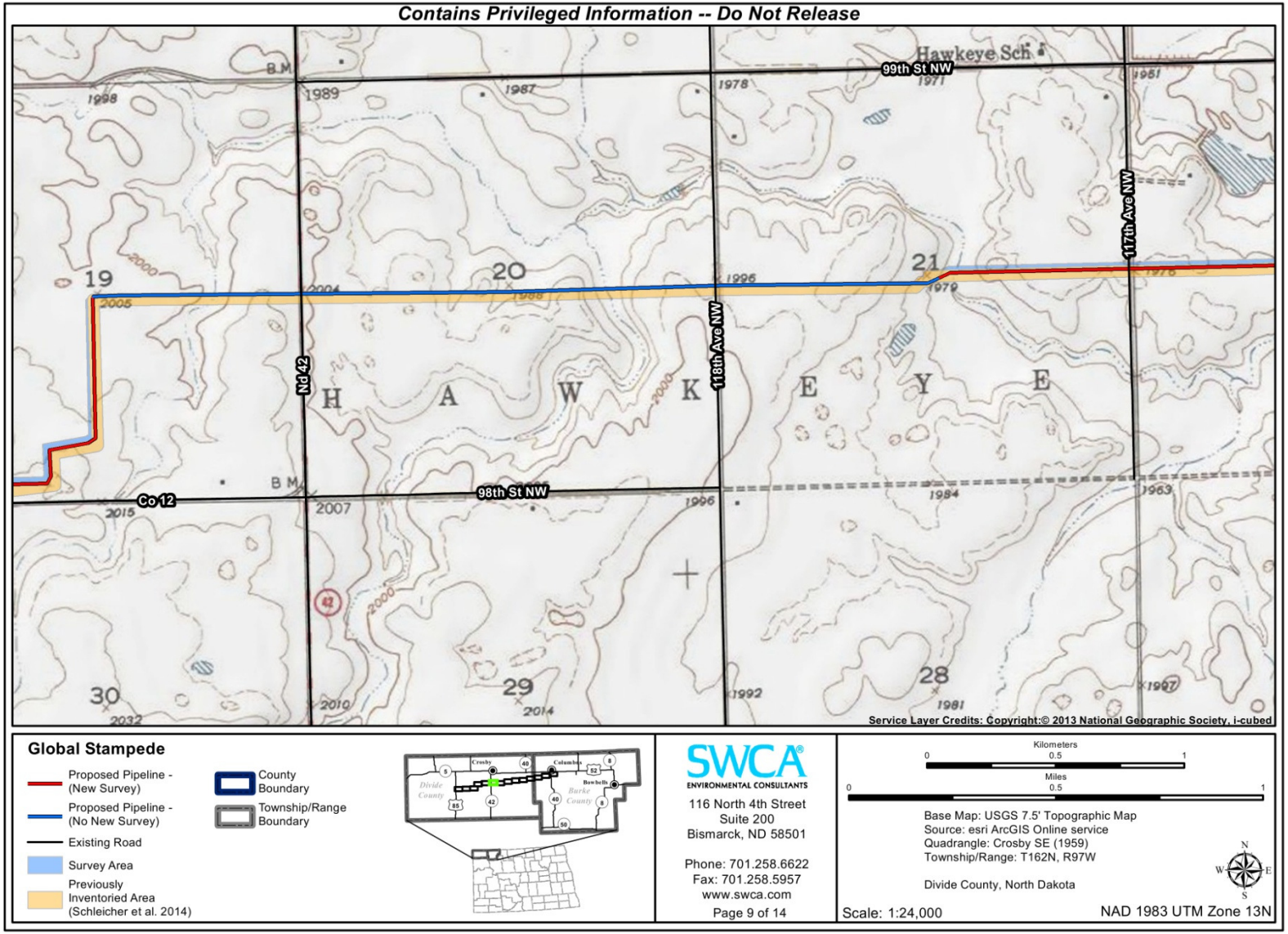


Figure 2i. Project area map, 9 of 14.

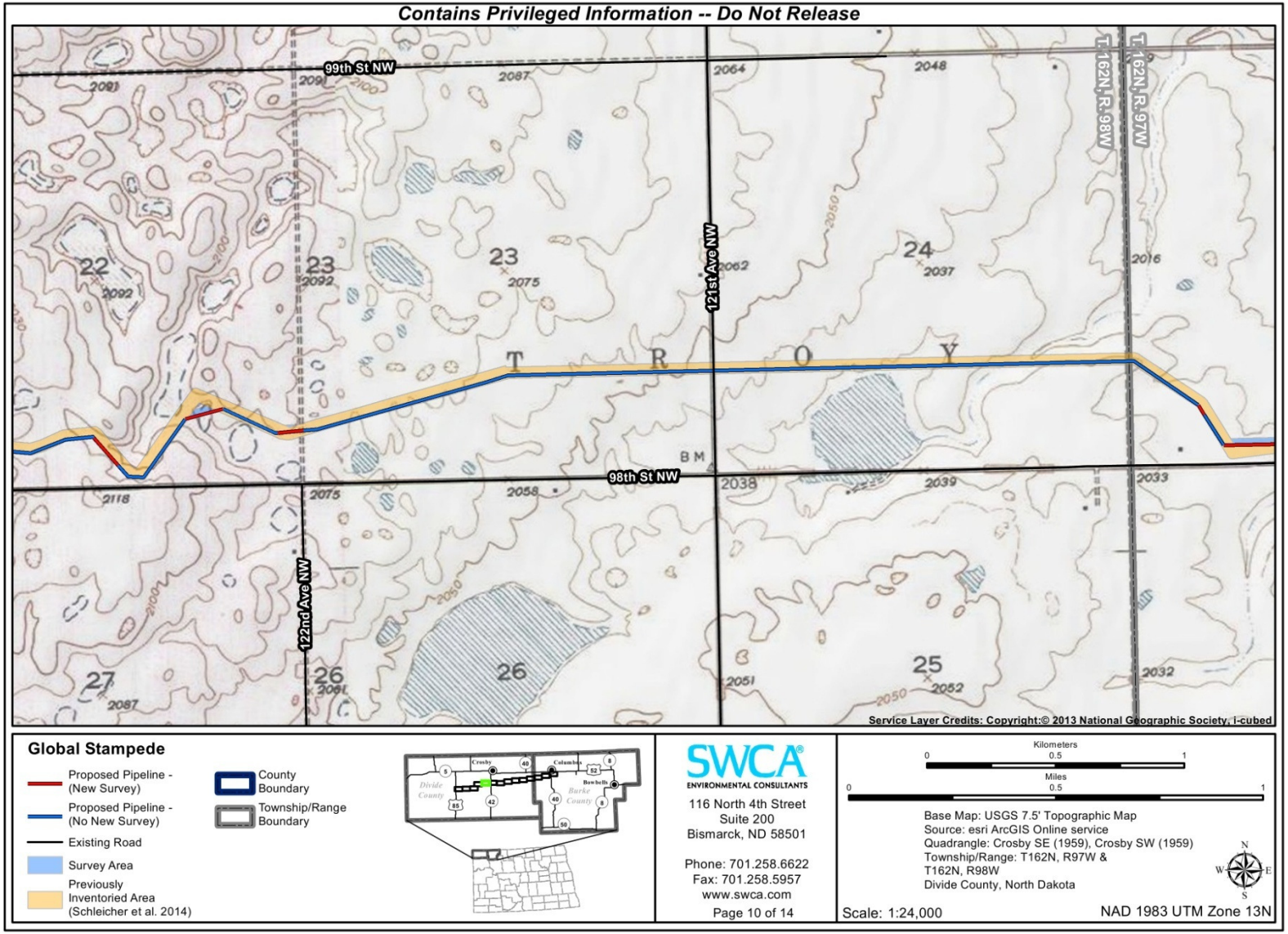


Figure 2j. Project area map, 10 of 14.

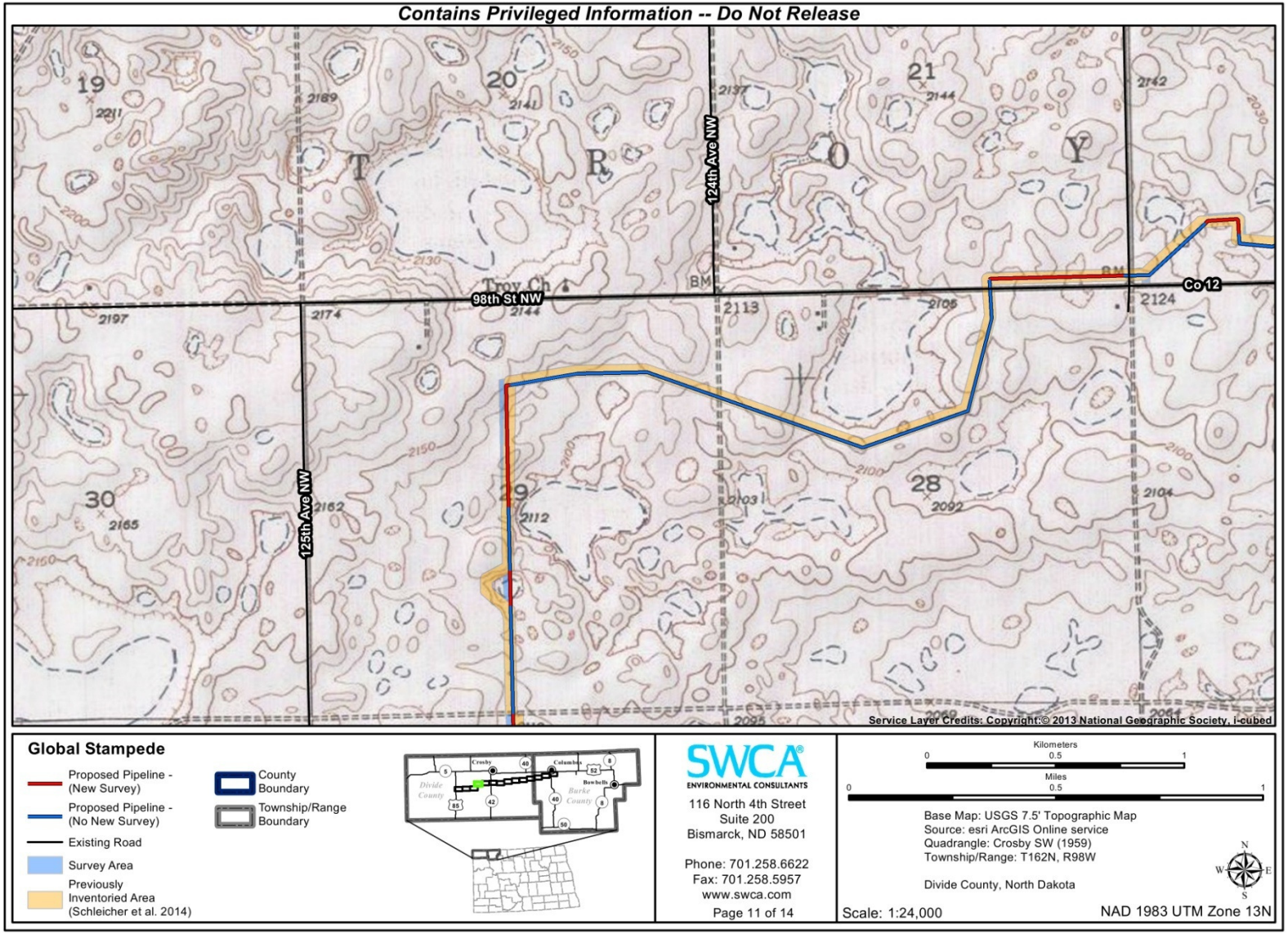


Figure 2k. Project area map, 11 of 14.

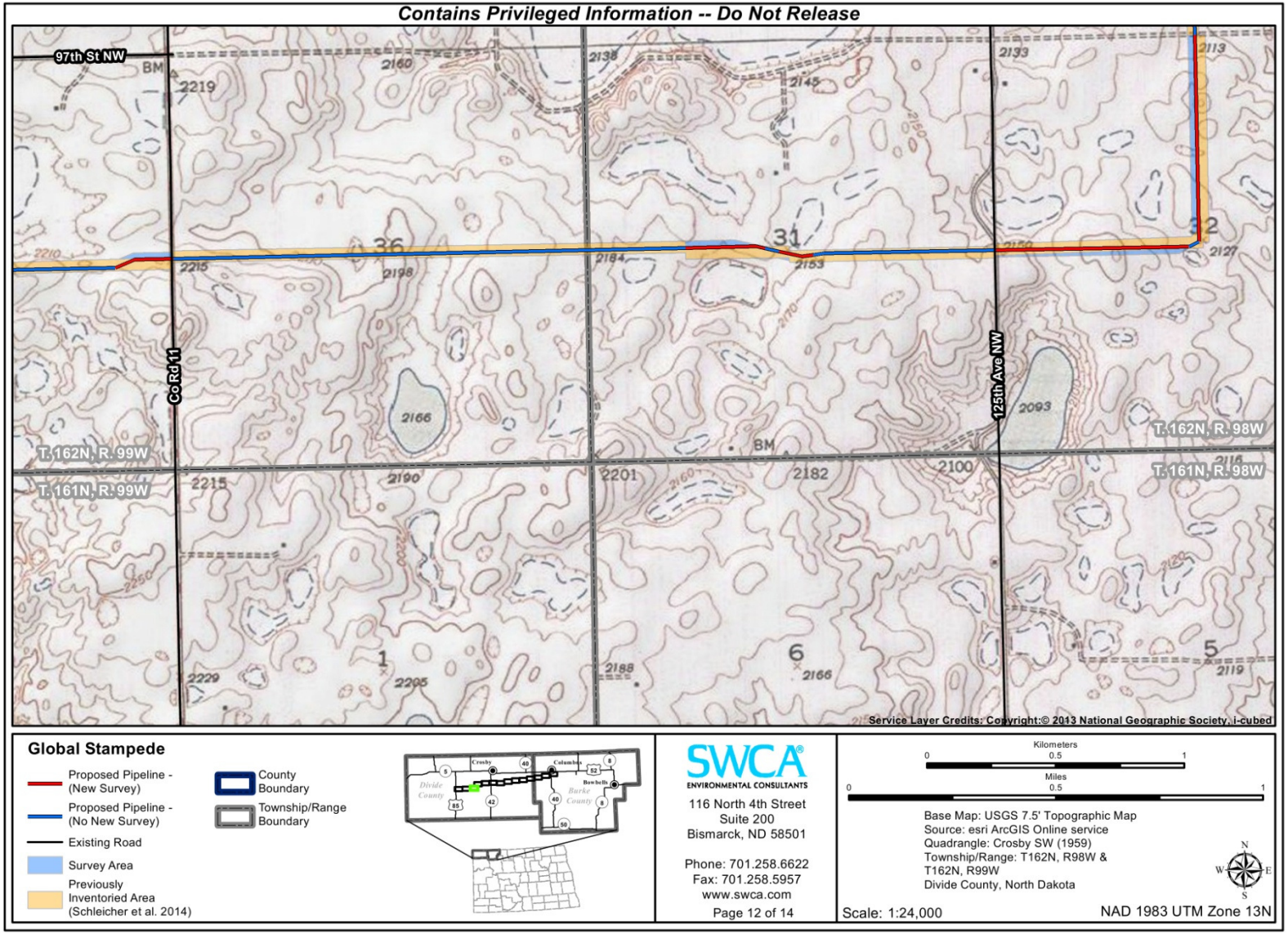


Figure 2l. Project area map, 12 of 14.

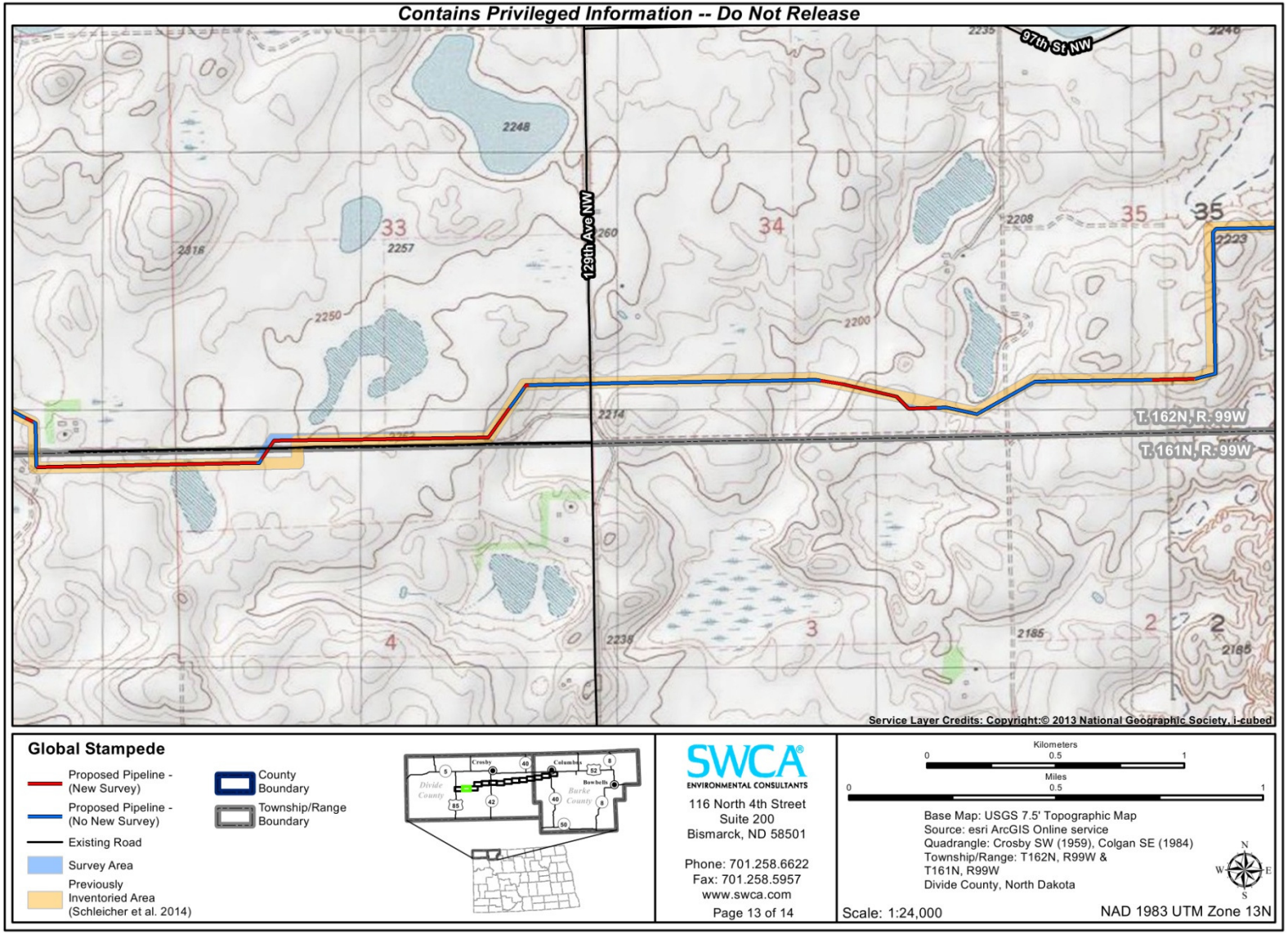


Figure 2m. Project area map, 13 of 14.

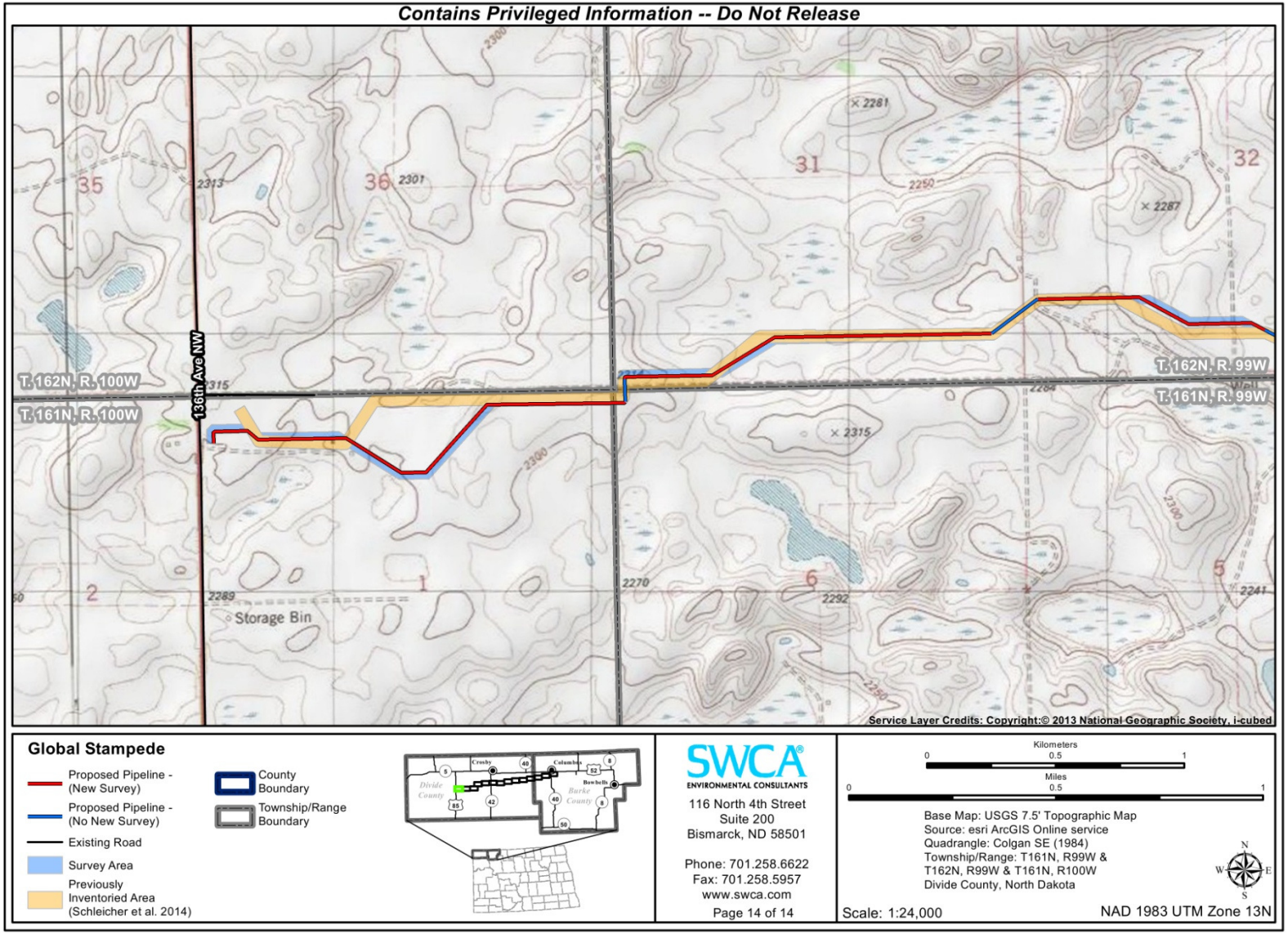


Figure 2n. Project area map, 14 of 14.

PROJECT SETTING AND BACKGROUND

The project setting, including discussions of the topography, climate, hydrology, geology, soils, and flora and fauna; environmental constraints; and cultural and historic overview are described in the original Class I and Class III report (Schleicher et al. 2014).

BACKGROUND RESEARCH

As part of the initial phase of this investigation, SWCA conducted a background search of archaeological and historical literature and records for the project area and surrounding 1-mile area. Researchers searched relevant records holdings at the State Historical Society of North Dakota and other available sources for information regarding previously recorded historic and prehistoric sites located within the project area. Background research was conducted on June 11, 2014. The results of the search are detailed in Schleicher et al. (2014). An updated background search was conducted on September 26, 2014.

The updated Class I search for the rerouted pipeline alignment indicated that, supplemental to those previously recorded cultural resources summarized in Schleicher et al. (2014), 15 additional previously recorded cultural resources are within the 1-mile study area (0.5-mile either side of the proposed project centerline) (Table 2). The additional previously recorded cultural resources consist of one historic railway (32BK68); one historic depression, foundation, cultural material scatter (32BK155); five historic cultural material scatters (32BK156, 32BK157, 32DV141, 32DV144, and 32DV145); one historic building grouping and cultural material scatter (32DV142); one historic homestead and cultural material scatter (32DV143); one cultural material scatter site lead of unknown cultural or temporal affiliation (32DVX207); and five historic machinery isolated finds (32BKX1003, 32BKX1004, 32DVX432, 32DVX433, and 32DVX434). One of the newly identified previously recorded resources is considered eligible for the National Register of Historic Places (NRHP) (32BK68). One cultural resource is unevaluated for the NRHP (32DVX207). The remaining 13 resources are not eligible for inclusion to the NRHP. Three of the previously recorded sites (32BK68, 32DV143, and 32DV144) are located within the project area.

Two additional previous cultural resource inventories were performed within the 1-mile study area since the original Class I outlined in Schleicher et al. (2014). The bibliographic listing of the additional previous archaeological and historic studies is provided in Table 3.

Table 2. Additional Previously Recorded Cultural Resources within the 1-mile Study Area

SITS Number	Location	Site Type(s)	Cultural Affiliation	NRHP Eligibility
32BK68	S½ SW¼ NW¼ Section 3, T162N, R93W; SE¼ NW¼, NE¼ NW¼ SW¼ Section 7, T162N, R93W	Railroad (Great Northern Railroad)	Historic	Eligible
32BK155	NE¼ NE¼ NE¼ Section 8, T162N, R93W	Depression, Foundation, Cultural Material Scatter	Unknown Historic	Not Eligible

SITS Number	Location	Site Type(s)	Cultural Affiliation	NRHP Eligibility
32BK156	NW¼ NE¼ NE¼ Section 8, T162N, R93W	Cultural Material Scatter	Historic	Not Eligible
32BK157	SW¼ SW¼ SE¼, SE¼ SE¼ SW¼ Section 10, T162N, R94W	Cultural Material Scatter	Unknown Historic	Not Eligible
32BKX1003	SE¼ SE¼ SW¼ Section 4, T162N, R93W	Isolated Find – Agricultural Machinery	Unknown Historic	Not Eligible
32BKX1004	NW¼ NE¼ NW¼ Section 12, T162N, R94W	Isolated Find – Agricultural Machinery	Historic – early 20th century	Not Eligible
32DV141	NE¼ NE¼ SE¼, SE¼ SE¼ NE¼ Section 21, T162N, R97W	Cultural Material Scatter	Historic	Not Eligible
32DV142	NE¼ NE¼ SE¼ Section 22, T162N, R97W	Buildings and Cultural Material Scatter	Unknown Historic	Not Eligible
32DV143	SW¼ NE¼ NW¼, NW¼ NE¼ NW¼ Section 1, T161N, R100W	Homestead and Cultural Material Scatter	Historic	Not Eligible
32DV144	NE¼ NE¼ SE¼, SE¼ SE¼ NE¼ Section 24, T162N, R97W	Cultural Material Scatter	Historic	Not Eligible
32DV145	NW¼ NE¼ SE¼ Section 19, T162N, R97W	Cultural Material Scatter	Unknown Historic	Not Eligible
32DVX207	SW¼ SW¼ Section 22, T162N, R95W	Cultural Material Scatter – Site Lead	Unknown	Unevaluated
32DVX432	NE¼ NE¼ NE¼ Section 1, T161N, R100W	Isolated Find – Agricultural Machinery	Unknown Historic	Not Eligible
32DVX433	SE¼ SW¼ NE¼ Section 24, T162N, R97W	Isolated Find – Wagon	Unknown Historic	Not Eligible
32DVX434	SE¼ SE¼ NW¼ Section 19, T162N, R96W	Isolated Find – Agricultural Machinery	Unknown Historic	Not Eligible

SITS = Smithsonian Institute Trinomial System
NRHP = National Register of Historic Places

Table 3. Additional Previous Archaeological and Historic Studies within the 1-mile Study Area

Manuscript Number	Location	Title	Authors	Year
015237	Section 1, T161N, R100W	A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company, LLC, Divide Pump Station, Divide County, North Dakota	A. McCarty	2014

Manuscript Number	Location	Title	Authors	Year
015380	Section 1, T161N, R100W; Sections 4–6, T161N, R99W; Sections 31–36, T162N, R99W; Sections 21–24, 28, 29, 31, 32, T162N, R98W; Sections 19–24, T162N, R97W; Sections 14–16, 19–21, 23, 24, T162N, R96W; Sections 13, 17–19, 21–24, T162N, R95W; Sections 10–12, 15–18, T162N, R94W; Sections 3–9, T162N, R93W	A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota	J. Schleicher, C. Picka, A. McCarty, and C. Riordan	2014

FIELDWORK METHODS

The inventory area consisted of a linear survey corridor, ranging from 2 to 110 feet wide to compensate for the shifting of the centerline. In total, 65.76 acres were inventoried for the project. Inventory was conducted by means of pedestrian survey transects spaced no more than 30 meters (m) apart. No subsurface testing was conducted. For a detailed discussion of the project survey methods and site evaluation, refer to Schleicher et al. (2014).

INVENTORY RESULTS AND RECOMMENDATIONS

SWCA conducted a Class III inventory for the Global Stampede pipeline reroute on September 30 and October 1 and 2, 2014. Vegetation within the project area at the time of survey consisted of harvested wheat and canola fields with a few areas of mixed grass prairie and evergreen shelterbelts, allowing for bare ground surface visibility of 0 to 70 percent. Visibility was typically higher (between 50 and 70 percent) in standing fields and very low (less than 5 percent) in harvested fields and shelterbelt areas. Surface soils across the project area consist of dark to very dark brown silty clay loam. Impacts to the project area include aeolian and colluvial erosion, heavy farming activities, and oil and gas development, including the construction of a pipeline along the majority of the current survey area.

During the inventory, SWCA revisited a segment of the Great Northern Railroad (32BK68), a historic homestead and cultural material scatter (32DV143), and a historic cultural material

scatter (32DV144). In addition, SWCA newly recorded one isolated historic automobile body (32DVX435). The resources are discussed in detail below. Copies of the North Dakota Cultural Resources Survey site forms are included in Appendix A (detached). Maps illustrating the location of the resources are included in Appendix B.

PREVIOUSLY RECORDED SITES

32BK68

Site Type:	Great Northern Railroad
Association:	Historic, 1907
Site Size:	34.48 by 0.57 feet (19.05 square feet)
NRHP Recommendation:	Eligible/Contributing
Management Recommendation/Project Effect:	Avoid, Horizontal Directional Drill/No Effect

Site Description and Previous Recording

32BK68 is the continuation of a previously documented segment of an active branch of the historic Great Northern Railroad, now operated by the Burlington Northern Santa Fe (BNSF) Railway, located at the Stampede pipeline terminal in a relatively flat upland plain (Figures 3–5). 32BK68 is located in Stampede, North Dakota, and intersects Burke County Road 7. Oil and gas transport facilities are located along the north end of the railway as well as an old grain elevator south of the railway to the east of the segment. Vegetation in the area consisted of little blue steam, goat's beard, curly dock, western dock, and mixed prairie grasses, allowing for approximately 0 percent bare ground surface visibility in areas not around the railway right-of-way at the time of survey. Surface soils consist of brown silt loam. The site is in excellent condition, as it is still in use and maintained. Impacts include weathering and upkeep.

Portions of 32BK68 have been previously recorded by Ed Stine (2003), Jennifer Evens (2011 and 2012), Janice McLean (2011), and Steven Blondo (2012). Previous recordings consisted of railroad segments near Bowbells, Couteau, and Northgate, North Dakota, as well as rural areas in Burke County. The original site recording in 2003 recommended the site as unevaluated for the NRHP, while the remaining records (post-2011) recommended the site as not eligible.

In June 2014, SWCA recorded an adjacent segment of 32BK68. This segment of the Great Northern Railway consists of the main line and associated appendages including an elevator loading line and three stockyard lines. The tracks are on a raised bed (ranging from 1 foot to 3 feet high) approximately 15 feet wide and overlain with crushed granite ballast. Only the portions of the railroad within the project survey corridor were recorded; however, the alignment extended beyond the survey corridor to the east and west. Most of the materials are modern and have been replaced since the original construction of the railroad, though the alignment itself has not changed. The railroad ties are treated, milled lumber in good condition, and were recently replaced. The rail is rolled steel that was manufactured in 2008 (main line), 1943 and 1944 (stockyard lines), and 1912 (elevator loading line). The standard gauge rails are joined together with fish plates rather than welded. The segment is in excellent

condition. SWCA recommended the site eligible under Criterion A as a contributing component of the overall resource based on an evaluation following the registration requirements set forth in North Dakota's railroad context (Schmidt and Vermeer 2009). The North Dakota State Historic Preservation Office (NDSHPO) concurred on August 29, 2014 (Merlan E. Paaverud, Jr., personal communication 2014).



Figure 3. 32BK68 site overview, facing north.



Figure 4. 32BK68 site overview, facing east.

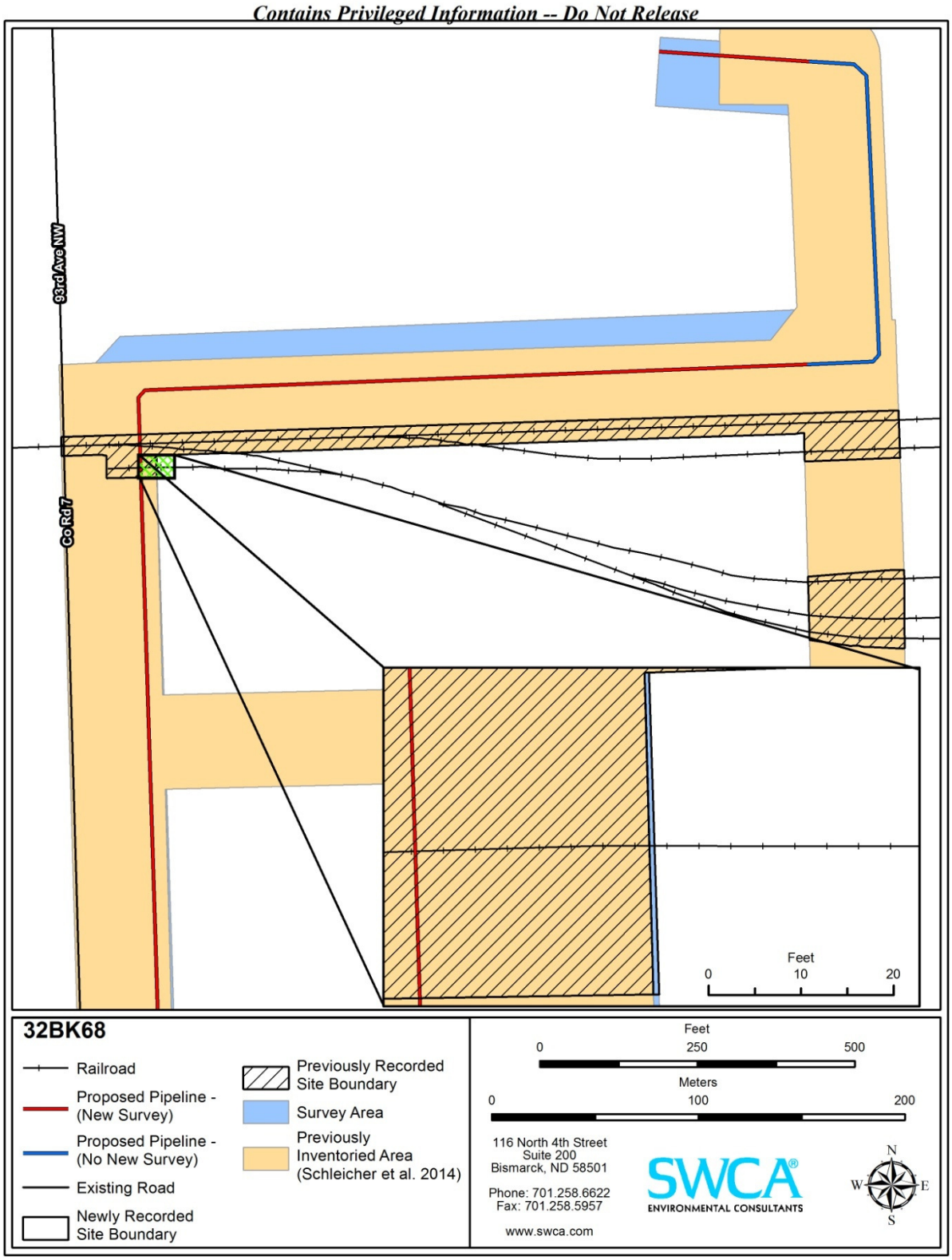


Figure 5. 32BK68 site sketch map.

Survey Results

SWCA recorded an additional segment of 32BK68 crossing Burke County Road 7 on September 30, 2014. SWCA only examined the portion of the site which fell within the current survey area; therefore, the entire site was not revisited. The site is in similar condition to the June 2014 recording. No new features, artifacts, or impacts to the site were observed. The segment remains in excellent condition.

Historical Background

The Great Northern Railway mainline was constructed in 1887 by the St. Paul, Minneapolis, and Manitoba Railway, but was not named the Great Northern Railway until 1889 (Great Northern Railway Historical Society 2011). Begun as the St. Paul and Pacific Railroad in 1857, it was the second major railroad to begin construction in North Dakota after the Northern Pacific. Like the Northern Pacific, the St. Paul and Pacific had trouble securing financial support, going bankrupt in 1872. Under the direction of James J. Hill, the St. Paul and Pacific began construction again in 1878. Hill believed that the rolling prairie of Montana and North Dakota could be cultivated for farming and promoted his railway to potential homesteaders (Rennie 2004). Rather than building straight west, Hill expanded branch lines across North Dakota and Minnesota and by the 1890s, Hill's railroad had more miles of track in North Dakota than the Northern Pacific (Tweton and Jelliff 1976). The Great Northern Railway provided transportation for early settlers and allowed for early commerce in North Dakota, transporting local goods to markets (Rennie 2004). By 1929, the Great Northern Railway provided transcontinental transportation between St. Paul, Minnesota, and Klamath Falls, Oregon, thereby providing greater opportunities for interstate commerce (Great Northern Railway Historical Society 2011). During World War II, the railway transported goods as part of the military supply line in addition to passenger services (Great Northern Railway Historical Society 2011). In 1970, the Great Northern Railway became part of a four-railroad merger, which included the Northern Pacific Railway, the Chicago, Burlington, and Quincy Railroad, and the Spokane, Portland, and Seattle Railway, to become the Burlington Northern Railway (Great Northern Railway Historical Society 2011). The Burlington Northern Railway merged with the Santa Fe on September 22, 1995, thus creating the BNSF Railway (BNSF Railway 1999).

The portion of 32BK68 revisited on September 30, 2014, is part of the North Dakota segment of the Great Northern Railway Berthold to Crosby branch, constructed in 1907, which was originally constructed by the Dakota and Great Northern Railway Company. The Dakota and Great Northern Railway Company was incorporated in 1900. The Dakota and Great Northern Railway Company constructed 10 lines between 1901 and 1907, and when completed, were transferred to the Great Northern. These lines were constructed during the "railway war of 1905" with the Soo Line for control of northern North Dakota, southern Manitoba, and southern Saskatchewan. These north/south-trending lines were known as the Great Northern's "picket fence" across northern North Dakota (Schmidt and Vermeer 2009).

NRHP Eligibility Recommendation

32BK68 consists of the active and historic railroad alignment for the Great Northern Railway mainline and branch line segments. The original site recording in 2003 left the site as

unevaluated for the NRHP, while the remaining records (post-2011) recommended the site as not eligible. However, the Dakota and Great Northern portion of the Great Northern Railway recorded in 2014 does have a demonstrable and significant association with the early transportation history of the region. The railway corridor did directly contribute to the development of the agricultural and livestock industries in the region and led to significant expansion of both industries. The branch line in particular played an important role in supporting the agriculture and cattle industry of west-northwestern North Dakota by providing access to both American and Canadian markets for goods. This segment retains great integrity as evidenced by the dates of the rails. SWCA therefore recommends that the site as a whole be considered eligible for nomination to the NRHP under Criterion A.

North Dakota railroads are not typically considered eligible for nomination under Criterion B, since they were generally the product of corporations, rather than significant individuals (Schmidt and Vermeer 2009). SWCA found no exception to this guidance for 32BK68 and therefore recommends that the site be considered not eligible for nomination to the NRHP under Criterion B. Similarly, railroads in North Dakota are generally considered not eligible for nomination to the NRHP under Criterion C, since they are representative of existing technology well established in other parts of the country and therefore do not represent significant or distinguishable features that embody a distinct type of engineering or construction (Schmidt and Vermeer 2009). SWCA found no evidence that 32BK68 is an exception to this guidance and therefore recommends that the site be considered not eligible for nomination to the NRHP under Criterion C. The deposition on site and the lack of surface artifacts indicate that the site is unlikely to yield information important in history; therefore, the segment is recommended not eligible for inclusion to the NRHP under Criterion D.

During the current survey a segment of the Dakota and Great Northern rail line was revisited within the survey corridor. The berm retains the original alignment and structure; however, the rails, ties, and all other material associated with the railroad have been replaced at regular intervals as part of normal railway maintenance. Because the original ties and some of the other railroad fixtures have been removed and replaced with modern components, the segment has lost some of its integrity in regards to materials. Nevertheless, the original constructed berm alignment remains and retains the location, design, and workmanship of the original engineered design; therefore, SWCA recommends that the site be considered a contributing component of the overall resource. This evaluation follows requirements set forth in North Dakota's railroad context (Schmidt and Vermeer 2009).

In summary, SWCA recommends this segment of 32BK68 eligible for the NRHP under Criterion A.

Management Recommendations

SWCA recommends 50 feet of avoidance of the site by all project impacts. By project design, the segment of the Great Northern Railway, 32BK68, will not be impacted by means of a horizontal directional drill or bore.

32DV143

Site Type:	Homestead, Cultural Material Scatter
Association:	Historic, 1930s–1970s
Site Size:	248.85 by 317.29 feet (66,799.3 square feet)
NRHP Recommendation:	Not Eligible
Management Recommendation/Project Effect:	No Further Work/No Effect

Site Description and Previous Recording

32DV143 is a historic homestead site consisting of two buildings and a clothesline with a cultural material scatter located on a rolling upland grassland (Figures 6 and 7). The site is located immediately south of 97th Avenue NW, and Highway 85 is 0.5 mile to the west. A two-track road runs through the southern portion of the site. Vegetation on site consists of mixed grasses, primarily smooth brome and snowberry, allowing for less than 5 percent bare ground surface visibility. Surface soils consist of dark brown silt loam. The site is in fair condition with the primary impact being natural decay. In addition, there is disturbance to the east and north of the site from pipeline construction and there are active bee boxes within the site boundary.

SWCA originally documented 32DV143 in June 2014 as a historic homestead site consisting of two buildings (Features 1 and 2) and a clothesline (Feature 3) with a cultural material scatter. Feature 1 is a one- and one-half-story side-gabled house. Feature 2 is a single-story side-gabled barn. Feature 3 is a wood clothesline post with wire clotheslines still attached. The cultural material scatter includes various farm equipment and vehicles (H1–H20) as well as other modern and non-diagnostic artifacts including a 1972 Ford Galaxie, a 1970s model Buick LeSabre (a second 1960s model Buick LeSabre was recorded as H6), a swingset, tires, engine parts, miscellaneous machine parts, fencing materials, miscellaneous metal parts, window glass, fuel tanks, various furniture, cooking utensils, tools, lawnmowers, and rubber belts and hoses. SWCA recommended 32DV143 not eligible for the NRHP for the original recording, with NDSHPO concurrence on August 29, 2014 (Merlan E. Paaverud, Jr., personal communication 2014).

Contains Privileged Information -- Do Not Release

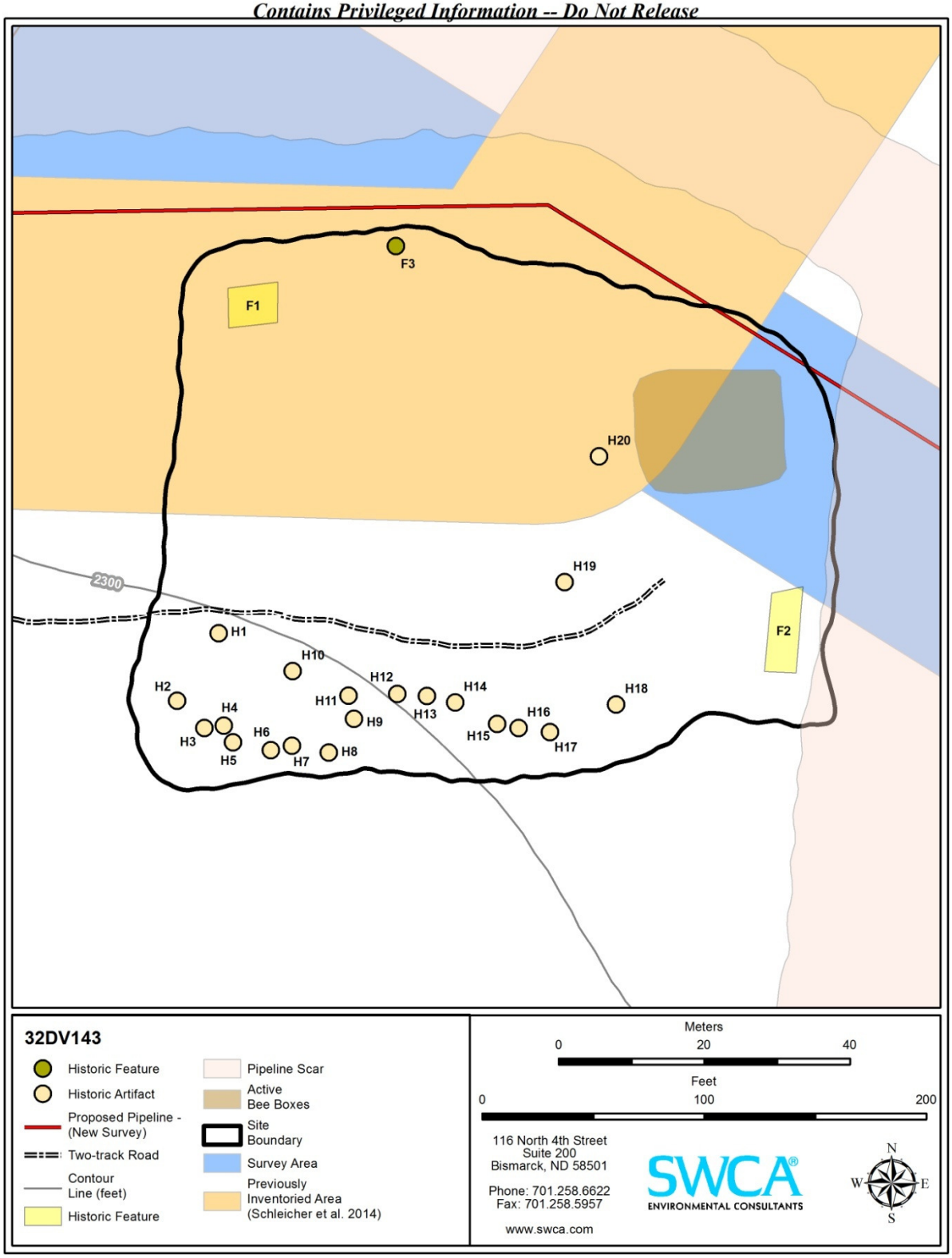


Figure 6. 32DV143 site sketch map.



Figure 7. 32DV143 site overview, facing southeast.

Survey Results

SWCA revisited 32DV143 on September 30, 2014. SWCA only examined the portion of the site which fell within the current survey area; therefore, the entire site was not revisited. The site's architectural features (Features 1–3) fall outside of the current survey area and they were not revisited. The site is in similar condition to the June 2014 recording. No new features, artifacts, or impacts to the site were observed. The site remains in fair condition.

NRHP Eligibility Recommendation

32DV143 is a historic homestead site consisting of two buildings and a clothesline with a cultural material scatter located on a rolling upland grassland. Historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criteria A and B. Furthermore, the two standing structures are not associated with an architectural type or the work of a master; therefore, the site is recommended as not eligible for nomination to the NRHP under Criterion C. The site is in fair condition, however the nature of the site and paucity of cultural materials found within the site indicate that it is unlikely that intact subsurface deposits are present. There is a lack of subsurface cultural deposits which could reconstruct activity areas or answer research questions, and the site would not contribute significantly to local, state, or national history;

therefore, the site is recommended not eligible for nomination to the NRHP under Criterion D.

In summary, SWCA recommends 32DV143 remain not eligible for the NRHP under any Criteria.

Management Recommendations

No further work is recommended. However, to avoid undue impact to the equipment, SWCA recommends that the farm equipment be moved outside of the construction corridor prior to commencement of construction.

32DV144

Site Type:	Cultural Material Scatter
Association:	Unknown Historic
Site Size:	187.92 by 96.23 feet (14,463.25 square feet)
NRHP Recommendation:	Not Eligible
Management Recommendation/Project Effect:	No Further Work/No Effect

Site Description and Previous Recording

32DV144 is a sparse historic cultural material scatter located on top of a small hill within the prairie pothole region (Figures 8 and 9). North/south-trending 114th Avenue NW is immediately east of the site. The site is situated within a plowed agricultural field, allowing for 90 to 100 percent bare ground surface visibility at the time of survey. Surface sediment on site consists of light brown silty clay loam formed through residual processes. The site is in poor condition, with impacts from erosion, agriculture, and pipeline construction.

SWCA previously documented 32DV144 in June 2014. The site consisted of a historic cultural material scatter including 105 ceramic sherds, 279 glass shards, metal, and rubber. Four diagnostic artifacts were identified. At the time of documentation, an active pipeline construction project was noted in the eastern portion of the site. SWCA recommended 32DV144 not eligible for the NRHP, with NDSHPO concurrence on August 29, 2014 (Merlan E. Paaverud, Jr., personal communication 2014).

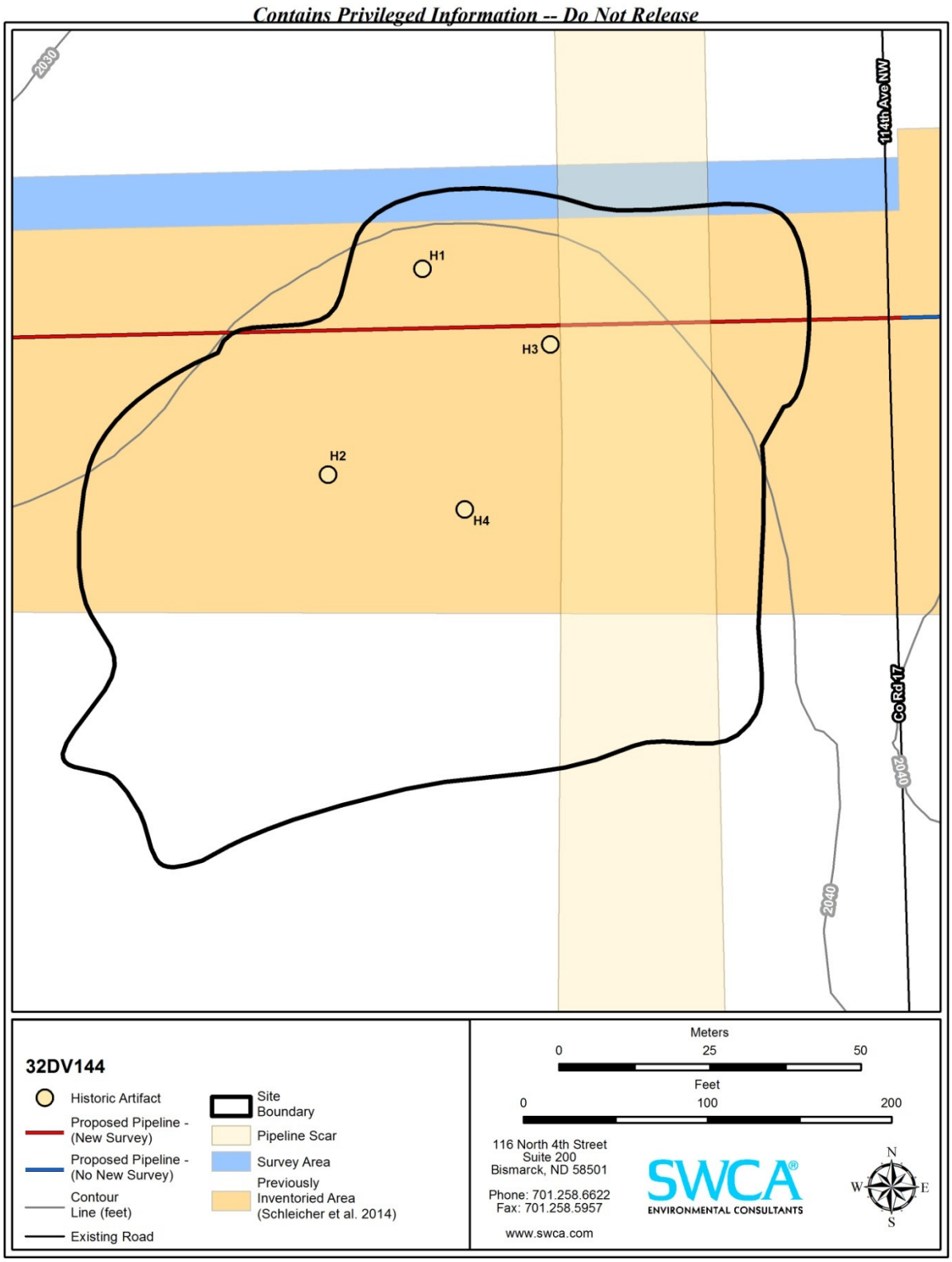


Figure 8. 32DV144 site sketch map.



Figure 9. 32DV144 site overview, facing south.

Survey Results

SWCA revisited 32DV144 on October 1, 2014. 32DV144 is in similar condition to the previous recording. SWCA only examined the portion of the site which falls within the current survey area, therefore the entire site was not was not revisited. The pipeline which was being constructed at the time of the previous recording has been completed and the right-of-way has been filled in and leveled. In addition, a large portion of the agricultural field has been plowed since the previous recording. These changes have not significantly altered the site.

NRHP Eligibility Recommendation

32DV144 is a sparse historic cultural material scatter located on top of a small hill within the prairie pothole region. Previous historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criteria A and B. Furthermore, no standing structures are present which would be associated with an architectural type or the work of a master; therefore, the site is recommended as not eligible for nomination to the NRHP under Criterion C. The site has been heavily disturbed by agricultural activities, indicating that intact subsurface cultural deposits are unlikely, and the site would not contribute significantly to local, state, or national

history; therefore, SWCA recommends the site as not eligible for nomination to the NRHP under Criterion D.

In summary, SWCA recommends 32DV144 not eligible for the NRHP under any Criteria.

Management Recommendation
No further work is recommended.

NEWLY RECORDED ISOLATED FIND

32DVX435

32DVX435 is a historic isolated find located in a drainage between two harvested wheat fields in the Northern Glaciated Plains ecoregion surrounded by a low, rolling plain (Figure 10). Global Stampede is approximately 90 feet to the north, a small cluster of old buildings is located approximately 810 feet southeast, and a farmstead is 0.55 mile to the northeast. Within the drainage, ground surface visibility was approximately 80 percent at the time of recording. Surface soils consist of dark brown silty loam formed through aeolian and colluvial processes. The site is in very poor condition and has been affected by nearby agricultural activities and decay.

The isolated find consists of the rear half of a car, a plow part, and a possible windmill blade. In addition, several other pieces of scrap metal, including a large piece from the car body, were observed mixed in with field clearing piles. By definition, isolated finds are considered to lack integrity and are not eligible for the NRHP; therefore, 32DVX435 is not eligible for inclusion to the NRHP. No further work is recommended.



Figure 10. 32DVX435, rear portion of a car.

SITE LEADS NOT RELOCATED

Nine previously recorded site leads are crossed by the project area (32BKX776, 32DVX205, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX244, 32DVX246, and 32DVX247). 32BKX776 is a historic post office site lead which has been previously recommended not eligible for the NRHP. The remaining eight site leads are cultural resource site leads of unknown cultural or temporal origin and remain unevaluated regarding their NRHP eligibility. Although attempts were made in the field to relocate the site leads, none were relocated during the current inventory; however, the site leads may be located outside of the project area.

CONCLUSIONS

SWCA conducted a Class III cultural resource inventory on September 30 and October 1 and 2, 2014, in support of reroutes to the proposed Global Stampede pipeline alignment. An update to the Class I cultural resource inventory was conducted on September 26, 2014. Meadowlark Midstream Company, LLC, proposes to construct the Global Stampede pipeline on privately owned lands in Burke and Divide Counties, North Dakota.

The project area for the pipeline reroutes is located in Sections 3, 4, 9, T162N, T93W; Section 10, T162N, R94W; Sections 15, 16, 21, 22, T162N, R95W; Sections 14–16, 19–21, 23, 24,

T162N, R96W; Sections 19, 21–24, T162N, R97W; Sections 21, 22, 29, 31, 32, T162N, R98W; Sections 31–36, T162N, R99W; Sections 4–6, T161N, R99W; and Section 1, T161N, R100W. The inventory area for the pipeline reroutes consists of a non-overlapping linear survey corridor up to 110 feet wide to compensate for shifting the proposed centerline. In total, 65.76 acres were inventoried for the project. Portions of the currently proposed Global Stampede pipeline reroute are located within areas previously inventoried for the original alignment of the Global Stampede pipeline (Schleicher et al. 2014).

During the inventory, SWCA revisited the mapped locations of 12 previously recorded cultural resources (32BK68, 32DV143, 32DV144, 32BKX776, 32DVX205, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX244, 32DVX246, and 32DVX247). 32BK68 was previously determined eligible for listing in the National Register of Historic Places (NRHP), with concurrence from the North Dakota State Historic Preservation Office on August 29, 2014 (Merlan E. Paaverud, Jr., personal communication 2014). SWCA recommends project disturbance avoid all potentially eligible and unevaluated resources by 50 feet. 32BK68 will be avoided through the use of a horizontal directional drill beneath the site. 32DV143 and 32DV144 were both previously determined not eligible for the NRHP, with concurrence from the North Dakota State Historic Preservation Office on August 29, 2014 (Merlan E. Paaverud, Jr., personal communication 2014). SWCA recommends 32DV143 and 32DV144 both remain not eligible for the NRHP. No further work is recommended for these resources.

The previously recorded site lead resources consist one historic post office site lead (32BKX776), and eight site leads of unknown cultural or temporal origin (32DVX205, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX244, 32DVX246, and 32DVX247). 32BKX776 is recommended to remain not eligible for the NRHP while the remaining eight previously recorded cultural resource site leads remain unevaluated regarding their eligibility for the NRHP. Although attempts were made to relocate the site leads within the project area, after intensive examination, none were relocated during the current inventory; they may be located within the documented site boundary outside the project area. No further work is recommended for these resources.

One historic isolated find (32DVX435) was newly recorded. By definition, isolated finds are considered to lack integrity and are not eligible for the NRHP; therefore, 32DVX435 is not eligible for inclusion in the NRHP. No further work is recommended. With the above stipulations, it is recommended that a determination of *No Significant Sites Affected* and *No Historic Properties Affected* be granted for the project to proceed as planned.

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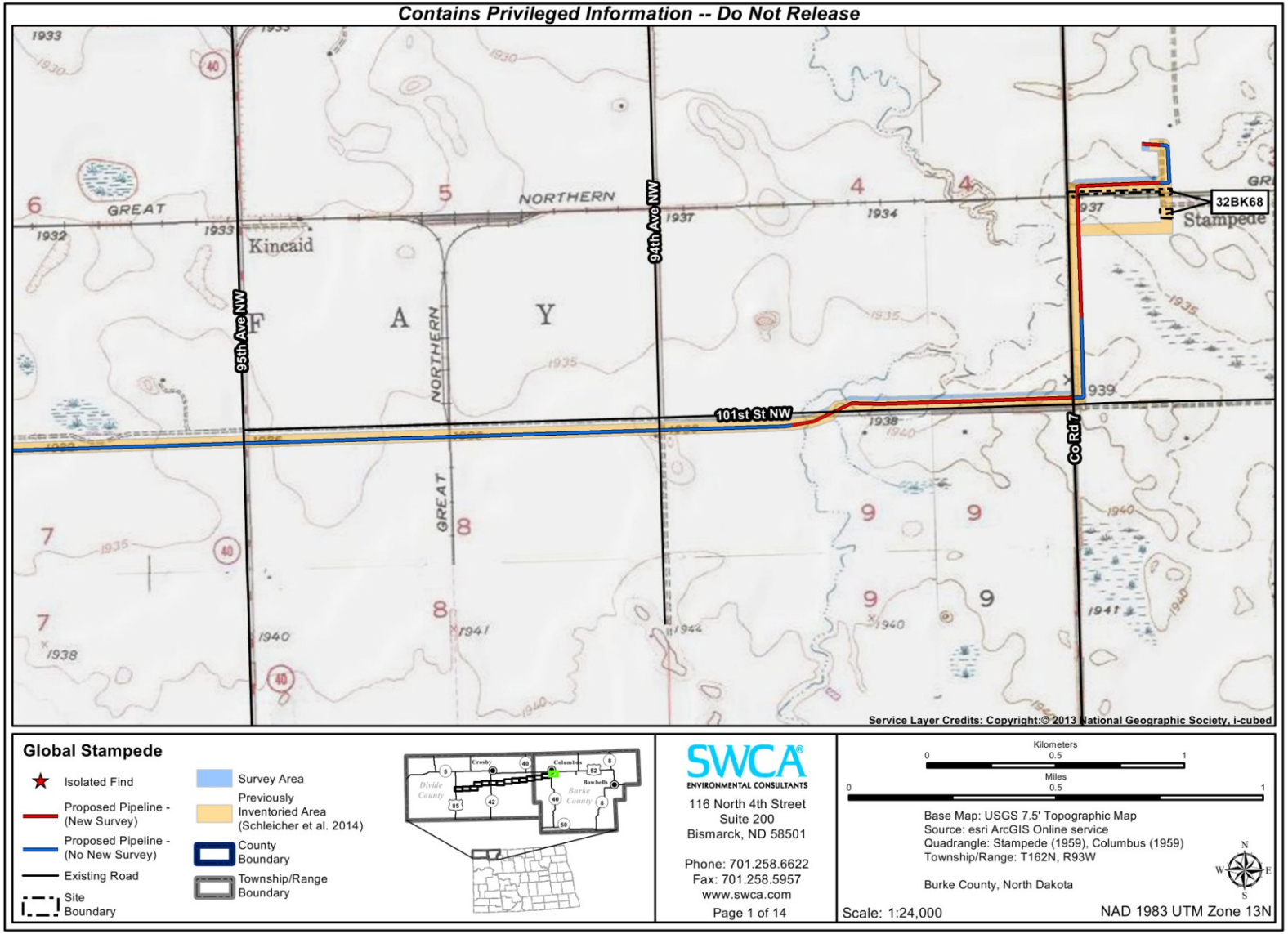
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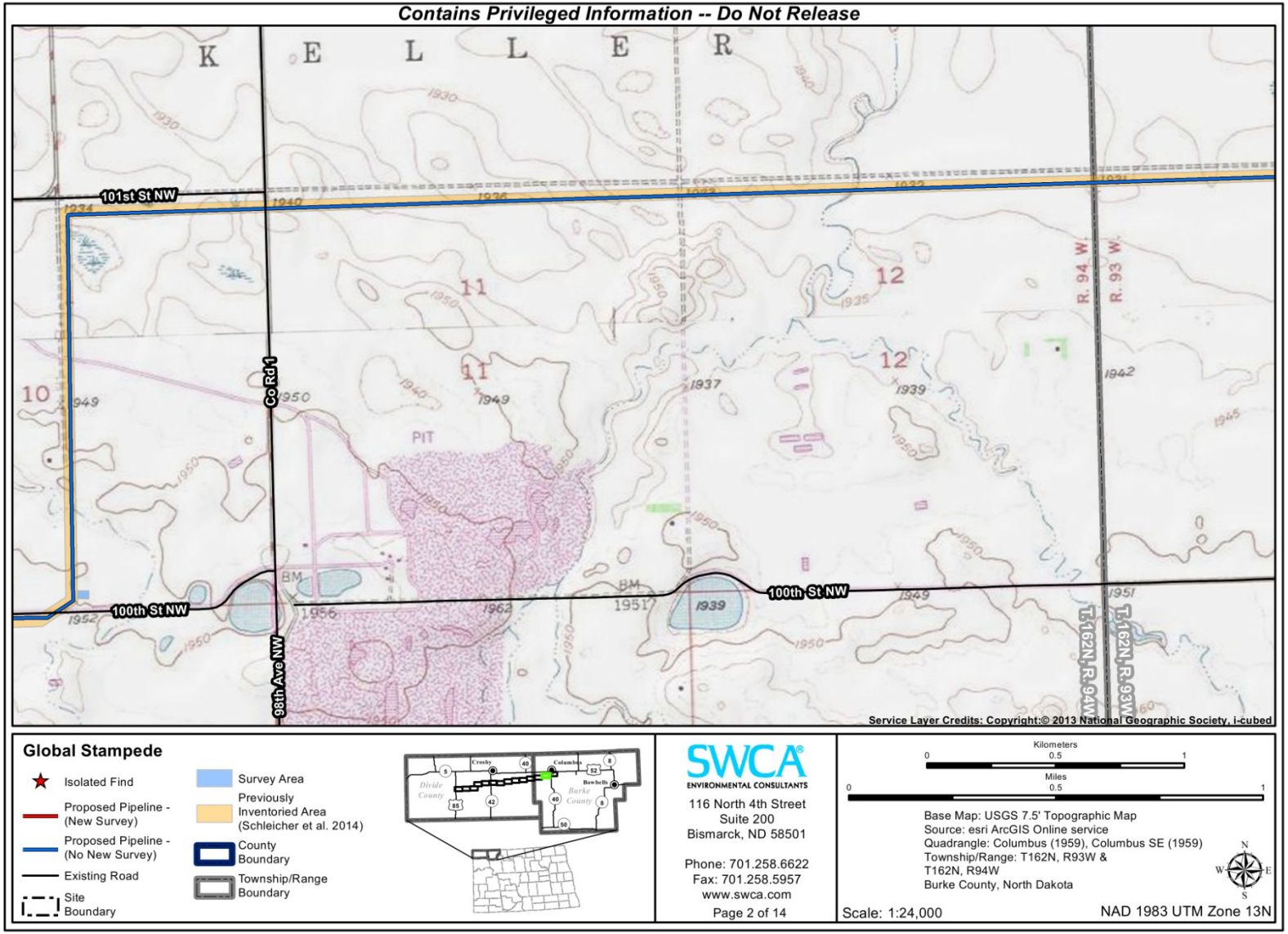
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APPENDIX A
(Detached)
North Dakota Site Forms

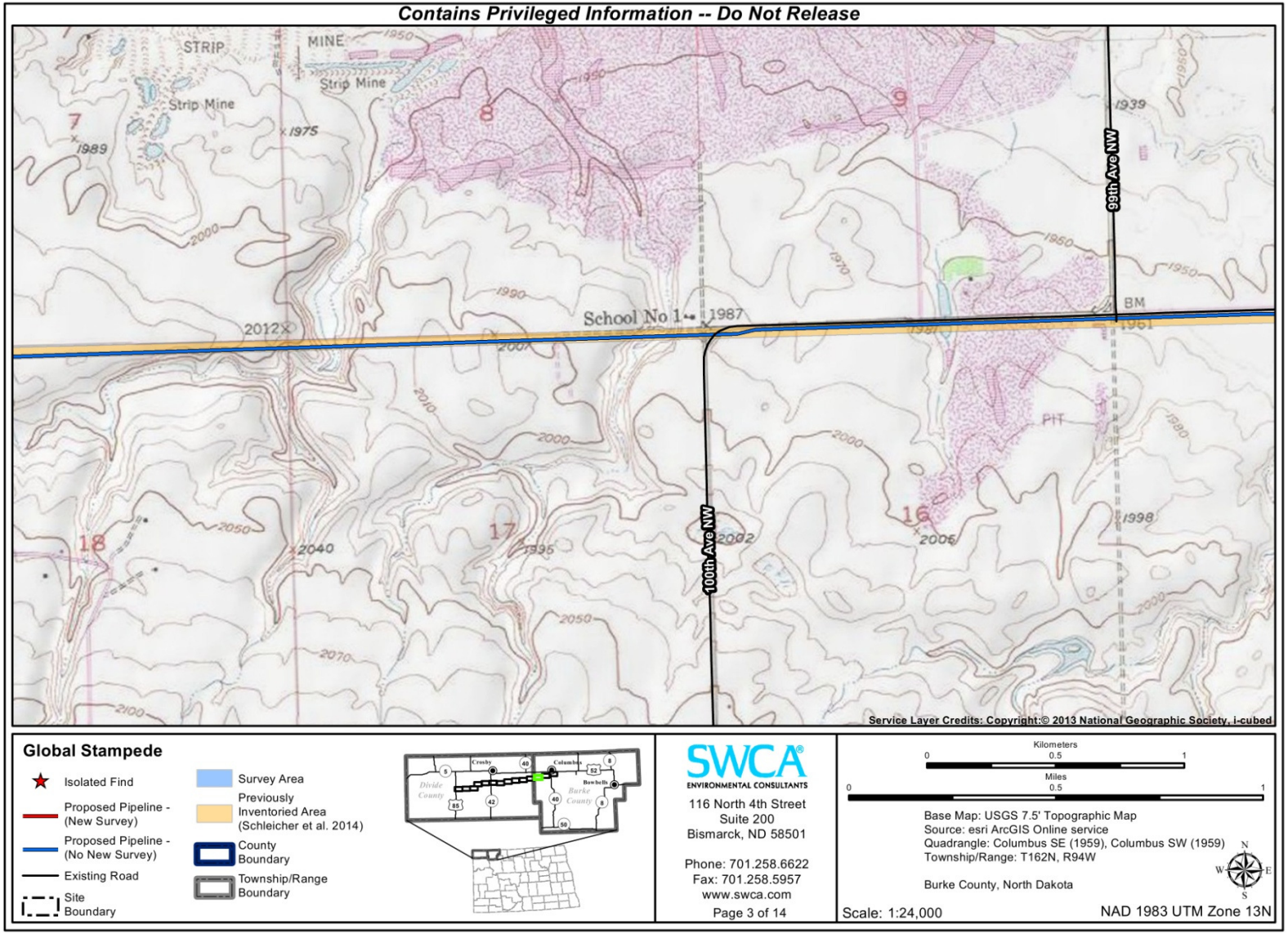
APPENDIX B
Resource Location Maps



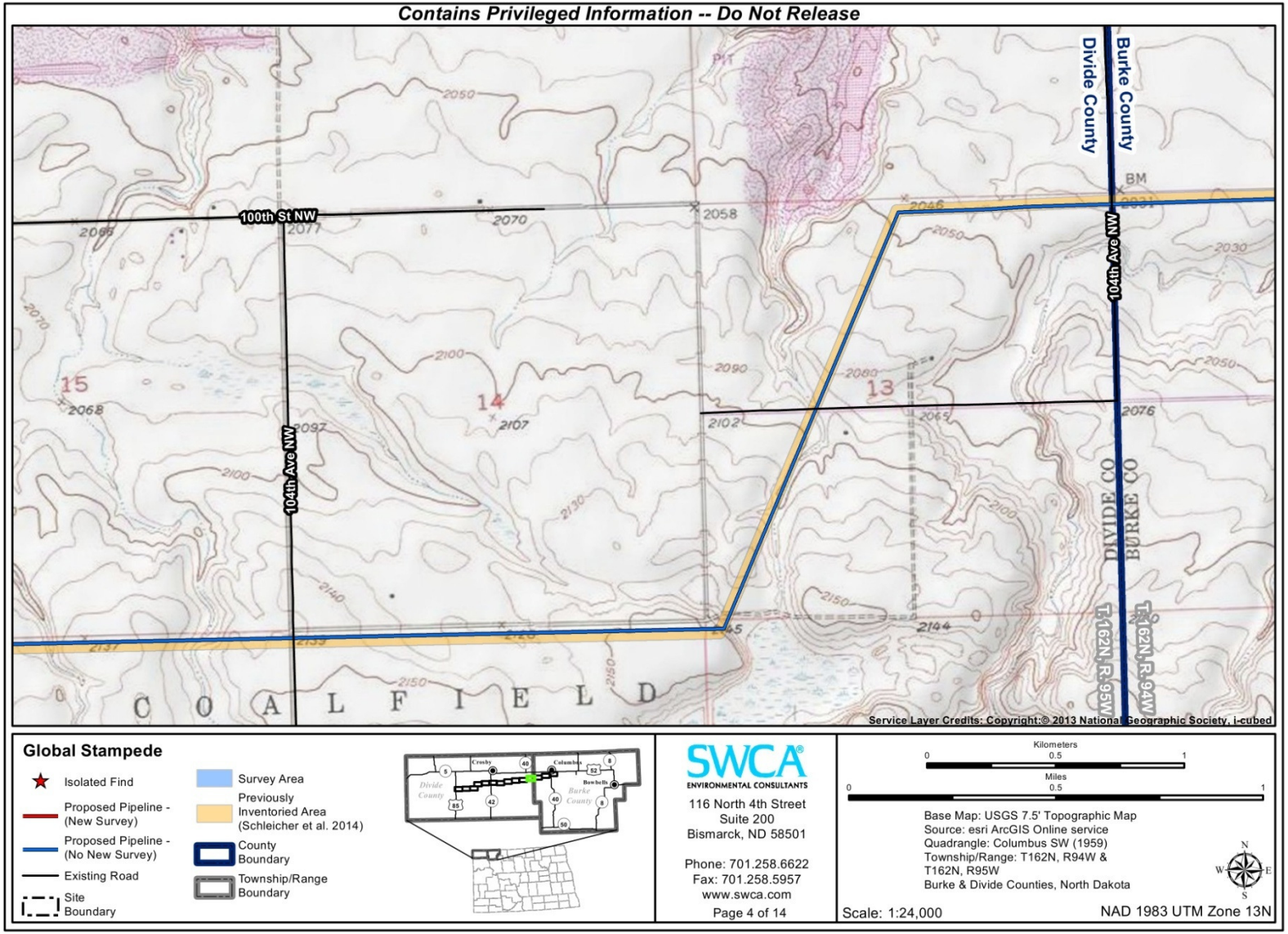
Resource location map at 1:24,000-scale, map 1 of 14.



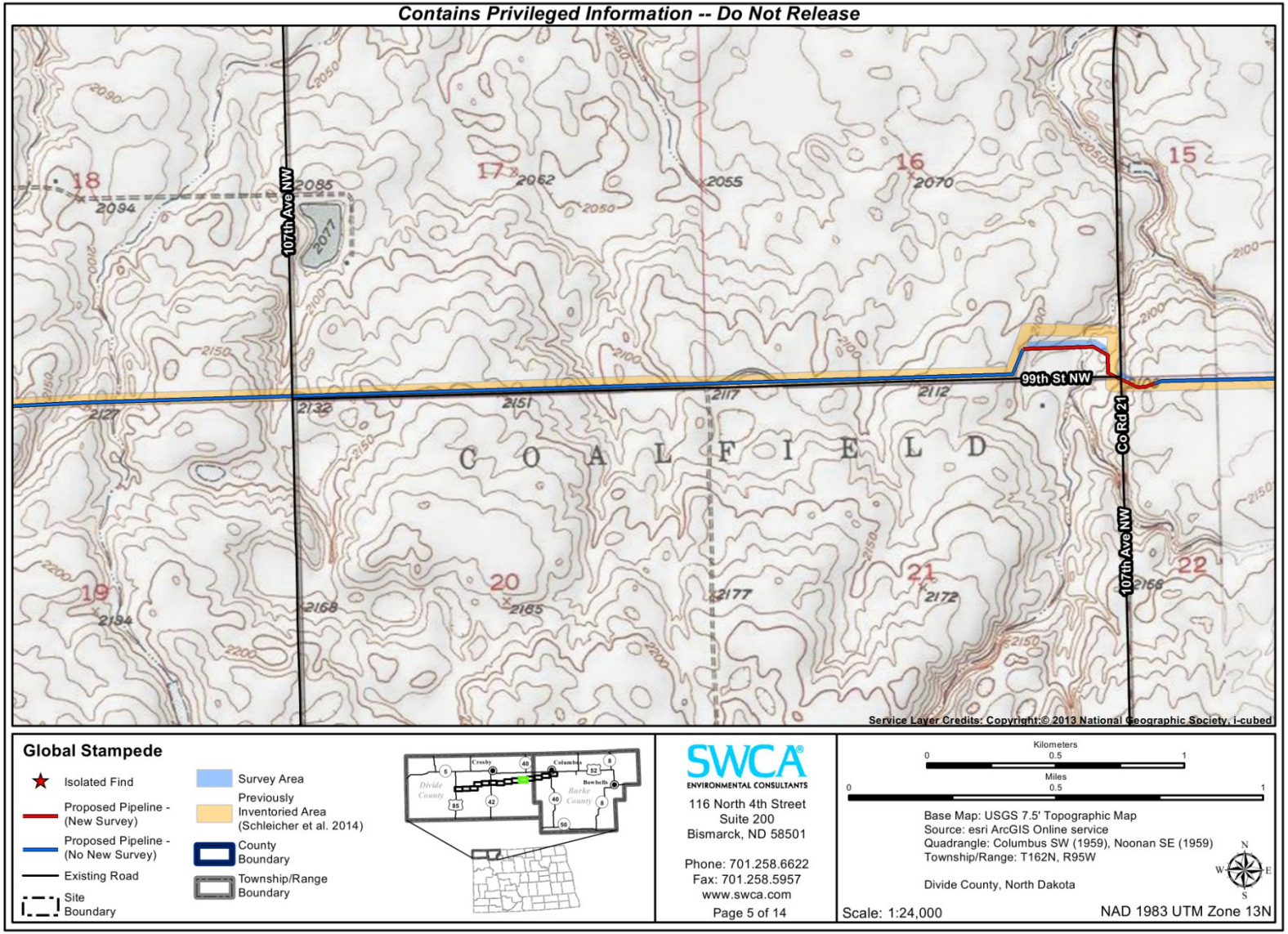
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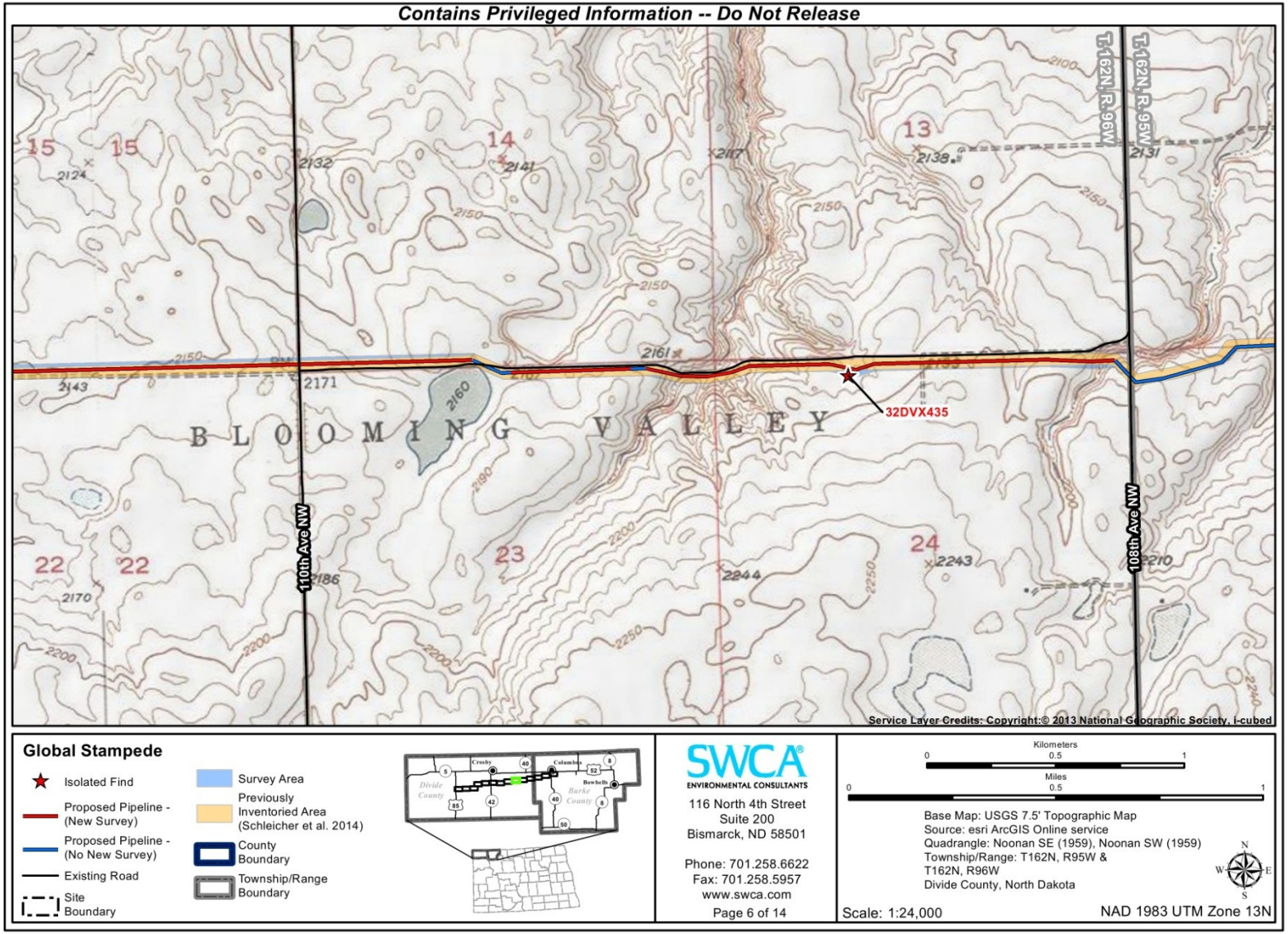
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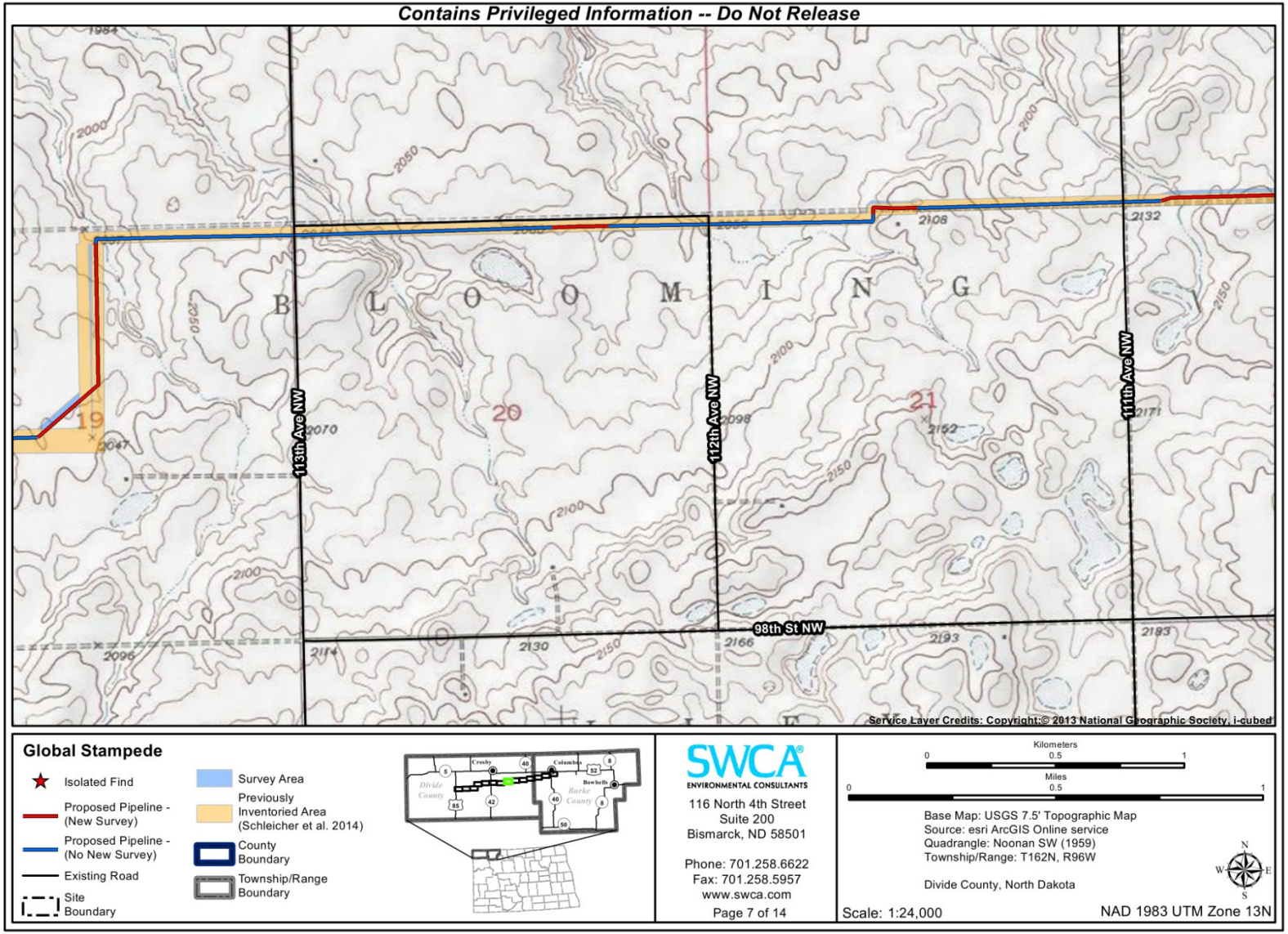
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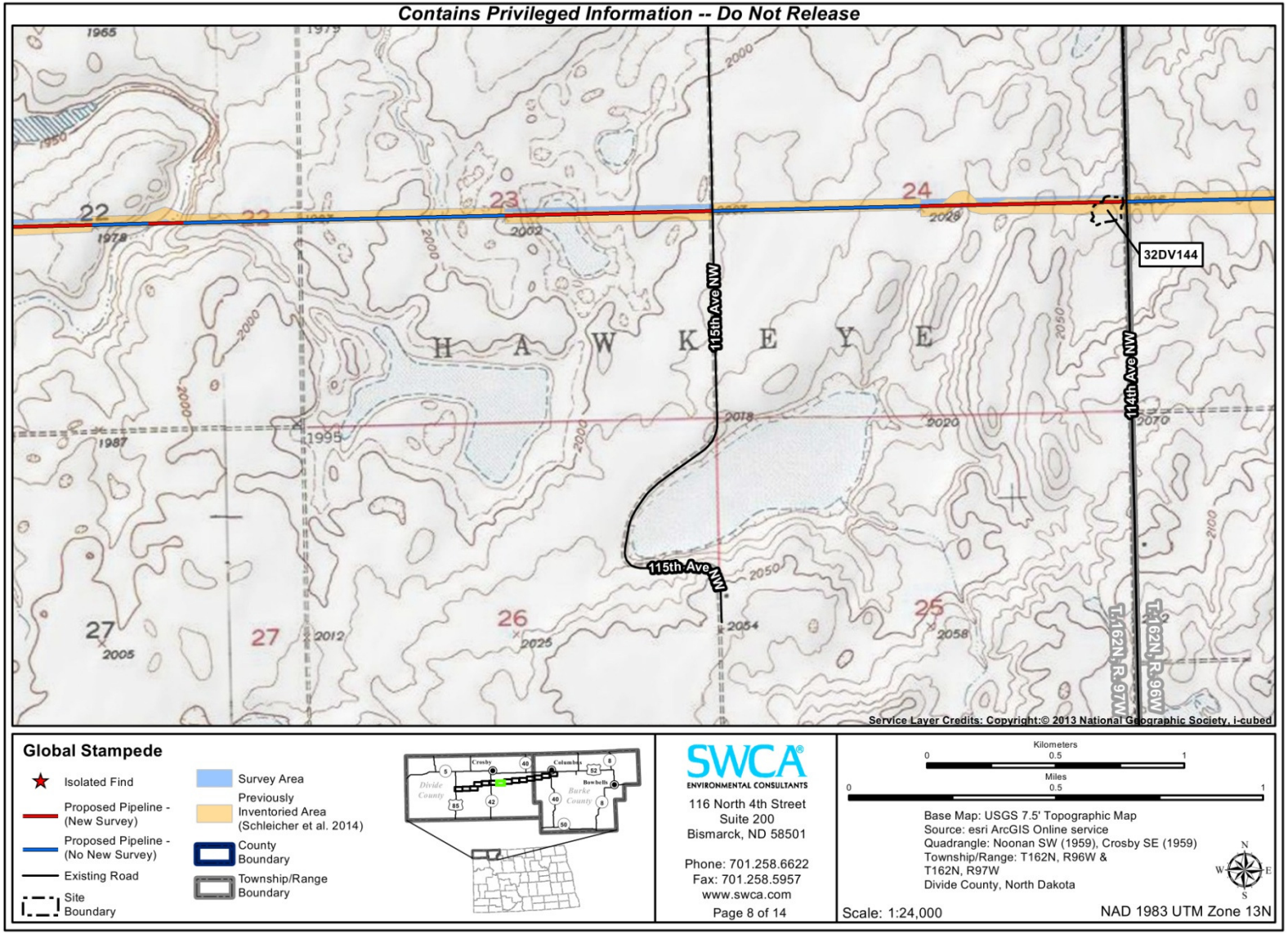
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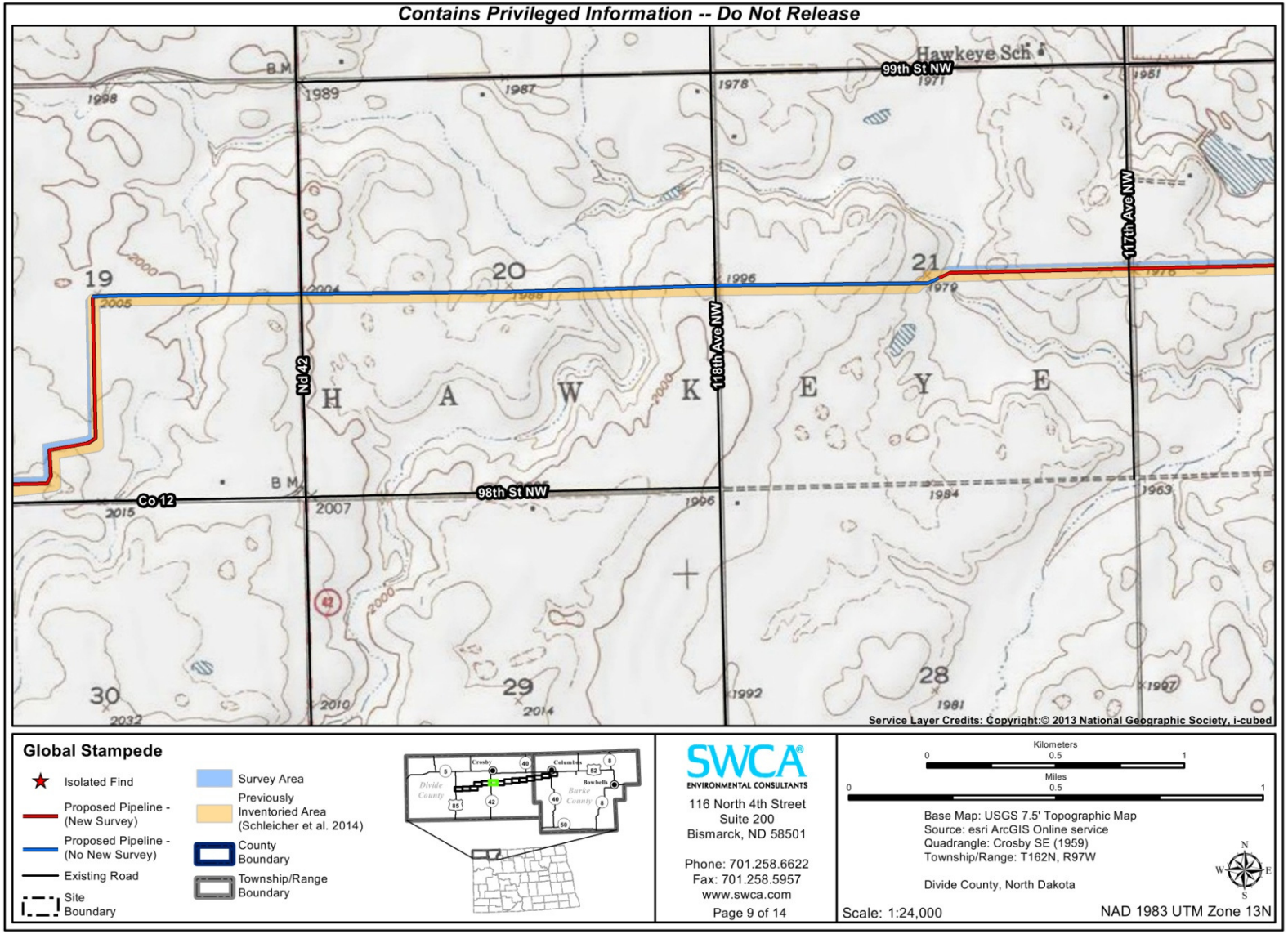
Resource location map at 1:24,000-scale, map 6 of 14.



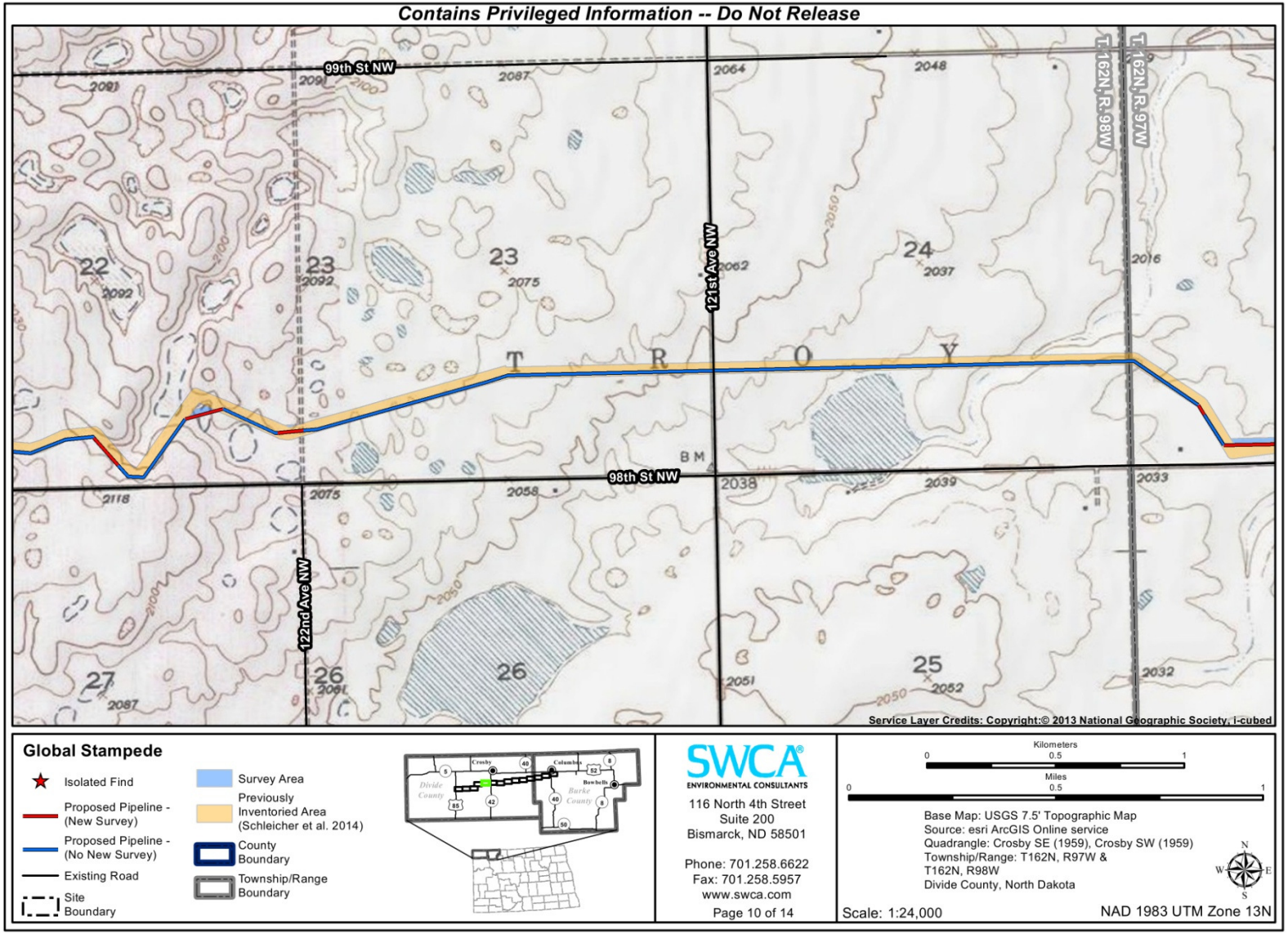
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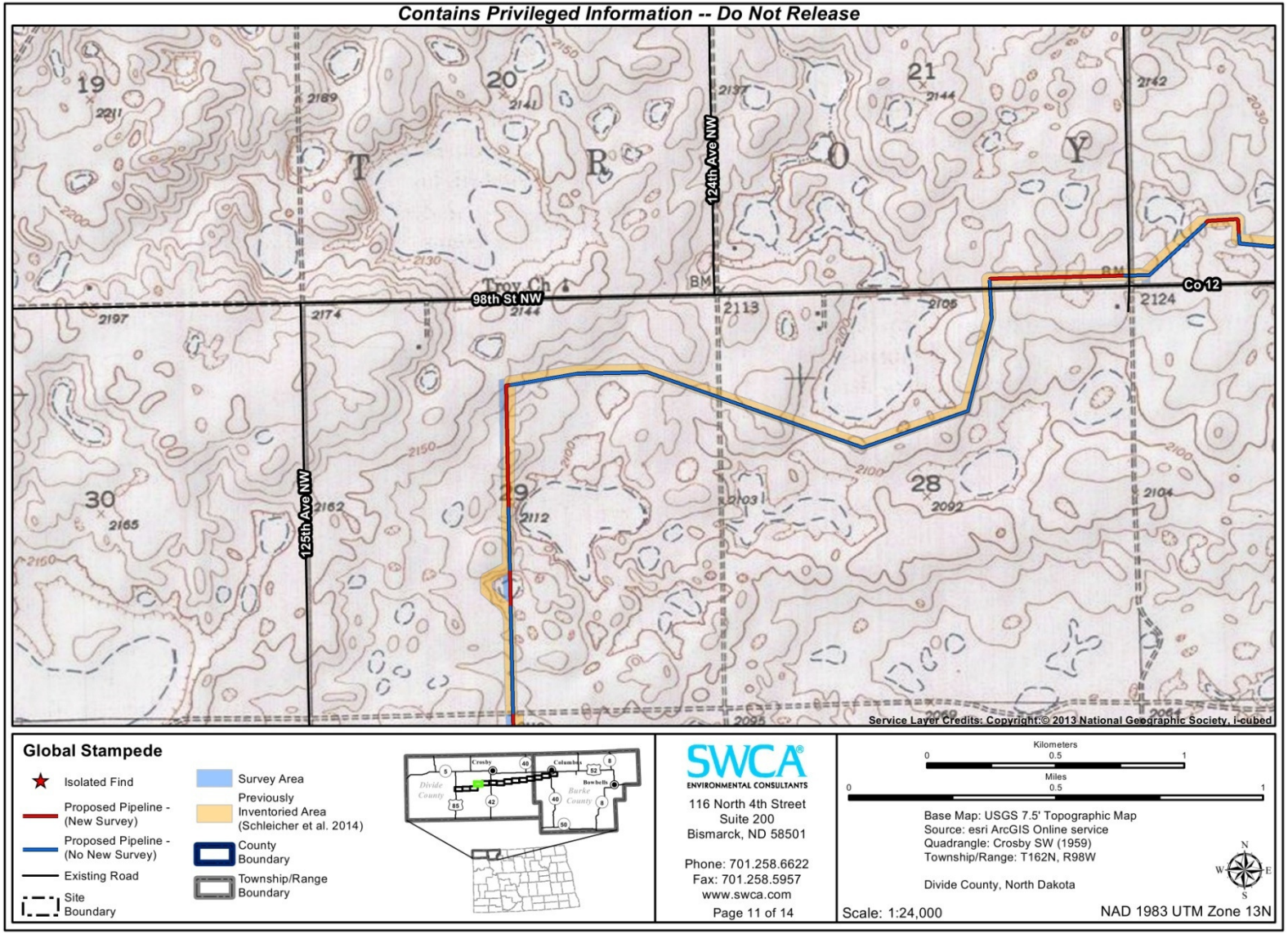
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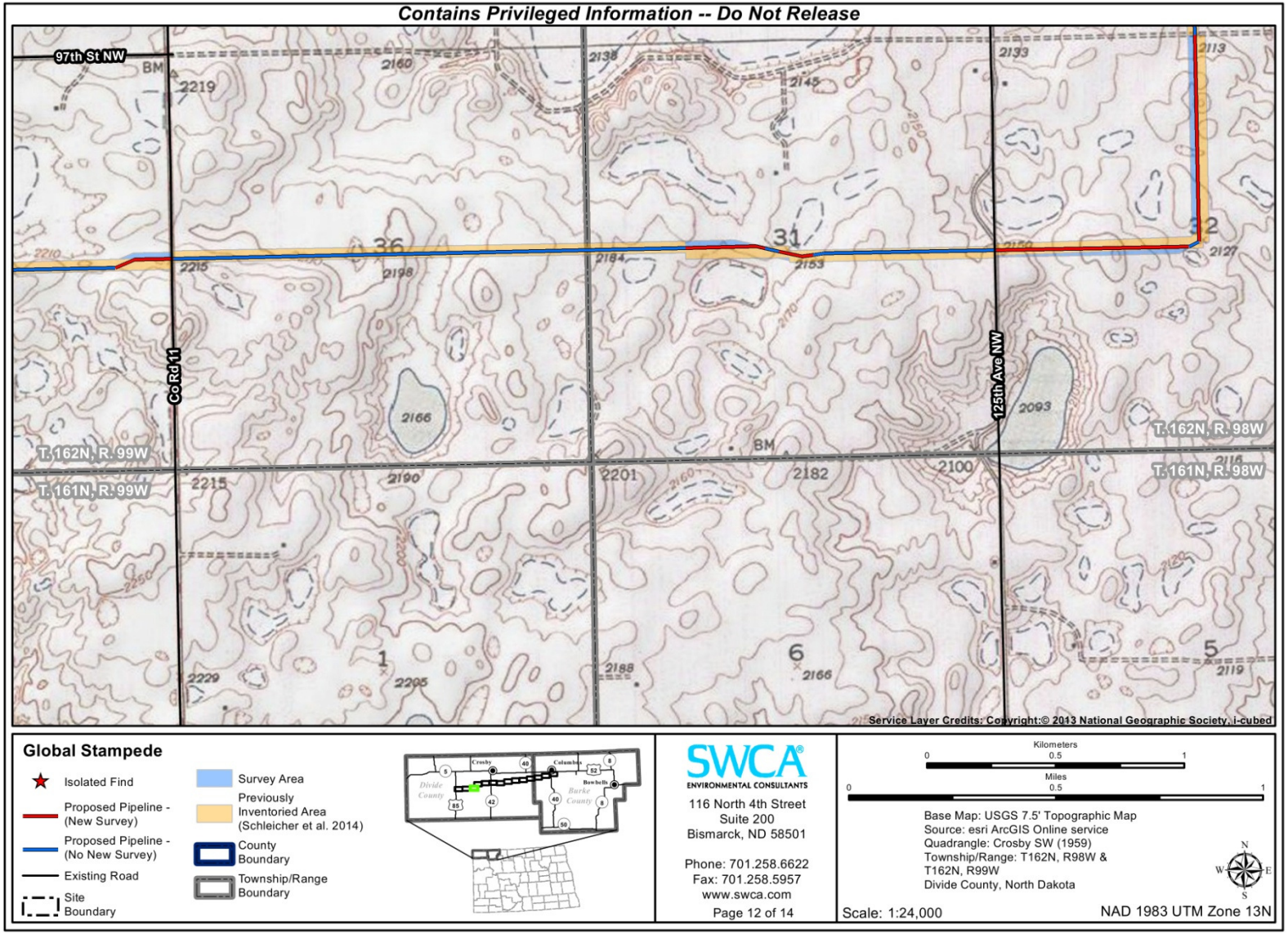
Resource location map at 1:24,000-scale, map 9 of 14.



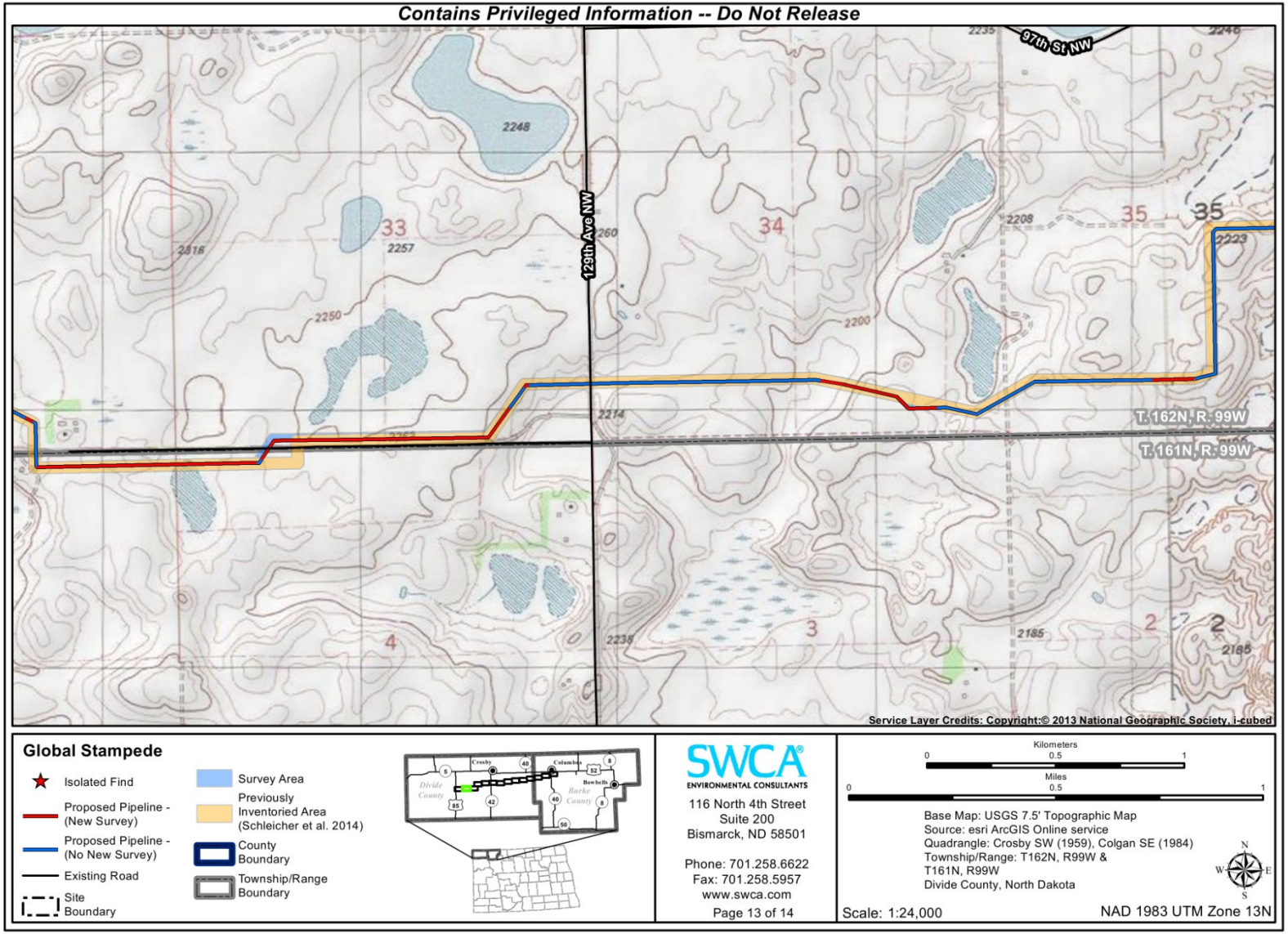
Resource location map at 1:24,000-scale, map 10 of 14.



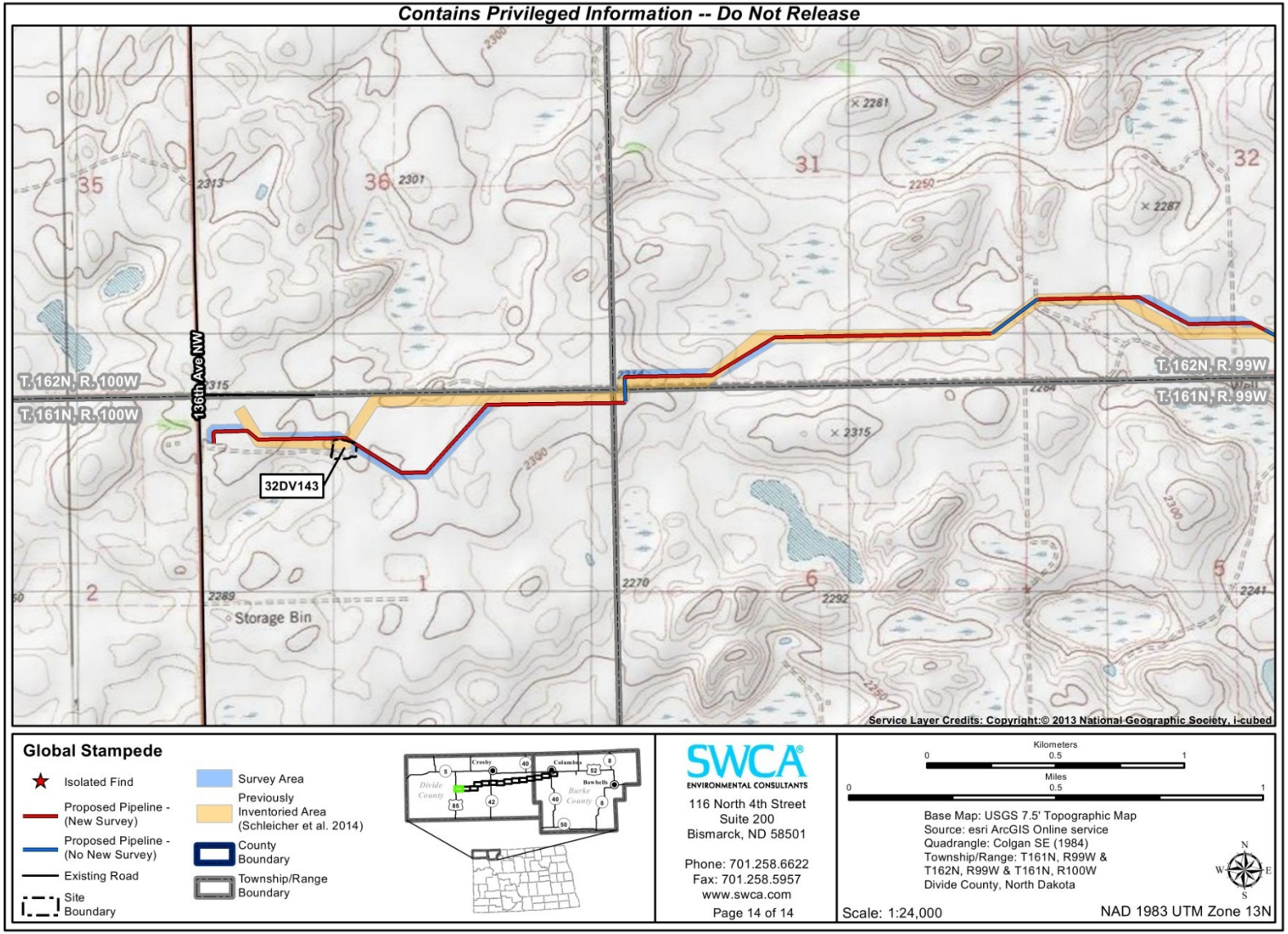
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Resource location map at 1:24,000-scale, map 12 of 14.



Resource location map at 1:24,000-scale, map 13 of 14.



Resource location map at 1:24,000-scale, map 14 of 14.

A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota

Prepared for

E3 Environmental, LLC

Prepared by

SWCA Environmental Consultants

July 2014

MANUSCRIPT DATA RECORD FORM

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7. Type – I, T, E, O: I

8. Acres: 869.68

9. Legal Location(s) (no quarter sections) with Historic Context Study Unit(s):
Consult the township tables in *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component*, (SHSND 2008; available online at http://history.nd.gov/hp/hpforms.html) for Study Unit assignments.
Study Units: LM, CB, KN, HE, SM, GA, JA, GR, NR, SR, SO, SH, YE

COUNTY	TWP	RNG	SEC	SU
Burke	162N	93W	3, 4, 7, 8, 9	SO
Burke	162N	94W	10, 11, 12, 15, 16, 17, 18	SO
Divide	162N	95W	13, 16, 17, 18, 19, 21, 22, 23, 24	SO
Divide	162N	96W	14, 15, 16, 19, 20, 21, 23, 24	SO
Divide	162N	97W	19, 20, 21, 22, 23, 24	SO
Divide	162N	98W	21, 22, 23, 24, 28, 29, 31, 32	SO
Divide	162N	99W	31, 32, 33, 34, 35, 36	SO
Divide	161N	99W	4, 5, 6	SO
Divide	161N	100W	1	GA

A Class I and Class III Cultural Resource Inventory of the Meadowlark Midstream Company Global Stampede Pipeline, Burke and Divide Counties, North Dakota

Submitted to:

State Historical Society of North Dakota

Prepared for:

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St. Paul, Minnesota 55114

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SWCA Cultural Resource Report No. 14-328

July 18, 2014

ABSTRACT

SWCA Environmental Consultants (SWCA) conducted a Class I and Class III cultural resource inventory on behalf of E3 Environmental, LLC (E3) for the Meadowlark Midstream Company Global Stampede pipeline project. This pipeline is approximately 46.1 miles long and is located on private lands in Burke and Divide Counties, North Dakota. The project is located in an area classified as the prairie pothole region, a region spanning from central Alberta, Canada, to north-central Iowa, which is characterized by numerous small depressional wetlands caused by glacial events (U.S. Geological Survey 2006).

E3 retained SWCA to complete a Class I and Class III cultural resource inventory for the proposed project area. The only regulatory agencies to be involved are 1) the North Dakota Public Service Commission under the North Dakota Energy Conversion and Transmission Facility Siting Act (excluding any applicable county or local requirements), and 2) the U.S. Army Corps of Engineers through Section 404 of the Clean Water Act, which regulates discharge into waters of the U.S. regulated by the U.S. Army Corps of Engineers. Therefore, SWCA's Class I and III inventory of the project area assists E3 in meeting the cultural resource requirements within the North Dakota Public Service Commission's Certificate of Corridor Compatibility and Route Permit application. Additionally, SWCA's inventory assisted E3 in achieving compliance with Section 404 of the Clean Water Act, including the Nationwide Permit General Conditions pertaining to Section 106 of the National Historic Preservation Act and the Endangered Species Act.

The proposed Global Stampede pipeline would be located on private land in 52 sections, spanning across Township (T) 162 North (N), Range (R) 93 West (W); T162N, R94W; T192N, R95W; T162N, R96W; T162N, R97W; T162N, R98W; T162N, R99W; T161N R99W; and T161N, R100W.

The Class I inventory was conducted on June 11, 2014, and the Class III inventory was conducted on June 16 through 19, 2014. The Class III survey area consisted of a 150-foot-wide survey corridor centered on the 46.1-mile-long proposed pipeline centerline. The survey corridor was widened in some places to allow for pipeline reroutes. In total, 869.68 acres were inventoried.

During the inventory, SWCA revisited the mapped locations of 10 previously recorded cultural resources (32BK12, 32BKX776, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX243, 32DVX244, 32DVX246, and 32DVX247) and newly recorded 14 cultural resources (32BK68, 32BK155, 32BK156, 32DV141, 32DV142, 32DV143, 32BK157, 32DV144, 32DV145, 32BKX1003, 32DVX432, 32BKX1004, 32DVX433, and 32DVX434). The previously recorded resources consist of a quarry/mine site (32BK12); and nine site leads of unknown cultural or temporal origin (32BKX776, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX243, 32DVX244, 32DVX246, and 32DVX247). All 10 previously recorded cultural resources remain unevaluated regarding their eligibility for the NRHP. Although attempts were made to relocate the site and site leads within the project area, after intensive examination, none were relocated during the current inventory; they may be located within the documented site boundary outside the project area. No further work is recommended for these resources. The newly recorded resources are all historic, and consist

of a newly recorded segment of a previously recorded railroad site (32BK68); two homestead and cultural material scatter sites (32BK155 and 32DV143); a building site (32DV142); five cultural material scatter sites (32BK156, 32BK157, 32DV141, 32DV144, and 32DV145); four farm equipment isolated finds (32BKX1003, 32BKX1004, 32DVX432, and 32DVX434); and one wagon isolated find (32DVX433).

The segment of 32BK68 is recommended as eligible for inclusion to the NRHP; therefore, SWCA recommends that all project impacts avoid the site by 50 feet through the use of a horizontal directional drill or bore. Boring the site will avoid the railroad grade. The remaining 13 newly recorded cultural resources are recommended not eligible for the NRHP; therefore, no further work is necessary.

With these stipulations, it is recommended that a determination of *No Significant Sites Affected* and *No Historic Properties Affected* be granted for the project to proceed as planned.

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INTRODUCTION

SWCA Environmental Consultants (SWCA) conducted a Class I and Class III cultural resource inventory on behalf of E3 Environmental, LLC (E3) for the Meadowlark Midstream Company Global Stampede pipeline project. This pipeline is approximately 46.1 miles long and is located on private lands in Burke and Divide Counties, North Dakota. The project is locate in an area classified as the prairie pothole region, a region spanning from central Alberta, Canada, to north-central Iowa, which is characterized by numerous small depressional wetlands caused by glacial events (U.S. Geological Survey [USGS] 2006).

The proposed Global Stampede pipeline would be located on private land in 52 sections, spanning across Township (T) 162 North (N), Range (R) 93 West (W); T162N, R94W; T192N, R95W; T162N, R96W; T162N, R97W; T162N, R98W; T162N, R99W; T161N R99W; and T161N, R100W. A full list of the legal locations is provided in Table 1. The inventoried area is located on the Colgan SE (1984), Crosby SW (1959), Crosby SE (1959), Noonan SW (1959), Noonan SE (1959), Columbus SW (1982), Columbus SE (1982), Columbus (1959), and Stampede (1959) USGS topographic quadrangles (Figures 1, 2a–2n). The northeastern portion of the proposed project area is approximately 1.88 miles southeast of the town of Columbus, North Dakota. Farther east, on the county line of Burke and Divide Counties, the town of Noonan is approximately 3.32 miles to the northwest. At the western extent of the proposed project area, the town of Fortuna is approximately 10.00 miles to the northwest.

E3 retained SWCA to complete a Class I and Class III cultural resource inventory for the proposed project area. The only regulatory agencies to be involved are 1) the North Dakota Public Service Commission (NDPSC) under the North Dakota Energy Conversion and Transmission Facility Siting Act (excluding any applicable county or local requirements), and 2) the U.S. Army Corps of Engineers (USACE) through Section 404 of the Clean Water Act (CWA), which regulates discharge into waters of the U.S. regulated by the USACE. Therefore, SWCA's Class I and III inventory of the project area assists E3 in meeting the cultural resource requirements within the NDPSC's Certificate of Corridor Compatibility and Route Permit application. Additionally, SWCA's inventory assisted E3 in achieving compliance with Section 404 of the CWA, including the Nationwide Permit General Conditions pertaining to Section 106 of the National Historic Preservation Act and the Endangered Species Act.

The Class III inventory was conducted for the Global Stampede pipeline on June 16 through 19, 2014. The survey corridor was 150 feet wide, centered on the proposed pipeline centerline. The survey corridor was widened in some areas to allow for pipeline reroutes. In total, 869.68 acres were inventoried for the project. The proposed construction corridor consists of a 110-foot-wide corridor right-of-way centered on the centerline.

For the cultural resource investigation, William Harding served as Principal Investigator. Fieldwork was conducted by Craig Picka, Scott Yost, Theresa Kilcullin, and Trey Dunagan (SWCA archaeologists). All field notes and photographs are on file at SWCA's Bismarck, North Dakota, office under project number 29469.

Table 1. Summary of Legal Locations for the Project Area

Township	Range	Section	Legal
162N	93W	3	SE¼ SW¼ SW¼, SW¼ SW¼ SW¼
		4	S½ SE¼ SE¼, S½ SW¼ SE¼
		7	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
		8	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
		9	N½ NE¼ NW¼, N½ NW¼ NW¼
32162N	94W	10	W½ NW¼ NE¼, W½ SW¼ NE¼, W½ NW¼ SE¼, W½ SW¼ SE¼
		11	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
		12	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
		15	N½ N½ NW¼
		16	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
		17	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
		18	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
162N	95W	13	N½ NE¼ NE¼, N½ NW¼ NE¼, NE¼ NE¼ NW¼, SE¼ NE¼ NW¼, SE¼ NE¼ SW¼, W½ SE¼ SW¼, SE¼ SW¼ SW¼, SW¼ SW¼ SW¼
		16	S½ SE¼ SE¼, S½ SW¼ SE¼, S½ SE¼ SW¼, S½ SW¼ SW¼
		17	S½ SE¼ SE¼, S½ SW¼ SE¼, S½ SE¼ SW¼, S½ SW¼ SW¼
		18	S½ SE¼ SE¼, S½ SW¼ SE¼, S½ SE¼ SW¼, S½ SW¼ SW¼
		19	N½ NW¼ NW¼
		21	NE¼ NE¼ NE¼
		22	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
		23	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
		24	NW¼ NW¼ NW¼
162N	96W	14	S½ SE¼ SW¼, S½ SW¼ SW¼
		15	S½ SE¼ SE¼, S½ SW¼ SE¼, S½ SE¼ SW¼, S½ SW¼ SW¼
		16	S½ SE¼ SE¼, S½ SW¼ SE¼, S½ SE¼ SW¼
		19	E½ NE¼ NW¼, E½ SE¼ NW¼ ,SW¼ SE¼ NW¼, S½ SW¼ NW¼
		20	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼
		21	N½ NE¼ NW¼, N½ NW¼ NW¼
		23	N½ NE¼ NE¼, N½ NW¼ NE¼
		24	N½ NE¼ NE¼, N½ NW¼ NE¼, N½ NE¼ NW¼, N½ NW¼ NW¼

Township	Range	Section	Legal
162N	97W	19	SW¼ NW¼ SW¼, NE¼ SW¼ SW¼, SW¼ SE¼ SW¼, SW¼ NE¼ SW¼, SE¼ NE¼ SW¼, E½ NE¼ SW¼, N½ NW¼ SE ¼, N½ NE¼ SE¼
		20	N½ NE¼ SW¼, N½ NW¼ SE¼, N½ NW¼ SE¼, N½ NE¼ SW¼
		21	N½ NE¼ SW¼, N½ NW¼ SE¼, S½ SW¼ NE¼ , S½ SE¼ NE¼
		22	N½ NE¼ SW¼, N½ NW¼ SE¼, N½ NW¼ SE¼, N½ NE¼ SW¼
		23	N½ NE¼ SW¼, N½ NW¼ SE¼, N½ NW¼ SE¼, N½ NE¼ SW¼
		24	N½ NE¼ SW¼, N½ NW¼ SE¼, N½ NW¼ SE¼, N½ NE¼ SW¼
162N	98W	21	S½ SE¼ SE¼, SE¼ SW¼ SE¼
		22	SE¼ SE¼ SE¼, NW¼ SE¼ SE¼, NE¼ SW¼ SE¼, SE¼ SW¼ SE¼, SW¼ SW¼ SE¼, S½ SE¼ SW¼, S½ SW¼ SW¼
		23	N½ SE¼ SE¼, N½ SW¼ SE¼, N½ SE¼ SW¼, S½ SW¼ SW¼
		24	N½ SE¼ SE¼, N½ SW¼ SE¼, N½ SE¼ SW¼, N½ SW¼ SW¼
		28	E½ NW¼ NE¼, NW¼ SW¼ NE¼, N½ SE¼ NW¼, N½ SW¼ NW¼
		29	SE¼ NE¼ NW¼, E½ SE¼ NW¼, E½ NE¼ SW¼, E½ SW¼ SW¼
		31	N½ NE¼ SE¼, N½ NW¼ SE¼, N½ NE¼ SW¼, N½ NW¼ SW¼
		32	E½ NE¼ NW¼, E½ SW¼ NW¼, N½ NE¼ SW¼, N½ NW¼ SW¼
162N	99W	31	S½ SW¼ SW¼, SW¼ SE¼ SW¼, NE¼ SE¼ SW¼, N½ SW¼ SE¼, N½ SE¼ SE¼
		32	N½ SW¼ SW¼, NW¼ SE¼ SW¼, SW¼ SE¼ SW¼, S½ SW¼ SE¼, S½ SE¼ SE¼
		33	S½ SW¼ SW¼, S½ SE¼ SW¼, S½ SW¼ SE¼, W½ SE¼ SE¼, NE¼ SE¼ SE¼
		34	N½ SW¼ SW¼, N½ SE¼ SW¼, NW¼ SW¼ SE¼, SE¼ SW¼ SE¼, S½ SE¼ SE¼
		35	S½ SW¼ SW¼, S½ SE¼ SW¼, NW¼ SE¼ SW¼, W½ NW¼ SE¼, N½ NW¼ SE¼ N½ NE¼ SW¼
		36	S½ SW¼ NW¼, S½ SE¼ NW¼, S½ SW¼ NE¼, S½ SE¼ NE¼
161N	99W	4	N½ NW¼ NW¼, NW¼ NE¼ NW¼
		5	N½ NE¼ NE¼, NE¼ NW¼ NE¼
		9	NW¼ NW¼ NW¼
161N	100W	1	N½ NW¼ NW¼, N½ NE¼ NW¼, N½ NW¼ NE¼, N½ NE¼ NE¼

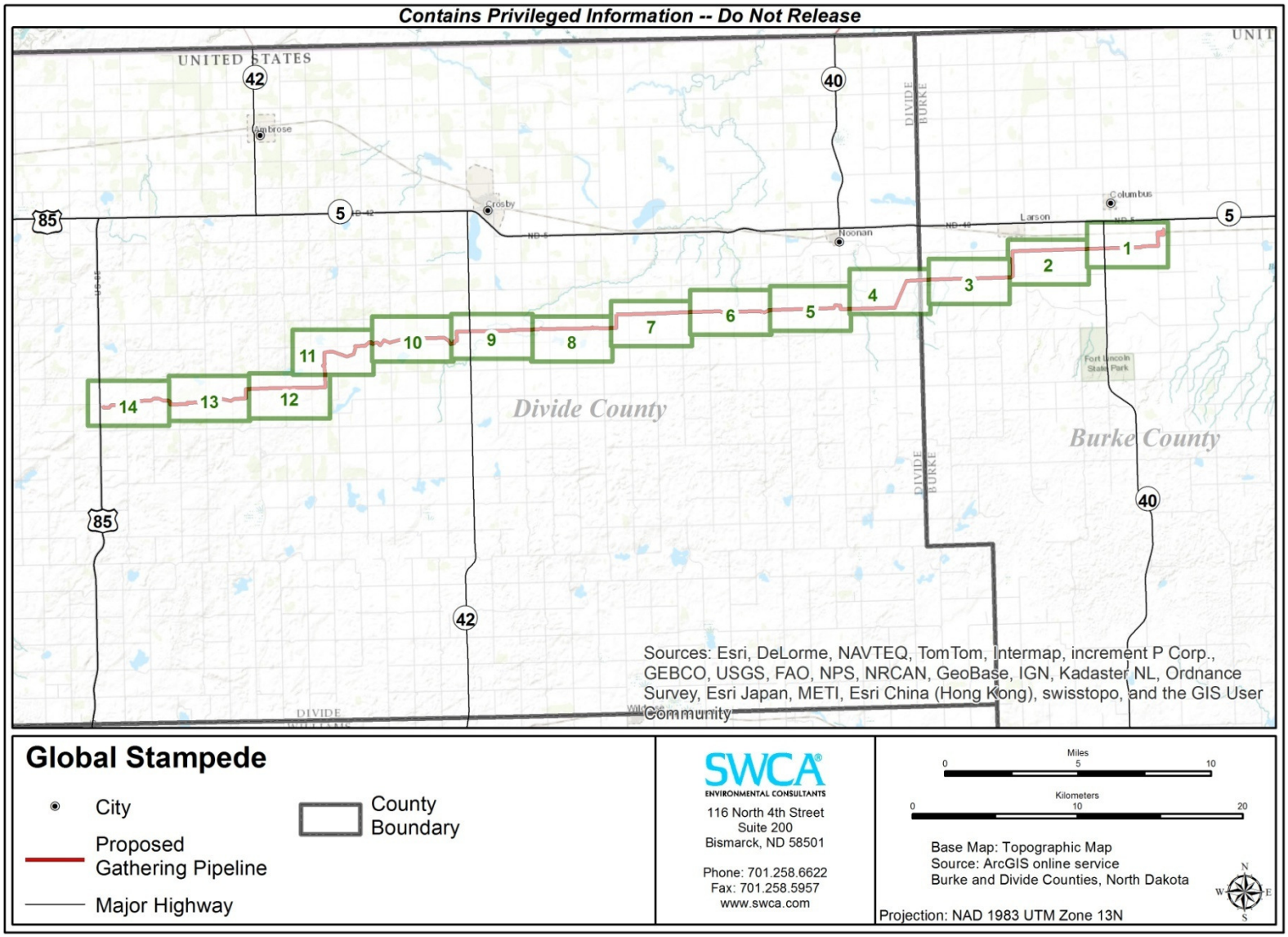


Figure 1. Project area overview map.

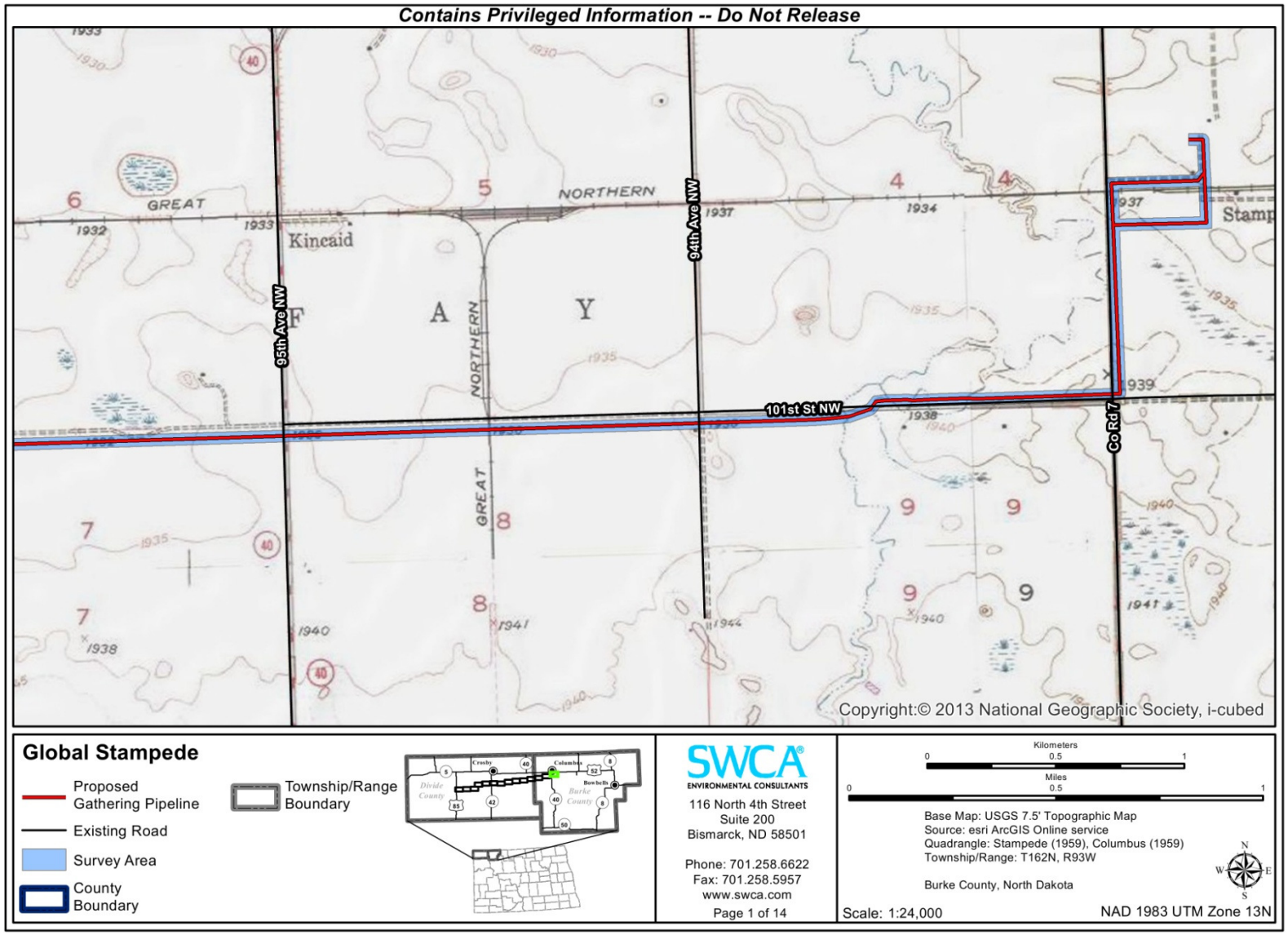


Figure 2a. Project area map 1 of 14 at 1:24,000-scale.

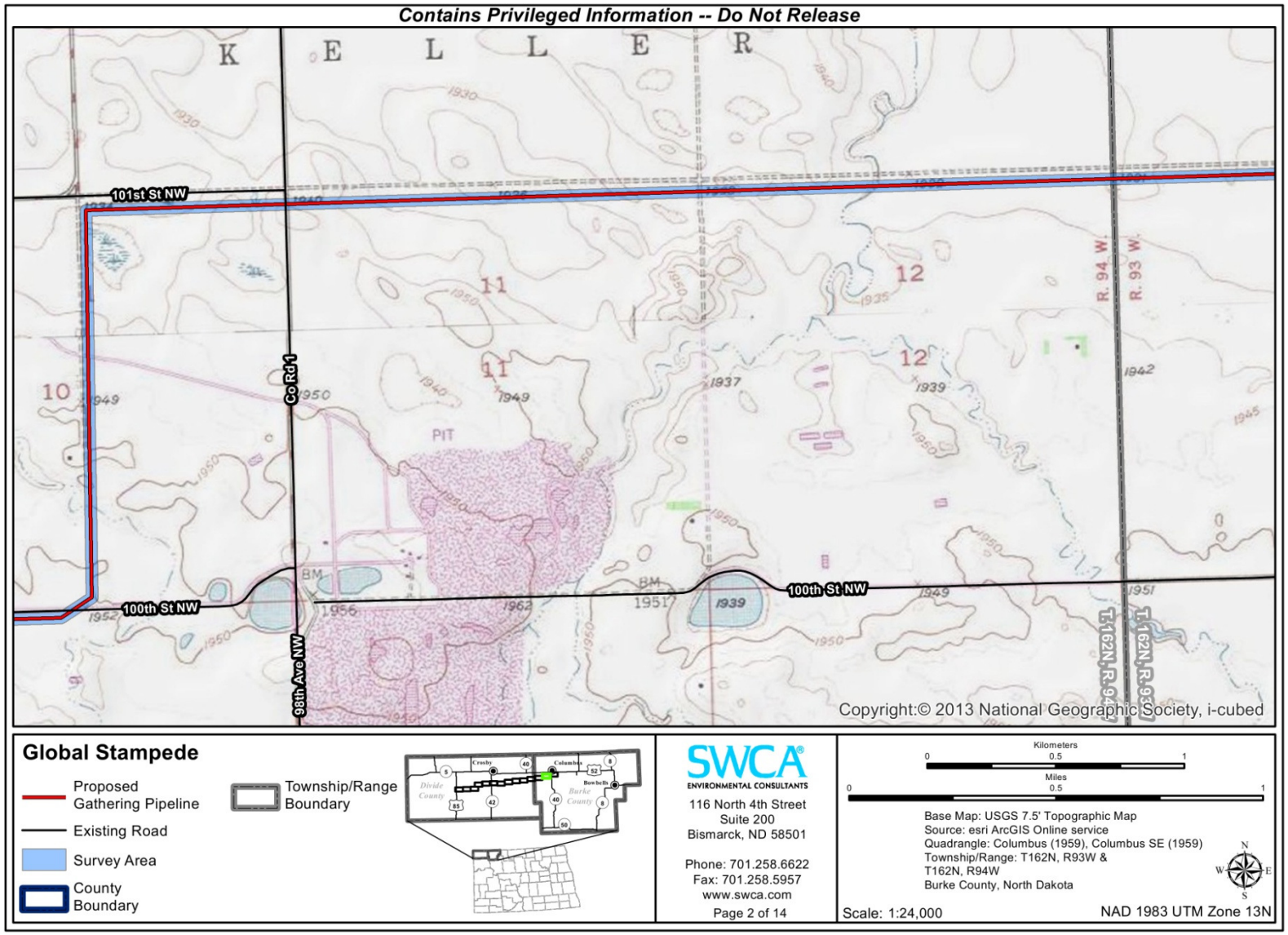


Figure 2b. Project area map 2 of 14 at 1:24,000-scale.

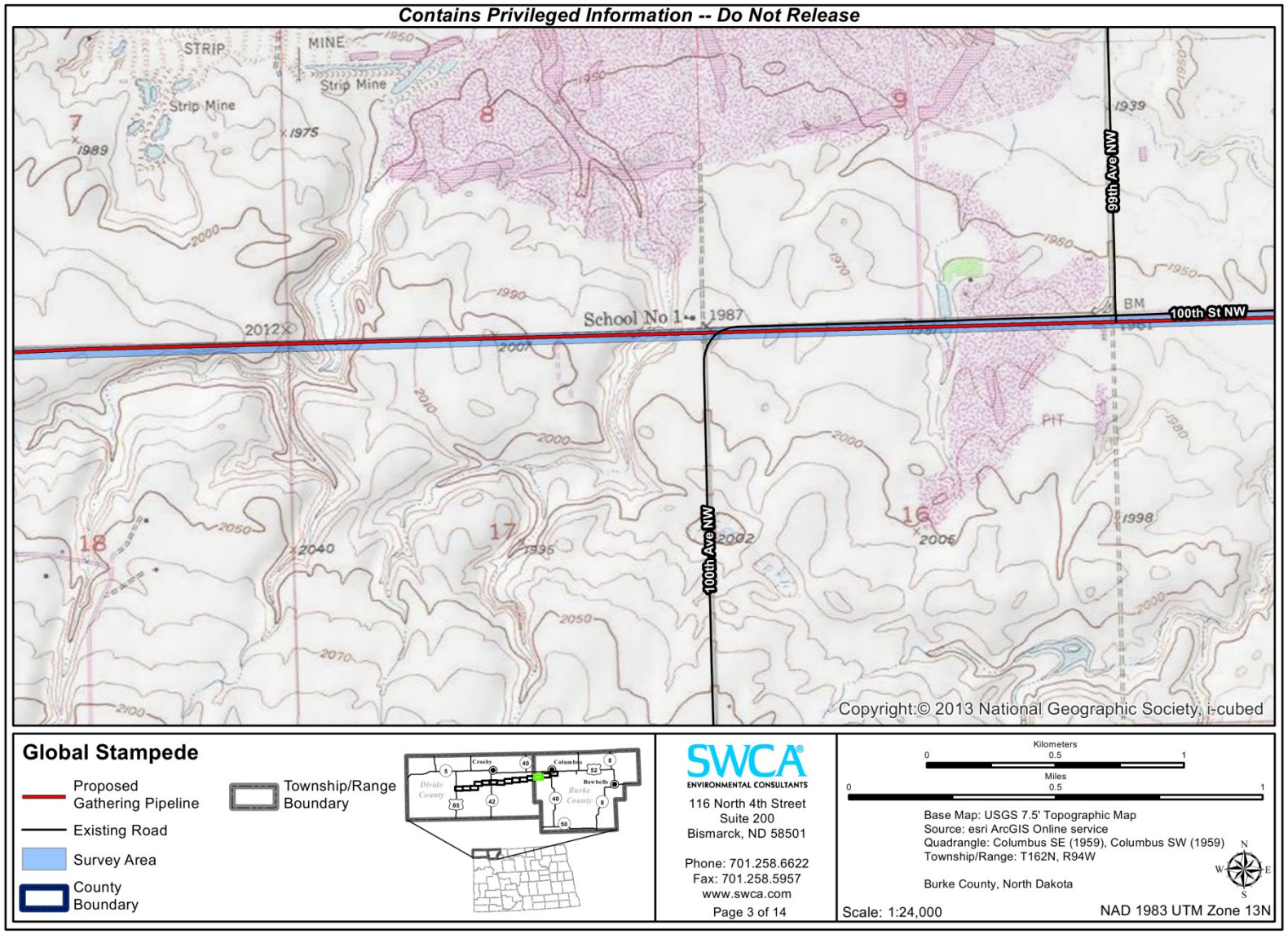


Figure 2c. Project area map 3 of 14 at 1:24,000-scale.

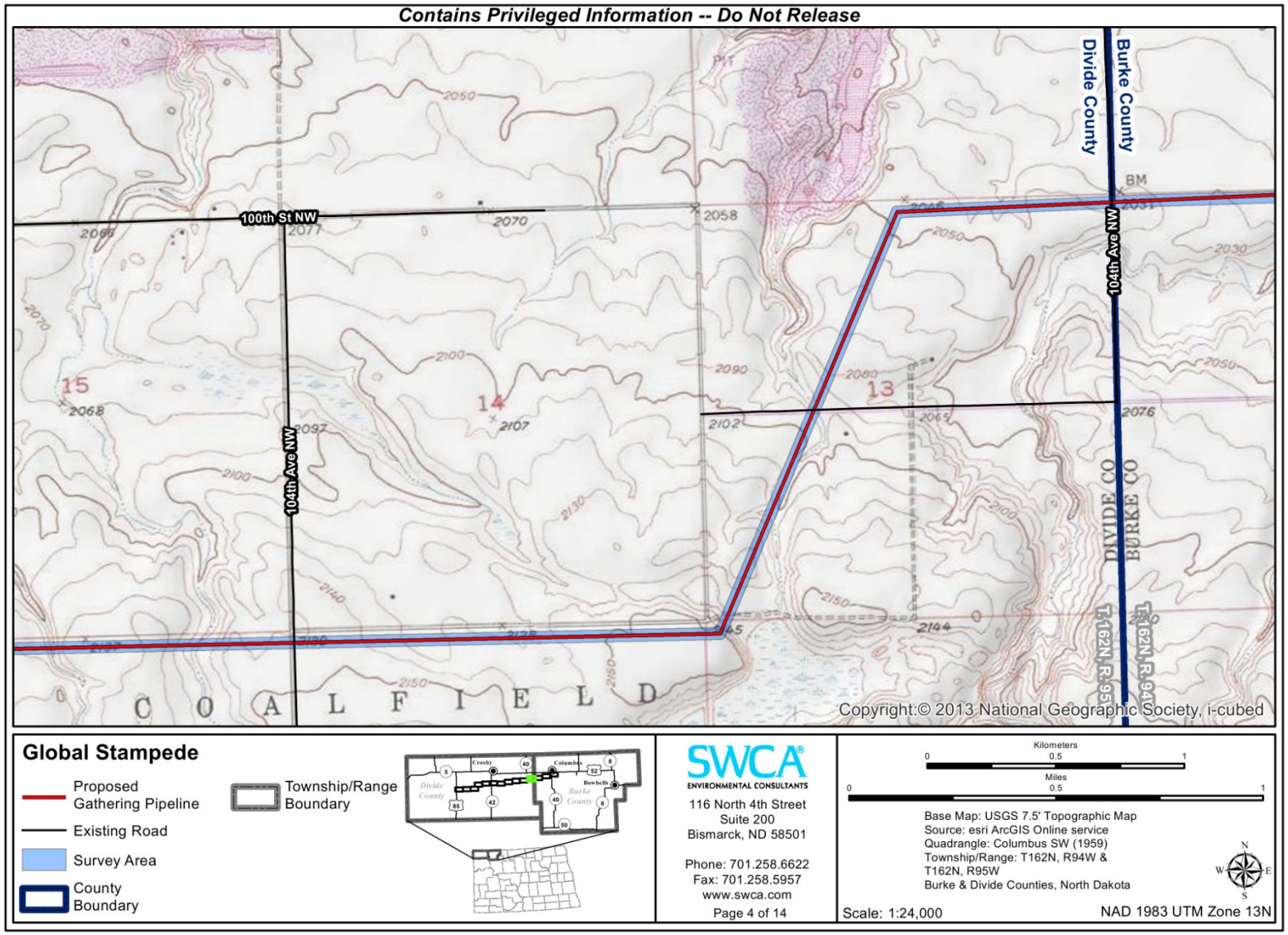


Figure 2d. Project area map 4 of 14 at 1:24,000-scale.

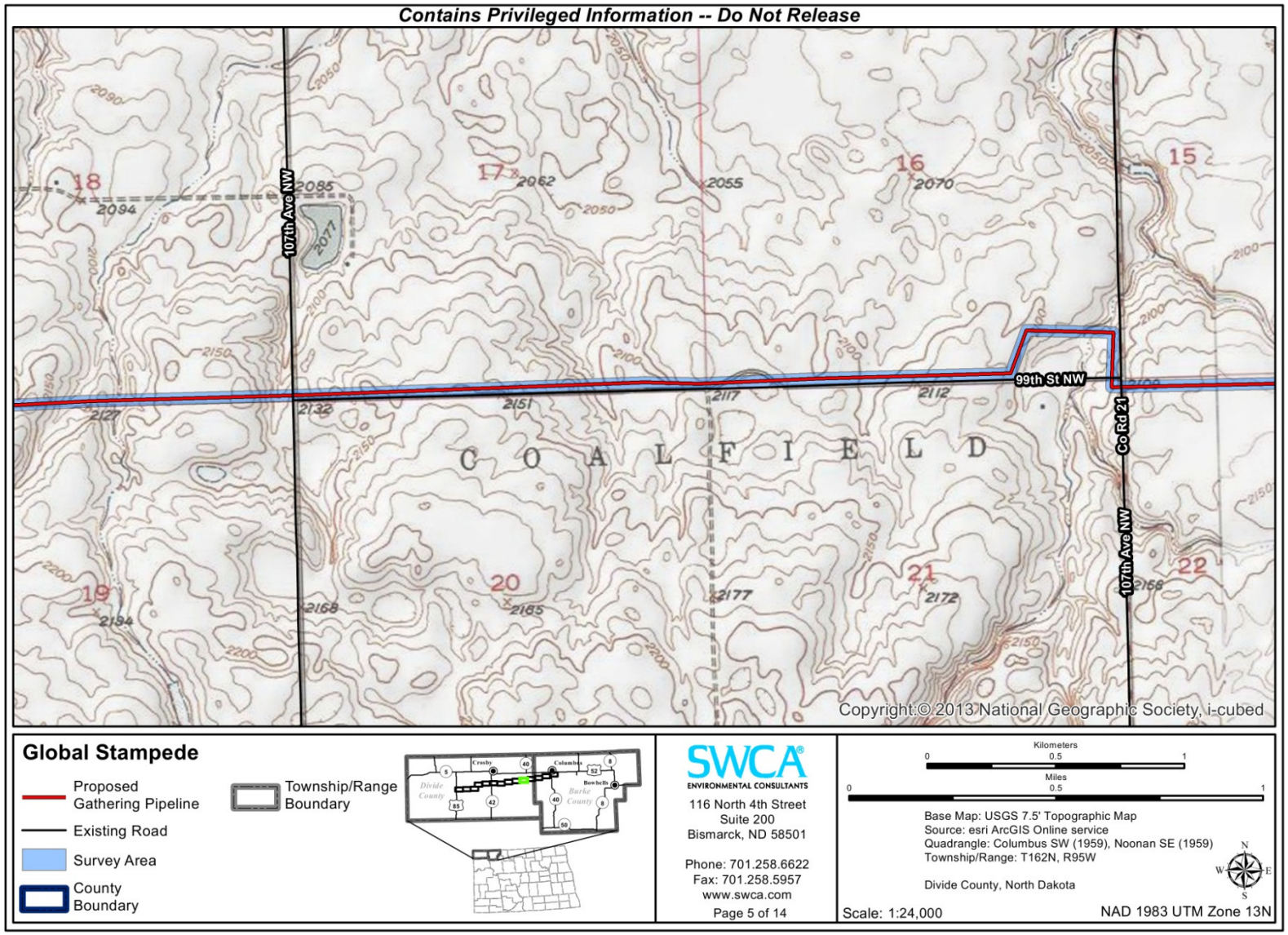


Figure 2e. Project area map 5 of 14 at 1:24,000-scale.

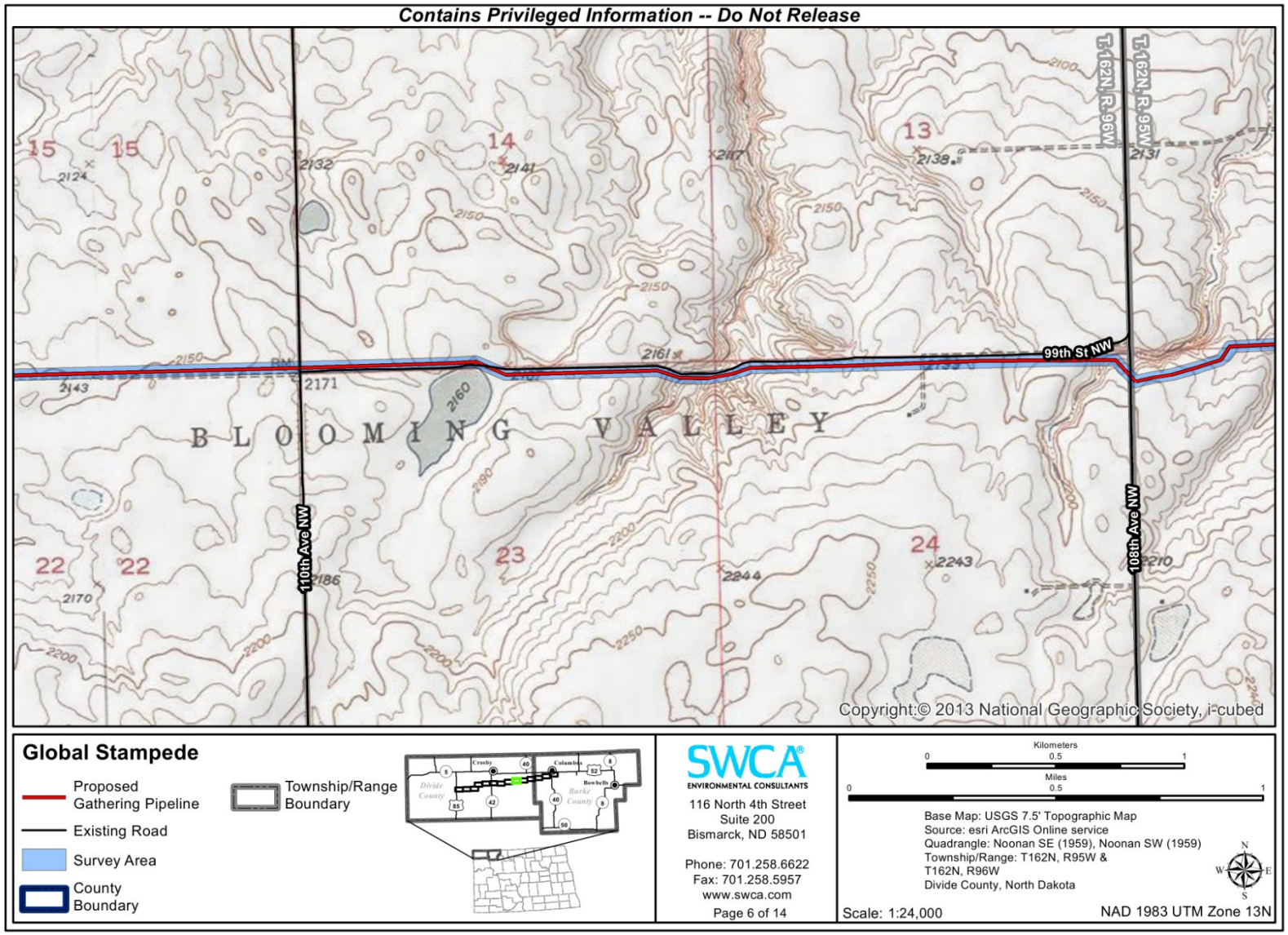


Figure 2f. Project area map 6 of 14 at 1:24,000-scale.

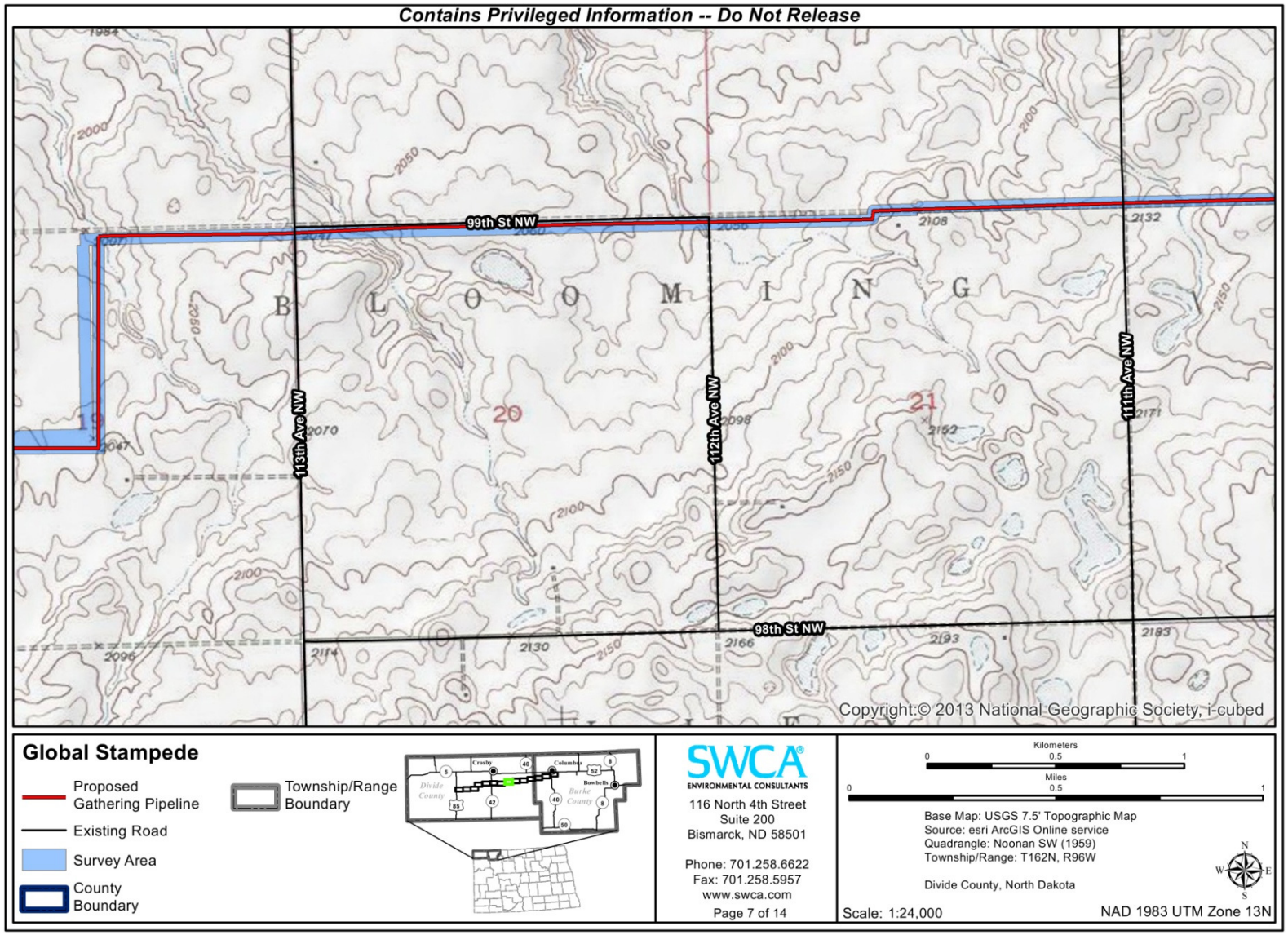


Figure 2g. Project area map 7 of 14 at 1:24,000-scale.

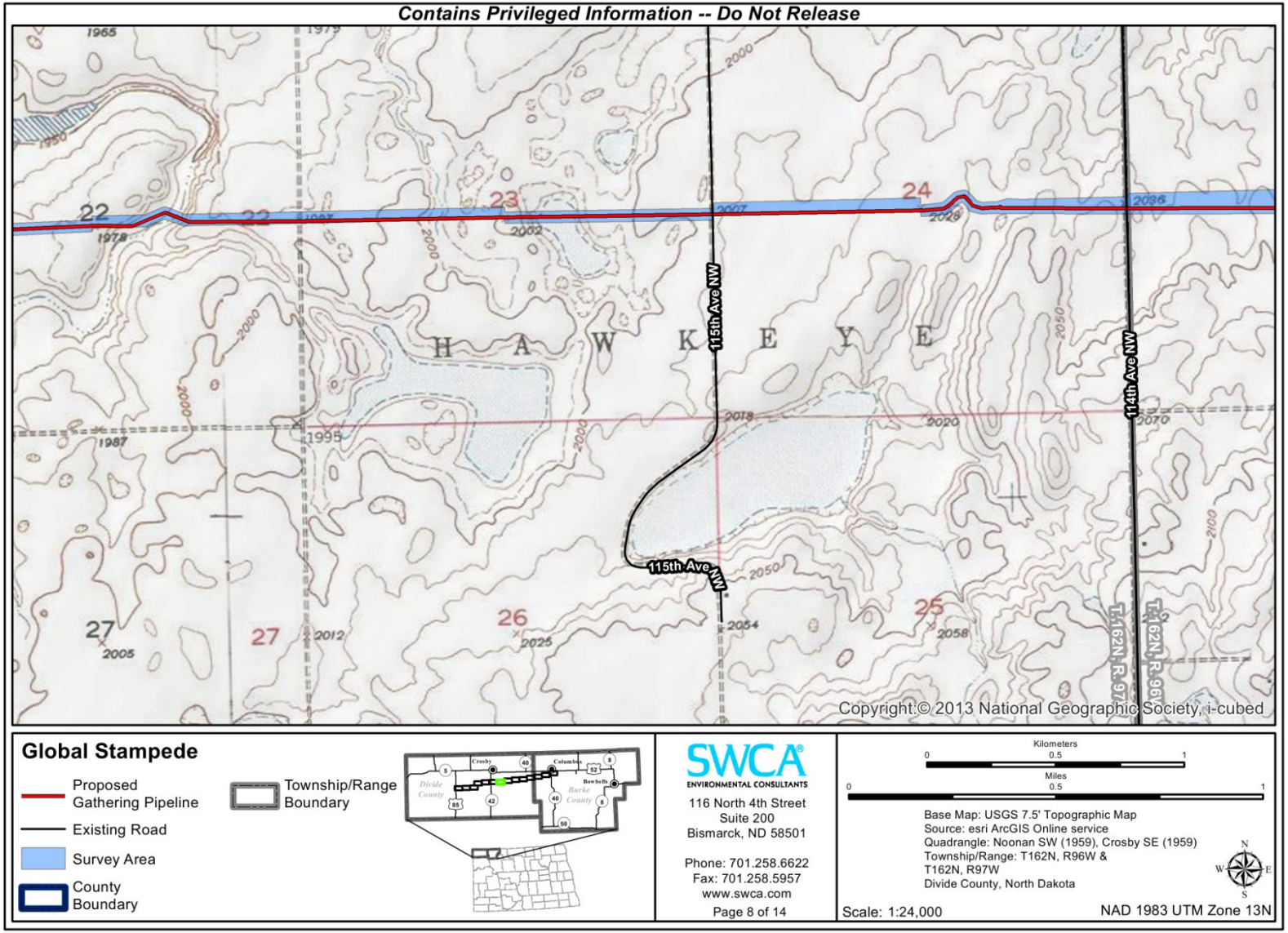


Figure 2h. Project area map 8 of 14 at 1:24,000-scale.

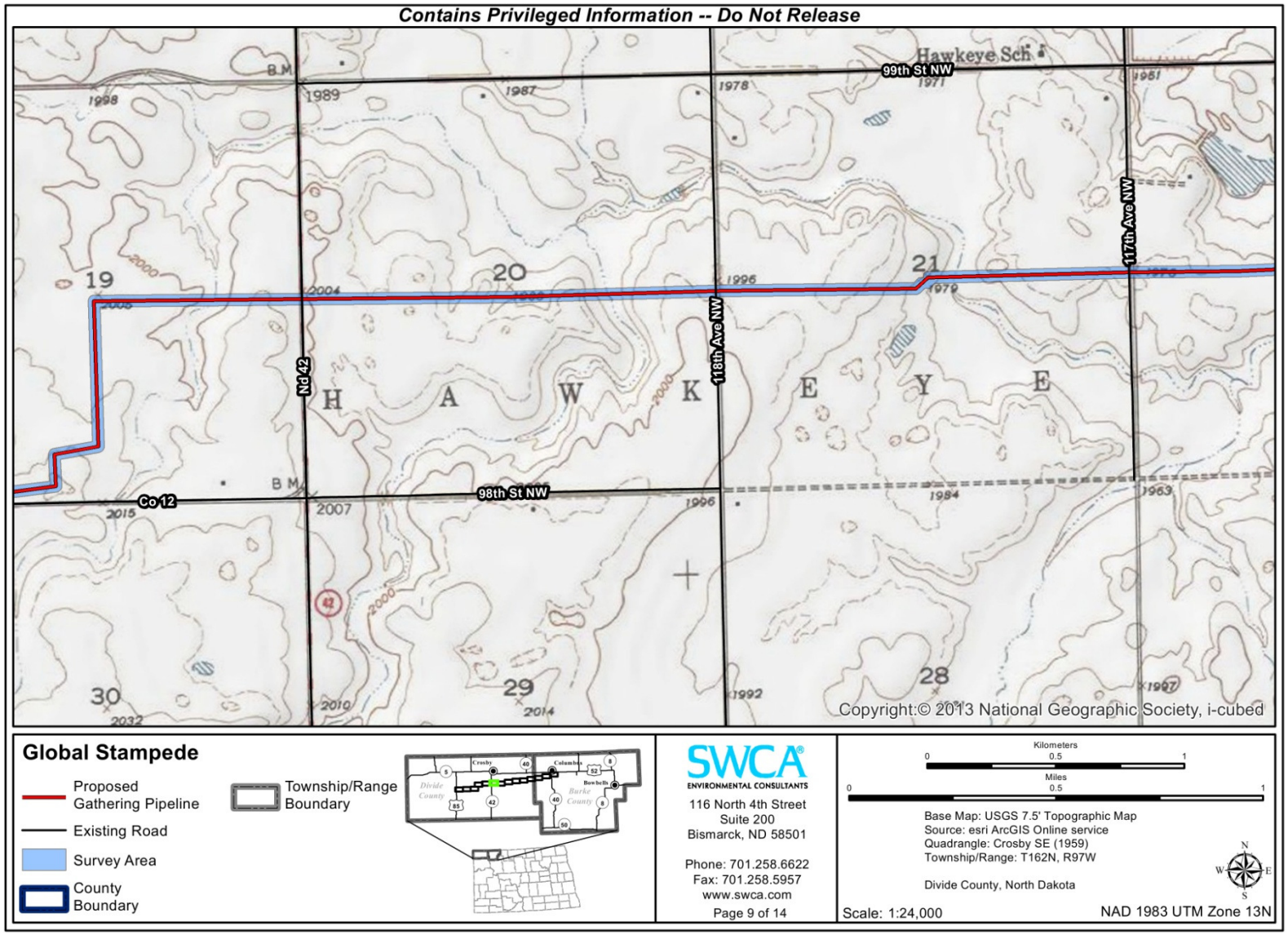


Figure 2i. Project area map 9 of 14 at 1:24,000-scale.

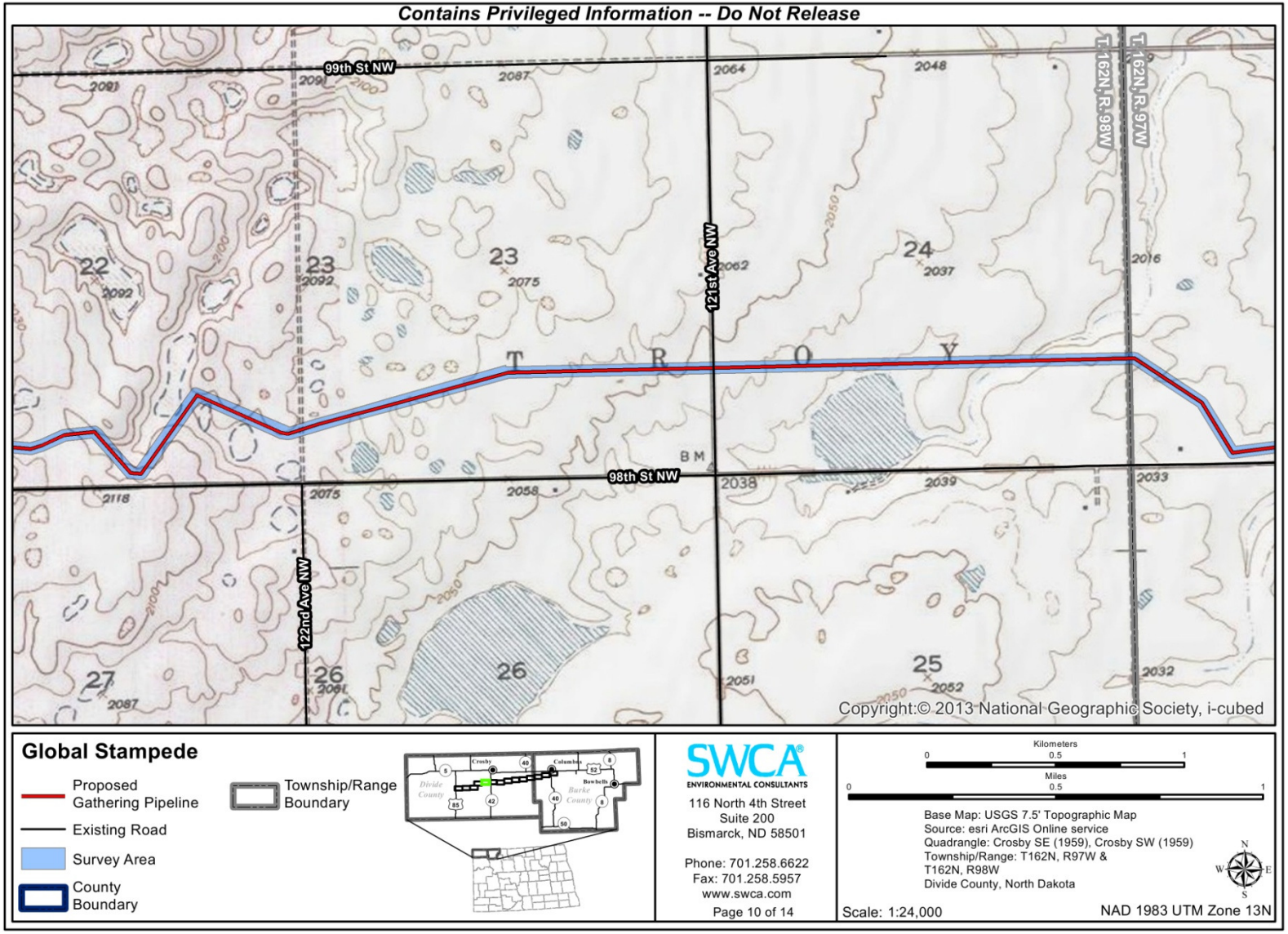


Figure 2j. Project area map 10 of 14 at 1:24,000-scale.

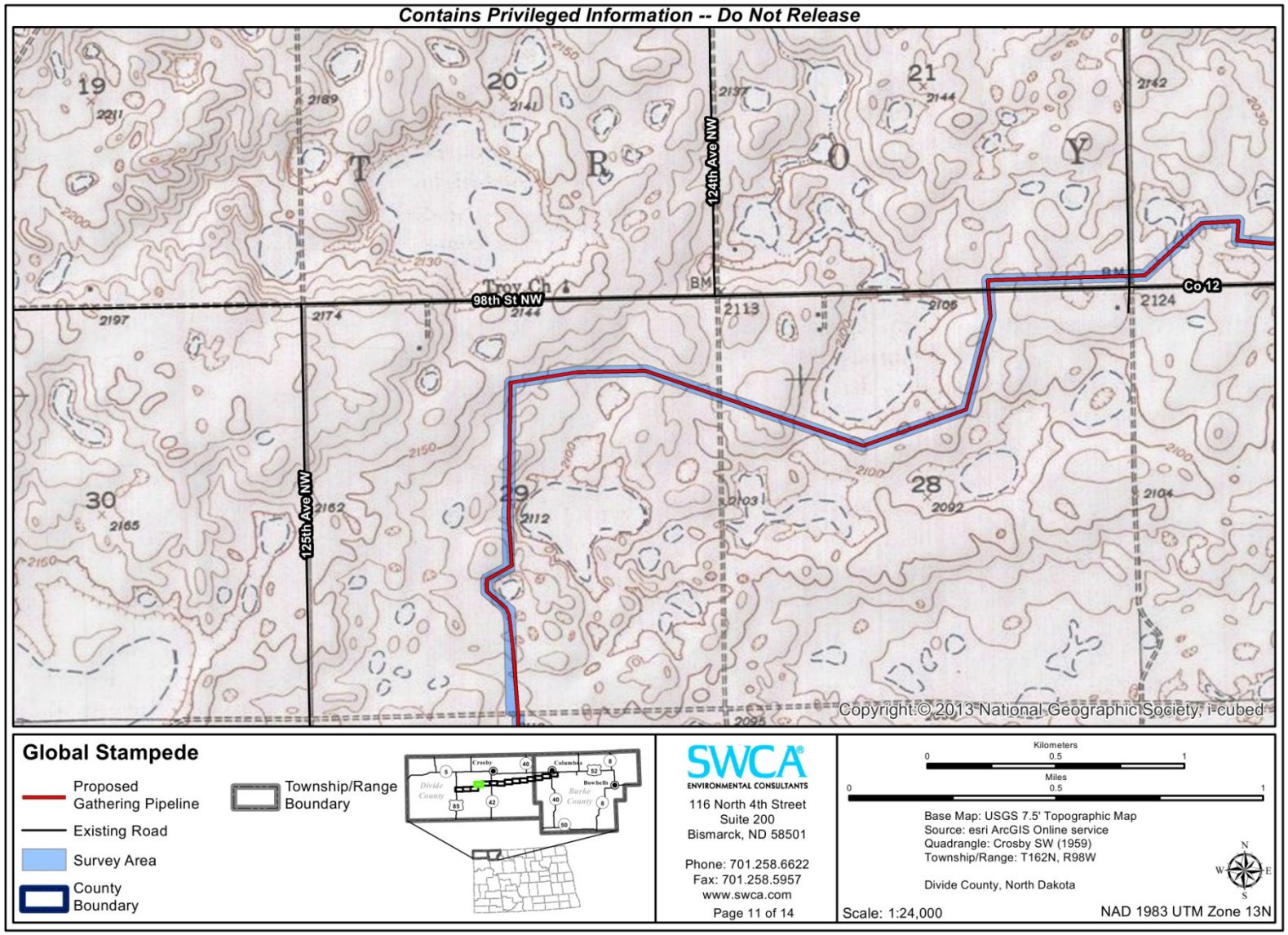


Figure 2k. Project area map 11 of 14 at 1:24,000-scale.

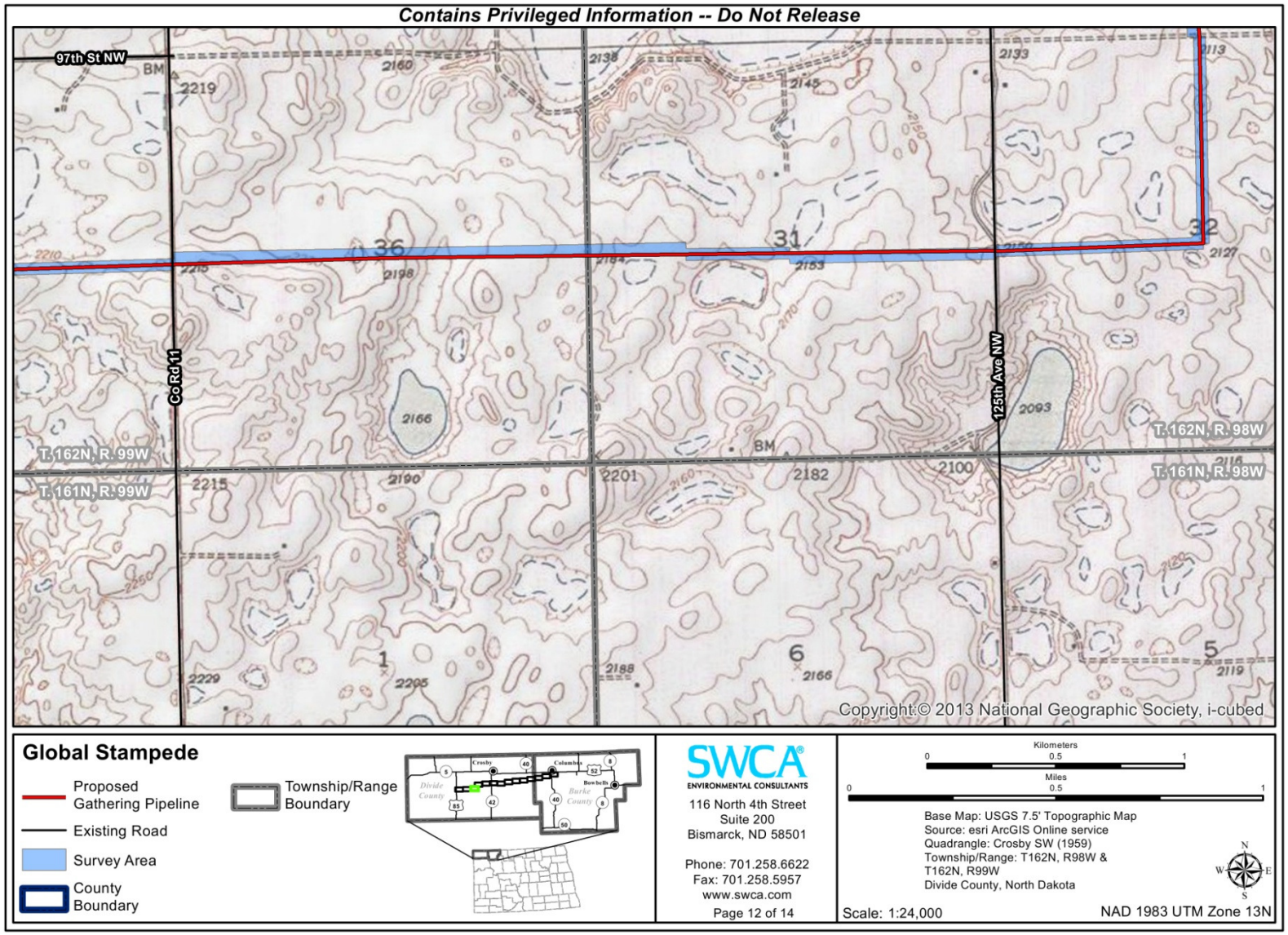


Figure 2l. Project area map 12 of 14 at 1:24,000-scale.

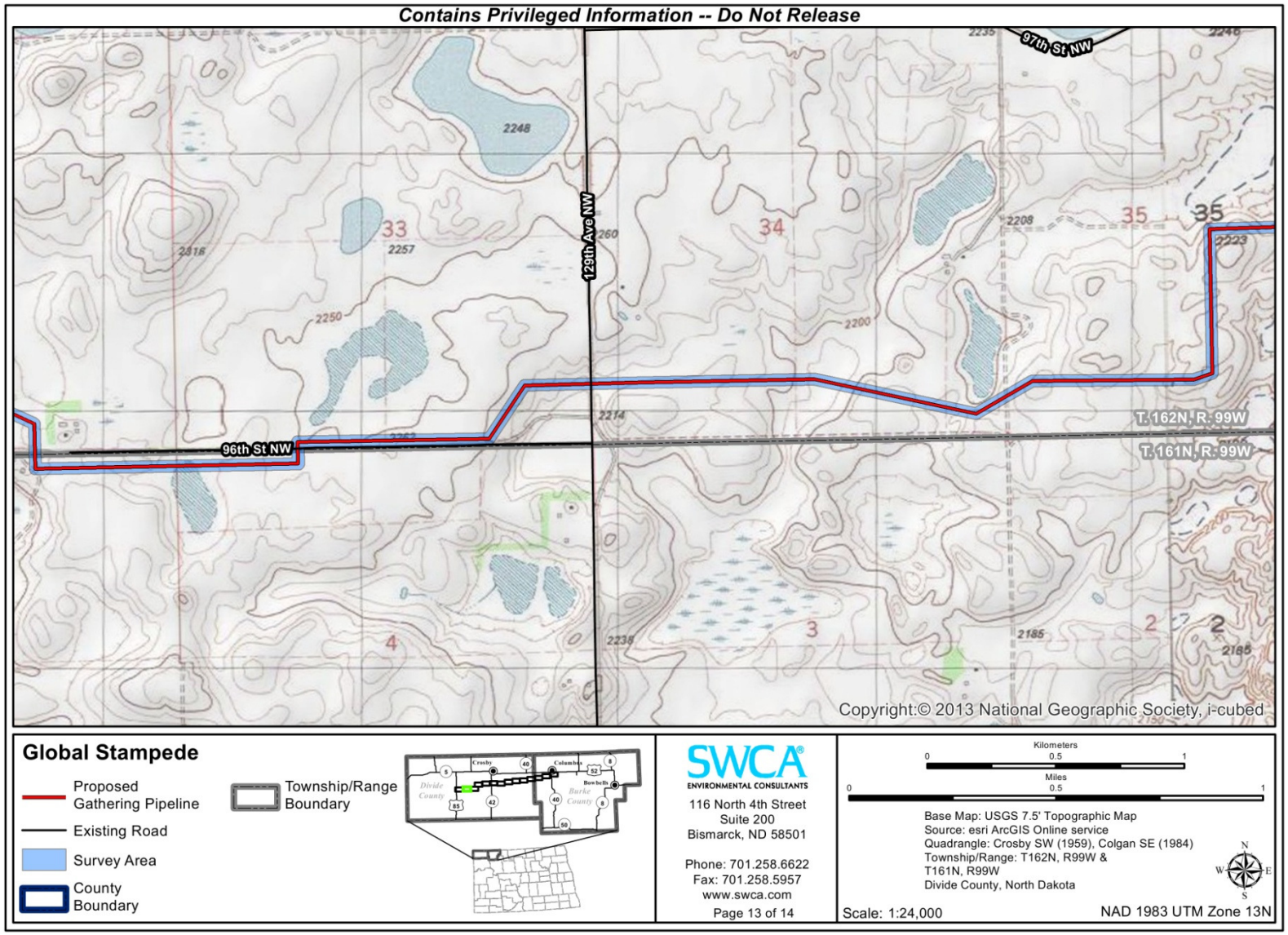


Figure 2m. Project area map 13 of 14 at 1:24,000-scale.

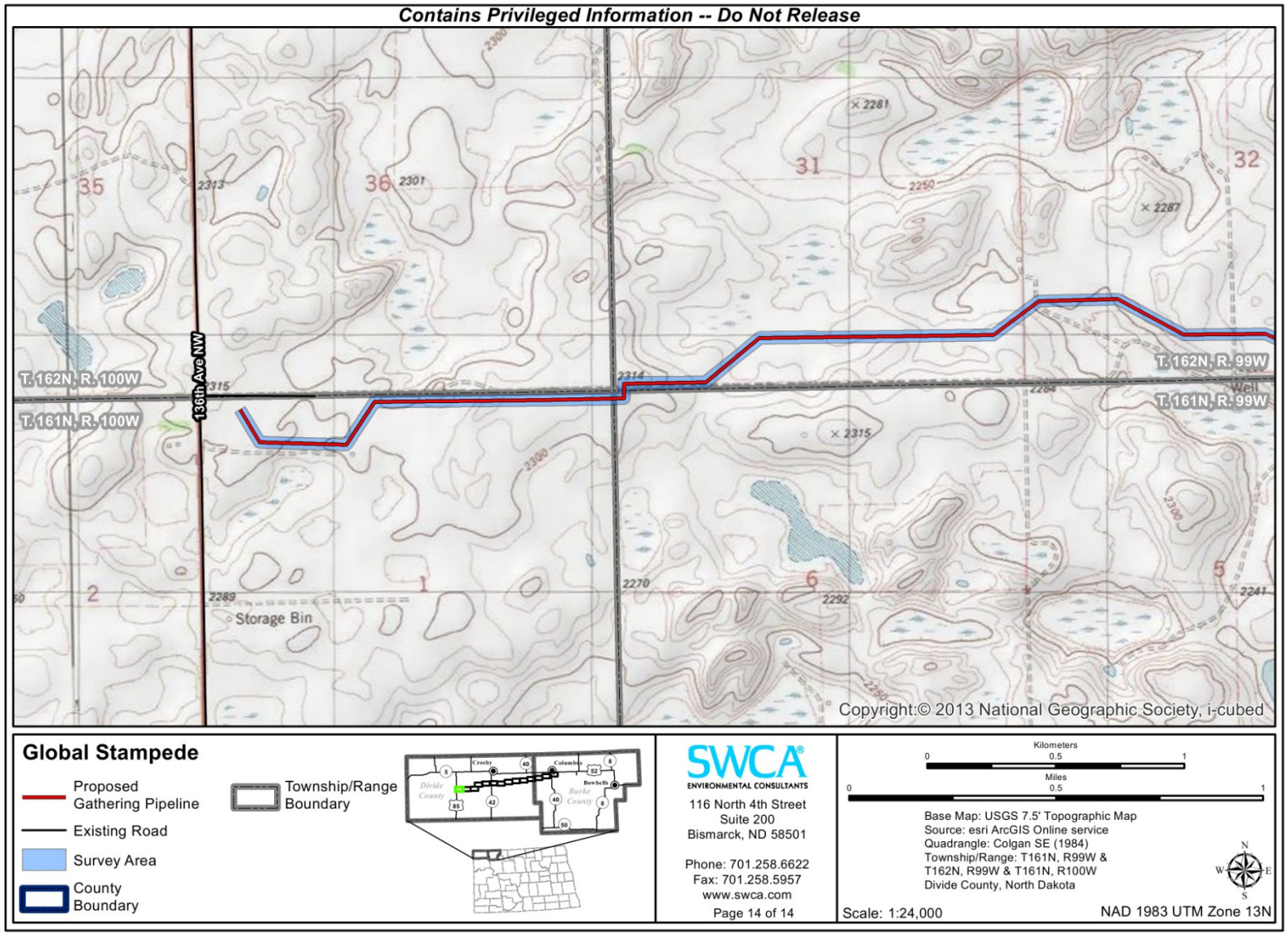


Figure 2n. Project area map 14 of 14 at 1:24,000-scale.

PROJECT SETTING

TOPOGRAPHY

The project area is located in the glaciated Missouri Plateau section of the Great Plains physiographic province in northwest North Dakota. This physiographic province is characterized by glaciated old plateaus and isolated mountains (Fenneman 1931). The area in which the proposed project sits can further be described as the prairie pothole region, a region of North America which extends from central Alberta, Canada, to north-central Iowa (USGS 2006). The prairie pothole region was formed as glaciers retreated from the region leaving behind an area distinguished by many small depressional wetlands referred to as "potholes" (USGS 2006). The project area crosses two ecoregions of North Dakota: the easternmost portion of the project area falls within the Northern Dark Brown Prairie ecoregion, described as generally flat, with occasional undulations, with a simple drainage pattern, and high concentrations of wetlands; and the westernmost portion of the project area crosses the Northern Missouri Couteau ecoregion, characterized by hummocky, rolling terrain, where stream drainage is absent or uncommon, and displays numerous pothole wetlands (Bryce et al. 1998). The project alignment is located largely within cultivated agricultural fields, in flat to gently rolling uplands (Figures 3, 4, and 5). The elevation in the project area ranges from approximately 1,930 to 2,320 feet, with the highest elevations on the western end of the project area.



Figure 3. Project area overview depicting general topography of the east end of the project area, facing west.



Figure 4. Project area overview depicting general topography of the central portion of the project area, facing west.



Figure 5. Project area overview depicting general topography of the western portion of the project area, facing southeast.

CLIMATE

The climate for northwest North Dakota is temperate. Based on climatic data collected from Crosby, North Dakota, between 1971 and 2000, January is the coldest month with a mean daily temperature of 8.1 degrees Fahrenheit (°F) while July is the warmest month with a mean daily temperature of 69.2°F (National Climatic Data Center [NCDC] 2005). Temperature extremes on record range from -47°F at the coldest to 111°F at the warmest (NCDC 2005). On average, 137 days are frost-free (28°F or above) and the average date of the first fall frost is September 23 and the average date of the last spring frost is May 10 (North Dakota Agricultural Statistics Service 2010). Per annum, Crosby receives 14.94 inches of precipitation (NCDC 2005). The wettest month is July, with an average of 2.75 inches of precipitation received; February is the driest, with only 0.33 inch of precipitation received on average. Thirty-eight inches of snow are received annually, on average, with the highest accumulations (8.5 inches, on average) received in December (NCDC 2005). The highest monthly snow fall on record occurred in January 1994 at which time 20.5 inches of snow fell (NCDC 2005). Overall, northwest North Dakota, like much of the northwestern Great Plains, is characterized by a moderate to cool climate, with cold, dry winters and mild to warm, dry to moderately wet summers.

HYDROLOGY

The project area is located in the prairie pothole region of northwest North Dakota, briefly described above. The prairie wetlands, or potholes, of this region receive the majority of their water from snowmelt; however, they can function in a variety of ways. They can act as groundwater recharge basins, groundwater discharge basins, or flow-through systems. Recharge wetlands receive their water largely from precipitation with little other contributing factors such as groundwater flow; discharge basins receive water from groundwater; and flow-through basins both receive and discharge water (USGS 2006). The function of the basin is determined by the chemical composition of the water, climate variation, as well as landscape position (USGS 2006).

The prairie pothole region is one of the most important wetland areas in the world because of its abundance of shallow lakes, marshes, and rich soils (U.S. Environmental Protection Agency 2012). Prairie potholes also absorb an abundance of precipitation, reducing the severity of flooding downstream (U.S. Environmental Protection Agency 2012).

The East Branch Short Creek is approximately 0.82 mile northeast of the eastern extent of the Global Stampede pipeline. The East Branch Short Creek flows generally northwest into Canada. Various ephemeral drainages were present in the project area at the time of inventory and are likely an associated characteristic of the prairie pothole region.

GEOLOGY

In general, the geology of the project area is characterized by the Glacial Sediment-Collapsed Glacial Sediment, with smaller portions of Glacial Sediment-Glacial Sediment Draped Over Pre-existing Topography, Oahe Formation-River Sediment, Coleharbor Formation-Offshore Sediment-Ice Walled Lake Sediment or Collapsed Supraglacial-Lake Sediment, and

Coleharbor Formation-River Sediment-Uncollapsed River Sediment. Glacial Sediment-Collapsed Glacial Sediment consists of unbedded and unsorted mixtures of clay, silt, sands, boulders, cobbles, and pebbles up to 100 feet (30 meters [m]) thick. Collapsed Glacial Sediment is characterized by 2- to 4-degree maximum slope angles (Clayton 1980). The Oahe Formation-River Sediment consists of dark, obscurely bedded clay and silt (overbank sediment), generally overlying cross-bedded sand (channel sediment) up to 30 feet (10 m) thick (Clayton 1980). The Coleharbor Formation-Offshore Sediment-Ice Walled Lake Sediment or Collapsed Supraglacial-Lake Sediment consists of laminated silt and clay of glacier-dammed lakes up to 200 feet (60 m) thick (Clayton 1980).

SOILS

Thirty-eight soil series are present in the project area (Natural Resources Conservation Service 2014). The dominant soil type in the area is fine-loamy till found on rises and flats; however, the two dominant soil series within the project area—Williams-Zahl loams, a glacial till and fine-loamy till, and Zahl-Williams loams, a fine-loamy till—are commonly found on hills, knolls, and ridges. Table 2 summarizes the soils within the project area in order of prevalence.

Table 2. Summary of Soil Series within the Project Area

Soil Series	Parent Material	Drainage	Slope	Landform
Williams-Zahl loams	Glacial till; fine-loamy till	Well drained	3%–9%	Ridges, knolls, till plains
Zahl-Williams loams	Fine-loamy till	Well drained	6%–15%	Hills, ridges, knolls
Zahl-Williams-Zahill complex	Fine loamy till	Well drained	6%–9%	Knolls
Noonan-Niobell loams	Fine-loamy till	Moderately well drained	0%–6%	Flats
Miranda-Noonan loams	Fine-loamy till	Somewhat poorly drained	0%–3%	Flats
Harriet, Regan, and Stirum soils	Aeolian deposits; clayey alluvium; fine-silty alluvium	Poorly drained	0%–2%	Flats, swales, drainageways, alluvial flats
Williams-Niobell loams	Fine-loamy till	Moderately well drained	0%–6%	Rises
Williams-Bowbells loams	Fine-loamy till	Well drained	0%–3%	Rises
Farnuf-Alkabo silt loams	Fine-silty glaciolacustrine deposits over fine-loamy till	Well drained	0%–3%	Flats
Noonan-Niobell-Williams	Fine-loamy till	Moderately well drained to well drained	0%–6%	Rises
Noonan-Niobell-Tonka complex	Fine-loamy till	Moderately well drained	0%–3%	Flats

Soil Series	Parent Material	Drainage	Slope	Landform
Portal-Lihen fine sandy loams	Coarse-loamy glaciofluvial deposits; sandy glaciolacustrine deposits	Moderately well drained to well drained	0%–2%	Rises
Zahl-Williams-Vallers loams	Fine-loamy till	Poorly to well drained	0%–60%	Ridges, hills, flats
Lihen-Blanchard loamy fine sands	Sandy glaciolacustrine deposits; sandy alluvium and/or aeolian sands	Well drained to excessively drained	0%–6%	Rises
Zahl-Max-Parnell complex	Fine-loamy till; alluvium	Very poorly drained to well drained	0%–35%	Ridges, hills, depressions
Farnuf-Sakakawea loams	Fine-loamy alluvium	Well drained	2%–6%	Rises
Straw loam	Fine-loamy alluvium	Moderately well drained	0%–2%	Floodplains
Williams-Zahl-Parnell complex	Fine-loamy till	Well drained	0%–9%	Knolls
Tonka silt loam	Alluvium over till	Poorly drained	0%–1%	Depressions
Williams-Zahl complex	Fine loamy till	Well drained	3%–6%	Hills, ridges, knolls
Haplustolls-Ustorthents complex	Alluvium and/or till; fine-loamy till	Well drained	0%–6%	Undefined
Ustorthents-Haplustolls complex	Alluvium and/or till; fine-loamy till	Well drained	0%–6%	Undefined
Vallers loam saline	Fine-loamy till	Poorly drained	0%–1%	Depressions, flats
Parshall-Tally-Dooley fine sandy loams	Coarse-loamy alluvium; coarse-loamy glaciofluvial deposits; coarse-loamy aeolian deposits over fine-loamy till	Well drained	0%–6%	Swales, rises, alluvial flats, terraces
Farnuf loam	Alluvium	Well drained	0%–2%; 2%–6%	Alluvial flats, ridges, hills, divides; alluvial fans, stream terraces
Wabek-Lehr complex	Sand and gravelly glaciofluvial deposits	Excessively drained	2%–6%	Rises
Parshall fine sandy loam	Coarse-loamy alluvium	Well drained	0%–6%	Swales
Dooley fine sandy loam	Eolian over glacial till	Well drained	0%–6%	Flats, rises

Soil Series	Parent Material	Drainage	Slope	Landform
Wabek-Lehr-Appam complex	Sandy and gravelly glaciofluvial deposits; glaciofluvial deposits	Somewhat excessively drained to excessively drained	0%–6%	Rises
Hamerly-Tonka complex	Fine-loamy till	Somewhat poorly drained	0%–3%	Flats
Southam silty clay loam	Alluvium	Very poorly drained	0%–1%	Depressions
Sakakawea-Farnuf loams	Fine-loamy alluvium	Well drained	6%–9%	Rises on lake plains, knolls on lake plains
Parnell silty clay loam	Alluvium	Very poorly drained	0%–1%	Depressions
Wabek-Appam complex	Sandy and gravelly glaciofluvial deposits; glaciofluvial deposits	Somewhat excessively drained to excessively drained	6%–35%	Knolls
Niobell-Noonan-Tonka complex	Fine-loamy till	Moderately well drained	0%–6%	Rises
Williams-Zahl-Lihen complex	Fine loamy till; sandy glaciolacustrine deposits	Well drained	6%–15%	Hills, ridges, knolls
Vallers-Parnell complex	Fine-loamy till	Poorly drained	0%–1%	Flats
Dooley-Lihen-Zahl complex	Coarse-loamy aeolian deposits over fine-loamy till; sandy glaciolacustrine deposits; fine-loamy till	Well drained	9%–15%	Ridges, hills

Source: Natural Resources Conservation Service (2012)

FLORA AND FAUNA

The project area crosses the Northern Dark Brown Prairie ecosystem, characterized by youthful moraine landscape with a high concentration of wetlands, and the Northern Missouri Couteau ecoregion, characterized by native prairie with mixed dryland agriculture. Native vegetation in the area includes such species as western wheatgrass (*Pascopyrum smithii*), little bluestem (*Schizachyrium scoparium*), needle and thread grass (*Hesperostipa comata)*, blue grama (*Bouteloua gracilis*), green needlegrass (*Nassella viridula*), and silver sagebrush (*Artemisia cana*) (Bryce et al. 1998). The majority of the inventory area is within cultivated agricultural fields (Figure 6).



Figure 6. Overview of cultivated agricultural fields typical of the project area, facing north.

Approximately 160 wildlife species are resident or seasonal visitors to the Missouri River ecosystem, and hundreds of native fish species live in the mainstream and tributaries. Some of the animal species that would have been common and available for human use in the Missouri River Valley area—both prehistorically and historically—include fur-bearing mammals such as beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), eastern cottontail (*Sylvilagus floridanus*), elk (*Cervus elaphus*), moose (*Alces alces*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), pronghorn (*Antilocapra americana*), and bison (*Bison bison*), as well as bird and waterfowl species such as mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), sharp-tailed grouse (*Tympanuchus phasianellus campestris*), golden eagle (*Aquila chrysaetos*), and bald eagle (*Haliaeetus leucocephalus*) (Seabloom et al. 1978). At present, one federally listed threatened species resides in the area—piping plover (*Charadrius melodus*)—and four federally listed endangered species inhabit the area including the least tern (*Sterna antillarum*), pallid sturgeon (*Scaphirhynchus albus*), whooping crane (*Grus americana*), and gray wolf (*Canis lupus*) (U.S. Fish and Wildlife Service 2012). Additionally, Sprague's pipit (*Anthus spragueii*) resides in the area and is a federal candidate for endangered species listing (U.S. Fish and Wildlife Service 2012).

ENVIRONMENTAL CONSTRAINTS

Preservation of archaeological materials within or adjacent to the project area has been affected largely by erosion, including ongoing aeolian and hydrological processes, and rodent burrowing. Secondary sources of impact to archaeological resources include agricultural development and livestock grazing. Surrounding pothole wetlands tend to restrict land use to cattle grazing or dryland farming. Some oil and gas development has occurred in the

proximity of the project area, and is presently increasing as demand for domestic energy sources has grown in recent years. In some places, these varied land uses have resulted in increased ground visibility and removal of overburden, allowing for the identification of numerous sites and an interpretation of high site density. In other cases, though, it has simply removed the archaeological materials and resulted in an interpretation of low site densities. In combination, these factors may have disrupted the contexts of a moderate percentage of cultural materials.

CULTURAL/HISTORICAL OVERVIEW

PREHISTORIC CONTEXTS

The following discussion incorporates a variety of sources to develop a prehistoric overview for the work conducted for this project and includes information from the Souris River Study Unit (SORSU) and the Garrison Study Unit (GSU) in which the project area is located (Picha et al. 2008; Gregg and Bleier 2008). As of 2007, 1,955 archaeological sites, site leads, and isolated finds were identified in the SORSU. Within the 9,118-square-mile study unit, this equates to approximately one site in 44 square miles. The low site density in this study unit is likely the result of the paucity of professional inventory survey conducted within the study unit, as well as the large amount of agricultural activity that has taken place within the last 100 years (Picha et al. 2008). As such, the majority of documented sites were identified on terraces (26.8 percent); hills, knolls, and bluffs (18.3 percent); floodplains (15.8 percent); and ridges (15.8 percent). In the GSU, 3,303 archaeological sites had been identified as of 2007, the majority of which were identified on ridges (40.6 percent); hills, bluffs, and knolls (24.0 percent); and terraces (10.4 percent) (Gregg and Bleier 2008).

Paleoindian Tradition (ca. 11,500–7,900 years before present [B.P.])

Although speculation exists regarding the possibility of earlier habitation of the Great Plains, the Paleoindian tradition is the oldest of the region, and, in general, is associated with a hunting and gathering adaptation (Gregg 1985). The Paleoindian tradition is subdivided here into six main complexes: Clovis, Goshen, Folsom, Hell Gap/Agate Basin, Alberta/Cody, and Parallel Oblique Flaked. Two Paleoindian archaeological resources have been identified in the SORSU and 14 have been identified in the GSU (Picha et al. 2008; Gregg and Bleier 2008).

The Clovis complex (ca. 11,500–10,800 B.P.), defined by large, fluted lanceolate projectile points, is the earliest unequivocal complex in North America. Clovis artifacts have been found with megafauna, such as mammoth, in buried contexts in the Southwest and Great Plains (Grayson and Meltzer 2002); however, although megafauna were probably dietary constituents, it is debated to what degree Early Paleoindians pursued large game (Cannon and Meltzer 2004; Grayson and Meltzer 2002). Few Clovis sites have been recorded in the region and none have been identified in the SORSU or the GSU (Picha et al. 2008; Gregg and Bleier 2008). In the South Dakota Badlands, the Lange-Ferguson site yields the best evidence for proboscidean exploitation (Hannus 1990). Here, modified mammoth bones are directly associated with a flake and three projectile points that were recovered from deposits similar to those containing mammoth, indicating that Clovis hunter-gatherers either killed the animals or scavenged their carcasses (Hannus 1990).

Goshen (ca. 10,900–10,100 B.P.) is a technological complex first identified at Hell Gap, Wyoming (Irwin 1967, 1971), but it is also found at Mill Iron, Montana, Carter-Kerr/McGee, Wyoming, and the Jim Pitts site, located in the South Dakota Black Hills (Sellet 2001). Goshen is poorly understood—the basally thinned, unfluted projectile points share affinities with both Clovis and Folsom, but are also similar to Southern Plains Plainview points. In stratified deposits, Goshen materials typically underlie Folsom (Frison et al. 1996). No Goshen material has been identified in the SORSU (Picha et al. 2008). Plainview or Goshen points were recovered from the Moe site in the GSU (Gregg and Bleier 2008).

The Folsom complex (ca. 10,900–10,200 B.P.) is typified by distinctive fluted lanceolate projectile points. With most large grazers extinct by Folsom times and grasslands dominating the Great Plains, bison populations flourished, providing resources for Folsom hunters (Frison 1991). However, many high-elevation Folsom sites also demonstrate broad diets of diverse small prey (Hill 2007). Probable structures recorded at the Mountaineer and Barger Gulch sites in Colorado indicate long-term occupations in mountain settings (Stiger 2006; Surovell and Waguespack 2007). In North Dakota, there are numerous documented Folsom sites (Gregg 1985), including the Bobtail Wolf (32DU955A), Big Black (32DU955C), and Young-Man-Chief (32DU955D) sites (Root 2000; Shifrin 2000; William 2000). These sites are interpreted as camps, quarries, and lithic workshops where Knife River flint was procured and used for tool production. One Folsom archaeological resource has been identified in the SORSU (Picha et al. 2008) and one has been identified in the GSU (Gregg and Bleier 2008).

Both the Agate Basin (ca. 10,500–10,000 B.P.) and Hell Gap (ca. 10,000–9,500 B.P.) technocomplexes are typified by lanceolate projectile points with thick lenticular cross-sections (Frison 1991). Based on morphological similarities and stratigraphic evidence, Hell Gap is technologically descended from Agate Basin. Agate Basin and Hell Gap hunter-gatherers were probably specialized bison hunters. Sites like Agate Basin II (Hill 2001) and Casper (Todd et al. 1997) indicate more frequent extraction of marrow and within-bone nutrients, indicating a greater focus on planning than previously evident. Some sites associated with this tradition have been recorded in North Dakota and South Dakota, but these mainly consist of isolated and surface finds (Gregg 1985). One of the most significant Paleoindian sites in the GSU is the Beacon Island Agate Basin site (Ahler 2003). Agate Basin points have also been recovered from the Moe site, and an isolated Knife River flint Agate Basin point was recorded at 32ME946, both in the GSU (Gregg and Bleier 2008).

Alberta (9800–9000 B.P.) is a poorly dated technology that probably descends from Hell Gap and is documented at the Hell Gap, Wyoming, and Hudson-Meng, Nebraska, sites (Agenbroad 1978; Frison 1991). Hudson-Meng is one of the largest documented bison kills, indicating Alberta people focused on bison hunting (Agenbroad 1978); however, more recent work indicates humans were not responsible for killing bison at this site and they died of a natural event (Todd and Rapson 1999). The Cody Complex (9200–8800 B.P.), which includes stemmed/shouldered Eden and Scottsbluff projectile points and the distinctive Cody knife, apparently arose from Alberta (Frison 1991). These sites are widespread across the Northwestern and Central Great Plains, with components at the Wyoming Horner I, Finley, and Medicine Lodge Creek sites (Frison and Todd 1986; Frison and Walker 2007) and the Mammoth Meadows, Myers-Hindman, and MacHaffie sites in Montana (Davis 1993). Such

sites indicate that Cody adaptations were diverse and utilized large fauna as well as small prey and floral resources (Frison et al. 1996; Galvan 2007). Alberta/Cody sites have been recorded in North Dakota and South Dakota.

The Parallel Oblique Flaked complex is a catch-all grouping of Paleoindian projectile point types (Gregg 1985) including Angostura, Milnesand, Browns Valley, Lusk, Allen, and Frederick; these range in age from around 9400 to 7900 B.P. All types are lanceolate with parallel oblique flaking. Bison kill-butcheries were rare on the northwestern and northern Great Plains after approximately 8000 B.P. (Frison 1998), perhaps due to severe ecological deterioration that could no longer support large bison populations. Complex excavated and surface sites have been recorded in the Dakotas, including sites on the Missouri River. Six archaeological resources defined under the general "Plano" category have been identified in the GSU (Gregg and Bleier 2008).

Plains Archaic Tradition (ca. 8000–1500 B.P.)

The transition from Paleoindian to Archaic is archaeologically visible as an abrupt shift to large notched projectile points (Frison 1991), perhaps indicating a shift to atlatl propelled darts from hand-thrown spears. This transition is also associated with warming/drying trends that prompted diverse subsistence adaptations among hunter-gatherers (Carlson 1994). Ground stone appears in the Archaic, indicating a greater focus on processing floral resources. In conjunction with the appearance of pithouses and storage pits in the western intermontane basins, this indicates a shift in subsistence base, a reduction in overall residential mobility, and more predictable seasonal rounds (Frison 1991). In the SORSU, seven Archaic archaeological resources have been identified. Important Archaic-age sites in the SORSU include 32WD1555 and 32MH94 (Picha et al. 2008). In the GSU, 96 Archaic archaeological resources have been identified. Thirty-one of these are from unspecified associations. Important Archaic-age sites in the GSU include the Mondrian Tree site (32MZ58) and the Moe site (32MN101) (Gregg and Bleier 2008).

The Logan Creek/Mummy Cave complex (5700–4000 B.P.) is the earliest example of large side-notched projectile points on the northern Great Plains. The blending of the Logan Creek and Mummy Cave for this complex is due to varied nomenclature used among archaeologists regionally for similar archaeological complexes (Gregg 1985). Settlement types associated with this complex include bison kills, transient camps, and some stone circle sites. No archaeological resources containing large side-notched projectile point varieties have been identified in the SORSU, while only four have been found in the GSU (Picha et al. 2008; Gregg and Bleier 2008).

The Oxbow complex (5600–3500 B.P.), typified by side-notched, deeply concave-based projectile points, is concentrated in northern Montana, Alberta, and Saskatchewan (Hannus 1994:180) but is also quite common in North Dakota and South Dakota, with numerous sites along the Missouri River and its tributary system. Oxbow subsistence apparently centered on bison and sites include bison impoundments and jumps, encampments on stream terraces, stone circles, and processing areas (Hannus 1994; Reeves 1969). However, numerous birds and small mammals were probably exploited (Aaberg et al. 2006:174). Some northern Great Plains sites further yield evidence of complex cultural behavior including bundle burials with

elaborate grave goods (Bryan 1991). Only one Oxbow archaeological resource has been identified in the SORSU and four have been identified in the GSU (Picha et al. 2008; Gregg and Bleier 2008).

The McKean complex (ca. 4500–3400 B.P.) encompasses three distinct sub-phases—the McKean lanceolate, Duncan, and Hannah. The McKean complex is widespread across the Great Plains, and sites from this period can be found associated with bison kills, stone circles, lithic caching, and seasonal settlements (Frison 1991). Slab-lined pit hearths are common, as are ground stone artifacts indicating a greater reliance on plant resources (Carlson 1994; Frison 1991). McKean complex sites often demonstrate evidence of lithic raw material exchange, including Swan River chert, Tongue River silicified sediment, and Knife River flint (Gregg 1985). In the SORSU, two archaeological resources dating to the McKean complex have been identified (Picha et al. 2008). In the GSU, 23 archaeological resources dating to the McKean complex have been identified (Gregg and Bleier 2008).

Pelican Lake (ca. 3000–2700 B.P.), typified by broad, thin corner-notched projectile points, is likely a descendant of McKean and is found across the Northern and Central Plains (Frison 1991). This wide spatial distribution may indicate significant population growth in response to the favorable moist conditions of the Sub-Atlantic episode (Reeves 1983). Numerous communal bison kills, such as Head-Smashed-In (Frison 1991), indicate communal bison hunting, but this does not indicate it was an exclusive feature of their subsistence. Rather, Pelican Lake populations probably relied on a broad-based economy across diverse ecozones (Hannus 1994). Two Pelican Lake archaeological resources have been identified in the SORSU (Picha et al. 2008). In the GSU, 34 Pelican Lake archaeological resources have been identified (Gregg and Bleier 2008).

Plains Woodland Tradition (ca. 2000–450 B.P.)

Temporally overlapping with the Northwestern Plains Late Archaic, the Plains Woodland tradition is characterized by increased sedentism, garden horticultural activity, expanding regional exchange networks with Eastern Woodland populations (Adena and Hopewell), and the elaboration of ceremonial activities and mortuary practices, specifically mound burials (Griffin 1967). Significant technological advances such as bow and arrow and ceramics use are also apparent (Gregg 1985); however, the fundamental subsistence strategies of the Plains Woodland Tradition did not drastically differ from their Archaic predecessors (Zimmerman 1985). It is assumed this tradition saw the beginning of horticultural practices in the region. For the purposes of this study, the complexes that are classed as belonging to the Plains Woodland include Besant, Sonota, Laurel, Avonlea, Old Woman's, and Blackduck.

The Besant complex (ca. 2000–1500 B.P.), typified by small to medium-sized side-notched triangular projectile points, represents the earliest presence of ceramics in North Dakota, probably resulting from Eastern Woodland influence (Walde 2006). Besant ceramics are more common in the eastern half of the Dakotas; the vessels show a basic conoidal shape and indicate lump modeling manufacture with some coarse cording (Wood and Johnson 1973). Besant sites show extensive use of Knife River flint (Reeves 1970). Site types include stone circle sites, habitations on stream and river terraces, and bison kills. Numerous communal kill sites, including the Ruby bison pound in Wyoming (Frison 1991), indicate that Besant people

were sophisticated bison hunters. The Sonota complex (1850–1350 B.P.) appears to be a possible sub-complex of Besant, but differs in that burial mounds are common at Sonota sites (Reeves 1983; Wood 1967). These mounds include rectangular subfloor pits/tombs with dismembered bodies and, commonly, articulated bison remains (Johnson and Johnson 1998). The presence of associated exotic artifacts is often cited as evidence of Hopewell influence on Middle Plains Woodland populations (Johnson and Johnson 1998). In the SORSU and the GSU, 41 Besant/Sonota archaeological resources have been identified, including 32DU2, the Twin Buttes site (32DU32/32ME617), and 32ME254 (Picha et al. 2008; Gregg and Bleier 2008).

Sites from the Laurel complex (2100–850 B.P.) are generally found in the eastern portions of North Dakota, northern Minnesota, and southern Canada. Laurel pottery and mound building are fairly distinct, but lithics associated with this complex tend to be various and lack a particular style (Gregg 1985).

Avonlea complex (ca. 1800–1000 B.P.) sites occur across the northern Great Plains and are contemporaneous with Besant. This complex includes a variety of site types, including stone circles, bison kills, and rock shelter habitations (Reeves 1970). Avonlea represents the first regional complex to produce arrow points exclusively, indicating a transition to bow and arrow technology (Frison 1988). Avonlea point types are small and indistinctly side-notched. Saskatchewan Basin Complex: Early Variant pottery is found at Avonlea sites (Byrne 1973). Avonlea subsistence in the north relied heavily on communal bison procurement, but in their southern range bison hunting was supplemented by smaller game (e.g., pronghorn), fish, and seasonal plant exploitation (Smith and Walker 1988). Avonlea sites are relatively rare in the Dakotas (Vickers 1994). In North Dakota, the Evans site (32MN301) contained Avonlea projectile points and ceramics (Schneider and Kinney 1978). Six Avonlea-aged archaeological resources have been identified in the GSU (Gregg and Bleier 2008), and one has been identified within the SORSU (Picha et al. 2008).

Rare in North Dakota is the Old Woman's complex (A.D. 700–1300). This complex is contemporary with the Plains Village tradition, so it would seem likely that many associated sites would be granted the latter designation (Gregg 1985).

The Blackduck complex (A.D. 1150–450) derives from northern Minnesota and was concentrated in southern Manitoba. It is contemporary with both Avonlea and Old Woman's complexes, and with Extended and Terminal Middle Missouri traditions. Some evidence of possible Blackduck pottery has been found along the Missouri River, which indicates trade between the Missouri River villagers and the Blackduck people to the north (Joyes 1970).

Plains Village Tradition (ca. 1050–350 B.P.)

Lehmer (1971) defined the Plains Village tradition as possessing the following diagnostic traits: equal horticulture and hunting and gathering strategies; semi-permanent villages near the Missouri River floodplain; earthlodges; large storage and refuse pits; distinctive ceramics; abundant end scrapers and arrow points; bison scapula hoes; and a well-developed bone tool industry. The Plains Village Tradition is divided into the Middle Missouri tradition (A.D. 969–1500) and the Coalescent tradition (A.D. 1300–1650), discussed below. Six Plains

Village archaeological resources have been identified in the SORSU (Picha et al. 2008), and 15 have been identified in the GSU (Gregg and Bleier 2008).

Three primary Middle Missouri variants are recognized: Initial Middle Missouri (A.D. 969–1297), Extended Middle Missouri (A.D. 1075–1443), and Terminal Middle Missouri (A.D. 1300–1500) (Eighmy and LaBelle 1996). These represent a continuation and intensification of Northern Plains Woodland lifeways and their appearance coincides with the onset of the Medieval Warm Period (Bryson et al. 1970) when a moisture increase likely permitted horticulture in areas previously characterized by tenuous farming conditions (Wood 2001).

The Initial Middle Missouri Variant (IMMV) is thought to have developed as an outgrowth of the Great Oasis (Tiffany 2007) or via the arrival of eastern populations already exploiting a Plains Village lifeway (Lehmer 1971). The IMMV was concentrated in the southern portions of the Middle Missouri region and characterized by highly fortified villages of large, semi-subterranean rectangular houses (Lehmer 1971; Winham and Calabrese 1998).

The Extended Middle Missouri Variant (EMMV) is concentrated in the northern portions of the Middle Missouri region (Lehmer 1971). EMMV groups resided in small villages of semi-subterranean rectangular houses; southern villages were more often fortified than those in the north (Wood 2001). It is unclear whether the EMMV replaced the IMMV or represents a contemporaneous offshoot of the IMMV. Origins aside, it is assumed that IMMV populations were eventually absorbed into EMMV populations. The final expression of this tradition was the Terminal Middle Missouri (Winham and Calabrese 1998:282). These sites were concentrated in a smaller geographic area along the Missouri River in southern North Dakota and characterized by fewer but much larger villages (Wood 2001). Sites again contained long, rectangular semi-subterranean houses but were highly fortified (Wood 2001). A continuation of the Middle Missouri Tradition is recognized historically as the Siuoan-speaking Mandan and Hidatsa (Wood 2001).

The Coalescent period is temporally divided into Initial (650–350 B.P.), Extended (500–300 B.P.), and Post-Contact Coalescent (300 B.P.–Historic period) (Johnson 1998; Lehmer 1971). The Coalescent Tradition is thought to represent a geographic movement of Central Plains Tradition village-dwelling populations to the Missouri River Valley in South Dakota (Blakeslee 1993). Central Plains Traditions might have migrated from Nebraska and Kansas in response to drought brought on by the Pacific climatic episode (Lehmer 1971). Similar to Middle Missouri Tradition groups, Coalescent populations practiced an economy split between mixed cultigen horticulture and bison hunting (Johnson 1998).

Initial Coalescent Variant sites are located on bluffs overlooking the Missouri River and its drainages in southern South Dakota. Populations lived in fortified villages consisting of subrectangular to circular/oval earthlodges and often surrounded by complex fortifications (Johnson 1998). Violence amongst Coalescent groups is evidenced at the Crow Creek site (39BF11) where approximately 486 individuals were killed in the village fortification ditch around 625 B.P. (Willey and Emerson 1993). Crow Creek is interpreted as evidence of internecine warfare amongst Initial Coalescent groups over land competition (Zimmerman and Bradley 1993) or, conversely, as evidence of warfare between immigrant Coalescent groups and resident Middle Missouri Tradition peoples (Johnson 1998). The Extended

Coalescent Variant apparently descended from the Initial Coalescent sometime in the fifteenth century A.D. Sites are concentrated along the Missouri River and its tributaries in central and northern South Dakota (Krause 2001). Extended Coalescent sites are far more abundant than during the Initial Coalescent and are characterized by a dispersed, unfortified village structure of circular earthlodges (Johnson 1998; Krause 2001; Lehmer 1971). The Extended Coalescent Variant evolved into the Post-Contact Coalescent during the Protohistoric and Historic and the Coalescent Tradition is recognized as the Arikara (Krause 2001). The last post-contact village was Like-a-Fishhook Village, occupied by the Arikara, Mandan, and Hidatsa; it was abandoned in 1886 when groups relocated to the Fort Berthold Indian Reservation (Smith 1972).

HISTORIC CONTEXTS

European Trade and Exploration (1738–1858)

Perhaps the earliest attempts at exploring the northern Great Plains came as a result of the ventures of Pierre Gaultier de Varennes Siure de la Verendrye (Dill 1983). His travels from New France into North Dakota led him as far as the Missouri River (somewhere near Bismarck), and led to subsequent expeditions by his sons, who went farther south into South Dakota (near Pierre) and west towards the Black Hills. While the elder la Verendrye met the Mandan, his sons encountered the Arikara and other tribes in South Dakota. Their reports heightened interest in the region and the possibilities that existed for trade with its inhabitants.

Following the la Verendryes, a modest fur trade developed in the region, but until the expedition of Captains Meriwether Lewis and William Clark returned successfully from their voyage up the Missouri, the region was considered a wild unknown (Schulenberg 1957). Lewis and Clark established winter quarters with the Hidatsa and Mandan near the Knife River (near present day Stanton), founding Fort Mandan, the first permanent U.S. settlement in North Dakota. It was at their winter quarters that the pair secured the services of Charbonneau and his wife Sakakawea as guides to lead them through the Rocky Mountains (Work Progress Administration [WPA] 1938).

In 1807, Manuel Lisa established a short-lived post at the mouth of the Bighorn, and by 1809 his St. Louis Missouri Fur Company was building posts among most of the tribes all along the Missouri River. Other notable companies, such as the Northwest Company, Hudson Bay Company, the Columbia Fur Company, and the American Fur Company, soon followed suit (Schulenberg 1957). The life of these posts tended to be short, but they did much to influence the tribes who frequented the Missouri River in both North and South Dakota. Fort Union—at the confluence of the Yellowstone and Missouri Rivers—was the last of the great posts, and its waning during the late 1850s saw the fur trade in the Dakotas in its last throes.

In addition to the tribes that arose from the Middle Missouri and Coalescent traditions (Mandan, Hidatsa, and Arikara), the northern Great Plains and the Missouri River were also used by countless other tribes since before European contact.

The Assiniboine were known to frequent the northern Missouri River (mainly near the confluence with the Yellowstone), and were active in the fur trade throughout the eighteenth

and nineteenth centuries. As well, the Cheyenne were pushed westward by the Chippewa during the middle of the eighteenth century and took up at least a temporary settlement period on the Missouri River. At least one earthlodge village has been attributed to the Cheyenne in eastern North Dakota, and some Cheyenne villages on the Missouri River were located between the Mandan to the north and the Arikara to the south, where they built earthlodges and pursued horticulture and buffalo hunting (Schlesier 1968).

The Plains Cree and Plains Chippewa also frequented the northern Missouri—mainly near the confluence with the Yellowstone, but also near Fort Clark. Both tribes traded actively with the Mandan and Hidatsa. The Crow, although more westerly in their territory, were related to the Hidatsa and would often trade and visit with the Missouri River tribes (Schulenberg 1957).

Based on linguistic evidence, the Sioux (or Dakota) originated from the southwest Great Lakes region (DeMallie 2001a). The timing of the migration is unclear, but ceramic evidence suggests that the Dakota were living on the plains several centuries before the arrival of Europeans (Hanson 1998). Based on linguistics, it is thought that the Assiniboine split from the Sioux sometime before the mid-seventeenth century (Hanson 1998). The Teton Dakota are divided into seven sub-tribes, including the Oglala, Brule, Sans Arc, Hunkpapa, Blackfeet, Miniconjou, and Two Kettles (Hanson 1998). According to DeMallie (2001a), by the mid-eighteenth century, the Teton Dakota hunted bison in the area east of the Missouri River, their movements limited in part by the Arikara stronghold along the Missouri River. However, a series of smallpox epidemics from 1771 to 1781 devastated the Arikara villages (Johnson 1998) and permitted the Teton Dakota to move west of the Missouri River. Like the Teton Dakota, the Yankton and Yanktonai Dakota occupied the prairies east of the Missouri River and north into Minnesota in the mid-seventeenth century (DeMallie 2001a). By the mid-nineteenth century, the Yankton and Yanktonai occupied the prairies east of the Missouri River from the mouth of the Big Sioux River in the south to the Red River in the north (DeMallie 2001b).

In the GSU, five Hidatsa, one Arikara, one Chippewa, one Mandan, and 21 unspecified historic Native American archaeological resources have been identified (Gregg and Bleier 2008). In the SORSU, four Chippewa and six unspecified historic Native American archaeological resources have been identified (Picha et al. 2008)

The Homestead Boom and the Ethnic Settlement of North Dakota (1868–1915)

Spurred by the extension of the Northern Pacific Railroad (Northern Pacific) across the Red River from Minnesota, the true rush for homesteads in North Dakota did not take place until 1885 (WPA 1938). The first homestead in North Dakota was filed in 1868, which was the only homestead filed until 1871. The earliest settlers were a mixture of American-born settlers from diverse locations across the United States. Midwestern farmers, struggling on small rented lands in the Midwest, eyed the open plains, looking for the opportunity to claim their own lands. Single men, looking for an escape from hard labor in mines, oil fields, and factories, looked to the plains for new opportunities on farms, ranches, or working on the railroads (Hudson 1976).

The Great Dakota Boom from 1878 to 1885 represented the first wave of large-scale settlement in North Dakota. The "boom" was driven by several factors including the expansion of the railroad into the state, increased industrialization and population pressure in the eastern states, and improved technologies in processing "spring wheat," a crop that was well adapted to conditions on the northern Great Plains. In 1873, the bankruptcy of Northern Pacific forced them to sell off most of their land holdings in the state, which, combined with the land available through the Homestead Act, made the northern Great Plains an enticing location for setters from the east coast and the Midwest (Wilkins and Wilkins 1977).

The land west of the Missouri River did not see much settlement prior to the 1890s, and the major settlement of this region did not start in any great numbers until between 1900 and 1910. In general, those homesteaders who selected lands along the Missouri River were able to do some crop farming, but the majority of homesteads were arranged as ranch operations for sheep or cattle. These areas were far from uninhabited, with many of the Plains Indians settled on reservations near the river, stage lines extending to mining operations in the Black Hills and Montana, and cowboys and cattlemen driving herds from Texas to pasture on the plains grassland. Initially, settlement in the western part of the state was limited to areas along the river, where steamboat access could provide supplies, and a means of transporting crops and herds for sale in larger markets. When the railroads crossed the Missouri into the western part of the state, North Dakota saw a second homestead boom, from 1898 to 1915, driven by settlers seeking the last available free homestead land.

In addition to the homesteading, which brought an increasing number of people to western North Dakota, the discovery of large deposits of lignite coal further boosted interest in the development of Mountrail county and the surrounding area (WPA 1938). Although slow at first, the mining industry started to flourish during the 1930s; to this day it remains a major focus of activity which drives the economy of both the county and the state. In total, eight historic Euro-American archaeological resources have been identified in the GSU and two have been identified in the SORSU (Gregg and Bleier 2008; Picha et al. 2008).

Ethnic Settlement

Unlike the first wave of settlement (1878–1885), which consisted primarily of Americans and Canadians of British, Scottish, and French descent resettling from the Midwest and the eastern states, the second wave (1898–1915) was dominated by foreign born settlers arriving in large numbers from across Europe. Motivated by the lack of available land in most European countries, along with economic systems that equated land with status, the United States and their new liberal land policies attracted many Europeans to immigrate to the United States. Helping fuel this immigration, U.S. railroad companies actively advertised in Europe to entice settlers to purchase available land grants and settle along newly created rail lines (Hoover 2005; Hudson 1976). Environmental conditions in the northern Great Plains were not attractive to all European immigrants, but immigration from across northern Europe resulted in many communities dominated by large ethnic populations, bringing with them their traditional agricultural practices, architecture, and cultural traditions. Unlike the first wave of settlers, the immigrants from eastern Europe tended to settle in cultural homogenous communities preserving the language and cultural practices of their homeland.

German-Russians

One of the largest ethnic groups in the Great Plains, the German-Russians established communities across the Great Plains including the Dakotas, Nebraska, Colorado, and Montana. The German-Russians emigrated to the United States from two different regions of eastern Russia: the Volga region, and the region to the north of the Black Sea (Hudson 1976). Originally from large agricultural communities in Germany, these groups first emigrated to Russia in 1763, when the German-born Empress Catherine the Great invited the Germans to develop the largely empty Russian Steppes, granting them limited autonomy, and exemption from military service. The Germans established small, close-knit communities in Russia which allowed them to retain many of their cultural traditions (Baltensperger 1983; Hoover 2005).

In 1871, Czar Alexander II withdrew many of the privileges granted to the German settlers including forcing them into military service. As a result, many of the Germans chose to leave Russia to settle in the newly opened American West. The German-Russians attempted to create the same close-knit communities they had left in Russia, establishing small towns across the American West. The Volga Germans mostly settled in Kansas and Nebraska, while the Black Sea Germans settled in North and South Dakota (Koop 1986). Within their close communities, the German-Russians maintained many of their traditions, something which occasionally set them apart from neighboring communities.

Although ethnically German, the German-Russian settlers were religiously diverse, including Catholics, Lutherans, Mennonites, and Hutterites (Hoover 2005). The German-Russians represent the largest European ethnic group to settle in Dunn County. German-Russian settlers moved into North Dakota in large numbers after 1880, although it took them somewhat longer to settle as far northwest as Dunn County. Settlers would often relocate several times throughout the Midwest and even in eastern or southern North Dakota before finally moving to permanent homesteads in the northwestern part of the territory. The strong sense of community felt by the German-Russians and the frequent re-migration across North Dakota meant that most German-Russians had families and friends in all of the neighboring communities (Hudson 1976).

The similar environment of the Russian steppe provided a level of experience most ethnic groups in the area did not have. This can be seen in their architectural styles, which made use of available resources to build sturdy homes without an ample supply of lumber. The German-Russian architecture used a combination of clay mixed with straw and manure, rammed earth blocks, and timber, when available, to build strong multi-room homes. Another method used clay bricks known as batsa. The use of batsa continued even after the German-Russians adopted American architectural styles, using the clay bricks as wall insulation between wood-framed walls (Koop 1986).

Agricultural Development and the Growth of North Dakota Farming (1890–1920)

The dominant crop grown in North Dakota during the early years of settlement was spring wheat. Spring wheat is a dark, coarse grain that was easy to grow in drier climates, but was difficult to process for use in a form appealing to most consumers (Danborn 1998). Towards the end of the nineteenth century, a new way of processing spring wheat into what was known

as Minnesota Patent Flour was developed. This new process significantly increased demand for this hardy crop. Many of the agricultural practices used to develop the crop were similar to growing other forms of wheat, and the farming practices already in place across the Midwest were adopted by new settlers in North Dakota. Distinctive to spring wheat farming, many believed that using broadcast seeders was more favorable to the crop than using the more traditional grain drills. Other equipment used to produce spring wheat was similar to other crops in the region, including plows, cultivators, seeders, and harvesters (Coulter 1910).

Demand for wheat and other agricultural products increased dramatically across the country during the first decades of the twentieth century. Between 1910 and 1914, increased demand fueled by the growth of urban populations across the United States and increased immigration and settlement due to the westward expansion led to dramatic increases in prices on agricultural products. Declining production in Europe during World War I encouraged the federal government to heavily promote increases in agricultural production (Opie 2004; Wilkins and Wilkins 1977). The government fixed wheat prices during the war, which encouraged farmers to expand their holdings and increase their crop yields. By the 1920s, North Dakota was one of the largest producers of wheat in the United States (Etulain and Malone 1989). These practices would come to haunt the American farmer in the 1920s, when dramatic decreases in crop values resulted in harsh economic conditions across the Great Plans (Wilkins and Wilkins 1977).

Development of Transportation (1864–Present)

Early settlement in North Dakota followed along the expansion of the rail lines, with the railroad companies establishing towns to support the settlement of the vast expanse of the Great Plains. By the early twentieth century, little had changed, and the railroad continued to dominate settlement and transportation across the state, with settlers reliant upon the railroads for importing supplies, and for exporting products of their farms and ranches to more lucrative markets. At the same time, the system of roads and trails, in place before a single track of rail was placed in North Dakota, continued to operate, albeit marginalized by the expanding rail networks (Wilkins and Wilkins 1977).

As early as 1848, officials in Washington were beginning to consider the possibility of creating a network of railroads across the country. Three routes were initially proposed for alignments crossing from the Atlantic Ocean to the Pacific Ocean. The northern-most route proposed crossed the Great Plains from Minnesota to Oregon, crossing through Fort Union in the Dakota Territory. Congress authorized the northern route and in 1864, President Lincoln signed a charter for the Northern Pacific. To help fund the railroad project, the Northern Pacific received a massive land grant from the government, amounting to 40 sections per mile through the Dakota Territory (Tweton and Jelliff 1976).

Although Washington had interest in completing the northern route, finding investors to back the 2,000-mile journey proved more difficult. Northern Pacific was unable to secure sufficient financial backing until 1869, the same year that the Union Pacific Railroad completed their transcontinental route. Financial troubles continued to plague the railroad and by 1873, with the line completed from Duluth to Bismarck, the investment company funding the construction was bankrupt. In 1875, the Northern Pacific reorganized under the leadership of

Frederick Billings, and with strong revenues from the completed part of the line, the Northern Pacific was able to secure the financial support to continue construction, completing its path to the Pacific in 1881. Between 1881 and 1887, the Northern Pacific continued to expand its operations in North Dakota building several branch lines to reach the important agricultural and population centers across the state (Tweton and Jelliff 1976).

The second major railroad to begin construction in North Dakota was the Great Northern Railroad. Starting as the St. Paul and Pacific Railroad in 1857, Congress supplied a similar grant to the railroad company and construction began heading west from St. Paul, Minnesota. Like the Northern Pacific, the St. Paul and Pacific had trouble securing the financial support for the project, going bankrupt in 1872. Under the direction of James J. Hill, the St. Paul and Pacific began construction again in 1878. Rather than building straight west, Hill expanded branch lines across North Dakota and Minnesota and by the 1890s, Hill's railroad had more miles of track in North Dakota than the Northern Pacific. The railroad finally reached the Pacific Ocean in 1893 and the name was changed to the Great Northern Railroad (Tweton and Jelliff 1976).

A third railroad, the Minneapolis, St. Paul & Sault St. Marie, or the "Soo," built a track across North Dakota in 1883. The primary focus of the Soo was to access grain farmers in the northern part of the state, providing connections for agricultural goods to both the Northern Pacific and the Great Northern rail lines. With the three railroads completed, North Dakota settlers had a means to transport wheat crops to milling centers in Minnesota or to larger markets across the country. The railroad also supplied a means to support expanded settlement across the state, with important depots at Grand Forks, Bismarck, and Fargo becoming prominent buildings driving economic activity (Tweton and Jelliff 1976; Wilkins and Wilkins 1977).

Although railroads supported the expanded settlement during the Dakota Boom, the state was also crossed by series of roads and trails that expanded into a broad network during the twentieth century. Some of the earliest roads in the state were developed by the military connecting forts established to monitor the activities of Native Americans, and to protect Euro-American interests in the area. These roads were heavily travelled by the military, by postal carriers, and by early settlers. In the winter months, when snow covered much of the state, these trails were often travelled by sled (Carlson and Sprunk 1979). When North Dakota became a state in 1889, the state constitution made it a requirement to have a two-thirds majority for the approval of state road construction. This meant that the responsibility for road construction was mostly left to the counties. Early roads mostly followed the local topography, providing the most direct route between destinations. Later roads, established during the settlement booms, generally followed section lines. In 1899 in an effort to regulate road construction and provide some standards, the state legislature declared that section roads would be considered public land and that the roads should measure at least 33 feet (2 rods) wide (Carlson and Sprunk 1979).

Leaving the counties responsible for road construction proved sufficient until the arrival of the automobile in the early twentieth century. The automobile increased the demand for roads across the state, and demanded that the existing roads be better maintained to remain passable. Access to funding became the determining factor in road construction, with roads often built

disproportionally to the actual demand. Lack of funding on some areas led to lapses in maintenance leading to washouts, collapsed bridges, and heavy rutting. The poor conditions of roads across the state attracted the attention of A. L. Fellows, who voiced his concern about road conditions in 1906. It would however take several years before that concern turned into action (Carlson and Sprunk 1979).

In 1909, State Senator George A. Welch introduced a bill that would allow North Dakota to receive federal funding for the construction of "demonstration" roads. These roads were federally funded experiments that tested new road building materials and engineering methods. These demonstration roads were only constructed in Bismarck, but it was the beginning of a state-level interest in road conditions that would continue throughout the early twentieth century (Carlson and Sprunk 1979). In 1911, the state authorized the State Engineer's office to provide plans for road construction to any county that requested it, and in 1913, the State Engineer was tasked with approving all bridge designs prior to construction. 1913 also marked the creation of the South Dakota State Highway Commission. The commission was established to give the State Engineer the authority to oversee all road construction. It also required that maps be created that showed the location of all roads, culverts, and bridges (Carlson and Sprunk 1979).

The Federal Government also took steps to assist the states in road construction. In 1916, the Federal Aid Road Act made funding available for creating and maintaining roads. Funding through this act was limited at first, but in the 1920s, interest in developing a federal highway system resulted in additional federal allocations. Due to an ambitious and perhaps exaggerated assessment of the number of roads in North Dakota, it received a disproportionate amount of federal funding in the 1920s (Carlson and Sprunk 1979). The state ranked 36th (out of 48) in population, but 16th in road funding. As a result of this funding, the state proposed the creation and improvement of an extensive series of paved, graveled, and graded roads. Most of these roads were concentrated in the eastern and central portions of the state. In the western counties such as Divide and Williams, most roads remained little more than rutted two-tracks.

In 1924, the Rand McNally Company created an Auto-trails map, attempting to provide an easier means of navigating the highway systems across the country. The Auto-trails used blazed markers to identify highways that could be followed between destinations. To many early twentieth century motorists, driving was as much about recreation as it was transportation, and as such, the early Auto-trails were intended to enhance the driving experience. Roads did not always take the most direct routes between cities, but would wind through scenic locations and historical landmarks. The intent was also to improve tourism across the country. The Auto-trail system was quickly replaced in 1925 when congress passed the Federal Highway Act which established a numbered highway system, most of which followed similar alignments to the old Auto-trail system (Wilkerson 2000). Several of the numbered highways continued to use their Auto-trail names.

During the Great Depression, road projects at the local level dropped significantly. Federal assistance helped buoy the losses of local funding with New Deal Programs continuing to provide support for road and bridge projects. The lack of local funding for road projects continued through the war. Coupled with the lack of available labor during World War II, many of North Dakota's roads fell into disrepair. During the 1940s, the government began to

crack down on several states, including North Dakota, for the conditions of its roads, threatening to cut off funding if the existing roads were not better maintained. In an effort to assert more control over road projects across the country, the Federal Highway Act, passed in 1944, changed the approach to funding road construction, setting aside money specifically to maintain a federal highway system (Carlson and Sprunk 1979).

BACKGROUND RESEARCH

SWCA conducted a background search of archaeological and historical literature and records for the project area and surrounding area (0.5 mile on either side of the proposed pipeline centerline) on June 11, 2014, as part of the initial phase of this investigation. Researchers searched relevant records holdings at the State Historical Society of North Dakota and other available sources for information regarding previously recorded historic and prehistoric sites located within the project area.

Results of the background search indicate 20 previous cultural resource inventories within the study area (Table 3). These previous inventories were primarily conducted for oil and gas or mining purposes, but a few were conducted for road projects, waterlines, or transmission lines.

Twenty-seven previously recorded cultural resources are located within the 1-mile study area of the proposed pipeline centerline (Table 4). These resources include 17 cultural material scatter site leads of unknown cultural or temporal origin (32DVX205, 32DVX212, 32DVX214, 32DVX218, 32DVX219, 32DVX220, 32DVX221, 32DVX222, 32DVX242, 32DVX243, 32DVX244, 32DVX245, 32DVX246, 32DVX247, 32DVX248, 32BKX791, and 32BKX792); two site leads of unknown age or cultural affiliation (32DVX206 and 32BKX776); two historic quarry/mine site leads (32DVX204 and 32BKX779); one historic railroad (32BK68); one prehistoric stone circle site (32DV1); one historic cultural material scatter (32DV11); one historic cultural material scatter and foundation site (32DV22); one historic quarry/mine site (32BK12); and one depression site (32BK103). Three of the sites (32BK68, 32DV11, and 32DV22) are not eligible for listing on the National Register of Historic Places (NRHP). The remaining 24 sites and site leads remain unevaluated regarding their NRHP eligibility. Eleven previously recorded resources are located within the project area (32BK12, 32BK68, 32BKX776, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX243, 32DVX244, 32DVX246, and 32DVX247). SWCA personnel made a concerted effort to relocate the site and site leads during the field inventory; however, only one segment of 32BK68 was identified during the course of survey.

Table 3. Summary of Previous Cultural Resources Inventories within the 1-mile Study Area

Manuscript	Location	Title	Authors	Year
000139	Section 11, T162N, R94W	Larson Mine Survey, Burke Co., ND	C. Dill	1977
000257	Sections 11, 14, 16–18, T162N, R94W	Baukol-Noonan, Inc., Larson Mine Negative Declaration Survey Report, Burke Co., ND	C. Dill and N. Franke	1976

Manuscript	Location	Title	Authors	Year
000296	Sections 16–18, T162N, R94W	Baukol-Noonan, Inc., Southern Coal Mine, Burke County, Negative Declaration Survey Report	C. Dill	1977
000970	Sections 7, 18, T162N, R94W; Sections 12, 13, 24, T162N, R95W	Cultural Resource Inventory of the Proposed Saskatchewan, Canada, Intertie Transmission Line Right of Way, Northwestern North Dakota, Vol. 1, Ward Co., Mountrail Co., Williams Co., Divide Co., & Burke Co.	R. Fox	1980
004418	Sections 12, 13, T162N, R95W	Results of a Cultural Resource Inventory and Evaluation of the Noonan AML Project, Divide County, North Dakota	K. Schweigert and R. Persinger	1987
005036	Section 10, T162N, R94W; Section 14, T162N, R96W; Section 22, T162N, R97W	Des Lacs-Souris Drainage Basin Erosion Control Study Area Cultural Resources Review Part 1: Prehistoric Cultural Resources Overview & Part 2: Prehistoric and Historic Archaeological Sites on Primary Sample Units and Potential Impacts	M. Gregg and P. Picha	1990
006283	Sections 11, 12, T162N, R95W	Cultural Resource Evaluations Noonan AML, Divide County, North Dakota	L. Lahren	1993
006452	Sections 11–13, T162N, R95W	The Baukol Noonan Mining District, Divide Co., ND	D. Hoisington	1995
007144	Section 15, T162N, R95W	Dakota Gasification Company CO2 Pipeline Selected Segments in Mercer, Dunn, McKenzie, Williams and Divide Counties, ND: A Class III Cultural Resources Inventory and Appendix B: USGS Topographic Coverage of the Pipeline	B. Olson	1998
008094	Section 4, T162N, R93W	Highway 5, E Jct. 40 East to W Jct. 52, Highway 89, Lignite Spur, Class II Inventory Report, Burke Co., ND	J. Borchert	2002
010855	Section 1, T162N, R94W	BDW Waterline: A Class II Cultural Resource Inventory in Divide & Burke Counties, ND	J. Harty	2009
013329	Sections 1, 2, T161N, R100W; Sections 35, 36, T162N, R100W	US Highway 85, NDDOT 785(069)216, PCN 19842: A Class III Cultural Resource Investigation in Williams and Divide Counties, North Dakota	K. Morgan, D. Klinner, and J. Harty	2012
013587	Sections 1–3, T162N, R94W; Section 6, T162N, R93W	Noonan to Near Columbus: A Class III Cultural Resource Inventory Along a 9.97-mile Segment of State Highway 5, Divide and Burke Counties, North Dakota	B. Fandrich	2012

Manuscript	Location	Title	Authors	Year
013672	Section 30, T162N, R97W	A Class I and Class III Cultural Resource Inventory of the ONEOK Rockies Midstream Crosby South 14-inch Poly Pipeline, Divide County, North Dakota	J. Schleicher	2012
013684	Section 30, T162N, R97W	A Class I and Class III Cultural Resource Inventory of the ONEOK Rockies Midstream Crosby Discharge Pipeline, Williams and Divide Counties, North Dakota	K. Altizer, J. Schleicher, C. Riordan, and T. Witt	2012
013948	Sections 7, 18, T162N, R94W	A Class I and Class III Cultural Resource Inventory of the Hess Avalanche Pipeline, Burke, Divide, Mountrail, and Williams Counties, North Dakota	M. Cox, N. Smith, and D. Reinhart	2013
014015	Sections 15, 21, 22, T162N. R95W	Divide County Road Right-of-Way Survey: A Class III Cultural Resources Inventory in Divide County, North Dakota	B. Brooks and W. Burns	2012
014077	Section 3, T162N, R93W	Basin Transload: Addendum to the Class III Cultural Resource Inventory of a Proposed Oil Pipeline in Burke County, North Dakota	P. Kuntz	2013
014591	Section 22, T162N, R93W	A Class I and Class III Cultural Resource Inventory of a Segment of the ONEOK Rockies Midstream, LLC, Continental Lateral 1 Pipeline, Divide County, North Dakota	C. Riordan	2013
014750	Sections 1, 2, T161N, R100W	Summit Midstream Energy Divide Lateral Crude Petroleum Gathering Pipeline: Class III Cultural Resource Inventory, Divide and Williams Counties, North Dakota	R. Swanson	2013

Table 4. Previously Recorded Cultural Resources Identified within the 1-mile Study Area

Site Number	Legal Location	Site Type	Cultural Affiliation	NHRP Eligibility
32DV1	E½ NE¼ SE¼ Section 16, T162N, R96W	Stone Circle	Unknown Prehistoric	Unevaluated
32DV11	NW¼ SW¼ SE¼ Section 3, T162N, R95W	Cultural Material Scatter	Unknown Historic	Not Eligible
32DV22	SE¼ NW¼ NW¼ Section 13, T162N, R95W	Cultural Material Scatter, Foundation	Historic	Not Eligible

Site Number	Legal Location	Site Type	Cultural Affiliation	NHRP Eligibility
32DVX204	NE¼ SE¼ Section 12, T162N, R95W	Quarry, Mine–Site Lead	Unknown Historic	Unevaluated
32DVX205	SW¼ Section 15, T162N, R95W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX206	SE¼ SE¼ Section 16, T162N, R95W	Unknown–Site Lead	Unknown	Unevaluated
32DVX212	NW¼ Section 16, T162N, R96W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX214	E½ E½ NW¼, W½ W½ NE¼ Section 19, T162N, R96W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX218	NE¼ Section 20, T162N, R96W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX219	SE¼ Section 21, T162N, R97W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX220	SW¼ NE¼ Section 22, T162N, R97W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX221	SW¼ Section 24, T162N, R97W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX222	NW¼ Section 25, T162N, R97W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX242	NE½ S½, S½ NE½ Section 20, T162N, R98W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX243	NE¼ Section 29, T162N, R98W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX244	NW¼ Section 29, T162N, R98W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX245	SE¼ Section 29, T162N, R98W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX246	SW¼ Section 29, T162N, R98W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX247	S½ S½ NE¼, NE½ NE½ SW¼ Section 32, T162N, R98W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32DVX248	SW¼ SE¼ Section 32, T162N, R98W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32BK12	Sections 3, 4, 5, 8, 9, E½ Section 6, SW¼ Section 6, NE½ Section 7, SE¼ Section 7, T162N, R94W	Quarry, Mine	Historic	Unevaluated
32BK68	N NW SW Section 3, T162N, R93W	Railroad	Historic	Not Eligible
32BK103	NE½ S½ Section 17, T162N, R94W	Depression	Historic	Unevaluated

Site Number	Legal Location	Site Type	Cultural Affiliation	NHRP Eligibility
32BKX776	SE¼ NW¼ Section 3, T162N, R93W	Unknown–Site Lead	Unknown	Unevaluated
32BKX779	NE¼ Section 8, NW¼ Section 9, SW¼ Section 14, NE¼ Section 23, NE½ Section 24, T162N, R94W	Quarry, Mine–Site Lead	Unknown Historic	Unevaluated
32BKX791	W½ SW¼ Section 10, T162N, R94W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated
32BKX792	NW¼ NW¼ Section 10, T162N, R94W	Cultural Material Scatter–Site Lead	Unknown	Unevaluated

NRHP = National Register of Historic Places

FIELDWORK METHODS

Fieldwork was designed so that project archaeologists could collect all appropriate and necessary data for the completion of the project report of results and recommendations, and to ensure accurate completion of site forms for all resources encountered.

In accordance with the scope of work, archaeologists surveyed the 150-foot-wide inventory corridor using parallel linear transects with spacing not exceeding 30 m. The survey corridor was widened in some areas to allow for pipeline reroutes. The ground surface was examined for artifacts, features, or other evidence of cultural occupation. Cut banks, eroded surfaces, rodent burrows, and other areas with significant exposure were examined intensively throughout fieldwork, especially where previously recorded cultural resources existed. In areas with a high probability of cultural resources, survey transects were reduced to 10 m to maintain adequate visibility. Bare ground surface visibility during the project varied from 0 to 90 percent across the project area, with higher visibility in agricultural lands.

Where cultural resources were located, project archaeologists made an intensive effort to fully and accurately establish the extent and boundaries of newly recorded sites. As such, sites were mapped using submeter-accurate Trimble global positioning system (GPS) units. When detailed mapping or remapping was required, all linear site features, such as site boundaries, roads, and fence lines, as well as point features, such as the site datum, cultural features, artifact concentrations, diagnostic artifacts and tools, and other necessary data, were mapped with the Trimble GPS unit for post-processing into ArcMap 10.0 shapefiles, and for plotting onto associated USGS 7.5-minute quadrangles to ensure accuracy and to produce required location maps of all sites and resources.

In addition to site mapping, associated features and diagnostic artifacts were described, measured, recorded using a handheld GPS unit, and photographed as appropriate. Field personnel noted environmental setting, context, topography, and geographical location for each cultural resource. No collection or subsurface testing was conducted during the inventory.

SITE EVALUATION

SWCA evaluated sites and their significance, as defined by criteria set forth in Title 36 Code of Federal Regulations 60.4 (National Park Service 1991), which states:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B) That are associated with the lives of persons significant in our past; or
>
> C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D) That have yielded, or may be likely to yield, information important in prehistory or history.

A site may meet one or more of the four eligibility criteria listed above, but if it is considered to not retain sufficient integrity, it may be recommended not eligible for inclusion on the NRHP.

Prehistoric Archaeological Sites

Prehistoric lithic scatters/campsites (sites without any structures or association with known significant events or persons) recorded for the project generally are not considered eligible for NRHP inclusion under Criteria A, B, and C. Instead, for NRHP recommendation purposes, these properties will be discussed for their potential to yield information significant to prehistory or the archaeological record under NRHP Criterion D. Special cases generally apply to Criterion A, where a prehistoric site type (such as a stone circle site) may not be recommended eligible for listing in the NRHP from an archaeological perspective, but may be considered important to cultures of Native American peoples.

Evaluation of archaeological site significance under Criterion D considers general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site (construction techniques, building materials, structural integrity); and the age range reflected by the site assemblage. Sites considered significant generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and to allow confirmation of the period of site use. Sites with the most potential to address research questions about human lifeways contain associated features, structures, and/or relatively intact and dateable artifacts.

Historic Archaeological Sites or Components

Historic sites containing or consisting of preserved features or structures are evaluated primarily under Criteria A, B, and C. Historic trash scatters lacking associated features or structures are primarily evaluated under Criterion D. In general, these types of sites represent ephemeral prospecting or stock management activities, but they lack identifiable or important association with specific persons or events of regional or national history (Criteria A and B), and they lack the formal and structural attributes necessary to qualify as eligible under Criterion C. The evaluation of significance of historic archaeological sites under Criterion D focuses on the capacity of the sites or components to yield significant information regarding knowledge of history during the period(s) of site significance. Evaluation of the significance of historic sites considers general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site; construction techniques; building materials; structural integrity; and the age range reflected by the site assemblage.

Historic sites considered to be significant under Criterion D generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and to allow confirmation of the period of site use. Sites with the most potential to address research questions contain associated features, structures, and relatively intact and datable artifacts. Significant sites are those that could impart information not available solely from historical documents. Although archival research may provide an essential form of information, often historical records are inaccurate or incomplete. For example, examination of construction techniques or household assemblages can provide information on economic slumps, reuse of structures for other than original purposes, and re-occupation cycles. As a result, insight may be gained into questions about human lifeways that are often asked in archaeology, but rarely specified directly in historical documentation.

Non-Archaeological Historic Sites or Components

Non-archaeological historic sites or sites with non-archaeological components are those primarily assessed for NRHP eligibility under Criteria A, B, and C, rather than Criterion D and typically are not subject to subsurface testing. Individual segments of significant historic sites are evaluated as contributing or non-contributing in terms of physical and environmental integrity. Examples of historic site types include linear historic features, such as transportation routes and water conduits, standing building and structure sites, and potentially extend to any historic feature on an otherwise archaeological site, such as traditional cultural property features. Historic and ethnographic sites evaluated for potential contribution to history or cultural traditions for reasons beyond their possible future research value tend to have different evaluation and management considerations than archaeological sites. Typically, the integrity of historic sites is addressed using the guidelines presented in National Register Bulletin 15 (National Park Service 1991), which defines the seven elements of integrity as location, design, setting, materials, workmanship, feeling, and association. As such, properties are basically evaluated in consideration of their physical integrity and the integrity of their surroundings. Traditional Cultural Properties are also considered under the guidelines of National Register Bulletin 38 (Parker and King 1998).

INVENTORY RESULTS AND RECOMMENDATIONS

SWCA archaeologists newly recorded 14 cultural resources, including a new segment of a previously recorded railroad (32BK68), two homestead and cultural material scatter sites (32BK155 and 32DV143); a building site (32DV142); five cultural material scatter sites (32BK156, 32BK157, 32DV141, 32DV144, and 32DV145); four farm equipment isolated finds (32BKX1003, 32BKX1004, 32DVX432, and 32DVX434); and one wagon isolated find (32DVX433). Copies of the North Dakota site forms are included in Appendix A (detached). Resource location maps are provided in Appendix B.

Additionally, SWCA attempted to revisit 10 previously recorded cultural resources (32BK12, 32BKX776, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX243, 32DVX244, 32DVX246, and 32DVX247). None of the previously recorded sites were re-located within the project area.

NEWLY RECORDED SITES

32BK68

Site Type:	Great Northern Railroad
Chronological Placement:	Historic, 1907
Maximum Site Size:	378.18 by 1,331.43 feet (74,845.08 feet²)
NRHP Eligibility:	Eligible/Contributing
Management Recommendation:	No Further Work

Site Description and Previous Recordings

This site is a newly recorded segment of the previously recorded 32BK68. This segment of 32BK68 is an active branch of the historic Great Northern Railroad, now operated by the Burlington Northern Santa Fe (BNSF) Railway, located at the Stampede pipeline terminal in a relatively flat upland plain (Figures 7–9). This segment consists of the Great Northern Railway and associated appendages including an elevator loading line and three stockyard lines. The site is located in Stampede, North Dakota, and intersects Burke County Road 7. Oil and gas transport facilities are located along the north end of the railway as well as an old grain elevator south of the railway to the east of the segment. Vegetation in the area consisted of mixed prairie grasses, allowing for approximately 0 percent bare ground surface visibility in areas not around the railway right-of-way at the time of survey. The soil on site is brown silt loam. The site is in excellent condition, as it is still in use and maintained. Impacts include weathering and upkeep.

Portions of 32BK68 have been previously recorded by Ed Stine (2003), Jennifer Evens (2011 and 2012), Janice McLean (2011), and Steven Blondo (2012). Previous recordings consisted of railroad segments near Bowbells, Couteau, and Northgate, North Dakota, as well as rural areas in Burke County. The original site recording in 2003 recommended the site as unevaluated for the NRHP, while the remaining records (post-2011) recommended the site as not eligible.



Figure 7. 32BK68 site overview, main line and elevator loading line, facing east.



Figure 8. 32BK68 site overview, stockyard lines, facing east.

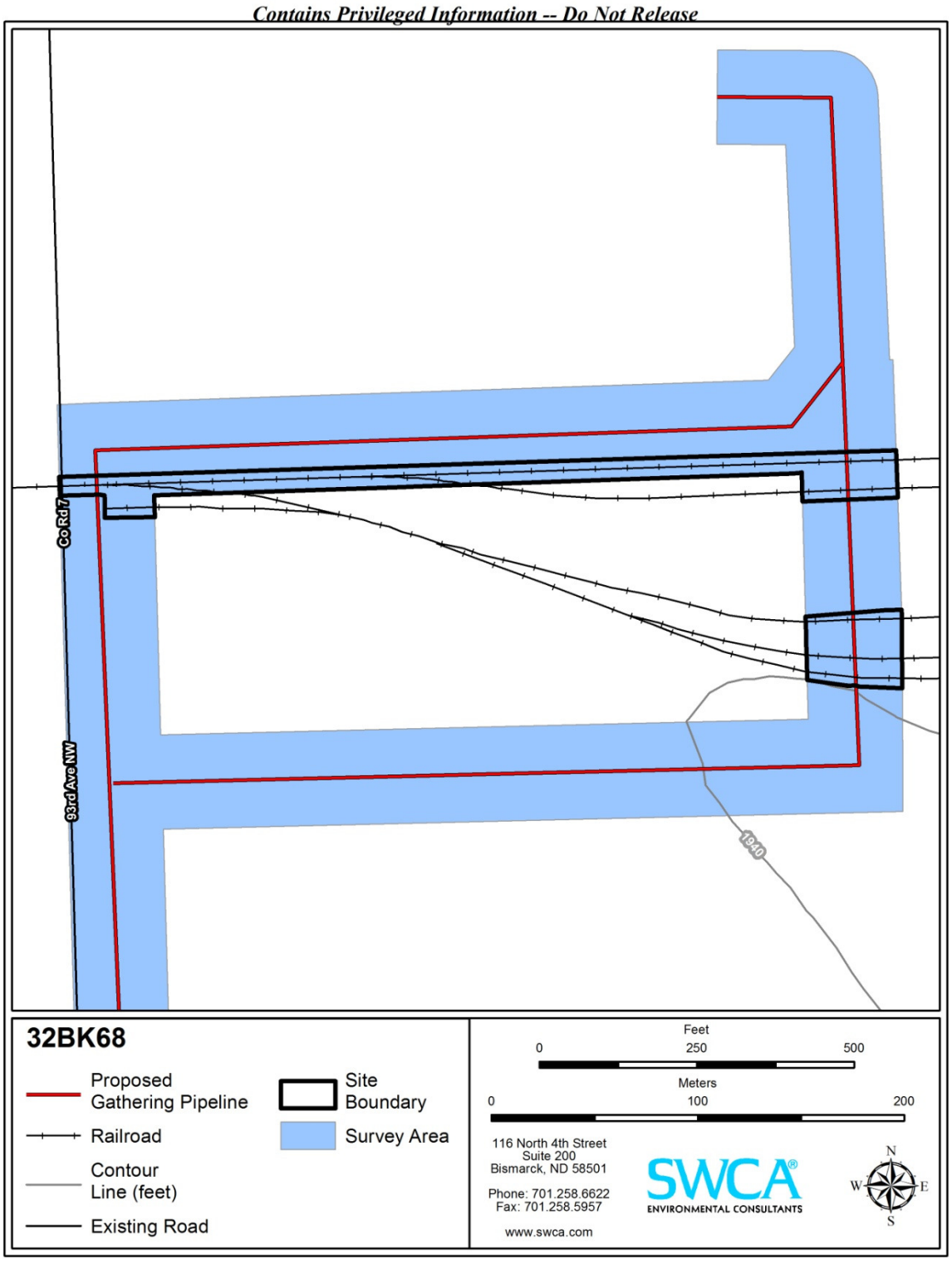


Figure 9. 32BK68 site sketch map.

Survey Results

SWCA recorded the segment of 32BK68 on June 19, 2014. The site consists of the Great Northern Railway and associated appendages including an elevator loading line and three stockyard lines. The tracks are on a raised bed (ranging from 1 foot to 3 feet high) approximately 15 feet wide and overlain with crushed granite ballast. Only the portions of the railroad within the project survey corridor were recorded; however, the alignment extends beyond the survey corridor to the east and west. Most of the materials are modern and have been replaced since the original construction of the railroad, though the alignment itself has not changed. The railroad ties are treated, milled lumber in good condition, and have been recently replaced. The rail is rolled steel that was manufactured in 2008 (main line), 1943 and 1944 (stockyard lines), and 1912 (elevator loading line). The standard gauge rails are joined together with fish plates rather than welded. The segment is in excellent condition.

Historic Background

The Great Northern Railway mainline was constructed in 1887 by the St. Paul, Minneapolis, and Manitoba Railway, but was not named the Great Northern Railway until 1889 (Great Northern Railway Historical Society 2011). Begun as the St. Paul and Pacific Railroad in 1857, it was the second major railroad to begin construction in North Dakota after the Northern Pacific. Like the Northern Pacific, the St. Paul and Pacific had trouble securing financial support, going bankrupt in 1872. Under the direction of James J. Hill, the St. Paul and Pacific began construction again in 1878. Hill believed that the rolling prairie of Montana and North Dakota could be cultivated for farming and promoted his railway to potential homesteaders (Rennie 2004). Rather than building straight west, Hill expanded branch lines across North Dakota and Minnesota and by the 1890s, Hill's railroad had more miles of track in North Dakota than the Northern Pacific (Tweton and Jelliff 1976). The Great Northern Railway provided transportation for early settlers and allowed for early commerce in North Dakota, transporting local goods to markets (Rennie 2004). By 1929, the Great Northern Railway provided transcontinental transportation between St. Paul, Minnesota, and Klamath Falls, Oregon, thereby providing greater opportunities for interstate commerce (Great Northern Railway Historical Society 2011). During World War II, the railway transported goods as part of the military supply line in addition to passenger services (Great Northern Railway Historical Society 2011). In 1970, the Great Northern Railway became part of a four-railroad merger, which included the Northern Pacific Railway, the Chicago, Burlington, and Quincy Railroad, and the Spokane, Portland, and Seattle Railway, to become the Burlington Northern Railway (Great Northern Railway Historical Society 2011). The Burlington Northern Railway merged with the Santa Fe on September 22, 1995, thus creating the BNSF Railway (BNSF Railway 1999).

The portion of 32BK68 recorded on June 19, 2014, is part of the North Dakota segment of the Great Northern Railway Berthold to Crosby branch, constructed in 1907, which was originally constructed by the Dakota and Great Northern Railway Company. The Dakota and Great Northern Railway Company was incorporated in 1900. The Dakota and Great Northern Railway Company constructed 10 lines between 1901 and 1907, and when completed, were transferred to the Great Northern. At this time, these lines were constructed during the "railway war of 1905" with the Soo Line for control of northern North Dakota, southern

Manitoba, and southern Saskatchewan. These north/south-trending lines were known as the Great Northern's "picket fence" across northern North Dakota (Schmidt and Vermeer 2009).

NRHP Eligibility Recommendation

32BK68 consists of the active and historic railroad alignment for the Great Northern Railway mainline and branch line segments. The original site recording in 2003 left the site as unevaluated for the NRHP, while the remaining records (post-2011) recommended the site as not eligible. However, the Dakota and Great Northern portion of the Great Northern Railway recorded in 2014 does have a demonstrable and significant association with the early transportation history of the region. The railway corridor did directly contribute to the development of the agricultural and livestock industries in the region and led to significant expansion of both industries. The branch line in particular played an important role in supporting the agriculture and cattle industry of west-northwestern North Dakota by providing access to both American and Canadian markets for goods. This segment retains great integrity as evidenced by the dates of the rails. SWCA therefore recommends that the site as a whole be considered eligible for nomination to the NRHP under Criterion A.

North Dakota railroads are not typically considered eligible for nomination under Criterion B, since they were generally the product of corporations, rather than significant individuals (Schmidt and Vermeer 2009). SWCA found no exception to this guidance for 32BK68 and therefore recommends that the site be considered not eligible for nomination to the NRHP under Criterion B. Similarly, railroads in North Dakota are generally considered not eligible for nomination to the NRHP under Criterion C, since they are representative of existing technology well established in other parts of the country and therefore do not represent significant or distinguishable features that embody a distinct type of engineering or construction (Schmidt and Vermeer 2009). SWCA found no evidence that 32BK68 is an exception to this guidance and therefore recommends that the site be considered not eligible for nomination to the NRHP under Criterion C. The deposition on site and the lack of surface artifacts indicate that the site is unlikely to yield information important in history; therefore, the segment is recommended not eligible for inclusion to the NRHP under Criterion D.

During the current survey a segment of the Dakota and Great Northern rail line was recorded within the survey corridor. The berm retains the original alignment and structure; however, the rails, ties, and all other material associated with the railroad have been replaced at regular intervals as part of normal railway maintenance. Because the original ties and some of the other railroad fixtures have been removed and replaced with modern components, the segment has lost some of its integrity in regards to materials. Nevertheless, the original constructed berm alignment remains and retains the location, design, and workmanship of the original engineered design; therefore, SWCA recommends that the site be considered a contributing component of the overall resource. This evaluation follows requirements set forth in North Dakota's railroad context (Schmidt and Vermeer 2009)

Management Recommendation

SWCA recommends 50 feet of avoidance of the site by all project impacts. By project design, the segment of the Great Northern Railway, 32BK68, will not be impacted by means of a horizontal directional drill or bore.

32BK155

Site Type:	Depression, Foundation, Cultural Material Scatter
Chronological Placement:	Unknown Historic
Maximum Site Size:	230.67 by 81.76 feet (12,606.80 feet²)
NRHP Eligibility:	Not Eligible
Management Recommendation:	No Further Work

Site Description and Previous Recordings

32BK155 is a historic depression, foundation, and cultural material scatter site located on a rolling upland plain (Figures 10 and 11). The site is located on the southwestern corner of the intersection of east/west-trending 101st Street and north/south-trending 94th Ave NW. An electrical line crosses the northern end of the site, paralleling 101st Street. Vegetation in the area consisted of thin concentrations of smooth brome and Kentucky bluegrass, allowing for approximately 60 percent bare ground surface visibility at the time of survey. The soil on site is dark brown silt loam. The site is in very poor condition, with impacts from the roads and electrical line, grazing, agricultural activities, and nearby oil and gas development.



Figure 10. 32BK155 site overview, facing east.

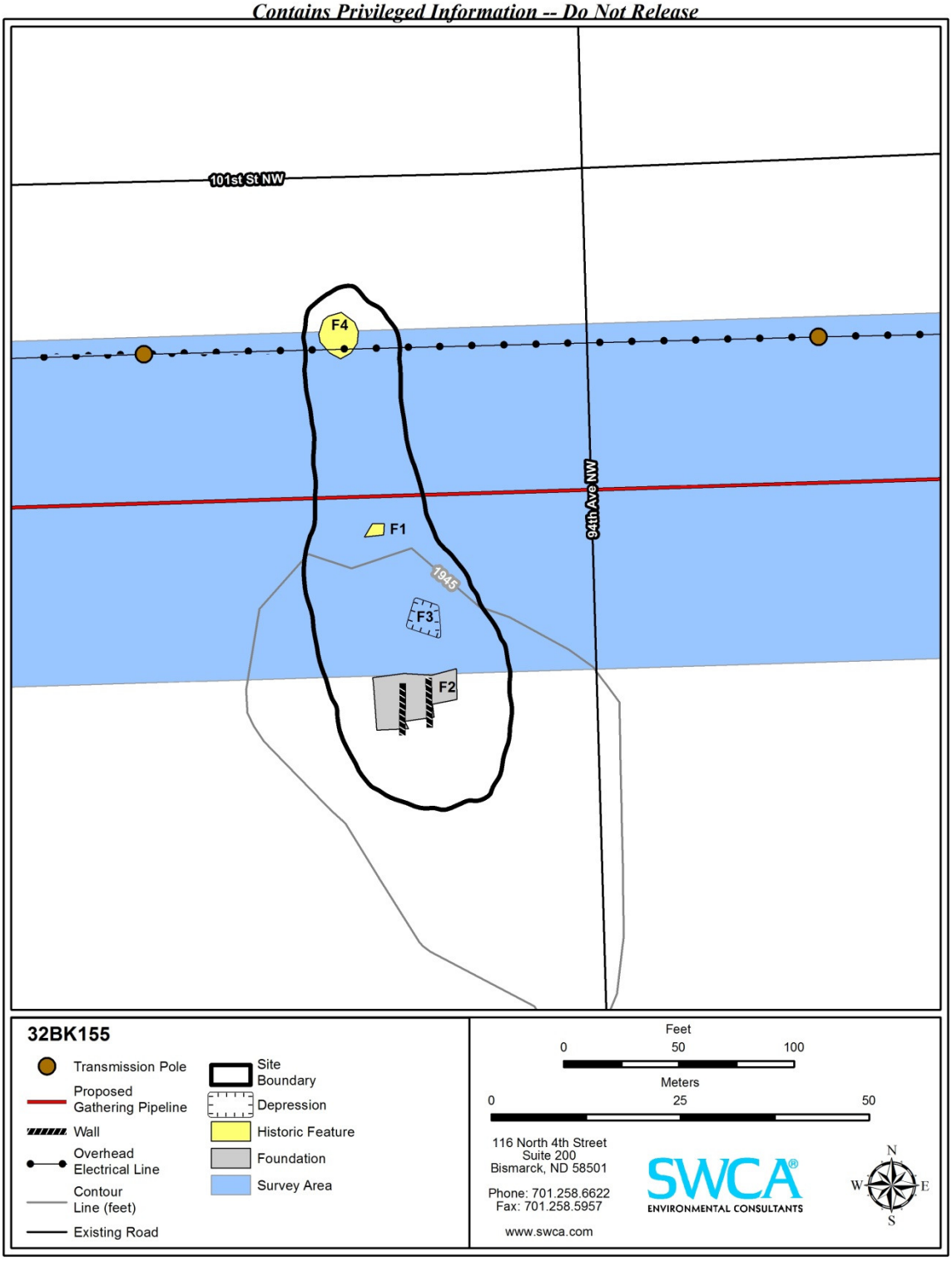


Figure 11. 32BK155 site sketch map.

Survey Results

SWCA recorded 32BK155 on June 16, 2014. The site consists of a windmill (Feature 1), a foundation (Feature 2), a depression (Feature 3), a circular foundation (Feature 4), and a sparse historic cultural material scatter.

Feature 1 is a steel windmill with a four-sided base measuring 6 by 6 feet (Figure 12). The windmill structure is approximately 35 feet tall. Prior to falling to disrepair, the windmill had six blades. The blades are no longer present, however the metal supports which held them remain in place. The wind vane is still in place. A threaded iron pipe is embedded in the ground in the center of the windmill, though it does not connect to the windmill structure. No maker's mark was observed.



Figure 12. 32BK155 Feature 1, windmill, with 94th Avenue NW visible on the right and electrical line along 101st Street in the background, facing north.

Feature 2 is the remains of a masonry foundation with ceramic piping fragments and cobbles with cement mortar, measuring 24 feet north/south by 34 feet 6 inches east/west, and ranges from 10 inches to 2 feet above ground (Figure 13). The foundation is oriented north/south with an opening in the southeast corner. From the layout of the foundation, three rooms can be identified. A possible porch area was identified on the southern end of the foundation. The central portion of the foundation contains a square-shaped depression approximately 3 feet deep which has a soil and gravel mixture in the base and a vertical 2- by 4-inch post embedded in the center. Wooden siding, interior frames, and plaster are scattered in and around the feature, and broken window pane-glass is scattered within the feature. No standing structure is associated with Feature 2.



Figure 13. 32BK155 Feature 2, foundation, with Feature 1 in the background, facing north.

Feature 3 is a depression measuring 11 feet north/south by 12 feet east/west (Figure 14). The depression is approximately 5 feet deep.



Figure 14. 32BK155, Feature 3, depression, with intersection of 94th Avenue NW and 101st Street in the background, tape at 3 feet, facing north.

Feature 4 is a circular foundation measuring 18 feet in diameter (Figure 15). The foundation is made of poured concrete covered by sheet metal and likely represents the base of a grain bin.



Figure 15. 32BK155, Feature 4, grain storage foundation, with 101st Street in the background, tape at 3 feet, facing north.

The cultural material scatter includes a concentration of ceramic whitewear sherds approximately 30 feet southwest of Feature 2, two clear glass bottles (no maker's marks noted), a wood and steel hoist, and a wooden door frame with door attached.

Historic Background

Due to the presence of historic features and debris at the site, SWCA conducted historical background research for the site location using Bureau of Land Management (BLM) General Land Office (GLO) records. A search of BLM GLO records indicated that a serial land patent was issued to Olaus Bjorngjeld for the NE¼ of Section 8, T162N, R93W, on March 24, 1910, under the 1862 Homestead Act (BLM 2014 [1910]:BLM Serial Number NDMIN 0006233). A search of U.S. Bureau of the Census records indicates that Olaus Bjorngjeld was born in Norway in 1877 and immigrated to the United States in 1892 (U.S. Bureau of the Census 1930:Roll 1732, Page 1A). In 1900, Olaus Bjorngjeld lived in Minnesota with his older brother, but by 1915 was resident in the township of Fay in Burke County, North Dakota, with his wife Karen (U.S. Bureau of the Census 1900:Roll 1732, Page 1B; North Dakota 1915:Roll ndsc_6856, Page 2). Olaus and Karen had six children and remained in Fay, North Dakota, until at least 1930 (U.S. Bureau of the Census 1930:Roll 1732, Page 1A). Olaus Bjornjeld died in 1955 and was buried in Columbus, North Dakota (Find A Grave 2004). It is assumed that Olaus Bjornjeld and his family lived on the plot issued to him under the land patent, since a 5-year residency was required as part of the qualification process; however, no

evidence could be found to connect Olaus and his family to the historic materials and features found at the site. No further information was available for Olaus Bjornjeld.

NRHP Eligibility Recommendation

32BK155 is a historic windmill, foundation, depression, and cultural material scatter located on a rolling plain surrounded by agricultural lands. Historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local state or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criteria A and B. Furthermore, the only remaining standing structure, a windmill, is not associated with an architectural type or the work of a master; therefore, the site is recommended as not eligible for nomination to the NRHP under Criterion C. The site has been heavily disturbed and it is unlikely that intact subsurface deposits are present. There are a lack of subsurface cultural deposits which could reconstruct activity areas or answer research questions, and the site would not contribute significantly to local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criterion D.

Management Recommendation

No further work is recommended.

32BK156

Site Type:	Cultural Material Scatter
Chronological Placement:	Historic, Early 20th Century
Maximum Site Size:	187.92 by 96.23 feet (14,463.25 feet^2)
NRHP Eligibility:	Not Eligible
Management Recommendation:	No Further Work

Site Description and Previous Recordings

32BK156 is a sparse historic cultural material scatter located on a rolling upland plain (Figures 16 and 17). The site is located within a planted agricultural field approximately 100 feet south of east/west-trending 101st Street, and approximately 20 feet south of an electrical line which parallels the road. Vegetation in the area consists of the early stages of an unknown crop, which allowed for up to 90 percent bare ground surface visibility at the time of survey. The site is in poor to fair condition, with the primary impact being the on-going agricultural use of the field. Secondary impacts include the construction of the electrical line and road, and erosion.

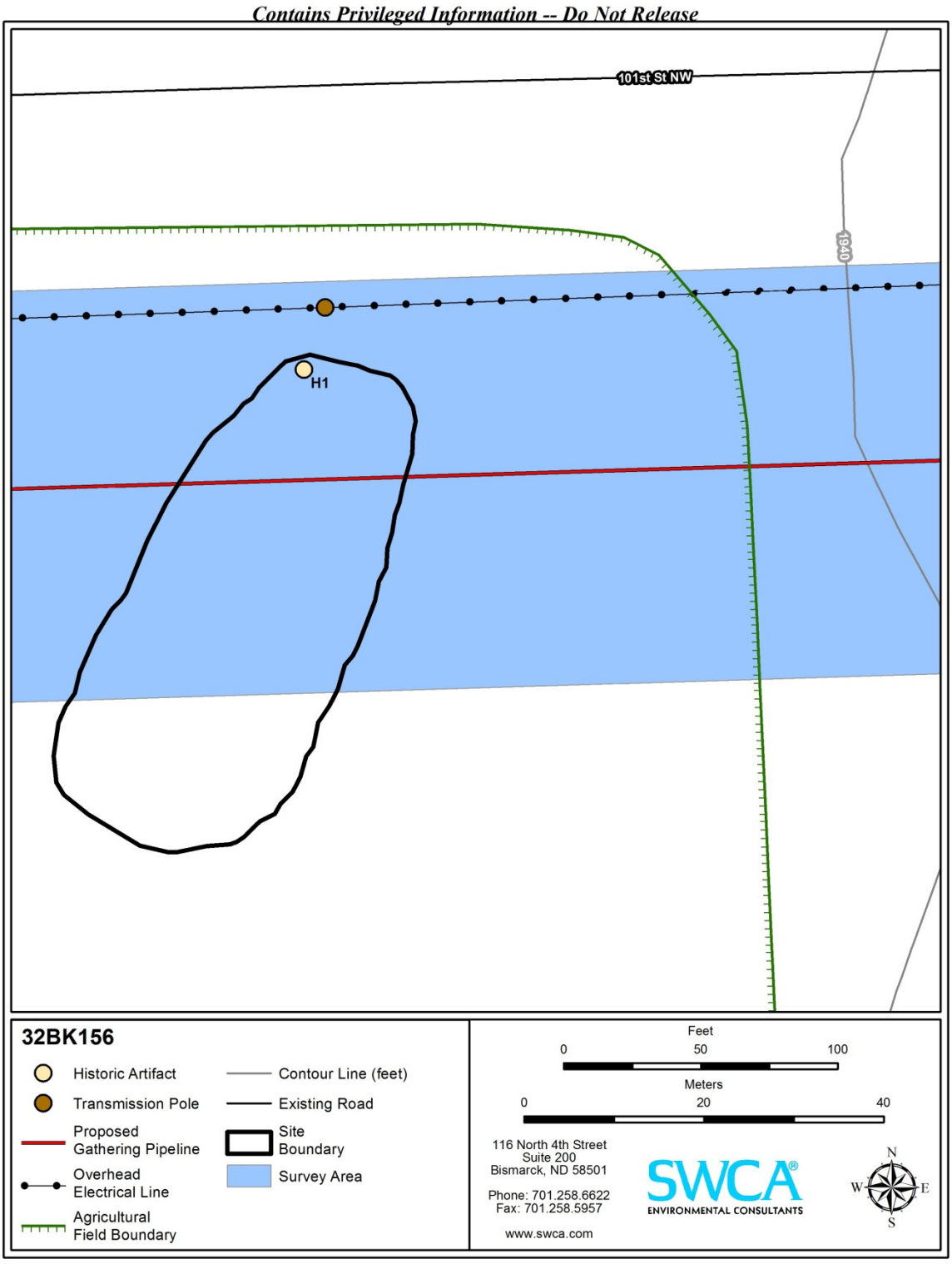


Figure 16. 32BK156 site sketch map.



Figure 17. 32BK156 site overview, with electrical line in the background, facing north.

Survey Results

SWCA recorded 32BK156 on June 16, 2014. The site consists of a sparse cultural material scatter, including ceramics, glass, and metal.

Only one ceramic artifact (H1) was observed, a white paste ceramic base with a maker's mark reading SHENANGO CHINA NEWCASTLE.P (Figure 18). The Shenango China Company was begun in 1901 in New Castle, Pennsylvania, operating until 1991 (Lawrence County Historic Society 2014). The mark appears similar to one used on ovenware, teapots, and creamers manufactured by the Shenango China Company in the 1920s through 1940s (Restaurant Ware Collectors Network 2013).

The glass scatter observed on site includes four shards of milk glass, four shards of clear glass, one brown glass bottle neck shard, and one clear glass bottle measuring 1¾ inches tall by 1 inch wide, and ½ inch thick (no maker's mark was noted).

Metal observed on site consists of two tin fragments and the metal tooth from a tiller.



Figure 18. 32BK156 H1, Shenango China Company maker's mark.

Historic Background

Due to the presence of historic debris at the site, SWCA conducted historical background research for the site location using BLM GLO records. A search of BLM GLO records indicated that a serial land patent was issued to Olaus Bjorngjeld for the NE¼ of Section 8, T162N, R93W, on March 24, 1910, under the 1862 Homestead Act (BLM 2014 [1910]:BLM Serial Number NDMIN 0006233). A search of U.S. Bureau of the Census records indicates that Olaus Bjorngjeld was born in Norway in 1877 and immigrated to the United States in 1892 (U.S. Bureau of the Census 1930:Roll 1732, Page 1A). In 1900, Olaus Bjorngjeld lived in Minnesota with his older brother, but by 1915 was resident in the township of Fay in Burke County, North Dakota, with his wife Karen (U.S. Bureau of the Census 1900:Roll 1732, Page 1B; North Dakota 1915:Roll ndsc_6856, Page 2). Olaus and Karen had six children and remained in Fay, North Dakota, until at least 1930 (U.S. Bureau of the Census 1930:Roll 1732, Page 1A). Olaus Bjorngjeld died in 1955 and was buried in Columbus, North Dakota (Find A Grave 2004). It is assumed that Olaus Bjorngjeld and his family lived on the plot issued to him under the land patent since a 5-year residency was required to qualify for a patent; however, no evidence could be found to connect Olaus and his family to the historic materials found at the site. No further information was available for Olaus Bjorngjeld.

NRHP Eligibility Recommendation

32BK156 is a historic cultural material scatter located in a plowed and planted agricultural field. Historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criteria A and B. Furthermore, no standing structures are present which would be associated with an architectural type or the work of a master; therefore, the site is recommended as not eligible

for nomination to the NRHP under Criterion C. The site has been heavily disturbed by agricultural activities, indicating that intact subsurface cultural deposits are unlikely on the site and the site would not contribute significantly to local, state, or national history. Therefore, SWCA recommends the site as not eligible for nomination to the NRHP under Criterion D.

Management Recommendation

No further work is recommended.

32BK157

Site Type:	Cultural Material Scatter
Chronological Placement:	Unknown Historic
Maximum Site Size:	269.46 by 48.23 feet (9,980.84 feet²)
NRHP Eligibility:	Not Eligible
Management Recommendation:	No Further Work

Site Description and Previous Recordings

32BK157 is a sparse historic cultural material scatter located within relatively flat topography in the prairie pothole region with several wetlands, marshes, and streams to the east, north, and southwest (Figures 19 and 20). 100th Street NW trends east/west approximately 50 feet south of the site along with a north/south-trending fence line which bisects the site. The site is situated within an agricultural field with brome, Canadian thistle, yarrow, and crested wheatgrass, allowing for 70 to 90 percent bare ground surface visibility at the time of survey. Surface sediment on site consists of light brown sandy clay loam. The site is in poor condition, with impacts from erosion and agriculture.



Figure 19. 32BK157 site overview, facing south.

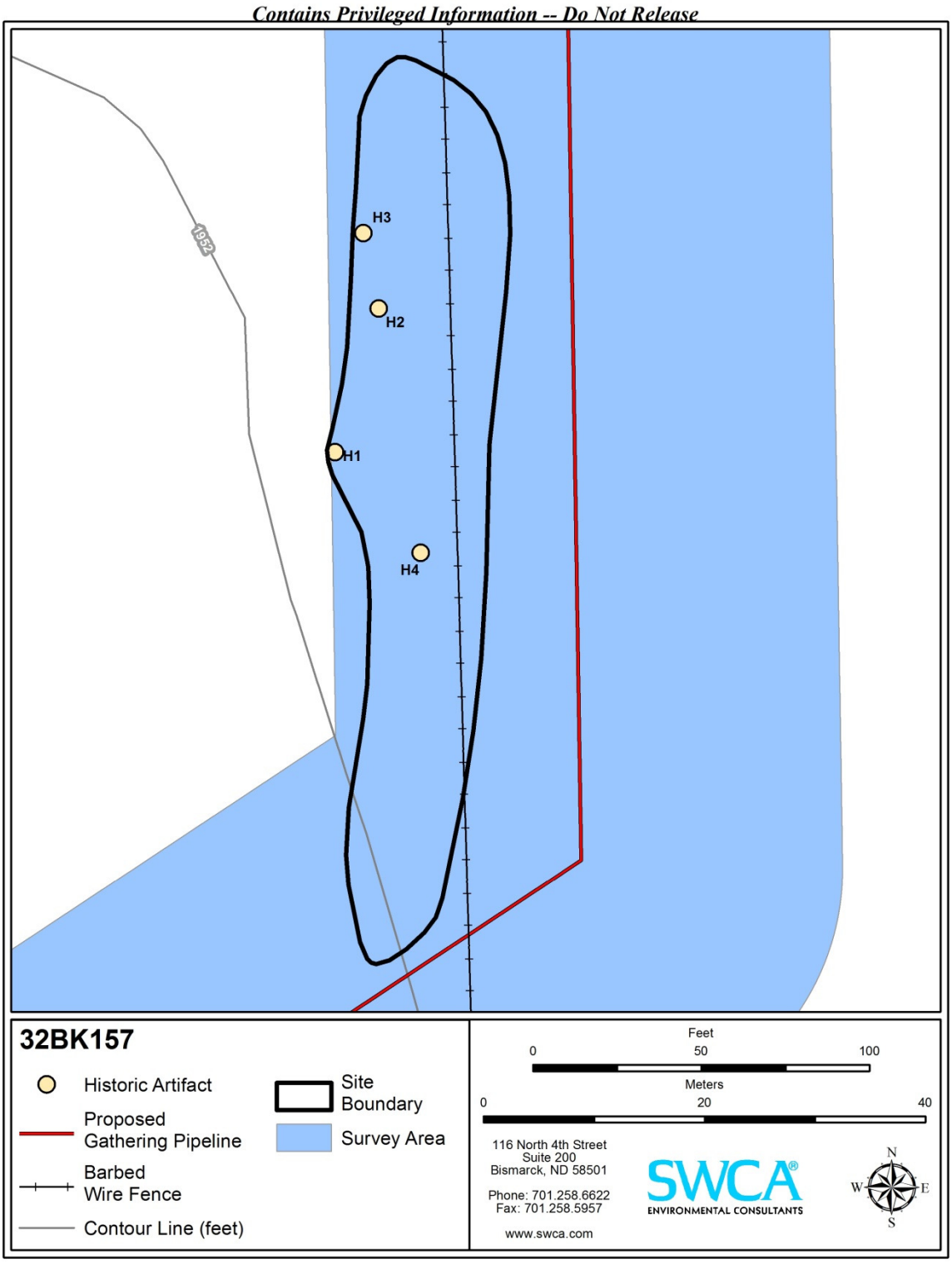


Figure 20. 32BK157 site sketch map.

Survey Results

SWCA recorded 32BK157 on June 16, 2014. The site consists of a historic cultural material scatter of ceramics, glass, metal, rubber, leather, and clinker. Of the artifacts, four pieces of glass are diagnostic (H1–H4).

H1 is a piece of aqua glass with the number 5 embossed on the base. No information could be found on this maker's mark.

H2 is a piece of aqua glass embossed with TRA. No information could be found on this maker's mark.

H3 is a white milk glass lid with an embossed cherry decoration (Figure 21). No information could be found on this maker's mark.



Figure 21. 32BK157 H3, white milk glass lid.

H4 is a clear glass shard embossed with ST. PAUL, MINN. No information could be found on this maker's mark.

The remaining glass scatter consists of 85 shards of non-diagnostic glass shards distributed across the site (Table 5). The dominant glass types observed are clear glass body shards with an undetermined production method and aqua glass body and neck shards with an undetermined production method. A variety of glass was observed (Figure 22).

Table 5. Summary of Glass at 32BK157

Description	Total Fragments
Clear glass body shards, undetermined production method	34
Aqua glass body and neck shards, threaded finish	30
Amethyst glass body and neck shards, undetermined production method	14
Amber glass body and neck shards, applied tooled finish	4
Cobalt glass body fragments, undetermined production method	2
Clear glass body shard, heat worn, undetermined production method	1



Figure 22. 32BK157 representative sample of glass.

The ceramic scatter consists of 37 ceramic sherds distributed across the site. The scatter is summarized in Table 6. The primary ceramic types found on site are refined earthenware cups and plates with a cracked white glaze and a gold trim on the rim. A variety of types of vessels and decorative styles were observed (Figure 23).

Table 6. Summary of Ceramics at 32BK157

Description	Total
Refined earthenware cup and plate sherds with a cracked white glaze and a gold trim	19
Semi-porcelain plate sherds with a white paste and floral rose and gold trim	10
Refined earthenware cup sherds with a white paste and ornate scroll decoration	4
Unrefined earthenware unidentified sherd with a brown cream glaze	1
Stoneware large vessel sherd with a cream glaze	1
Refined porcelain plate sherd with cracked white glaze and green vine decoration	1
Semi-porcelain plate with a white-fade-to-blue glaze and a decoration pattern along the rim	1



Figure 23. 32BK157 representative sample of ceramics.

Historic Background

Due to the presence of historic debris at the site, SWCA conducted historical background research for the site location using BLM GLO records. The site is located on two separate parcels of land, so research was conducted on both parcels. The records indicated that a land patent had been issued under the 1862 Homestead Act to Charles A. Ely on July 12, 1909, for the SW¼ of Section 10, T162N, R94W (BLM 2014 [1909]:BLM Serial Number NDMIN 0002414) and a land patent had been issued under the 1862 Homestead Act to Johanna Mahoney on April 1, 1909, for the SE¼ of Section 10, T162N, R94W (BLM 2014 [1909]:BLM Serial Number NDMIN 0000589).

A search of U.S. Bureau of the Census records indicates that Charles A. Ely was born in Iowa in 1876 (Find A Grave 2006; U.S. Bureau of the Census 1910:Roll 1139, Page 2B). From 1910 to at least 1940, Charles worked as a farmer and resided in the township of Keller in

Burke County, North Dakota, with his wife, Alice; mother, Aliza; and children, Raymond, Ruth, Edward, and Alice (U.S. Bureau of the Census 1910:Roll 1139, Page 2B; U.S. Bureau of the Census 1920:Roll 1331, Page 4A; U.S. Bureau of the Census 1930:Roll 1732, Page 2B; U.S. Bureau of the Census 1940:Roll 2994, Page 2B). Charles A. Ely died in 1962 and was buried at Bethlehem Lutheran Cemetery in Noonan, North Dakota (Find A Grave 2006). It is assumed that Charles Ely and his family lived on the plot issued to him under the land patent since a 5-year residency was required to qualify for a patent; however, no evidence could be found to connect Charles and his family to the historic materials found at the site. No further information was available for Charles A. Ely.

A search of U.S. Bureau of the Census records indicates that Johanna Mahoney was born in Ireland in 1862, the same year she immigrated to the United States (U.S. Bureau of the Census 1930:Roll 1732, Page 6B). From 1915 to at least 1930, Johanna resided in the township of Keller in Burke County, North Dakota, with her son, Joseph, who worked as a fireman (North Dakota 1915:Roll ndsc_6856; U.S. Bureau of the Census 1930:Roll 1732, Page 6B). It is assumed that Johanna and her family lived on the plot issued to her under the land patent since a 5-year residency was required to qualify for a patent; however, no evidence could be found to connect Johanna and her family to the historic materials found at the site. No further information was available for Johanna Mahoney.

NRHP Eligibility Recommendation

32BK157 is a sparse historic cultural material scatter located within relatively flat topography in the prairie pothole region with several wetlands, marshes, and streams to the east, north, and southwest. Historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criteria A and B. Furthermore, no standing structures are present which would be associated with an architectural type or the work of a master; therefore, the site is recommended as not eligible for nomination to the NRHP under Criterion C. The site has been heavily disturbed by agricultural activities, indicating that intact subsurface deposits are unlikely, and the site would not contribute significantly to local, state, or national history; therefore, SWCA recommends the site as not eligible for nomination to the NRHP under Criterion D.

Management Recommendation

No further work is recommended.

32DV141

Site Type:	Cultural Material Scatter
Chronological Placement:	Historic, Early 20th Century
Maximum Site Size:	276.90 by 310.79 feet (67,181.87 feet²)
NRHP Eligibility:	Not Eligible
Management Recommendation:	No Further Work

Site Description and Previous Recordings

32DV141 is a sparse historic cultural material scatter located on a rolling upland plain (Figures 24 and 25). 117th Avenue NW trends north/south approximately 50 feet east of the site. The site is situated on a small parcel of mixed grass prairie surrounded by agricultural fields. In addition to the mixed grass prairie vegetation, green ash and chokecherry bushes were present, with wheat growing in the agricultural fields, allowing for 70 to 90 percent bare ground surface visibility at the time of survey. Surface sediment on site consists of brown silt loam. The site is in fair condition, with impacts from erosion and agriculture.



Figure 24. 32DV141 site overview, facing north.

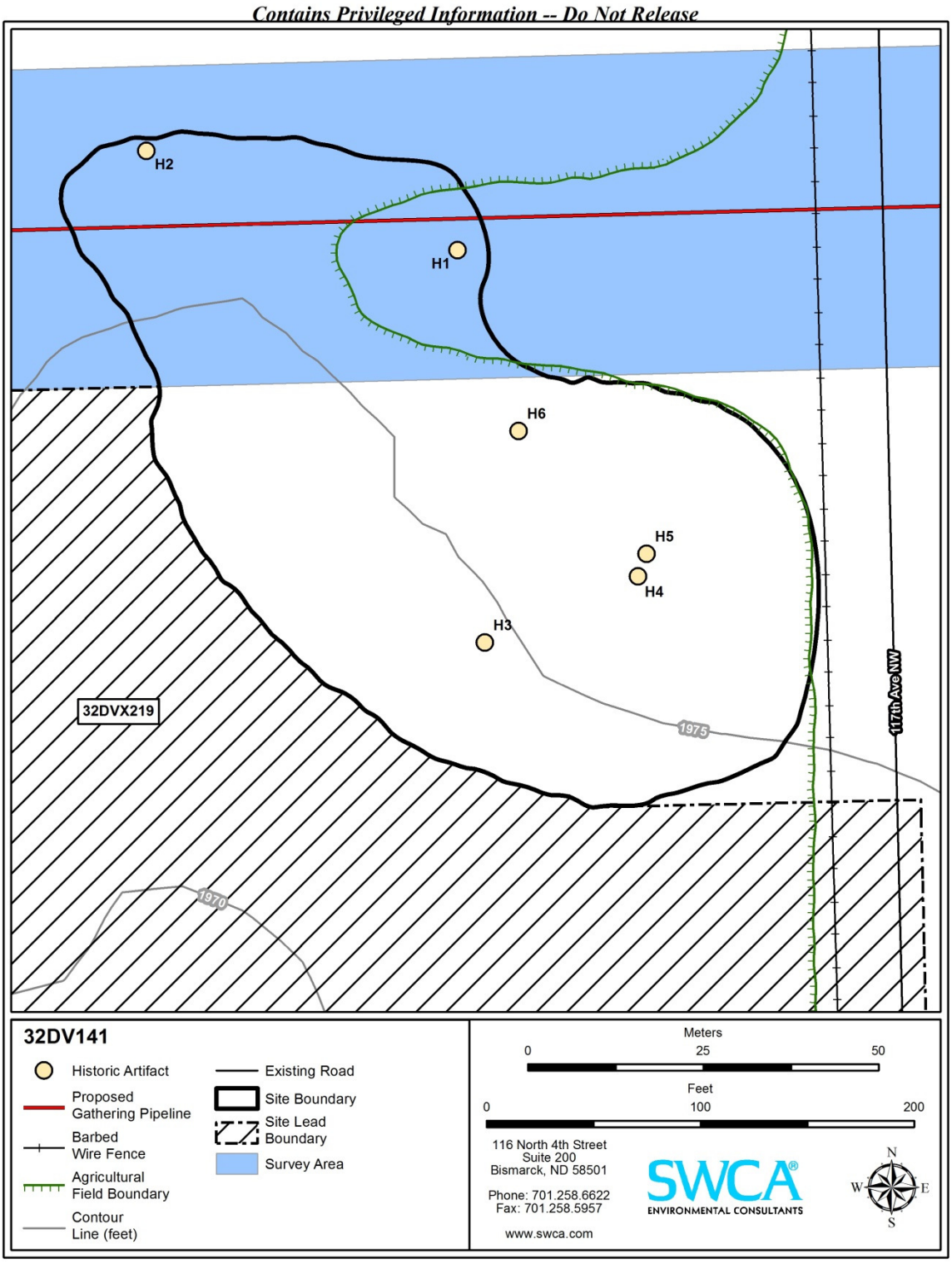


Figure 25. 32DV141 site sketch map.

Survey Results

SWCA recorded 32DV141 on June 18, 2014. The site consists of a truck cab with a scatter of ceramics, glass, and metal.

The truck cab (H1) is heavily rusted and is missing the hood, engine, axle, and wheels (Figure 26). Though the body is rusted, the interior exhibits some green color with wood trim. An air cleaner, with a metal plate identifying it as an International Air Cleaner Model B-70 is still attached. Research did not return a date for the air cleaner. The style of the truck appears to date from the 1930s, however no features were observed to positively identify the make, model, or year of manufacture.



Figure 26. 32DV141 H1, truck cab, facing west.

The ceramic scatter consists of 71 ceramic sherds distributed across the site (Figure 27). The scatter is summarized in Table 7. The primary ceramic types found on site were fine- and coarse-pasted light brown stoneware. A variety of types of vessels and decorative styles were observed, including H2, H3, H4, and H6 (see Table 7).

Table 7. Summary of Ceramics at 32DV141

Description	Total
Fine-pasted, light brown stoneware bowl sherds with crazed glaze	20
Fine-pasted light brown stoneware plate sherds with clear glaze and green filigree decal (H2)	3
White porcelain pipe bowl fragments with clear glaze (H6)	2
Coarse-pasted gray stoneware jar sherds with gray salt glaze	6
Fine-pasted light brown refined earthenware plate sherds with floral decal	3
Fine-pasted light brown refined earthenware cup sherds with white slip	8

Description	Total
Coarse-pasted light brown stoneware bowl sherds with gray salt glaze	21
Coarse-pasted light brown stoneware plate sherds with gray/brown Bristol glaze	2
Fine-pasted light brown refined earthenware plate sherd with white glaze and molded relief floral pattern	1
White porcelain plate sherd with floral decal	1
Coarse-pasted light brown stoneware bowl sherds with smooth gray slip and transfer print lettering (NELS / RCH and GH) (H3)	2
Light brown stoneware jar sherds with gray/red Albany slip	1
Light brown stoneware sherd with gray glaze and blue transfer print lettering (H4)	1



Figure 27. 32DV141 representative sample of ceramics.

The glass scatter consists of 47 shards of glass distributed across the site (Table 8). The dominant glass type observed was amethyst beverage bottle. One amethyst glass bottle base with a maker's mark of the letter D in a shield was observed (H5). No information could be found on this maker's mark.

Table 8. Summary of Glass at 32DV141

Description	Total Fragments
Amethyst beverage bottle base and body, automatic machine produced	17
Aqua beverage bottle body, automatic machine produced	9
Olive beverage bottle body and neck, automatic machine produced	9
Milk glass household jar body and base, automatic machine produced with stippled decoration	2

Description	Total Fragments
Clear pane glass, undetermined production method	5
Amber beverage bottle neck and collar, automatic machine produced	2
Cobalt beverage bottle base, undetermined production method	2
Clear curved body of unknown function	1

Metal artifacts observed onsite include a caulking gun and five miscellaneous metal fragments.

32DV141 is located in the northeastern corner of a site lead (32DVX219), a cultural material scatter of unknown cultural and temporal origin; however, due to a lack of identifying information on the form for 32DVX219, it is impossible to discern whether 32DV141 is associated with 32DVX219, and should be considered a separate site.

Historic Background

Due to the presence of historic debris at the site, SWCA conducted historical background research for the site location using BLM GLO records. The records indicated that a land patent had been issued under the 1820 Sale-Cash Entry Act to James E. Johnson on November 3, 1905, for the SE¼ of Section 21, T162N, R97W (BLM 2014 [1905]:BLM Serial Number NDMTAA 072592). A search of U.S. Bureau of the Census records returned multiple individuals named James E. Johnson in North Dakota. Through available records it is not possible to determine which James E. Johnson, if any, is the individual named in the land patent.

NRHP Eligibility Recommendation

32DV141 is a historic cultural material scatter located on a small parcel of mixed grass prairie surrounded by agricultural fields. Historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local, state, or national history; therefore the site is recommended not eligible for nomination to the NRHP under Criteria A and B. Furthermore, no standing structures are present which would be associated with an architectural type or the work of a master; therefore, the site is recommended as not eligible for nomination to the NRHP under Criterion C. The site has been heavily disturbed by agricultural activities, indicating that intact subsurface deposits are unlikely, and the site would not contribute significantly to local, state, or national history; therefore, SWCA recommends the site as not eligible for nomination to the NRHP under Criterion D.

Management Recommendation

No further work is recommended. However, to avoid undue impact to the truck cab, SWCA recommends that it be moved outside of the construction corridor prior to commencement of construction.

32DV142

Site Type:	Buildings, Cultural Material Scatter
Chronological Placement:	Unknown Historic
Maximum Site Size:	39.33 by 111.48 feet (3,782.33 feet²)
NRHP Eligibility:	Not Eligible
Management Recommendation:	No Further Work

Site Description and Previous Recordings

32DV142 is a historic site consisting of three buildings with a sparse cultural material scatter located on a rolling upland grassland (Figures 28 and 29). The site is located immediately west of a two-track road following the section line between Sections 22 and 23, T162N, R97W. The two-track connects to 99th Street NW approximately 0.5 mile to the north. 115th Avenue NW is approximately 1.0 mile to the east and 117th Avenue NW is approximately 1.0 mile west. Vegetation within the site boundary consists of smooth brome, allowing for approximately 5 percent bare ground surface visibility. The area surrounding the site in all directions is agricultural fields with wheat stubble. Surface soil on site is dark brown loam. The site is in fair condition, with all three buildings standing. Impacts to the site include ongoing agricultural activities in the surrounding areas, weathering, erosion, and nearby oil and gas development.



Figure 28. 32DV142 site overview, facing north.

Contains Privileged Information -- Do Not Release

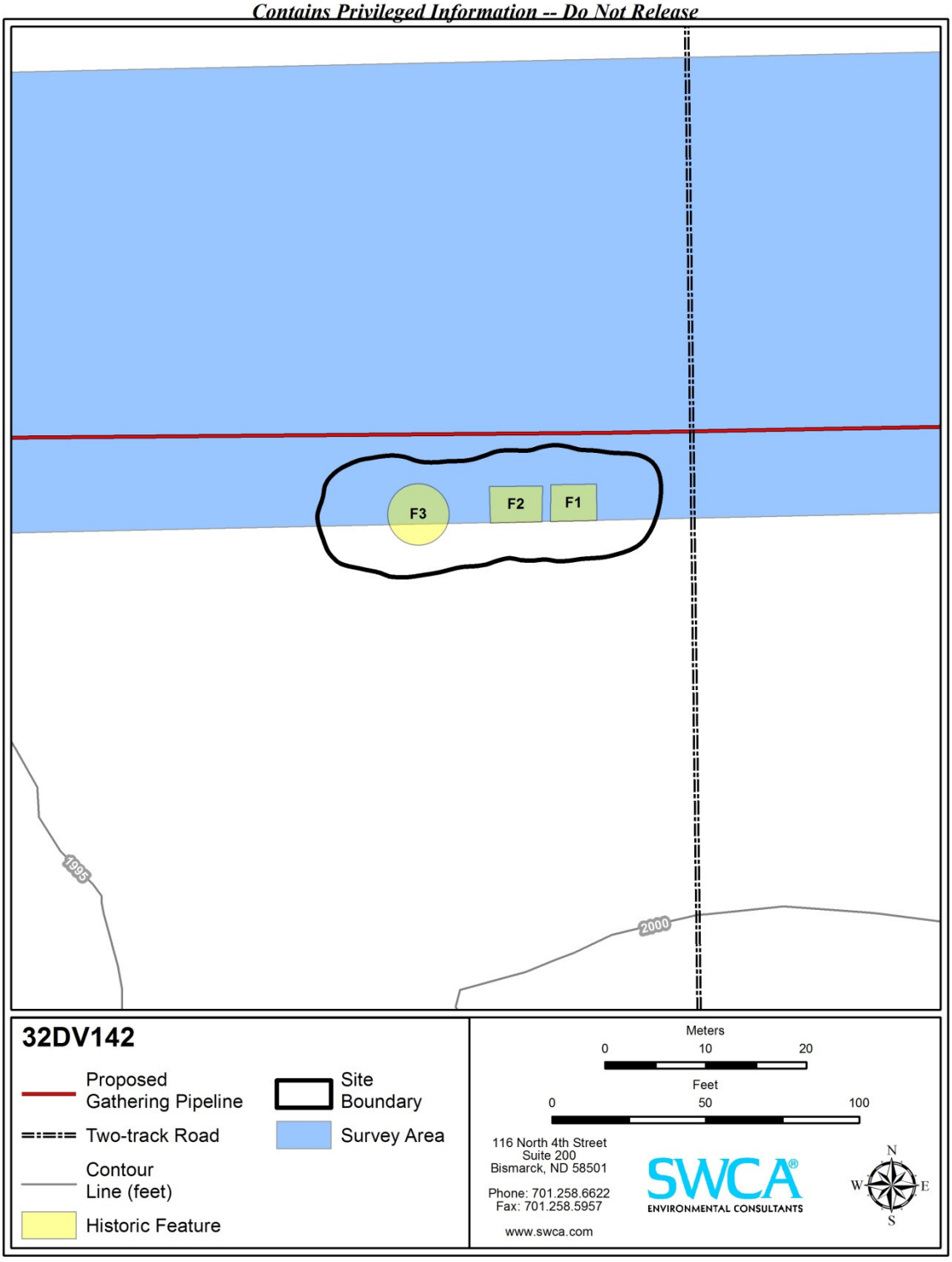


Figure 29. 32DV142 site sketch map.

Survey Results

SWCA recorded 32DV142 on June 18, 2014. The site consists of two storage buildings (Features 1 and 2), a galvanized steel grain bin (Feature 3), and a sparse cultural material scatter.

Feature 1 is a storage building measuring 18 feet 3 inches by 12 feet 4 inches (Figure 30). The foundation of the building consists of wood beams and cinder blocks. The floor is galvanized sheet metal. The walls are constructed entirely by wood planks and beams and wire cut nails. There are corner boards at the intersection of all of the walls. Two windows are on the northern wall which have been boarded over, and one door on the eastern wall which has also been boarded over. The roof has a single gable and is covered with asphalt shingles, with a trapdoor visible on the south face of the roof. A small loft is visible in the gable on the west end. The feature is in good condition.



Figure 30. 32DV142 Feature 1, storage building, with Features 2 and 3 in the background, facing northwest.

Feature 2 is a storage shed measuring 16 feet 5 inches by 12 feet 4 inches (Figure 31). Feature 2 is approximately 3 feet 6 inches west of Feature 1. The foundation of the shed is wooden beams. The walls are constructed of wood beams and planks with wire cut nails. The walls have faded red paint, and a door is present on the south-facing wall. The roof has a single gable with openings on the east and west faces. The roof is shingled with deteriorating green asphalt shingles over deteriorated wooden shingles. A trapdoor is present in the southern face of the roof. The feature is in fair condition with a deteriorating roof and holes in the walls.



Figure 31. 32DV142 Feature 2, storage shed, with Feature 1 to the right and Feature 3 to the left, facing northwest.

Feature 3 is a circular galvanized corrugated steel storage bin measuring approximately 20 feet in diameter (Figure 32). Feature 3 is approximately 14 feet 6 inches west of Feature 2. The bin rests on a poured concrete foundation. The door reads BUTLER MFG COMPANY. The conical roof is of sheet-metal construction. The Butler Manufacturing Company began producing galvanized steel grain bins similar to Feature 3 in 1907 and continues to produce similar models through the present (Butler Manufacturing 2014).

The cultural material scatter includes a 55-gallon drum, an aluminum ladder leaning against the south-facing wall of Feature 2, two metal buckets, and metal rods inside Feature 2.



Figure 32. 32DV142 Feature 3, grain storage bin, with Features 2 and 3 in the background, facing northeast.

Historic Background

Due to the presence of historic features and debris at the site, SWCA conducted historical background research for the site location using BLM GLO records. Records indicated that a serial land patent was issued to Frank R. Schwanz for the SE¼ of Section 22, T162N, R97W, under the 1862 Homestead Act on March 11, 1909 (BLM 2014 [1909]:BLM Serial Number NDWLN 0001544). A search of U.S. Bureau of the Census records indicates that Frank R. Schwanz was born in Wisconsin in 1877, but by 1910 was a resident in the township of Hawkeye in Divide County, North Dakota (U.S. Bureau of the Census 1910:Roll T624_1140, Page 15B). He and his wife, Emma, lived in Hawkeye with their four children at least through 1920 (U.S. Bureau of the Census 1920:Roll T625_1331, Page 24A). It is assumed that Frank R. Schwanz and his family lived on the plot issued to him under the land patent since a 5-year residency was required to qualify for a patent; however, no evidence could be found to connect Frank and his family to the historic features and materials found at the site. No further information was available for Frank R. Schwanz.

NRHP Eligibility Recommendation

32DV142 is a historic building and cultural material scatter site located on a rolling plain. Historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local, state ,or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criteria A and B. The buildings present are not associated with an architectural type or the work of a master; therefore, the site is recommended as not eligible for nomination to the NRHP under Criterion C. The site is in fair condition, however the nature of the site and paucity of cultural materials

found within the site indicate that it is unlikely that intact subsurface deposits are present, and the site would not contribute significantly to local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criterion D.

Management Recommendation

No further work is recommended.

32DV143

Site Type:	Homestead, Cultural Material Scatter
Chronological Placement:	Historic, 1930s–1970s
Maximum Site Size:	248.85 by 317.29 feet (66,799.32 feet²)
NRHP Eligibility:	Not Eligible
Management Recommendation:	No Further Work

Site Description and Previous Recordings

32DV143 is a historic homestead site consisting of two buildings and a clothesline with a cultural material scatter located on a rolling upland grassland (Figures 33 and 34). The site is located immediately south of 97th Avenue NW, and Highway 85 is 0.5 mile to the west. A two-track road transverses the site. Vegetation on site consists of mixed grasses, primarily smooth brome and snowberry, allowing for less than 5 percent bare ground surface visibility. Surface soil on site is dark brown loam. The site is in fair condition with the primary impact being natural decay. Additionally, there is disturbance to the east and north of the site from pipeline construction and there are active bee boxes within the site boundary.



Figure 33. 32DV143 site overview, facing northwest.

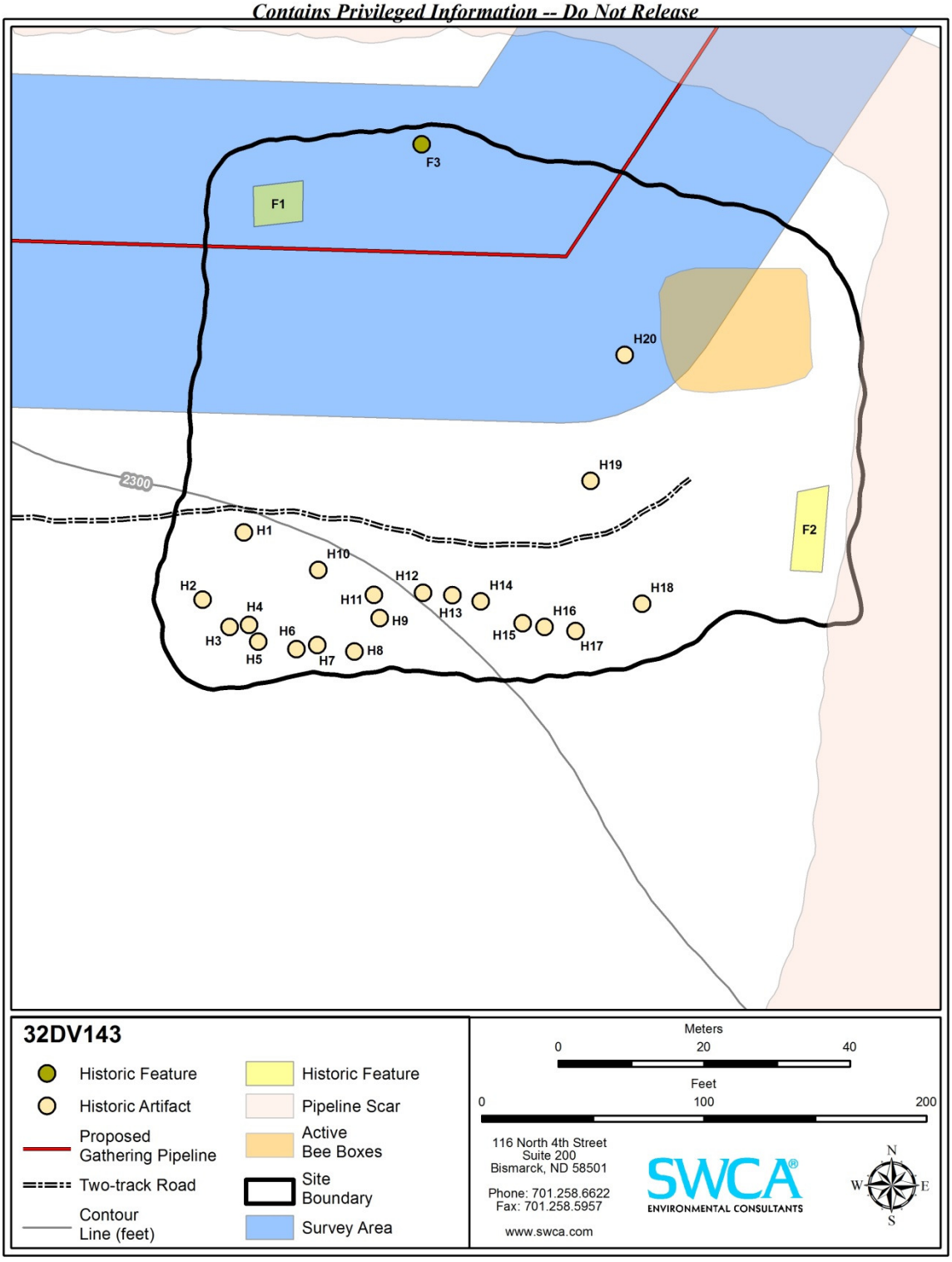


Figure 34. 32DV143 site sketch map.

Survey Results

SWCA recorded 32DV143 on June 19, 2014. The site consists of two buildings (Features 1 and 2), a clothesline (Feature 3), and a moderate scatter with some dense concentrations of cultural material.

Feature 1 is a one-and-one-half story side-gabled house measuring 16 by 17 feet (Figure 35). The foundation of the house is cinderblocks. The walls are covered with horizontal wood siding which have evidence of green paint covered with tan paint. Cornerboards are present. The windows are double-hung with wood frames. There are a total of six windows on the house, with one each on the north and south faces as well as two each on the west and east faces, one on the first floor, and one on the second floor respectively. The roof is comprised of wood shingling with corrugated steel along the ridge and boxed eaves. The interior is an open plan with a small access staircase to the second floor, the walls are wood covered with wallpaper, and the floors are wooden. Electrical lines were strung externally post-construction. Inside the building is an electric stove and other debris, mostly dating to the 1970s. The building retains integrity of location, design, setting, and workmanship.



Figure 35. 32DV143 Feature 1, house, facing northeast.

Feature 2 is a single-story side-gabled barn measuring 28 by 14 feet (Figure 36). The foundation is boulder and wood. The exterior of the building is horizontal tongue-and-grove wood siding with red paint. There are hinged windows and attic/loft windows on the north and south walls. A door opening is present on the west-facing wall. The door, no longer attached, operated on a horizontal door slide. The gabled roof has wood shingling, with corrugated steel used to repair holes in the roof. Inside the barn are tools, a gas stove, and a large washing machine. Feature 2 is in poor condition. The building has shifted on the foundation, and it appears to be near collapse.



Figure 36. 32DV143 Feature 2, barn, facing east.

Feature 3 is one wood post and crossbar of a clothesline with wires attached (Figure 37).



Figure 37. 32DV143 Feature 3, clothesline post, facing east.

The cultural material scatter includes various farm equipment and vehicles (H1–H20) as well as other modern and non-diagnostic artifacts including a 1972 Ford Galaxie, a 1970s model Buick LeSabre (a second 1960s model Buick LeSabre was recorded as H6), a swingset, tires,

engine parts, miscellaneous machine parts, fencing materials, miscellaneous metal parts, window glass, fuel tanks, various furniture, cooking utensils, tools, lawnmowers, and rubber belts and hoses. A majority of the cultural material, with the exception of the larger artifacts (i.e., automobiles, farm equipment, fuel tanks, and lawnmowers), were found within Features 1 and 2. In addition to the modern artifacts on site, a set of active bee boxes were observed.

H1 is a disc harrow by an unidentified manufacturer, although it is likely John Deere, as evident through the presence of green paint (Figure 38). The ferrous metal frame of the disk harrow is heavily oxidized. No maker's or other marks were present. No other information could be gathered on this artifact.

H2 is a tiller by an unidentified manufacturer (Figure 39). The tiller utilizes hydraulics, is rusted to the point of showing no visible paint, and is heavily overgrown. No maker's or other marks were present. No other information could be gathered on this artifact.

H3 is a lever release hay rake by an unidentified manufacturer (Figure 40). The hay rake is missing rakes, rusted to the point of showing no visible paint, and is heavily overgrown. No maker's or other marks were present. No other information could be gathered on this artifact.

H4 is a horse-drawn hay rake by an unidentified manufacturer (Figure 41). The hay rake still has the seat and rakes attached and the rake is rusted to the point of showing no visible paint. No maker's or other marks were present. No other information could be gathered on this artifact.

H5 is a seeder by an unidentified manufacturer (Figure 42). The box of the seeder is constructed with wood and with metal framing. H5 is rusted to the point of showing no visible paint and is heavily overgrown. No maker's or other marks were present. No other information could be gathered on this artifact.

H6 is a Philco freezer (Figure 43). The freezer is heavily rusted, but the original paint appears to be a pearl white. No serial numbers were located, but the style likely dates to the late 1950s or early 1960s. No other information could be gathered on this artifact.

H7 is a John Deere combine (Figure 44). The combine is heavily rusted, but some of the John Deere green paint is still present on the machine. The combine appears to still be mostly intact and dates around the mid- to late 1940s. No other information could be gathered on this artifact.

H8 is an old single-blade, walk-behind plow by an unidentified manufacturer (Figure 45). The plow consists of a metal blade and frame with wooden handles. H5 is heavily overgrown. No maker's or other marks were present. No other information could be gathered on this artifact.

H9 is a Case grain drill (Figure 46). The grain drill box is made from corrugated metal with the remaining metal frame heavily rusted with some evidence of red paint. Two part numbers are located on the machine: 482L and 479L. No other information could be gathered on this artifact.



Figure 38. 32DV143 H1, disc harrow, facing east.



Figure 39. 32DV143 H2, tiller, facing southwest.



Figure 40. 32DV143 H3, hay rake, facing south.



Figure 41. 32DV143 H4, hay rake, facing south.



Figure 42. 32DV143 H5, seeder, facing south.



Figure 43. 32DV143 H6, Philco freezer, facing northeast.



Figure 44. 32DV143 H7, John Deere combine, facing north.



Figure 45. 32DV143 H8, plow, facing west.



Figure 46. 32DV143 H9, Case grain drill, facing south.

H10 is a tiller by an unknown manufacturer (Figure 47). The tiller has two rubber tires, is rusted to the point of no visible paint, and is heavily overgrown. No maker's or other marks were present. No other information could be gathered on this artifact.

H11 is a thresher by an unknown manufacturer (Figure 48). The thresher is heavily degraded and features wood spokes with a metal frame. The metal is rusted to the point of showing no visible paint and the thresher is heavily overgrown. No maker's or other marks were present. No other information could be gathered on this artifact.

H12 is a tractor-pulled cultivator by an unknown manufacturer, although it is most likely an International Harvester McCormick No. 10 Heavy Duty cultivator from the mid-1950s (Figure 49). The cultivator is lightly rusted with the original red paint still visible and uses two rubber tires. A maker's mark reading NO. 10 HEAVY DUTY was found on the machine. No other information could be gathered on this artifact.

H13 is a wagon by an unknown manufacturer (Figure 50). The wagon is constructed with a metal frame, a wooden box, and four rubber tractor tires. It is likely that this wagon was constructed and pieced together from multiple spare parts by the owner. No maker's or other marks were present. No other information could be gathered on this artifact.

H14 is a disc harrow by an unknown manufacturer although it is likely John Deere, as evident through the presence of green paint (Figure 51). The disc harrow features a moderate amount of rust and two rubber tires. No maker's or other marks were present. No other information could be gathered on this artifact.



Figure 47. 32DV143 H10, tiller, facing northwest.



Figure 48. 32DV143 H11, thresher, facing northwest.



Figure 49. 32DV143 H12, cultivator, facing south.



Figure 50. 32DV143 H13, wagon, facing south.



Figure 51. 32DV143 H14, disc harrow, facing west.

H15 is a John Deere combine (Figure 52). The combine resembles a John Deere model 55, dating to the early to mid-1950s. The combine is moderately rusted, and retains some of its green paint. The combine ran on a Hercules Engine. No other information could be gathered on this artifact.

H16 is an early to mid-1960s Buick LeSabre automobile (Figure 53). The car is missing some windows, parts, and the engine. The car is lightly rusted, and retains some the original orange paint. The serial number associated with the vehicle is 4K4021205. The North Dakota license plate was updated as recent as 1970. No other information could be gathered on this artifact.

H17 is a John Deere seeder (Figure 54). The seeder is heavily rusted, but retains some of the original green paint. The machine appears to be mostly intact and is heavily overgrown. No other information could be gathered on this artifact.

H18 is an early 1930s Chevrolet pickup truck (Figure 55). The truck is in poor condition, as it is heavily rusted with several parts missing and windows knocked out. The original color of the truck appears to be green. The bed of the pickup is constructed of wood and is now broken and disheveled. A cowl tag on the firewall is present, but due to rusting, no serial information could be gathered. The pickup has an in-line six engine with a manual transmission. Painted on the door of the pickup is CR 16000, TARE 5000. No other information could be gathered on this artifact.



Figure 52. 32DV143 H15, John Deere combine, facing south.



Figure 53. 32DV143 H16, Buick LeSabre, facing north.



Figure 54. 32DV143 H17, John Deere seeder, facing south.



Figure 55. 32DV143 H18, Chevrolet truck, facing southwest.

H19 is an auger by an unknown manufacturer (Figure 56). The auger is heavily rusted, but some blue paint is still present. The attached pulley on the auger was manufactured by Universal Manufacturing out of Winnipeg, Canada. The auger also has an attached (likely added by the owner) grindstone with an electric motor. No other information could be gathered on this artifact.



Figure 56. 32DV143 H19, auger, facing east.

H20 is an International Harvester McCormick-Deering tractor, Model WD-9, Serial # DCB48039W12B (Figure 57). The tractor is lightly rusted with much of its red paint still present, is missing a few parts, and features a four-cylinder diesel engine. The Model WD-9 is the diesel version of the International Harvester McCormick-Deering 9-series, which ran from 1940 until 1953 (Easterlund 2014; Wendel 2004a). H20 was manufactured in 1950, which was determined using the serial number (Easterlund 2014). No other information could be gathered on this artifact.



Figure 57. 32DV143 H20, McCormick-Deering WD-9 tractor, facing north.

Historic Background

Due to the presence of historic features and debris at the site, SWCA conducted historical background research for the site location using BLM GLO records. The search revealed no information for any land patents issued concerning this plot of land. There was a registration card found with the 1972 Ford Galaxie, with the vehicle registered to a Lief and Ruby Bunde. No information could be gathered on Leif or Ruby Bunde. It is assumed that Leif and Ruby lived on the plot, however no evidence could be found to connect Leif and Ruby to the historic features and other materials found at the site. No further information was available for Leif or Ruby Bunde.

NRHP Eligibility Recommendation

32DV143 is a historic homestead site consisting of two buildings and a clothesline with a cultural material scatter located on a rolling upland grassland. Historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criteria A and B. Furthermore, the two standing structures are not associated with an architectural type or the work of a master; therefore, the site is recommended as not eligible for nomination to the NRHP under Criterion C. The site is in fair condition, however the nature of the site and paucity of cultural materials found within the site indicate that it is unlikely that intact subsurface deposits are present. There are a lack of subsurface cultural deposits which could reconstruct activity areas or answer research questions, and the site would not contribute significantly to local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criterion D.

Management Recommendation

No further work is recommended. However, to avoid undue impact to the equipment, SWCA recommends that the farm equipment be moved outside of the construction corridor prior to commencement of construction.

32DV144

Site Type:	Cultural Material Scatter
Chronological Placement:	Unknown Historic
Maximum Site Size:	370.57 by 376.12 feet (107,057.21 feet²)
NRHP Eligibility:	Not Eligible
Management Recommendation:	No Further Work

Site Description and Previous Recordings

32DV144 is a sparse historic cultural material scatter located on top of a small hill within the prairie pothole region (Figures 58 and 59). 114th Avenue NW trends north/south and abuts the eastern boundary of the site along with a north/south-trending pipeline construction project running through the eastern part of the site. The site is situated within an agricultural field planted with wheat, allowing for 90 percent bare ground surface visibility at the time of survey. Surface sediment on site consists of light brown silty clay loam formed through residual processes. The site is in poor condition, with impacts from erosion, agriculture, and pipeline construction.



Figure 58. 32DV144 site overview, facing south.

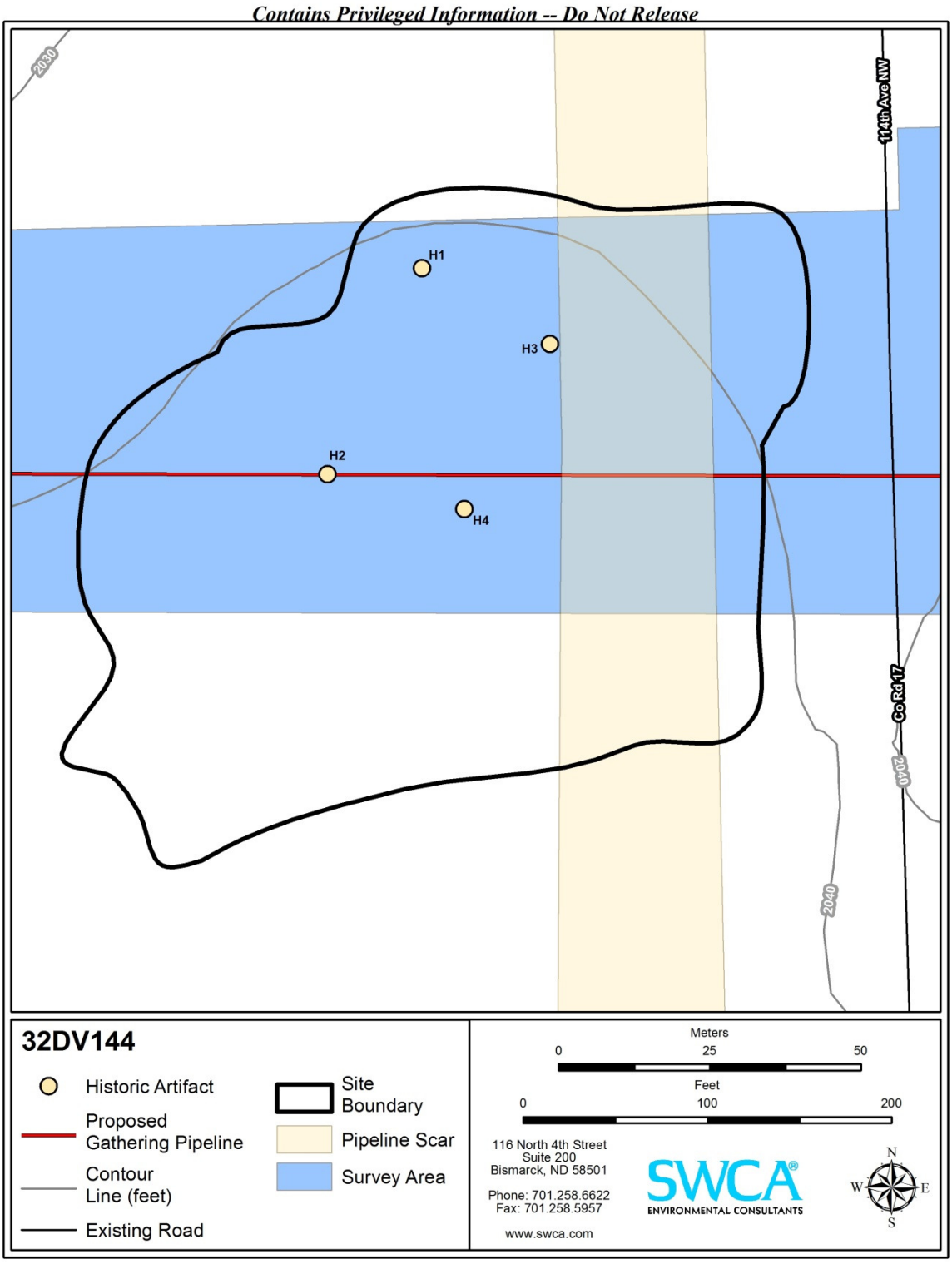


Figure 59. 32DV144 site sketch map.

Survey Results

SWCA recorded 32DV144 on June 17 and 19, 2014. The site consists of a historic cultural material scatter including ceramics, glass, metal, and rubber. Of the artifacts observed, four are diagnostic (H1–H4).

H1 is clear glass bottle base embossed with the letters TER'S (Figure 60). No information could be found on this maker's mark.

H2 is a clear glass bottle base with a maker's mark reading SANFORDS with the number 246 underneath (Figure 61). No information could be found for this maker's mark.

H3 is a milk glass shard embossed with the phrase FOR BAL (Figure 62).

H4 is a milk glass shard embossed with the phrase FOR MASON J (Figure 63). Both H3 and H4 appear to be fragments of canning jar lid liners. Milk glass lid liners were introduced in approximately 1871, and production continued until the 1950s or later; howeverm there is not a defined timeline of markings (Glassbottlemarks.com 2014).



Figure 60. 32DV144 H1.



Figure 61. 32DV144 H2



Figure 62. 32DV144 H3

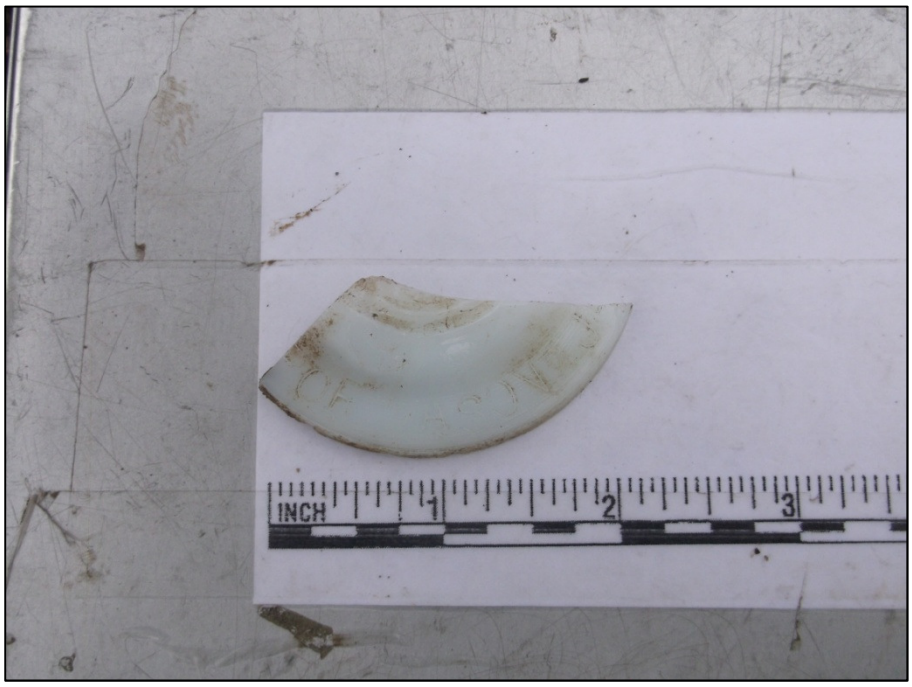


Figure 63. 32DV144 H4

The remaining glass scatter consists of 279 shards of glass distributed across the site (Table 9). The dominant glass types observed are clear glass body shards of an undetermined production method and amber glass body shards of an undetermined production method. A variety of glass types was observed.

Table 9. Summary of Glass at 32DV144

Description	Total Fragments
Clear glass, base and body shards, undetermined production method	199
Amber glass, body shards, undetermined manufacture	28
Aqua glass, neck, base, and body shards, undetermined manufacture	27
Amethyst base and body shards, undetermined production method	19
Green glass, body shard, undetermined production method	5
Cobalt glass, body fragments, undetermined production method	1

The ceramic scatter consists of 105 ceramic sherds distributed across the site. The scatter is summarized in Table 10. The primary ceramic type is ironstone. A variety of types of vessels and decorative styles were observed.

Table 10. Summary of Ceramics at 32DV144

Description	Total
Ironstone, indeterminate	66
Stoneware, indeterminate	16
Porcelain, indeterminate	14
Porcelain, floral decal, indeterminate	6
Ironstone, blue transfer print floral pattern	3

Historic Background

Due to the presence of historic material at the site, SWCA conducted historical background research for the site location using BLM GLO records. The site is located on two separate parcels of land, so research was conducted on both parcels. The records indicated that a land patent had been issued under the 1820 Sale-Cash Entry to Sven Swenson on August 6, 1905, for the NE¼ of Section 24, T162N, R97W (BLM 2014 [1905]:BLM Serial Number NDMTAA 072586) and a land patent had been issued under the 1862 Homestead Act to Edward Dolan on November 5, 1908, for the SE¼ of Section 24, T162N, R97W (BLM 2014 [1908]:BLM Serial Number NDMTAA 072750).

A search of U.S. Bureau of the Census records revealed multiple persons going by the name Sven Swenson in North Dakota during the later portion of the nineteenth century and early twentieth century. Due to the limited information provided in the census data, an association with the BLM-GLO records was not possible.

A search of U.S. Bureau of the Census records returned multiple persons named Edward Dolan in North Dakota; however, the 1920 Census included an Edward Dolan living in the township of Hawkeye in Divide County, North Dakota (U.S. Bureau of the Census 1920:Roll 1331, Page 23B). It is likely this is the Edward Dolan who was issued the land patent in 1908. Edward Dolan was born in approximately 1877 in Iowa to Norwegian immigrant parents, and as of 1920, he was unmarried. It is assumed that he lived on the plot issued to him under the land patent, since a 5-year residency was required as part of the qualification process; however, no evidence could be found to connect Edward to the historic materials and features found at the site.

NRHP Eligibility Recommendation

32DV144 is a sparse historic cultural material scatter located on top of a small hill within the prairie pothole region. Historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criteria A and B. Furthermore, no standing structures are present which would be associated with an architectural type or the work of a master; therefore, the site is recommended as not eligible for nomination to the NRHP under Criterion C. The site has been heavily disturbed by agricultural activities, indicating that intact subsurface cultural deposits are unlikely, and the site would not contribute significantly to local, state, or national

history; therefore, SWCA recommends the site as not eligible for nomination to the NRHP under Criterion D.

Management Recommendation

No further work is recommended.

32DV145

Site Type:	Cultural Material Scatter
Chronological Placement:	Unknown Historic
Maximum Site Size:	267.71 by 74.31 feet (16,316.04 feet²)
NRHP Eligibility:	Not Eligible
Management Recommendation:	No Further Work

Site Description and Previous Recordings

32DV145 is a historic cultural material scatter site in the floodplain of an unnamed intermittent stream surrounded by agricultural fields (Figures 64 and 65). A human-made earth dam abuts the southwestern portion of the site, where water from the intermittent stream has collected to form a pond adjacent to the southwestern portion of the site. The site is approximately 0.45 mile north of 98th Street NW, and 0.25 mile west of State Highway 42. Vegetation in the area consists of brome, snowberry, rumex, and cultivated wheat, allowing for approximately 5 percent bare ground surface visibility within the site area at the time of survey. The soil on site is brown loamy clay, formed through alluvial processes. The site is in fair condition, having been impacted by agricultural practices and erosional processes.



Figure 64. 32DV145 site overview, facing northwest.

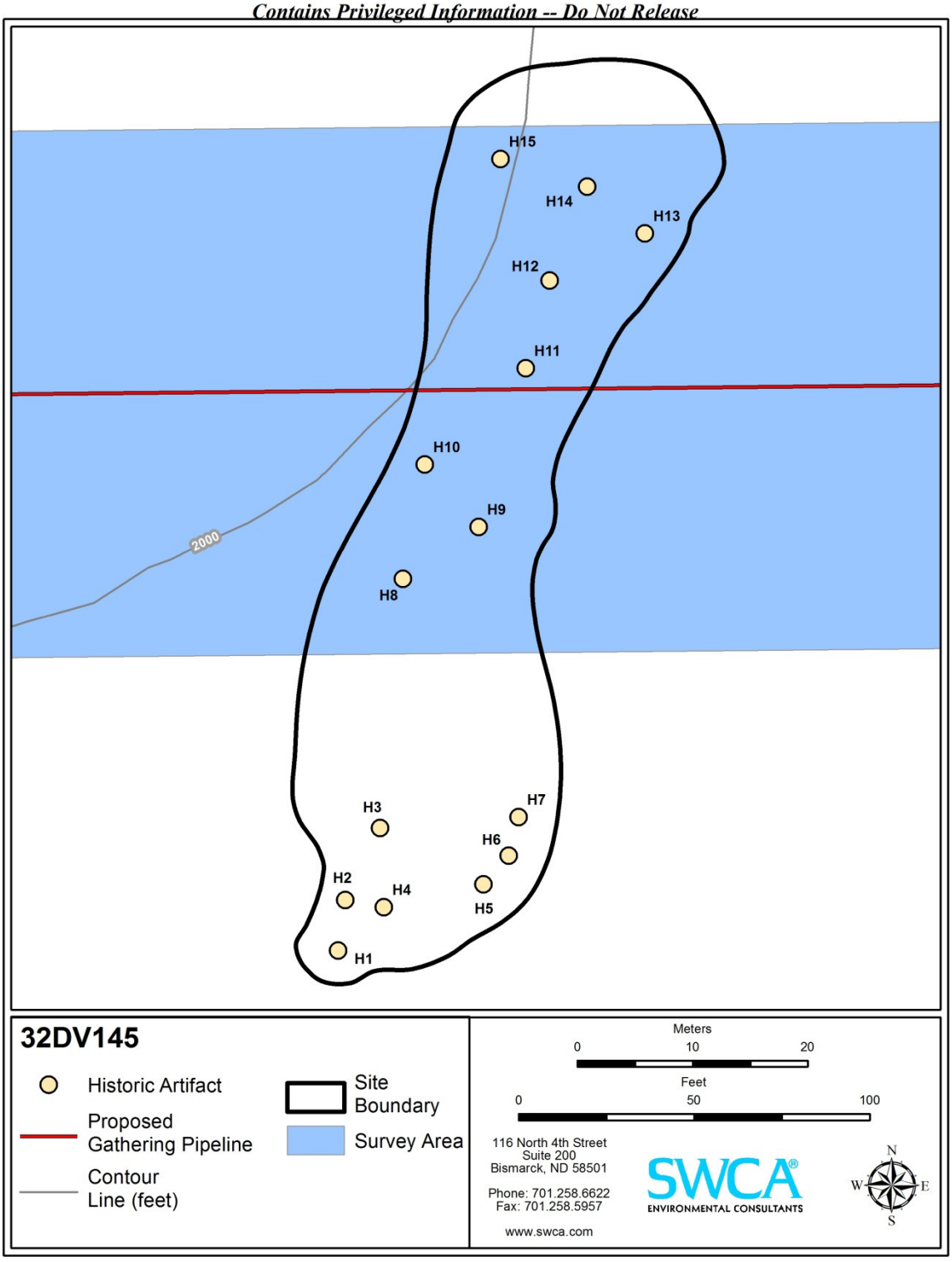


Figure 65. 32DV145 site sketch map.

Survey Results

SWCA recorded 32DV145 on June 18, 2014. The site consists of one car body (H1), 10 pieces of farm equipment (H2–H11), and a scatter of additional historic artifacts. The scatter includes several gas cans, several barrels, two machine chains, one watering trough, one roosting bin that measures 59 by 28 by 14 inches and could accommodate 10 chickens, degrading metal garage door, metal wheels, warped steel gutters, unknown farm equipment parts, seats for unknown machinery, barbed wire, one tractor tire, one bedspring, one hot water heater, one small hand plow, and two unknown partial pieces of farm equipment. The cultural material scatter appears to be dumped in discrete concentrations, representing dumping episodes.

H1 is a car body that is heavily rusted and is missing the hood, engine, and windows (Figure 66). Though the body is rusted, the exterior exhibits the likely original green paint. One of the tires was observed, with the GOODYEAR make embossed on the rubber. The style of the car appears to date from the 1940s, however no characteristics were observed to positively identify the make, model, or year of manufacture.



Figure 66. 32DV145 H1, car body, facing southwest.

H2 is a grain seeder (Figure 67). A seeder is used to sow seeds into the ground in precisely positioned rows from a hopper or box filled with seeds which extends horizontally near where the axle is between the wheels. The axle would be connected to hitch and pulled across the soil, originally by horses, and later by tractors. When a lever is pulled, the seed would be released to the ground. H2 is heavily sodded, appears to be taken apart, and is covered by thick vegetation; therefore, the only implements observed are the hopper, a lever, and two unattached wheels. The lever of the artifact displays HORICON embossed on one side and VANBRUNT on the other. Additionally, the symbol for John Deere (JD) and the part number L298M are embossed on a metal part attached to the hopper. The Van Brunt Company,

originally led by George Van Brunt, started making seeders in 1860, and moved to Horicon, Wisconsin, in 1861 to facilitate better shipping capabilities (John Deere 2011). In 1911, Deere & Company purchased the Van Brunt Company, and the John Deere brand became prominent in Horicon between 1948 and 1954 (John Deere 2011). By 1958 the Van Brunt name had disappeared completely from the manufactured seed drills (John Deere 2011).



Figure 67. 32DV145 H2, Van Brunt grain seeder, facing southwest.

H3 is a wagon measuring approximately 4 feet wide by 11 feet long (Figure 68). Although much of the wagon is gone, the wooden frame, axles, and iron wheels and hubs are present. Although the hubs are rusted, they still exhibit what could be the original green and yellow paint. The wheels are affixed to the wagon by both hexagonal and square nuts. No features were observed to positively identify the year of manufacture.

H4 is part of a Russell grader (Figure 69). Originally pulled by horses and later self-propelled, graders, or sometimes called road graders, are designed to create a flat surface during the grading processes by use of a long blade. The portion of the grader observed is likely the portion the driver or controller would operate from. On the side of the implement, GILBERT FRESNO SHOE CO. ABERDEEN and FIT – M – ALL GILBERT MF S.D. are embossed in the metal. The Russell Grader Manufacturing Company was founded in 1903, and was taken over by the Caterpillar Tractor Company in 1928 (Business Source Premier 2004). Additionally, three metal wheels measuring 16½ inches in diameter and metal scoop, potentially the remains of a bulldozer part, were observed in the immediate vicinity of H4.



Figure 68. 32DV145 H3, wagon, facing northwest.



Figure 69. 32DV145 H4, Russell grader, facing east.

H5 is a hay rake (Figure 70). The hay rake is used after harvest as a simple tool to comb and rake up the dry hay and bunch it for collection by a hay baler. It is made of two large iron wheels and an axle with large downward-pointing spring teeth across its width. The implement has a lever that enables lifting of the rake, which dumps the hay. The axle is connected directly to the hitch and pulled across the soil, originally by a team of horses, and

later was pulled by a tractor. No characteristics were observed to positively identify the make, model, or year of manufacture. Additionally, bales of barbed wire were observed adjacent to H5.



Figure 70. 32DV145 H5, hay rake, facing east.

H6 is a Minneapolis Moline combine (Figure 71). The combine is a large piece of machinery used to harvest grain crops. The invention of the combine integrated the operations of reaping, binding, and threshing into one machine, and was not widely adopted until the 1930s. Combines were originally pulled by a team of horses and was later self-propelled, beginning in the late 1930s (Wendel 2004b). H6 is a self-propelled combine. A plaque on H6 displays MM behind the text MINNEAPOLIS – MOLINE and denotes the make MINNEAPOLIS – MOLINE POWER IMPLEMENT COMPANY, MINNEAPOLIS, MINNESOTA USA, model number G3, and serial number 83011. Additionally the engine's serial number is 55402-C and model RE. Although an exact data for the H6 was not found, the Minneapolis – Moline Company began manufacturing combines in 1936 (Wendel 2004b).

H7 is a disk cultivator or plow (Figure 72). Historically, disk plows were used as the primary tillage, displacing and breaking up the soil, while burying mixed plant materials. A plow consists of a number of concave circular disk blades, sharpened at the circumference, and depth of plowing depends on the diameter of the disk. Sets of discs are attached to one or more axles and share a common frame that is hitched and dragged over the soil. H7 displays the make MOLENE and patent number PAT 1861667. This version of the disk cultivator or plow was first manufactured by Minneapolis Moline Power Company in 1929 (Seaholm 1932).



Figure 71. 32DV145 H6, combine, facing east.



Figure 72. 32DV145 H7, disk cultivator or plow, facing west.

H8 is a grain seeder (Figure 73). A plaque containing an area for the listing of acreages for the following crops was observed on the implement: flax, barley, oats, peas, and wheat. The implement did not display any features that would positively identify the make, model, or year of manufacture.



Figure 73. 32DV145 H8, grain seeder, facing east.

H9 is a reaper/binder (Figure 74). The implement displays the trademark name MCCORMICK – DEERING and the manufacturer symbol for International Harvester. In1923 the McCormick – Deering line of farm equipment was first introduced as part of the International Harvester line of products (Moore 1998).

H10 is a reaper/binder (Figure 75). The implement did not display any features that would positively identify the make, model, or year of manufacture.

H11 is a Cockshutt #2 swather (Figure 76). The implement displays the label COCKSHUTT #2; BRANTFORD CANADA, MADE IN CANADA. Swathers are used to cut high yielding crops, and initial models were pulled by horses, and later models were pulled by tractors or self propelled. Additionally, early models were heavy and could not easily go into wet fields; however, the invention of the Cockshutt #2 in 1941 using lighter material allowed for entry into wet fields (Cockshutt 2004).



Figure 74. 32DV145 H9, reaper/binder, facing north.



Figure 75. 32DV145 H10, reaper/binder, facing southwest.



Figure 76. 32DV145 H11, swather, facing west.

Historic Background

Due to the presence of historic features and debris at the site, SWCA conducted historical background research for the site location using BLM GLO records. A search of BLM GLO records indicated that a serial land patent was issued to Petter Vestlie as part of a 160-acre patent for the SE¼ of Section 19, T162N, R97W, on February 14, 1910, under the Homestead Act of 1862 (BLM 2014 [1910]:BLM Serial Number NDWLN 0010580). The U.S. and Canada Passenger Immigration Lists Index indicate that Petter Vestlie immigrated to North Dakota from an unknown place of origin in 1909 (Ancestry.com 2010). However, no records of a Petter Vestlie were found within U.S. Bureau of the Census records, and no further information was available. No evidence could be found to connect Petter Vestlie to the historic materials found at the site.

NRHP Eligibility Recommendation

32DV145 is a historic cultural material scatter consisting of one car body, 10 pieces of farm equipment, and a scatter of historic debris. The site appears to be in fair condition, with impacts from alluvial erosion, as well as weathering and corrosion processes. Historic research conducted by SWCA did not yield information to relate this site with any significant event or period of time, nor did it find any connection between the material at the site and any person or persons significant in local, state, or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criteria A and B. There are neither buildings nor structures present; therefore, the site is recommended as not eligible for nomination to the NRHP under Criterion C. Additionally, the site type is not one with which a buried cultural horizon is typically associated and it is unlikely that intact and interpretable subsurface deposits are present, and the site would not contribute significantly to local, state,

or national history; therefore, the site is recommended not eligible for nomination to the NRHP under Criterion D.

Management Recommendation

32DV145 is recommended not eligible for the NRHP and no further work is recommended for the site. However, to avoid undue impact to the equipment, SWCA recommends that the farm equipment be moved outside of the construction corridor prior to commencement of construction.

ISOLATED FINDS

32BKX1003

32BKX1003 is a historic isolated find consisting of a single hay rake located immediately north of an east/west-trending improved road and approximately 300 feet north of a farmstead. Situated on an upland plain in an upland grassland ecosystem, the isolated find is surrounded by small wetlands with an intermittent stream approximately 500 feet to the west and north. Vegetation in the area consists of Kentucky bluegrass, smooth brome, crested wheatgrass, rumex, and cattails, allowing for a bare ground surface visibility of 5 percent at the time of survey. Surface soils in the area consist of brown silty loam. Impacts to the area include livestock grazing, vehicle traffic on the nearby improved road, and erosion. The single artifact (H1) is a hay rake of an unknown manufacture with no visible equipment or parts numbers. It is constructed of ferrous metal with carriage bolts and square nuts. The rake is deeply sodded and exhibits heavy oxidation.

By definition, isolated finds are considered to lack the historic integrity or association to be determined eligible for nomination to the NRHP (36 CFR 60.3) (NPS1991). Therefore, no further work is recommended for this resource.

32BKX1004

32BKX1004 is a historic isolated find located in an upland plain amongst a mixed grass prairie ecosystem in the prairie pothole region. The resource is located approximately 600 feet south of an east/west-trending two-track road and 600 feet west of a north/south-trending seasonal drainage and kettle pond. Vegetation in the area consists of mixed prairie grasses, forbs, and rumex, allowing for a bare ground surface visibility of 5 percent at the time of survey. Surface soils in the area consist of dark brown silty loam. Impacts to the area include livestock grazing and erosion. The isolated find consists of a single farm implement, a Parlin and Orindorff (P&O) harrow plow sold by the International Harvester Company. The Parlin and Orindorff Company was acquired by The International Harvester Company in 1919, but continued to carry the P&O trademark through 1929.

By definition, isolated finds are considered to lack the historic integrity or association to be determined eligible for nomination to the NRHP (36 CFR 60.3) (NPS1991). Therefore, no further work is recommended for this resource.

32DVX432

32DVX432 is a historic isolated find located on an upland plain amongst a rolling grassland ecosystem. Situated approximately 150 feet south of 96th St. NW the single artifact (H1) lies at the northern extent of a shelterbelt. A series of small depressional wetlands is located to the southeast of the resource. Vegetation in the immediate area, within the shelter belt, consists of mixed prairie grasses and pine with wheat fields bordering to the east and west, allowing for a bare ground surface visibility of 60 percent. Surface soils in the area consist of dark brown silty loam. Impacts to the area include erosion, agricultural practices, and vehicle traffic from the nearby road. The artifact, a John Deere disk harrow, is in poor condition. It is badly deteriorated and missing wheels, and many of the disks are broken or damaged.

By definition, isolated finds are considered to lack the historic integrity or association to be determined eligible for nomination to the NRHP (36 CFR 60.3) (NPS1991). Therefore, no further work is recommended for this resource.

32DVX433

32DVX433 is a historic isolated find located at immediately west of a small knoll in an upland, grassland ecosystem. The isolated find is situated in a shallow depression surrounded by agricultural fields with a seasonal wetland approximately 150 feet to the south. 114 Ave NW is approximately 1,000 feet to the east. Vegetation in the area consists of mixed prairie grasses, wheat, and sunflowers, allowing for a bare ground surface visibility of 30 percent at the time of survey. Surface soils in the vicinity consist of yellow-brown clay loam. Impacts to the location include agricultural practices and erosion. The isolated find consists of the remains of a wagon: two axles and three wheels. The wagon is constructed of wood and ferrous metal, with wooden wheel spokes and carriage bolts with square nuts. The wagon is in poor condition.

By definition, isolated finds are considered to lack the historic integrity or association to be determined eligible for nomination to the NRHP (36 CFR 60.3) (NPS1991). Therefore, no further work is recommended for this resource.

32DVX434

32DVX434 is a historic isolated find located at the end of a shelter belt surrounded by planted agricultural fields. The isolate is situated immediately northwest of the intersection of two improved roads, with an occupied homestead southeast of the intersection. Located on an upland plain in an upland grassland ecosystem, the vegetation in the area consists of spruce and recently planted wheat, allowing for a bare ground surface visibility of 95 percent at the time of survey. Surface soils in the area consist of brown silty loam. The isolate consists of a single farm implement, a tractor-drawn disk plow with remnants of green paint, likely John Deere green. No other diagnostic features were visible.

By definition, isolated finds are considered to lack the historic integrity or association to be determined eligible for nomination to the NRHP (36 CFR 60.3) (NPS1991). Therefore, no further work is recommended for this resource.

SITE AND SITE LEADS NOT RELOCATED

One previously recorded site (32BK12) and nine previously recorded site leads (32BKX776, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX243, 32DVX244, 32DVX246, and 32DVX247) are crossed by the project area. Although attempts were made to relocate the site and site leads, none were relocated during the current inventory; however, the site and site leads may be located outside of the project area. All 10 resources remain unevaluated regarding their eligibility for the NRHP.

CONCLUSIONS

SWCA conducted a Class I and Class III cultural resource inventory on behalf of E3 in support of the 46.1-mile-long Meadowlark Midstream Company Global Stampede pipeline. In total, 869.68 acres were inventoried.

During the inventory, SWCA revisited the mapped locations of 10 previously recorded cultural resources (32BK12, 32BKX776, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX243, 32DVX244, 32DVX246, and 32DVX247) and newly recorded 14 cultural resources (32BK68, 32BK155, 32BK156, 32DV141, 32DV142, 32DV143, 32BK157, 32DV144, 32DV145, 32BKX1003, 32DVX432, 32BKX1004, 32DVX433, and 32DVX434). The previously recorded resources consist of a quarry/mine site (32BK12); and nine site leads of unknown cultural or temporal origin (32BKX776, 32DVX206, 32DVX214, 32DVX219, 32DVX220, 32DVX243, 32DVX244, 32DVX246, and 32DVX247). All 10 previously recorded cultural resources remain unevaluated regarding their eligibility for the NRHP. Although attempts were made to relocate the site and site leads within the project area, after intensive examination, none were relocated during the current inventory; they may be located within the documented site boundary outside the project area. No further work is recommended for these resources. The newly recorded resources are all historic, and consist of a newly recorded segment of a previously recorded railroad site (32BK68); two homestead and cultural material scatter sites (32BK155 and 32DV143); a building site (32DV142); five cultural material scatter sites (32BK156, 32BK157, 32DV141, 32DV144, and 32DV145); four farm equipment isolated finds (32BKX1003, 32BKX1004, 32DVX432, and 32DVX434); and one wagon isolated find (32DVX433).

The segment of 32BK68 is recommended as eligible for inclusion to the NRHP; therefore SWCA recommends that all project impacts avoid the site by 50 feet through the use of a horizontal directional drill or bore. Boring the site will avoid the railroad grade. The remaining 13 newly recorded cultural resources are recommended not eligible for the NRHP; therefore, no further work is necessary.

With these stipulations, it is recommended that a determination of *No Significant Sites Affected* and *No Historic Properties Affected* be granted for the project to proceed as planned.

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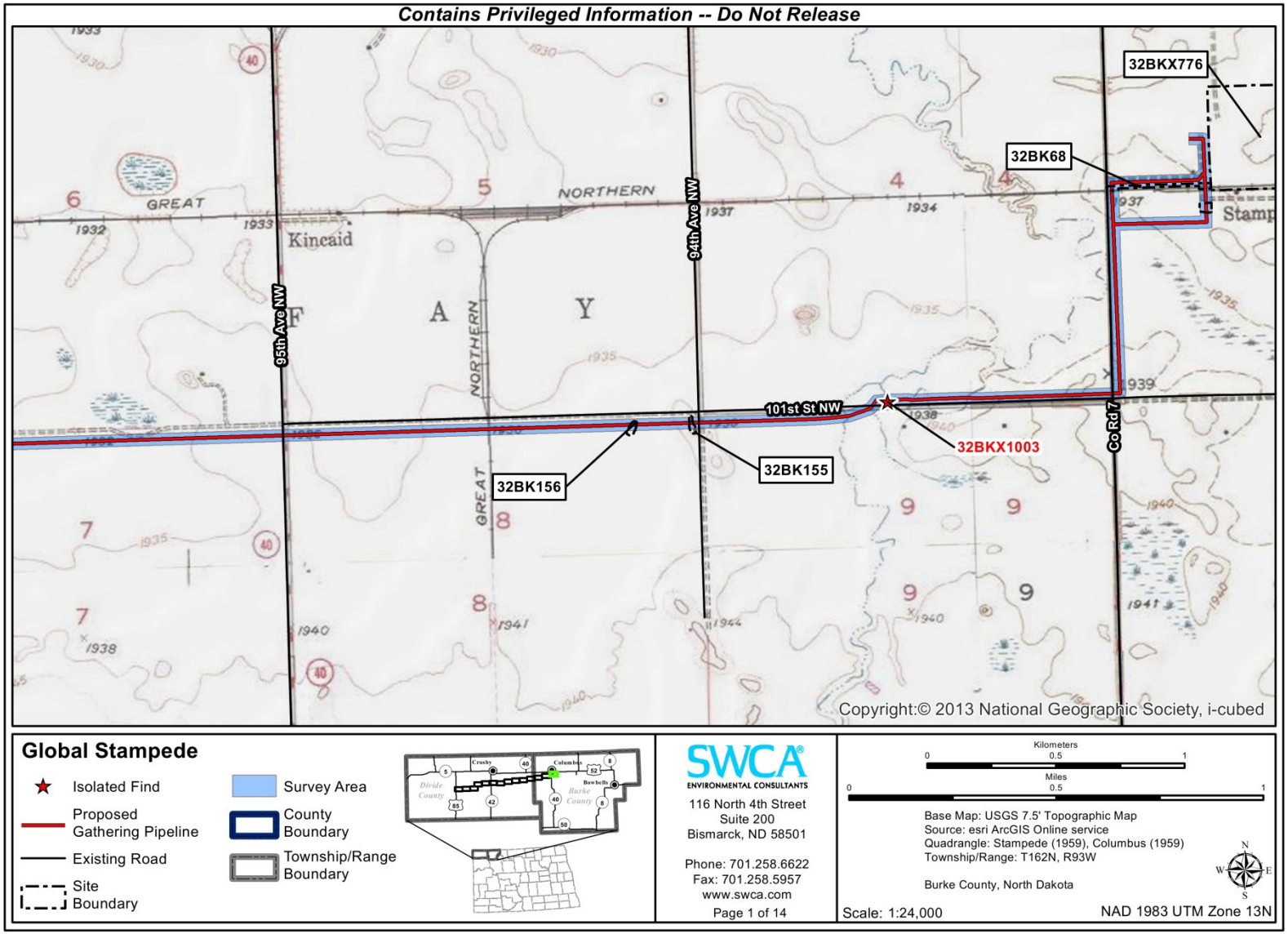
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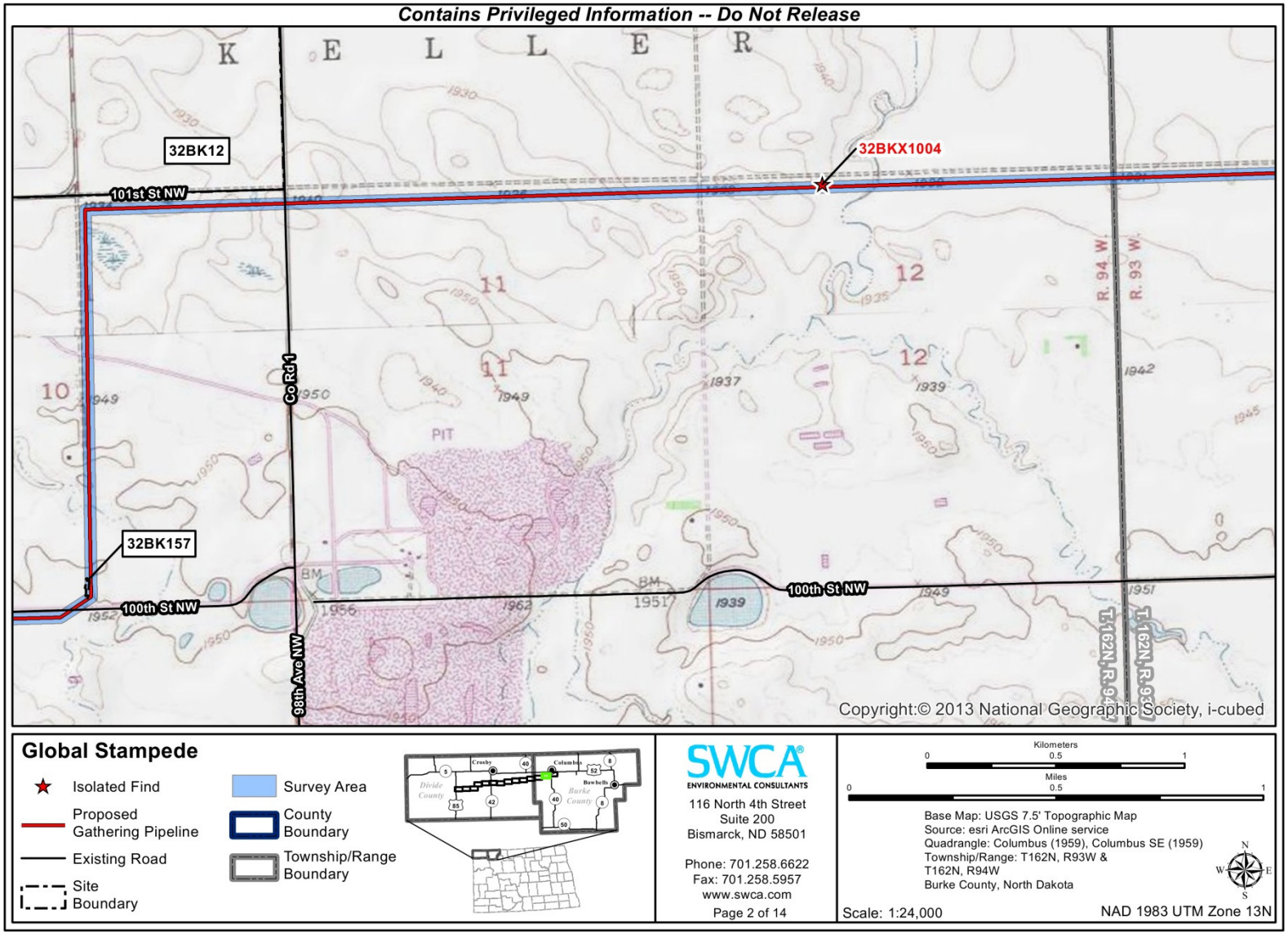
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APPENDIX A
(Detached)
North Dakota Site Forms

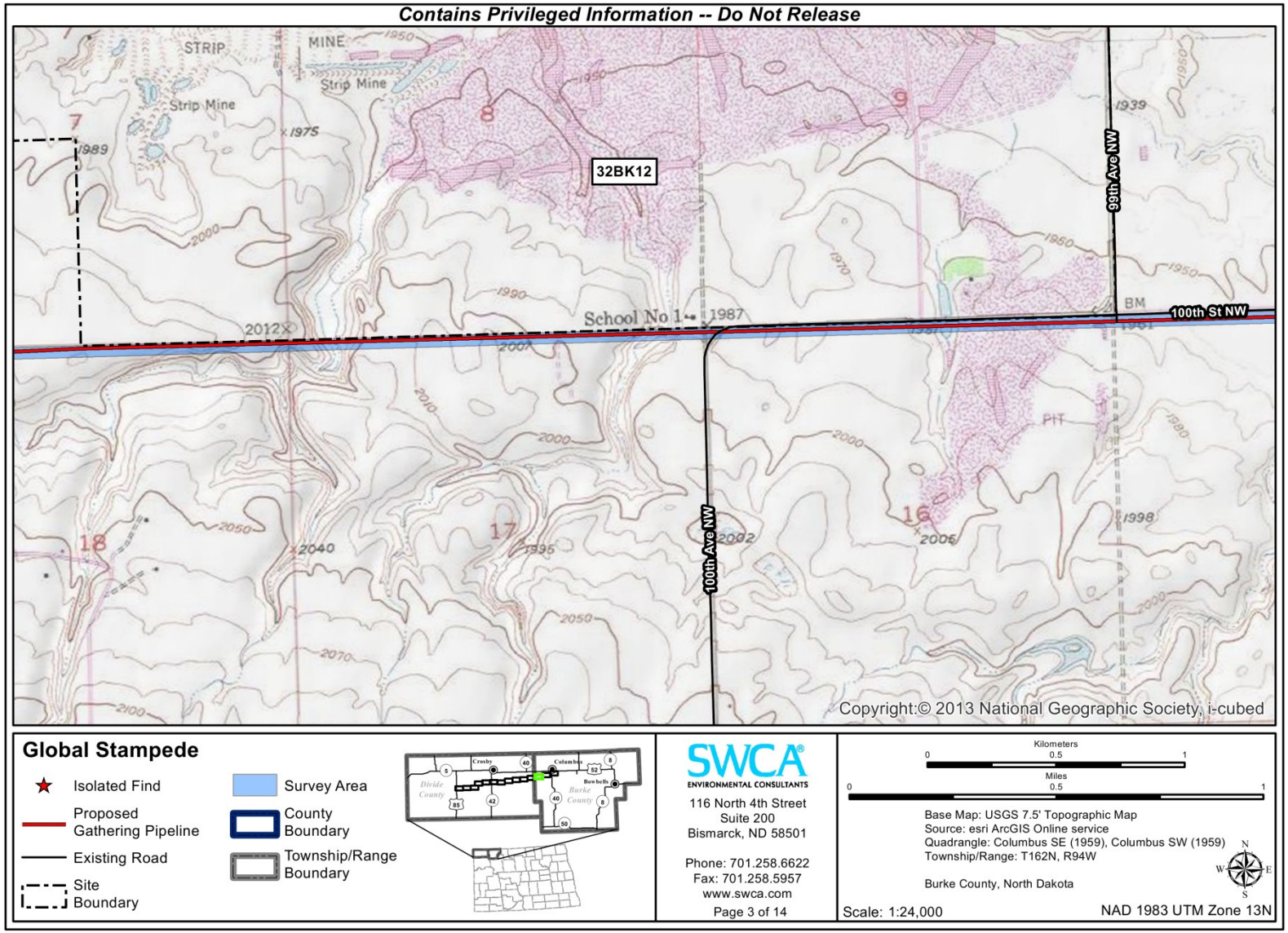
APPENDIX B
Resource Location Maps



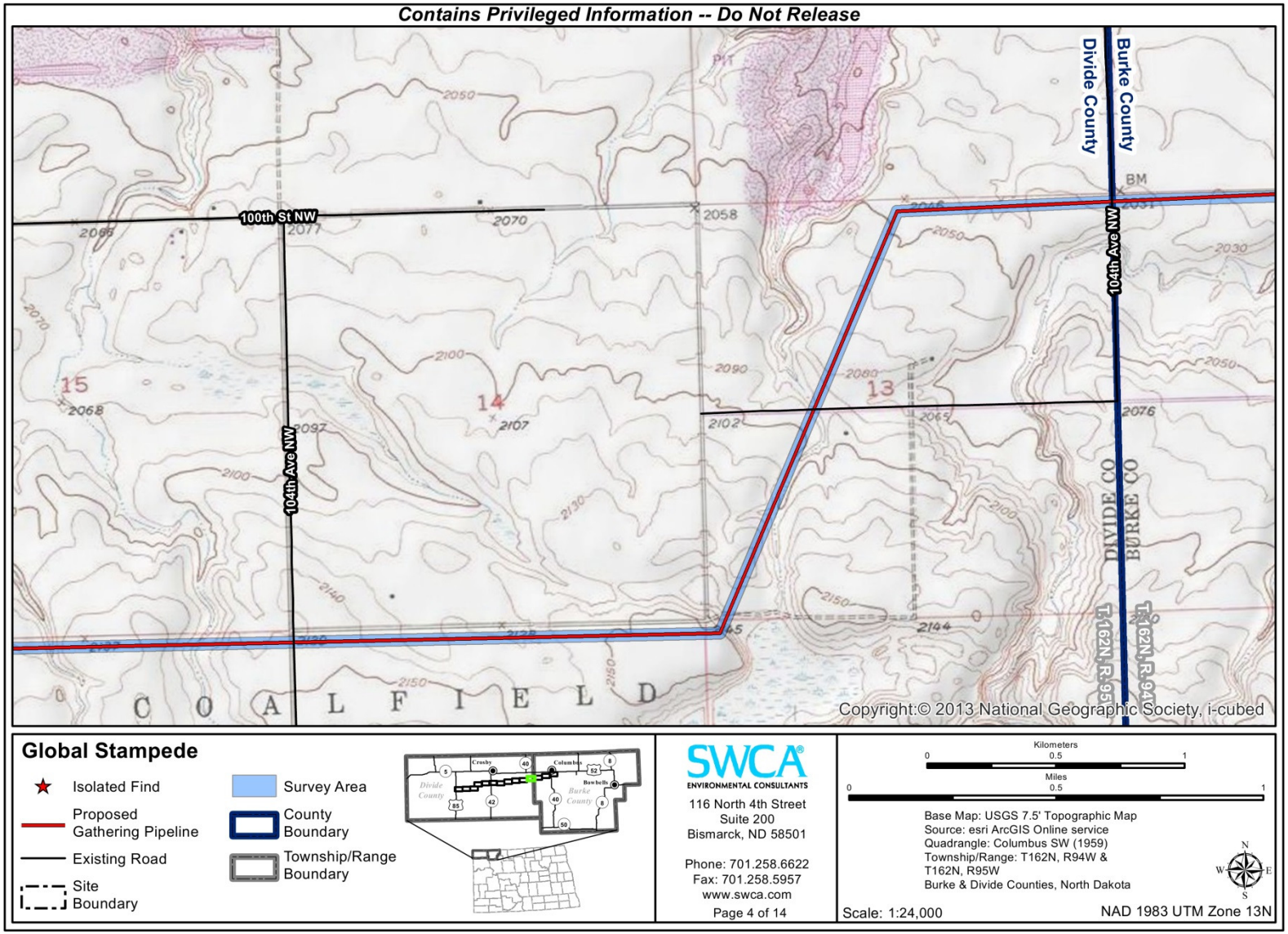
Resource location map 1 of 14 at 1:24,000-scale.



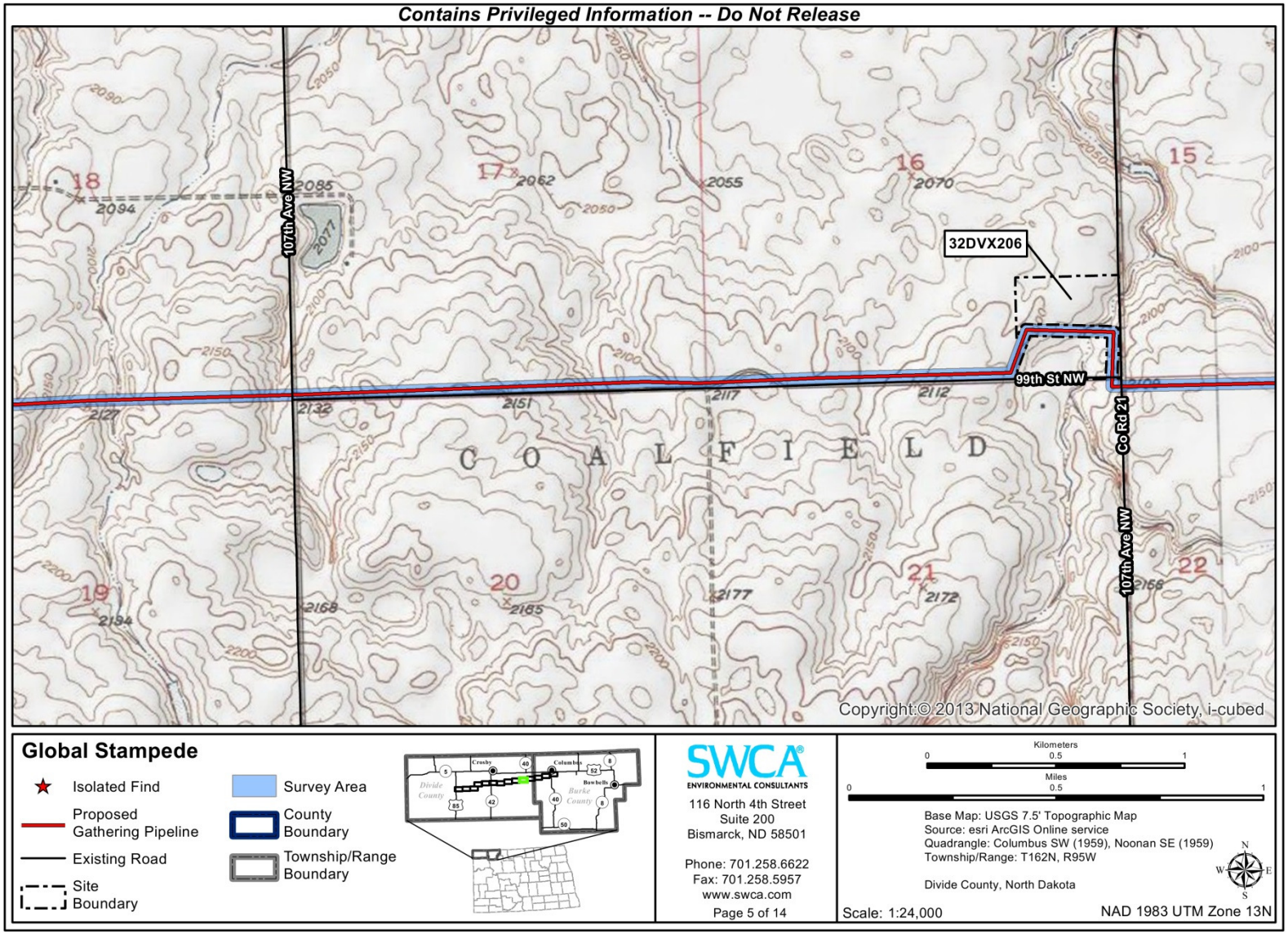
Resource location map 2 of 14 at 1:24,000-scale.



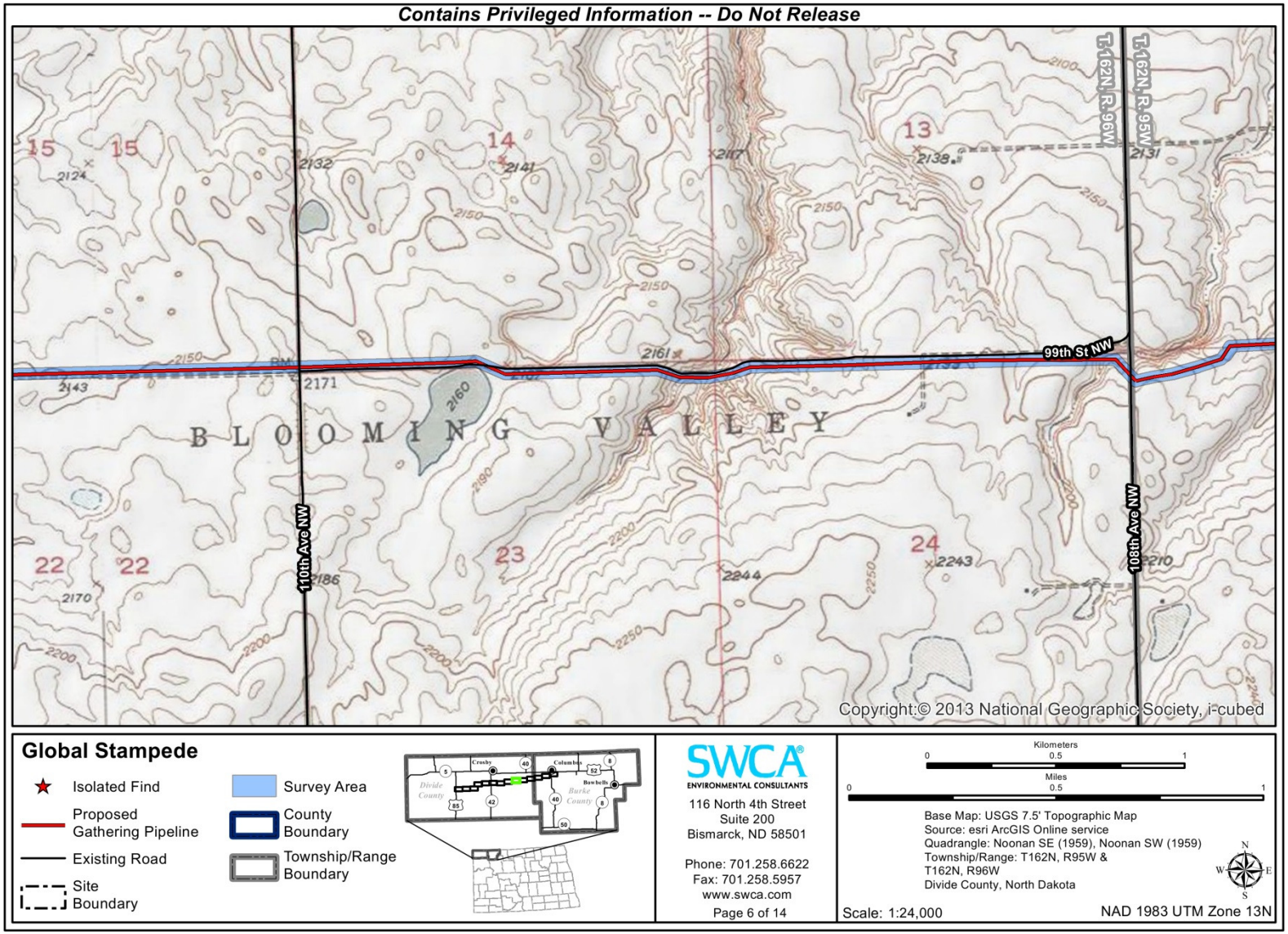
Resource location map 3 of 14 at 1:24,000-scale.



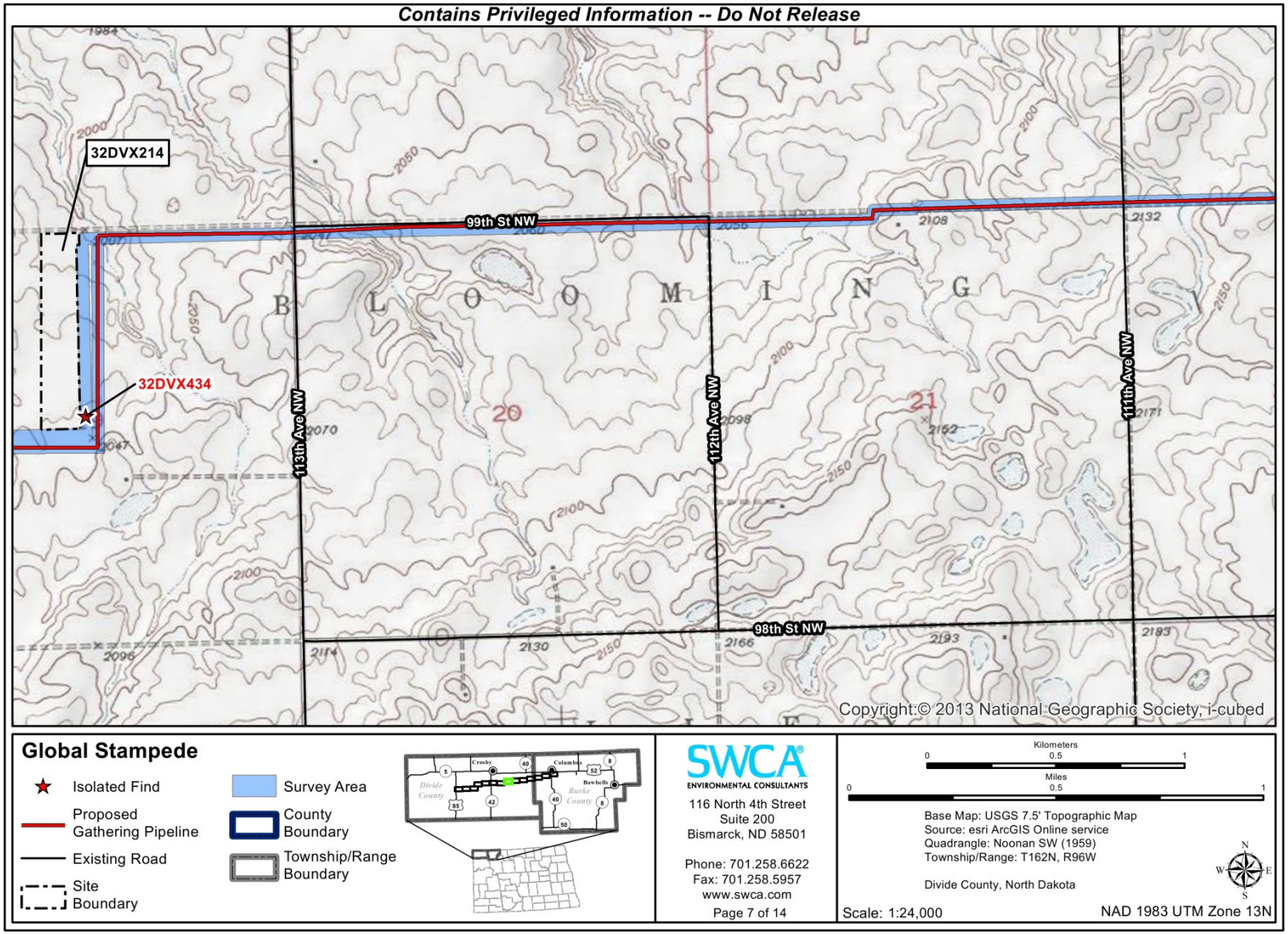
Resource location map 4 of 14 at 1:24,000-scale.



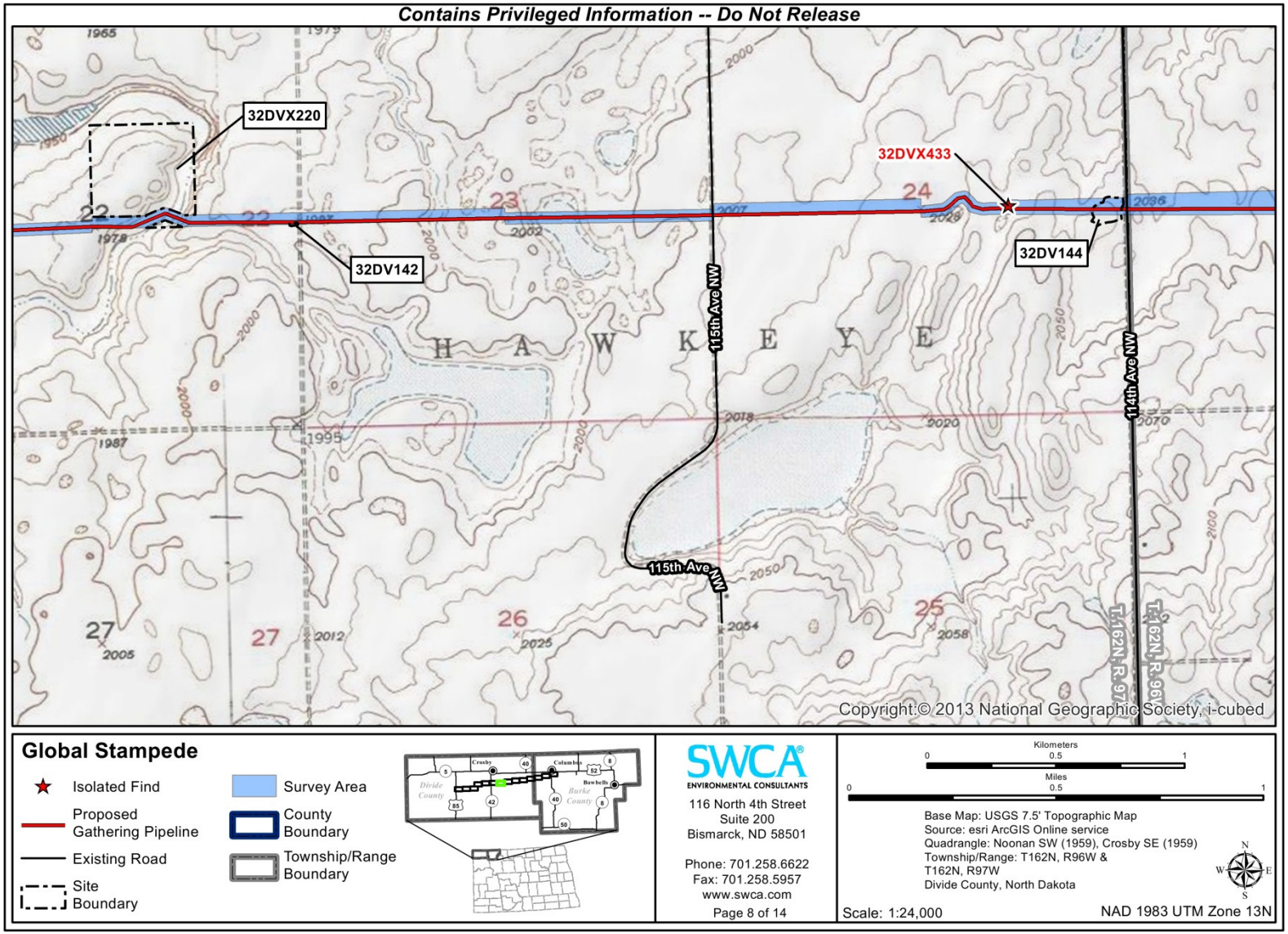
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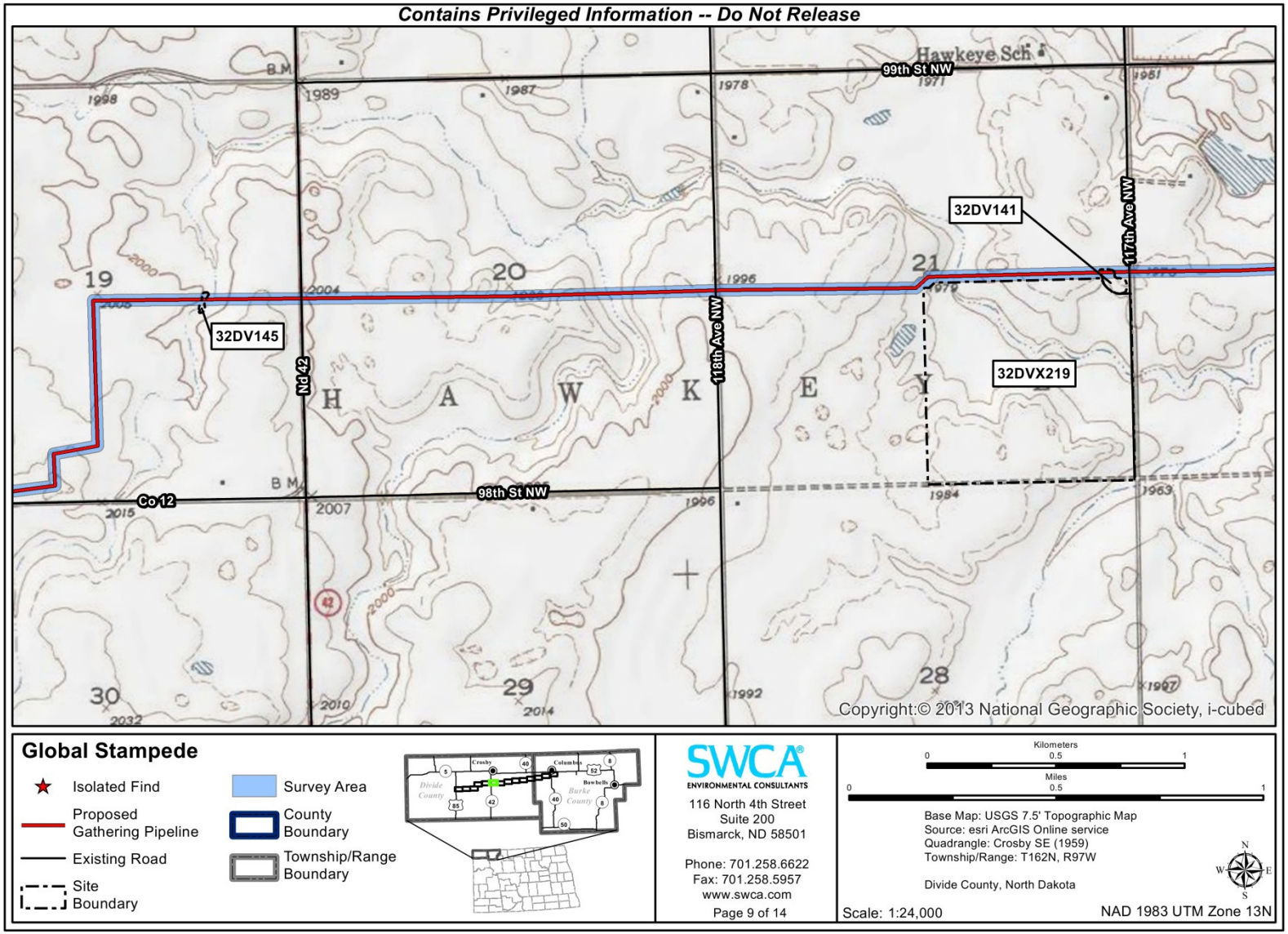
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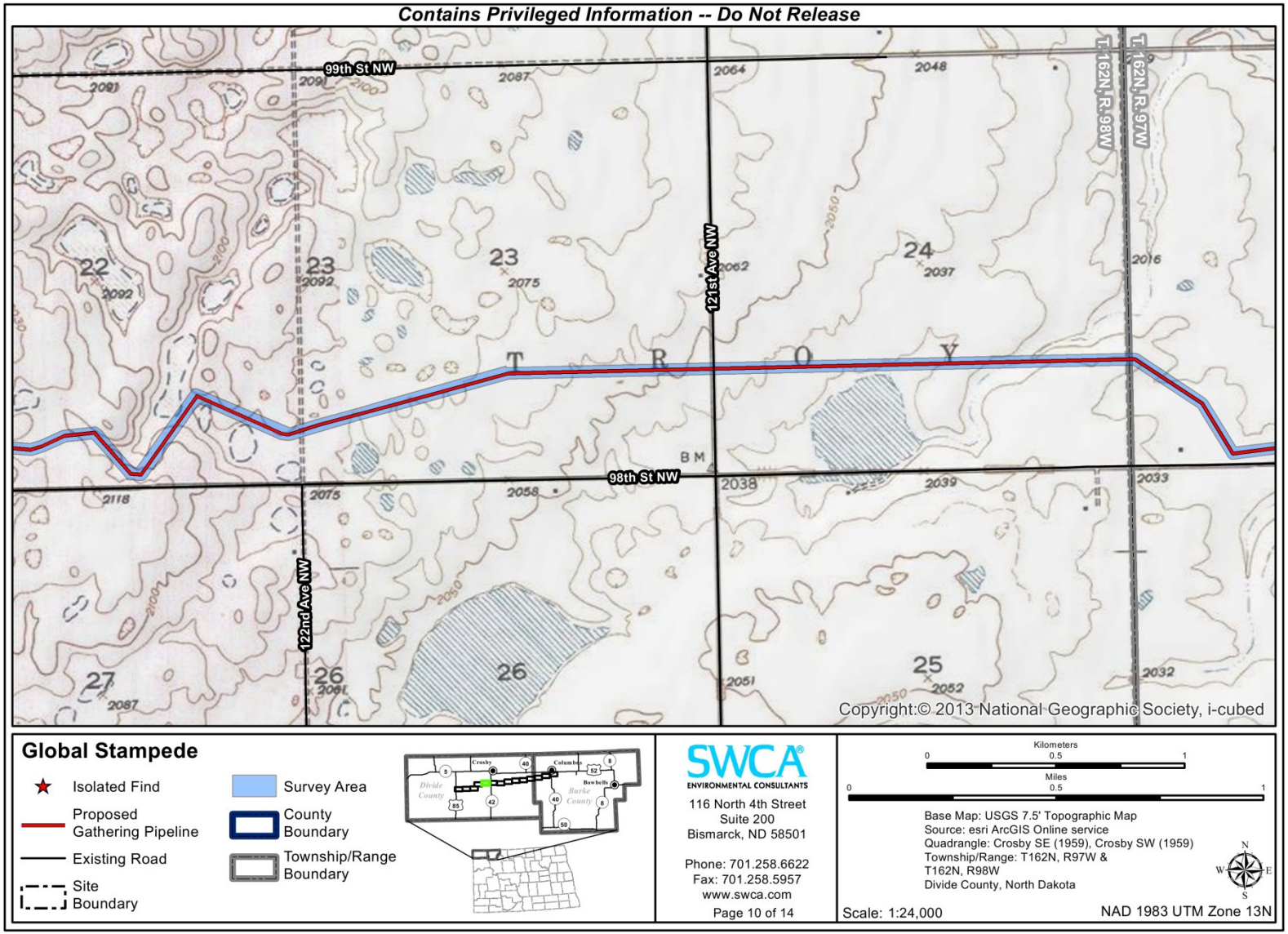
Resource location map 7 of 14 at 1:24,000-scale.



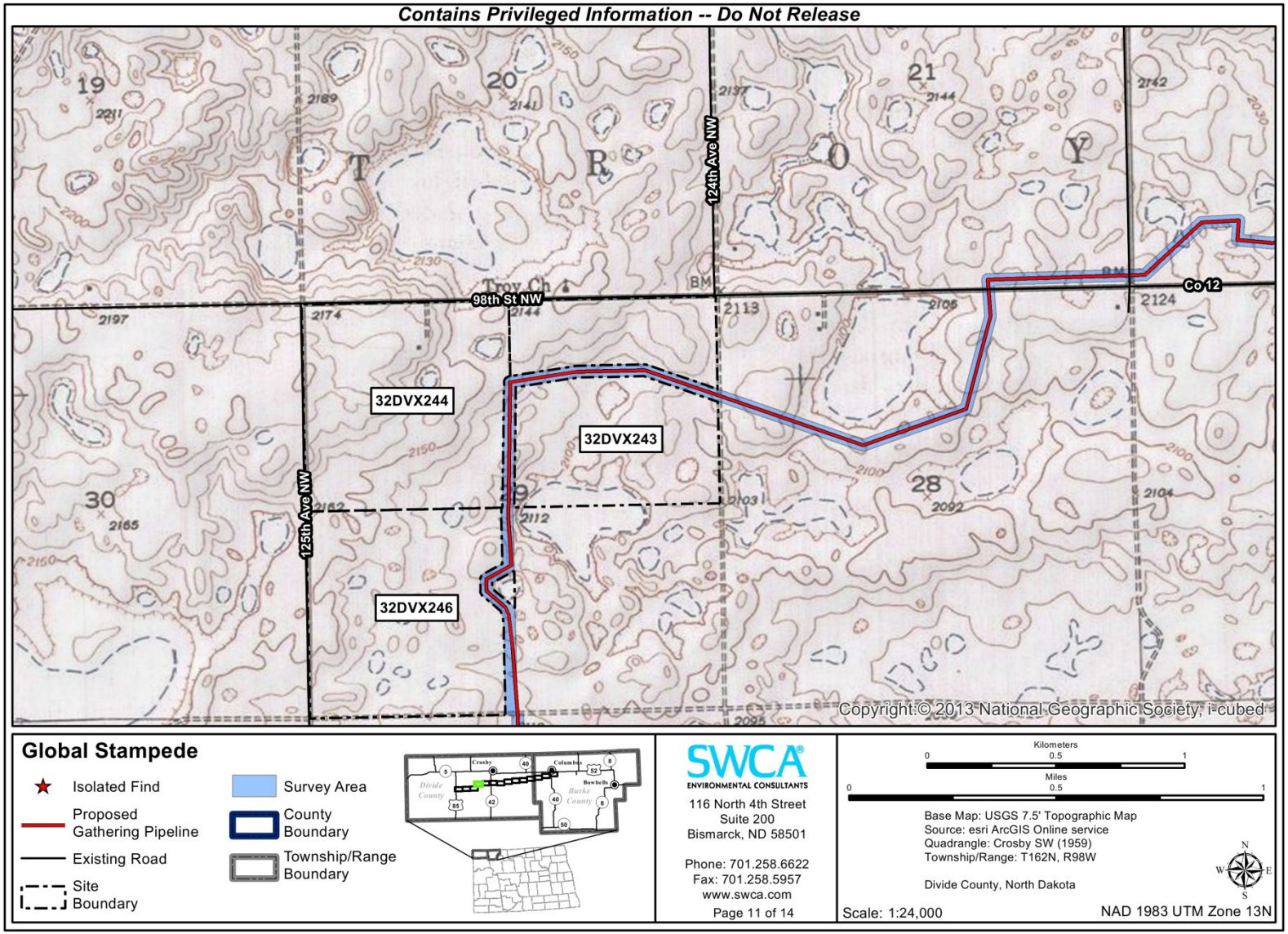
Resource location map 8 of 14 at 1:24,000-scale.



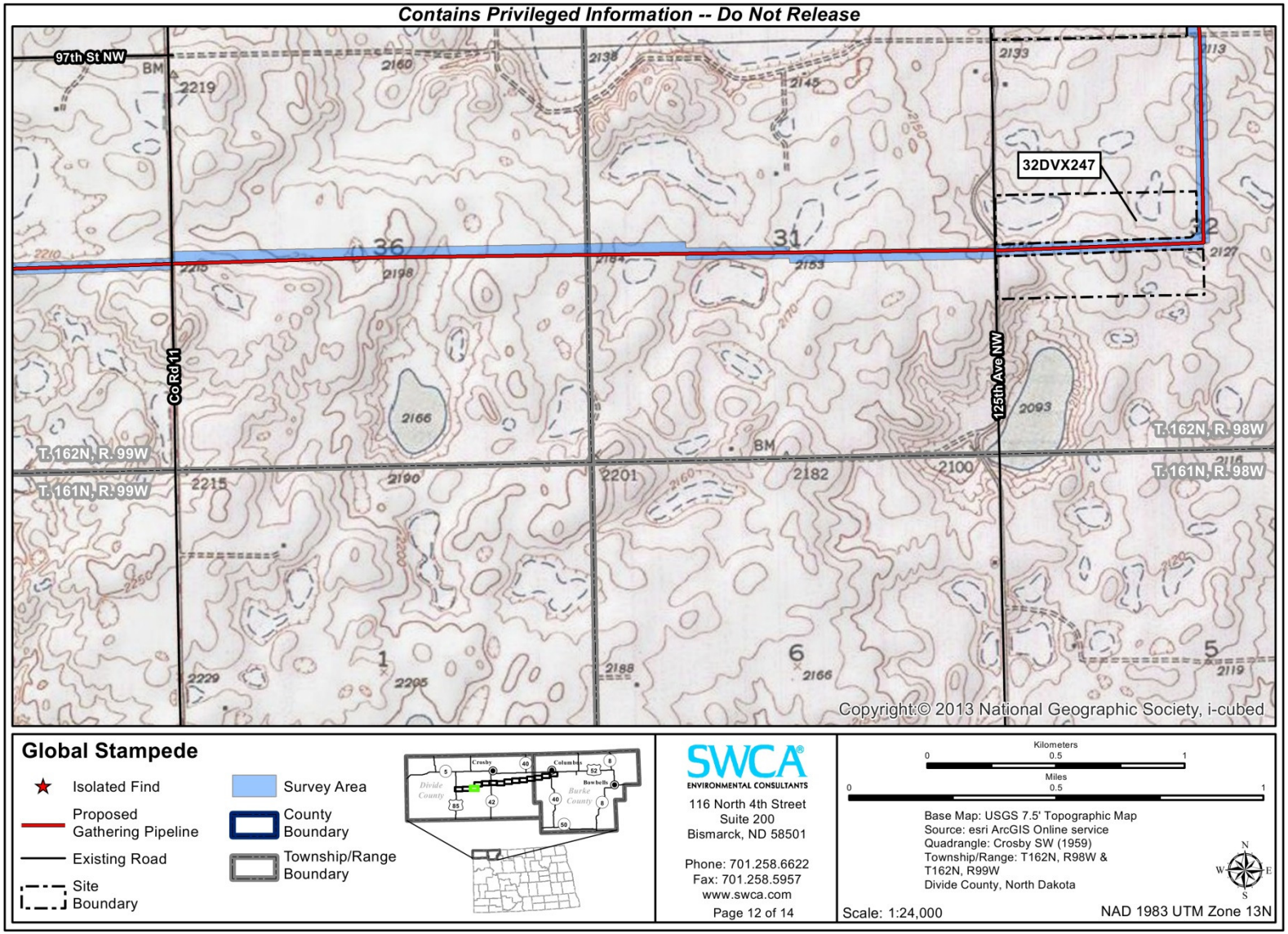
Resource location map 9 of 14 at 1:24,000-scale.



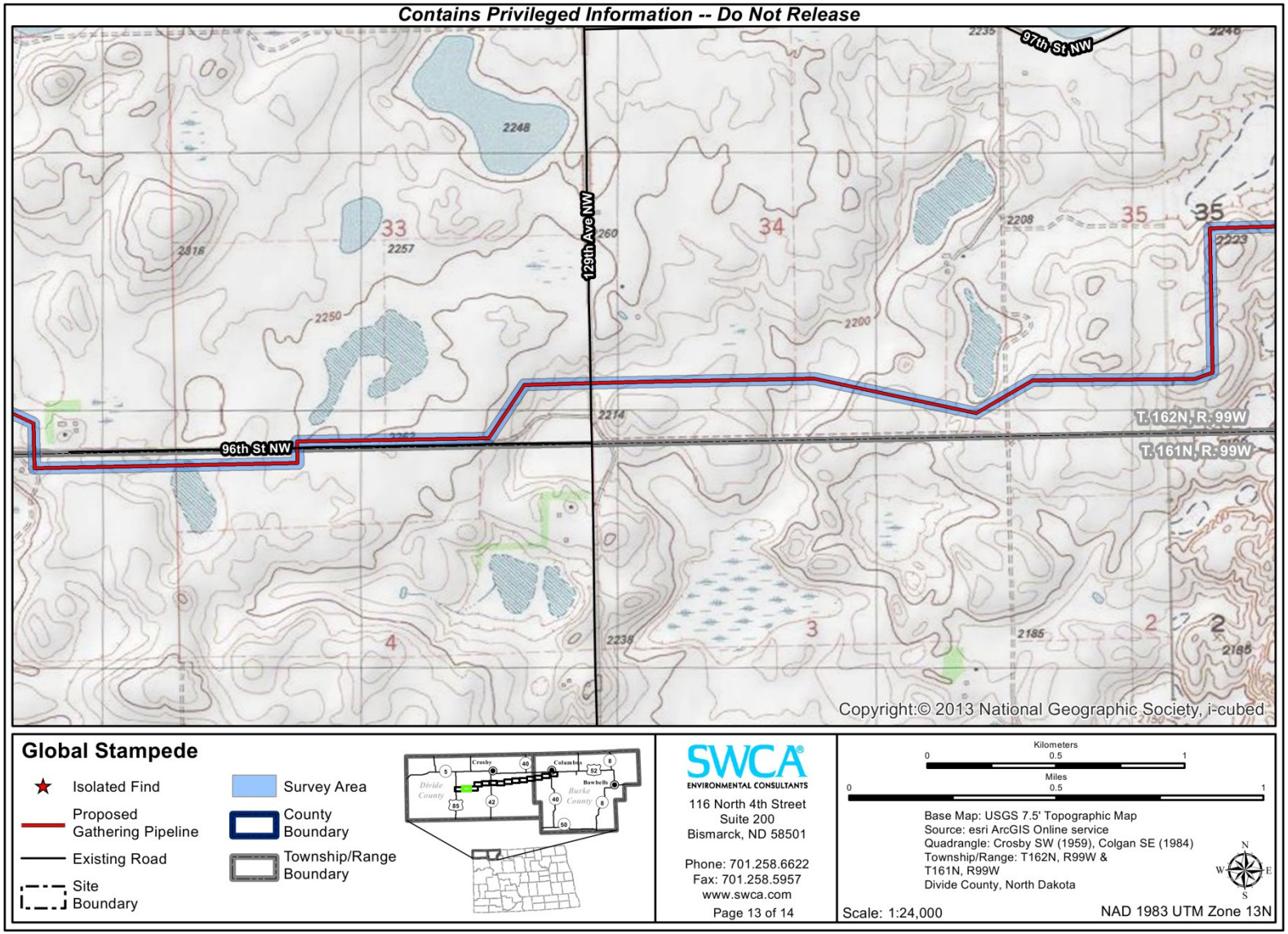
Resource location map 10 of 14 at 1:24,000-scale.



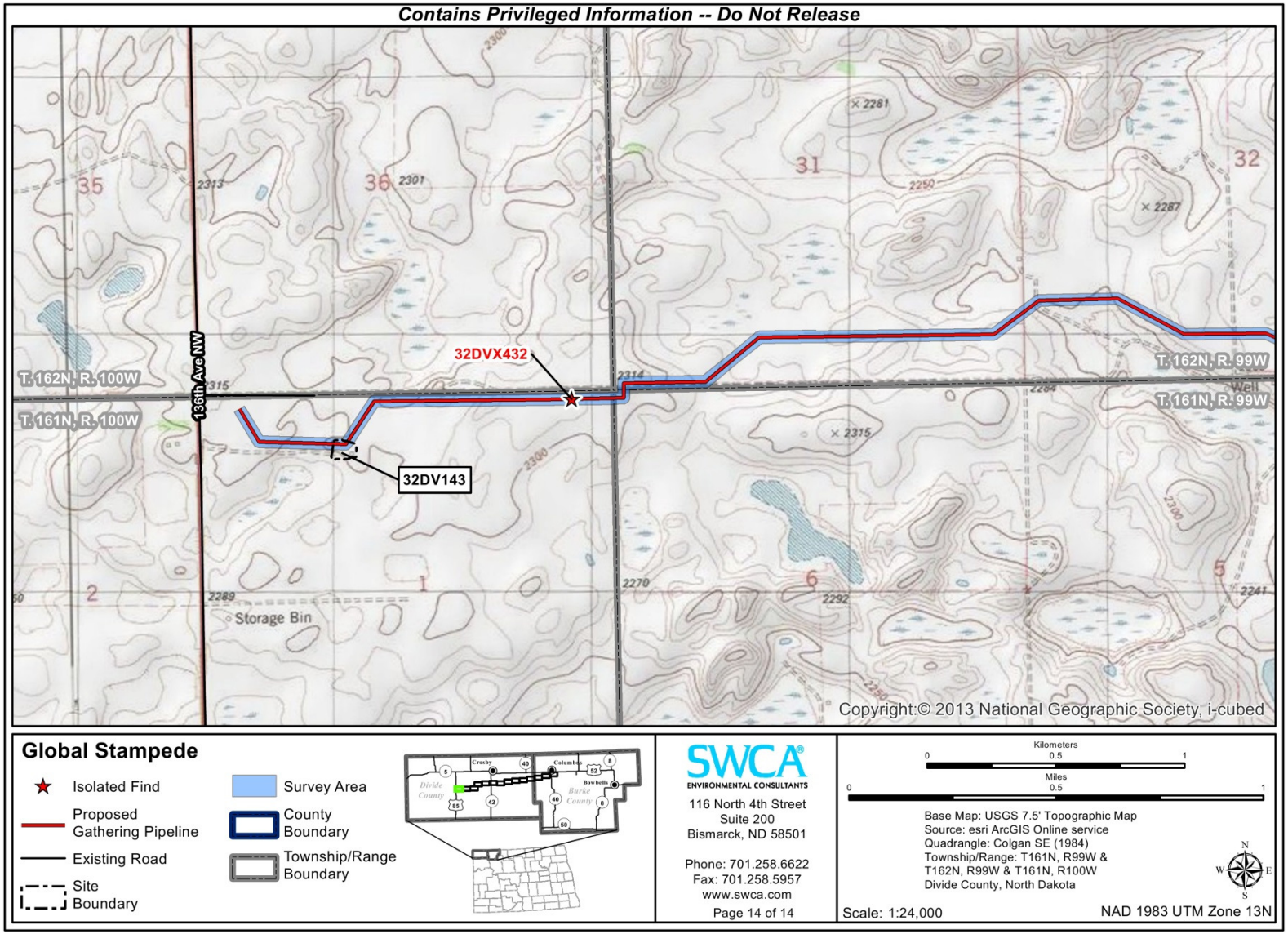
Resource location map 11 of 14 at 1:24,000-scale.



Resource location map 12 of 14 at 1:24,000-scale.



Resource location map 13 of 14 at 1:24,000-scale.



Resource location map 14 of 14 at 1:24,000-scale.

Appendix F

10-Year Plan

Meadowlark Midstream Company, LLC ("Meadowlark") hereby submits its ten-year plan pursuant to North Dakota Century Code § 49-22-04.

Introduction

Meadowlark plans to convert the existing Divide Lateral Oil Pipeline (described below) from a gathering pipeline to a transmission pipeline in conjunction with the addition of the Divide Pump Station (described below) to the Divide Lateral Oil Pipeline, which will cause the length of the Divide Lateral Pipeline downstream of the new Divide Pump Station to be a liquid transmission facility under North Dakota Century Code § 49-22-03.12. Installation of the Divide Pump Station is necessary to address demands for service from new customers by increasing the volume of crude oil that can be transported via the Divide Lateral Oil Pipeline. Once the Divide Pump Station is installed, the Divide Lateral Oil Pipeline will be Meadowlark's first transmission facility in North Dakota subject to the provisions of North Dakota Century Code § 49-22-04.

SECTION A: Existing Facilities[1]

Divide Lateral Oil Pipeline

1. Location: Originates in Divide County at the Divide Pump Station site, which is approximately 17 miles northwest of Alamo, North Dakota. From that location, the Divide Lateral Oil Pipeline extends in a south/southeasterly direction into Williams County to its terminus at the existing Colt Rail Terminal ("Colt Hub") located north of Epping, North Dakota. A map showing the location of the Divide Lateral Oil Pipeline is attached hereto as **EXHIBIT "A."**

2. Type and Capacity:
   a. Product Type: Crude oil
   b. Length of Facility: 43.5 miles
   c. Pipe Size: 8.625" diameter, 0.322" wall thickness
   d. Maximum Design Operating Pressure: 1440
   e. Maximum Design Flow Rate: 45,000 barrels per day
   f. Pump Station Specifications: Field gathering injection pumps move product to Colt Hub.
   g. Minimum Cover Over Pipe: 36"
   h. In Service Date: October 2013.

The Divide Lateral Oil Pipeline is not committed to be retired in the next ten years.

SECTION B: Intended Construction of Transmission Facilities During the Next Five Years

Little Muddy Interconnection Pipeline

[1] The Divide Lateral Oil Pipeline currently exists, but will not qualify as a transmission facility under North Dakota Century Code § 49-22-03.12 until installation of the Divide Pump Station.

1. Location: Meadowlark intends to construct, and will seek a route permit for, an approximately 15 mile long pipeline (the "Little Muddy Interconnection Pipeline") beginning in close proximity to the Colt Hub and ending at North Dakota Pipeline Company LLC's ("NDPC") Little Muddy Station located approximately 10.5 miles northwest of Epping, North Dakota, where it will interconnect with NDPC's interstate pipeline. A map showing the anticipated location of the Little Muddy Interconnection Pipeline is attached hereto as **EXHIBIT "A."**

SECTION C: Proposed Transmission Facilities During the Next Ten-Year Time Period

See Section B, above.

SECTION D: Regional Coordination

While Meadowlark coordinates with producers in North Dakota by discussing potential connections with planned and existing wells, Meadowlark has very limited regional coordination with other midstream companies in North Dakota due to confidentiality concerns and potential antitrust issues.

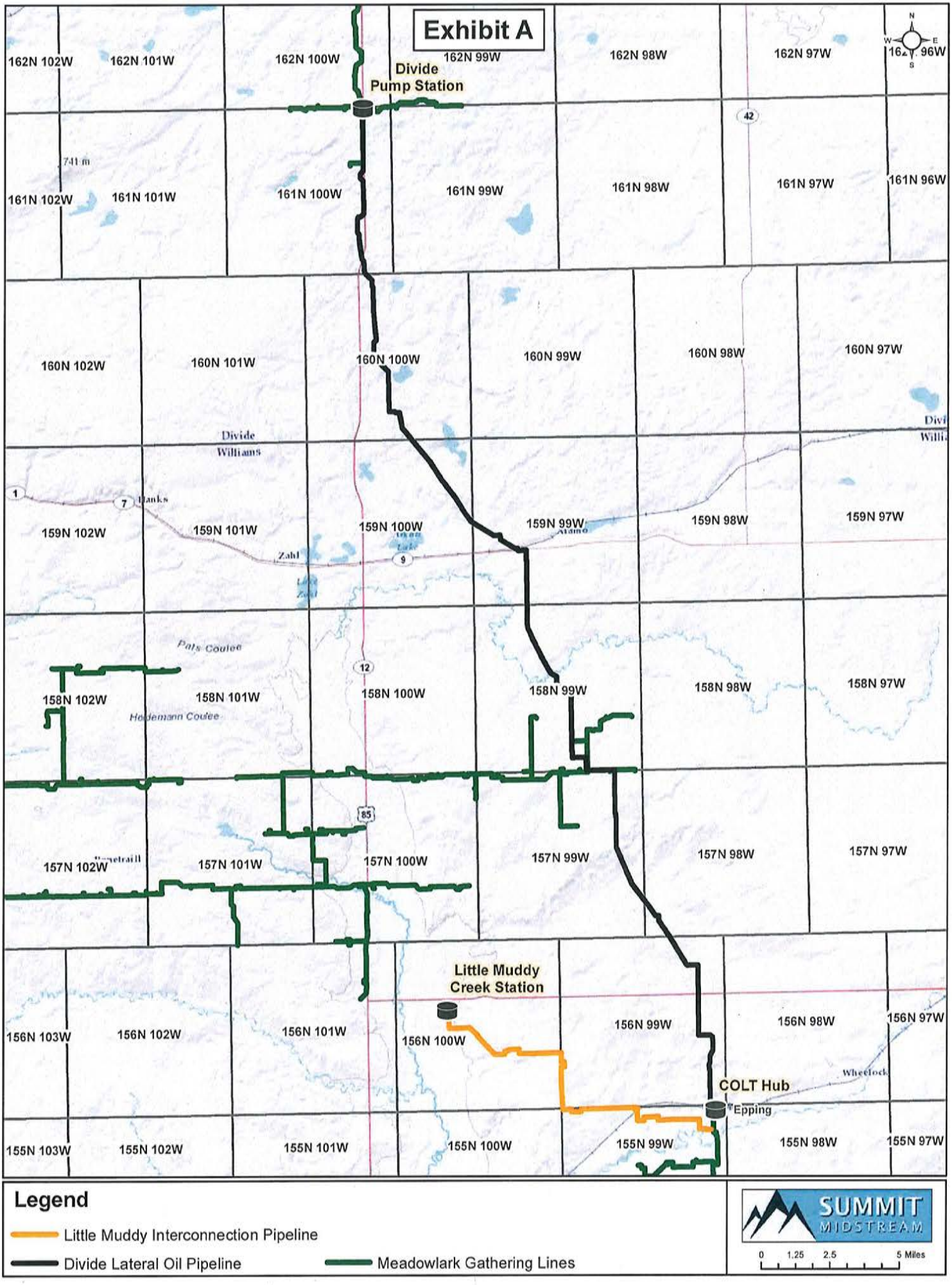
SECTION E: Environmental Information

Meadowlark monitors regulatory developments and has developed working relationships with the U.S. Fish and Wildlife Service, the Bureau of Land Management, the North Dakota Industrial Commission, the North Dakota Public Service Commission, and the North Dakota Department of Health, in an effort to ensure regulatory compliance. Meadowlark continues to develop detailed risk collaborations with local emergency planning groups.

Meadowlark selects pipeline corridors and routing to minimize impact as required by the statutes and rules and regulations of the Public Service Commission. When desirable, Meadowlark may employ local environmentalists and archaeologists to assist with planning. Meadowlark is well prepared to meet any emergency and mitigate the impact of a pipeline failure.

SECTION F: Projected Demand for Service

Drilling activity in the counties where Meadowlark has gathering facilities (Williams and Divide Counties) has dramatically increased, and Meadowlark estimates that gas and crude oil production will increase, resulting in an increased demand for both gas and crude oil gathering services.


Exhibit A
162N 102W
162N 101W
162N 100W
162N 99W
162N 98W
162N 97W
162N 96W
Divide
Pump Station
161N 102W
161N 101W
161N 100W
161N 99W
161N 98W
161N 97W
161N 96W
160N 102W
160N 101W
160N 100W
160N 99W
160N 98W
160N 97W
Divide
Williams
159N 102W
159N 101W
159N 100W
159N 99W
159N 98W
159N 97W
Banks
Zahl
158N 102W
158N 101W
158N 100W
158N 99W
158N 98W
158N 97W
Pats Coulee
Hedemann Coulee
157N 102W
157N 101W
157N 100W
157N 99W
157N 98W
157N 97W
Little Muddy
Creek Station
156N 103W
156N 102W
156N 101W
156N 100W
156N 99W
156N 98W
156N 97W
COLT Hub
Epping
Wheelock
155N 103W
155N 102W
155N 101W
155N 100W
155N 99W
155N 98W
155N 97W
Legend
Little Muddy Interconnection Pipeline
Divide Lateral Oil Pipeline
Meadowlark Gathering Lines
SUMMIT MIDSTREAM
0 1.25 2.5 5 Miles

Appendix G

Landowner Waivers

Meadowlark Midstream Company, LLC
999 18th Street, Suite 3400S
Denver, CO 80202

Phone: 720.452.6225
Fax: 720.452.6232
www.summitmidstream.com

October 10, 2014

Gene Pulvermacher
PO Box 449
Crosby, ND 58730

RE: Meadowlark Midstream Company, LLC– Global Stampede Pipeline

Mr. Pulvermacher,

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Global Stampede Pipeline Application that Meadowlark Midstream Company, LLC intends to file with the North Dakota Public Service Commission ("Pipeline Project"). The Pipeline Project involves construction of a new approximately 46.1 mile long 10-inch diameter crude oil underground pipeline and associated facilities, including an aboveground tank on the western end of the pipeline. The attached site map indicates that the Pipeline Project will be located within 500 feet of your residence or business.

By signing below you are confirming that you have no objection to the Pipeline Project, or the future operation and maintenance of the Pipeline Project. Your cordial cooperation in this manner is greatly appreciated.

Respectfully,

Nathan Brady
Landman
Meadowlark Midstream Company, LLC

Gene Pulvermacher

Gene Pulvermacher

Date: 10/14/14

Meadowlark Midstream Company, LLC
999 18th Street, Suite 3400S
Denver, CO 80202

Phone: 720.452.6225
Fax: 720.452.6232
www.summitmidstream.com

October 17, 2014

Robert Thompson
9990 Cty Rd 17
Crosby, ND 58730

RE: Meadowlark Midstream Company, LLC– Global Stampede Pipeline

Mr. Thompson,

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Global Stampede Pipeline Application that Meadowlark Midstream Company, LLC intends to file with the North Dakota Public Service Commission ("Pipeline Project"). The Pipeline Project involves construction of a new approximately 46.1 mile long 10-inch diameter crude oil underground pipeline and associated facilities, including an aboveground tank on the western end of the pipeline. The attached site map indicates that the Pipeline Project will be located within 500 feet of your residence or business.

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Respectfully,

Nathan Brady
Landman
Meadowlark Midstream Company, LLC

Robert A. Thompson
Robert Thompson

Date: 10-17-14

Meadowlark Midstream Company, LLC
999 18th Street, Suite 3400S
Denver, CO 80202

Phone: 720.452.6225
Fax: 720.452.6232
www.summitmidstream.com

October 20, 2014

Leo Logelin & Shawn Logelin
9935 100th St NW
Columbus, ND 58727

RE: Meadowlark Midstream Company, LLC– Global Stampede Pipeline

Mr. Logelin,

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Global Stampede Pipeline Application that Meadowlark Midstream Company, LLC intends to file with the North Dakota Public Service Commission ("Pipeline Project"). The Pipeline Project involves construction of a new approximately 46.1 mile long 10-inch diameter crude oil underground pipeline and associated facilities, including an aboveground tank on the western end of the pipeline. The attached site map indicates that the Pipeline Project will be located within 500 feet of your residence or business.

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Respectfully,

Nathan Brady
Landman
Meadowlark Midstream Company, LLC

Shawn Logelin **Leo Logelin**

Date: _____

Meadowlark Midstream Company, LLC
999 18th Street, Suite 3400S
Denver, CO 80202

Phone: 720.452.6225
Fax: 720.452.6232
www.summitmidstream.com

September 2, 2014

Bruce D Thompson
9330 101 St NW
Columus, ND 58727

RE: Meadowlark Midstream Company, LLC– Global Stampede Pipeline

Mr.Thompson,

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Global Stampede Pipeline Application that Meadowlark Midstream Company, LLC intends to file with the North Dakota Public Service Commission ("Pipeline Project"). The Pipeline Project involves construction of a new approximately 46.1 mile long 10-inch diameter crude oil underground pipeline and associated facilities, including an aboveground tank on the western end of the pipeline. The attached site map indicates that the Pipeline Project will be located within 500 feet of your residence or business.

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Respectfully,

Nathan Brady
Landman
Meadowlark Midstream Company, LLC

Bruce D Thompson

Bruce D Thompson

Date: 9/02/2014

Meadowlark Midstream Company, LLC
999 18th Street, Suite 3400S
Denver, CO 80202

Phone: 720.452.6225
Fax: 720.452.6232
www.summitmidstream.com

Aug. 26, 2014

Basin Transload Stampede
10154 93rd Ave NW
Columbus, ND 58727

RE: Meadowlark Midstream Company, LLC– Global Stampede Pipeline

Dear: Basin Transload

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Global Stampede Pipeline Application that Meadowlark Midstream Company, LLC intends to file with the North Dakota Public Service Commission ("Pipeline Project"). The Pipeline Project involves construction of a new approximately 46.1 mile long 10-inch diameter crude oil underground pipeline and associated facilities, including an aboveground tank on the western end of the pipeline. The attached site map indicates that the Pipeline Project will be located within 500 feet of your residence or business.

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Respectfully,

Nathan Brady
Landman
Meadowlark Midstream Company, LLC

Ray W. Sheldon
Basin Transload

Date: 8/26/2014

Date:

Meadowlark Midstream Company, LLC
999 18th Street, Suite 3400S
Denver, CO 80202

Phone: 720.452.6225
Fax: 720.452.6232
www.summitmidstream.com

_____, 2014

Donna Lagein
10560 99th St NW
Noonan, ND 58765

RE: Meadowlark Midstream Company, LLC– Global Stampede Pipeline

Mrs Lagein,

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Global Stampede Pipeline Application that Meadowlark Midstream Company, LLC intends to file with the North Dakota Public Service Commission ("Pipeline Project"). The Pipeline Project involves construction of a new approximately 46.1 mile long 10-inch diameter crude oil underground pipeline and associated facilities, including an aboveground tank on the western end of the pipeline. The attached site map indicates that the Pipeline Project will be located within 500 feet of your residence or business.

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Respectfully,

Nathan Brady
Landman
Meadowlark Midstream Company, LLC

Donna Lagein

Donna Lagein

Date: 9-9-14

Meadowlark Midstream Company, LLC
999 18th Street, Suite 3400S
Denver, CO 80202

Phone: 720.452.6225
Fax: 720.452.6232
www.summitmidstream.com

October 10, 2014

Richard Pulvermacher
13025 96th St NW
Ambrose, ND 58833-9739

RE: Meadowlark Midstream Company, LLC– Global Stampede Pipeline

Mr. Pulvermacher,

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Global Stampede Pipeline Application that Meadowlark Midstream Company, LLC intends to file with the North Dakota Public Service Commission ("Pipeline Project"). The Pipeline Project involves construction of a new approximately 46.1 mile long 10-inch diameter crude oil underground pipeline and associated facilities, including an aboveground tank on the western end of the pipeline. The attached site map indicates that the Pipeline Project will be located within 500 feet of your residence or business.

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Respectfully,

Nathan Brady
Landman
Meadowlark Midstream Company, LLC

Richard Pulvermacher by [illegible] A.I.F
Richard Pulvermacher

Date: 10/14/14