

# Bridger Crude Oil Pipeline Project As-Built Construction Inspection Report PU-15-097



*Prepared for:*  
**North Dakota Public Service  
Commission**

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# 1.0 Executive Summary

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The North Dakota Public Service Commission (PSC) retained Wenck Associates, Inc. (Wenck) to complete a construction inspection of the Bridger Crude Oil Loop Pipeline (Project) in Stark and Billings Counties, North Dakota (ND), constructed by Bridger Pipeline, LLC (Bridger). Construction for the Project was completed in February 2016. Wenck reviewed all Project documents to identify those aspects that required compliance, and visually inspected the Project area on 23 August 2016.

The Project was well-maintained and appeared to have been constructed as planned with numerous efforts to minimize impacts. However, there were several non-critical issues that may need to be resolved for the Project to be considered complete and in full compliance, including 1) written verification of some items, in particular, documentation of associated GIS files and 2) vegetation establishment throughout the project route. Follow-up actions taken by Bridger to address these issues can be corroborated in writing or photos and will not require a subsequent site visit. Wenck recommends the PSC take the following steps to resolve these issues.

## **Recommended Action Steps**

### **→ Review Internally, Clarify, Then Request if Needed**

- Several items may need written verification, but the PSC should review since some may not be needed or may be best verified in some other way (refer to list in Section 4.1).

### **→ Expect Later, Request if Needed**

- Documentation of satisfactory establishment of vegetation throughout the project route. Soil amendments or re-seeding may be necessary if former land uses cannot be attained in the next couple years.
- Associated GIS files.

## 2.0 Background and Scope

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### 2.1 INTRODUCTION

The Bridger Crude Oil Loop Pipeline (Project), also known as the “Heart River Pipeline” connects the Bridger’s Skunk Hills Station to Bridger’s Fryburg Station in Billings and Stark Counties, North Dakota. The Project was constructed and is operated by Bridger Pipeline, LLC (Bridger). The Project includes a 16-inch diameter underground pipeline with a total length of approximately 15 miles. The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC), which issued its Findings of Fact, Conclusions of Law, and Order in Case No. PU-15-097 on 30 September 2015, granting a Certificate of Corridor Compatibility No. 172 and Route Permit No. 184 for the Project.

### 2.2 PURPOSE

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorizes the Public Service Commission to determine that the location, construction, and operation of jurisdictional energy conversion and transmission facilities will produce minimal adverse effects on the environment and the welfare of citizens of North Dakota. Post-construction inspections ensure that such projects are constructed in compliance with the siting laws (North Dakota Century Code Chapter 49-22) and rules (North Dakota Administrative Code Article 69-06) and the applicable Commission Findings of Fact, Conclusions of Law, and Order (Order). The North Dakota PSC retained Wenck Associates, Inc. (Wenck) to complete a construction inspection of the Project.

### 2.3 METHODS AND SCOPE OF INSPECTION

#### 2.3.1 Project Compliance Items Identified

Wenck identified a list of “Project Specifications”, which Bridger is obligated or responsible to follow and that can be verified either in written documentation or by an on-site inspection. These items were taken from 1) siting laws and rules, 2) Project activities or specifications proposed in the Application for a Certificate of Corridor Compatibility and Route Permit (Application), 3) Project plans described in the Findings of Fact, 4) Orders, and 5) recommendations by other agencies. These Project specifications are listed in Table 2.1 under 7 categories: Siting & Location; Project Design & Engineering; Pre-Construction; Cultural Resources; Natural Resources; Construction, Reclamation & Soils; and Operation.

#### 2.3.2 Document Review

Wenck staff reviewed publicly-available Project documents in the PSC Online Case Search (ND PSC 2016) to find written verification of compliance for the Project specifications listed in Table 2.1. If written verification was filed, the findings are described in Section 3 and the source and name of the documentation is listed in Table 2.1, Column 3 (Written Verification). Green boxes in the table represent Project specifications that are potentially non-compliant because they have no written verification.

#### 2.3.3 On-Site Inspection

Samantha Swanberg, Wenck environmental scientist, visited the Project site on 23 August 2016. A representative from Bridger Pipeline LLC, Avery Pipeline Services, Bud Pauley, accompanied Wenck staff during the site visit.

The site was inspected visually by driving to access points and walking within the Project area at those points. Digital photographs (Canon Power Shot SD1300 IS, 12 megapixels) were taken showing typical Project infrastructure and documenting problem areas (**Appendix A**). Geographic coordinates were recorded at observation points or potential problem areas using a handheld Global Positioning System (GPS) (Garmin GPSMAP 60CSx; <10m accuracy; NAD83 datum) (**Appendix B**).

If on-site inspection of a Project specification was completed, the findings are described in Section 3 and referenced in Table 2.1, Column 4 (Site Verification). Green boxes in the table represent Project specifications that are potentially non-compliant based on site verification.

**Table 2-1: Project Specifications with Written or Site Verification Information**

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification *
<b>SITING &amp; LOCATION</b>			
Findings of Fact 2, 3	Located in Billings and Stark Counties, the project originates at Bridger’s Skunk Hill station and terminates at Bridger’s Fryburg Station, and will parallel an existing 8-inch crude oil pipeline.	None	Section 3.1.1
ND Admin. Code Article 69-06-08; Corridor and Route App. p. 8, 10, 11 Appendix B; Findings of Fact 12, 13, 32	Siting Criteria analysis – exclusion, avoidance, selection, and policy. No exclusion or avoidance areas within study area. No impacts to Selection Criteria. Meets Policy Criteria.	Docket #1 Consolidated Application	Section 3.1.2
Corridor App. p. 16	Minimal long-term loss of farmland use is expected.	None	Section 3.1.3
Corridor App. p. 24	Areas within 500ft of inhabit rural residence must be designated avoidance areas.	Docket #1, Corridor App.; Docket #1, Tab 4; Docket #30, Late-filed Exhibit 6	Section 3.1.4
NDPR (Application, Tab 4)	No state trust surface or mineral ownership within study area. No PLOTS lands in or adjacent to corridor. No state parks or NDPR-managed lands.	None; Docket #1, Consolidated Application Tab 3, 4	Section 3.1.5
<b>PROJECT DESIGN &amp; ENGINEERING</b>			
Corridor and Route App. pp. 1-3; Findings of Fact 2, 3, 4, 5	Authorized 15 miles of steel 16-inch diameter underground pipeline, pipeline markers, rectifiers, and block valves. Maximum capacity of the system will be 125,000 barrels per day with a maximum operating pressure of 1,440 pounds per square inch.	Docket #1, Consolidated Application Tab 1	Section 3.2.1
Corridor and Route App. pp. 2, 23, 42,	Construction work space will be approx. 100 ft. wide to allow adequate room for work space. Additional temporary work space may be necessary during construction in areas	Docket #1 Consolidated Application Tab 1, 3	Section 3.2.2

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification *
	such as steep slopes and staging areas for streams, wetlands and road crossings. Bridger has access to the adjacent 50 ft. of ROW from its existing ROW. Bridger will clear the 75 ft. construction ROW and additional temporary extra workspaces of shrubs and trees.		
Corridor and Route App. p. 48	Design, construction, and operation in compliance with US DOT 49 CFR Part 195.	None	N/A
Certification 25	Provide engineering design drawings prior to construction upon request.	None; Docket #28, Late-filed exhibit 4, HDD crossing under Heart River	Section 3.2.4
Certification 29	Provide electronic and paper as-built design specifications and associated GIS files within 3 months after construction complete.	None	N/A
<b>PRE-CONSTRUCTION</b>			
ND Century Code Ch. 49-22-07.1; ND Admin. Code Article 69-06-03	Letter of Intent.	Docket #2, Application Waiver	N/A
ND Century Code Ch. 49-22-08; ND Admin. Code Article 69-06-04	Application for a Certificate of Site or Corridor Compatibility and Route Permit.	Docket #1, Consolidated Application	N/A
ND Century Code Ch. 49-22-07	Certificate of Site Compatibility or Route Permit.	Docket #33, Findings of Fact, Conclusions of Law and Order	N/A
ND Century Code Ch. 49-22-04; ND Admin. Code Article 69-06-02	Ten-year Plan.	None (PU-15-372)	N/A
Certification 9	Conduct Pre-construction Conference. Provide notice of	Docket #43, Preconstruction Conference Minutes;	N/A

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification *
	intent to start construction.	Docket #41, Notice of intent to start construction	
Certification 28	Inform Commission of plans to modify facility and obtain approval. Any facilities not included in current Application must be applied for in a separate Route or Site Permit.	None	N/A
Certification 2	Compliance with rules and regulations of other jurisdictional agencies. Obtain permits and approvals from other agencies and provide copies prior to applicable permitted activity.	Docket #1,#4, #5, #15, #23,	N/A
Certification 30; Route App. p. 42	Participate in ND One-Call Excavation Notice System. Report any damage to underground facilities.	None recorded	Section 3.3.5
	<b>CULTURAL RESOURCES</b>		
Findings of Fact 12, 18, 23	Complete Class III cultural resources survey of corridor. Cultural resource sites determined ineligible for National Register of Historic Places. SHPO concurrence provided with Application. No avoidance or mitigation necessary.	Docket #5, Letter enclosing ND SHPO	Section 3.4.1
Findings of Fact 12, 18; Certification 8, 14	Submit cultural resource mitigation plans to SHPO prior to construction for approval. Report discovery of cultural, archeological, historic, etc. sites and stop construction, consult SHPO for clearance, and file report to PSC.	Docket #5, Letter enclosing ND SHPO	N/A
	<b>NATURAL RESOURCES</b>		
Route App. p. 10, Tab 4; Corridor App. p. 4; Findings of Fact 13, 16; Certification 27	Expect temporary displacement of wildlife due to clearing and construction, but no significant impacts. No impacts expected to T+E or sensitive species.	Docket #1, Consolidated Application Tab 4;	Section 3.5.1
Findings of Fact 31;	No permanent impacts to wetlands or waterbodies are anticipated. Spill control, erosion and sediment controls, and other specific construction measures will be used through wetlands, according to permit. NDGF recommends erosion control, no drainage alteration, or and that above	Docket #1 Consolidated Application	Section 3.5.2

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification *
	ground appurtenances should not be placed in wetland areas.		
Certification 27;	Report presence of T+E species, bald or golden eagles during construction and operation.	None reported to date	N/A
Certification 18;	Reclamation, fertilization, and reseeding according to NRCS (or landowner if approved) unless otherwise specified by the landowner and approved by the Commission.	None	Section 3.5.4
Corridor and Route App. pp. 19, 28; Findings of Fact 33; Certification 20	Shrubland avoided to extent practicable. Tree and shrub removal and replacement will comply with "Tree and Shrub Mitigation Specifications".	None; Docket #43, Pre-construction conference minutes	Section 3.5.5
Route and Corridor App. Environmental Mitigation Plan pp. 8-9	Contractors required to clean equipment and materials prior to entrance to ROW to minimize spread of noxious weeds.	None	Section 3.5.6
	<b>CONSTRUCTION, RECLAMATION &amp; SOILS</b>		
Certification 9, 15	Environmental monitors and inspectors utilized during construction. Construct and operate in accordance with Application and safety requirements. Construction suspended during adverse weather conditions. Keep the Commission and the Commission's third-party construction inspector updated on construction activities on a monthly basis.	Docket #44, 45, 47, 49 Monthly Construction Reports	N/A
Certification 10	Pipeline buried to a minimum depth from the ground surface to the top of the pipe of 48 inches in rangeland, 48 inches for cultivated land, 48 inches at the bottom of the ditch for road crossings, and 72 inches across undeveloped section lines.	None	Section 3.6.2

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification *
Route and Corridor App. Environmental Mitigation Plan p. 2; Findings of Fact 31	Soil erosion minimized by use of BMPs during and after construction to protect surface water and soils/topsoils.	None	Section 3.6.3
Route and Corridor App. p. 27; Certification 11, 13	Topsoil and subsoil must be segregated and replaced separately. No staging areas on land of other ownership. Topsoil will be removed and replaced to maximum depth of 12 inches.	Docket #46, Construction Inspection report	Section 3.6.4
Route and Corridor App. p. 27; Certification 12, 17, 19	Temporarily disturbed areas and roads will be restored. Pre-existing roads restored to satisfactory condition. Restoration of area to pre-construction contours as soon as practicable upon completion of construction. ROW will be de-compacted per landowner request. Reclamation and maintenance throughout life of facility. All crossings of graded roads will be bored.	None	Section 3.6.5
Corridor and Route App. pp. 38, 45; Certification 19, 21	Temporary fences and gates will be installed as necessary. Repair/replace all damaged fences and gates. Repair/replace damaged drainage tile. Waste removed and disposed regularly.	None	Section 3.6.6
	<b>OPERATION</b>		
Certification 22, 26	Construct and operate in accordance with Application and safety requirements. Maintain records of compliance with Order and Certificate of Site Compatibility. Extraordinary events (e.g. injuries, T+E wildlife fatalities) reported within 5 business days.	None reported to date.	Section 3.7.1
Certification 16, 19, 21	Reclamation and maintenance throughout life of facility. Waste removed & disposed regularly.	None	Section 3.7.2
Certification 23, 24	Company representatives information to be sent to landowners to receive and resolve issues.	Docket #42, Landowner contact info	Section 3.7.3

**\*Note: Green boxes represent non-compliance or potential non-compliance issues.**

## 3.0 Findings

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### 3.1 SITING & LOCATION OF FACILITY

#### 3.1.1 Designated Location & Maps of Corridor

The Project was built as proposed in the designated location described in the Application and Order in Billings and Stark Counties, North Dakota. The Project interconnects existing Bridger facilities at Skunk Hill Station and Fryburg Station. This was confirmed during Wenck's inspection.

#### 3.1.2 Siting Criteria

Siting criteria were analyzed in detail in the Applications for the Project (Docket #1, Consolidated Application). Wenck confirmed during the site inspection that there were no exclusion or avoidance areas within the Project area. Wenck also confirmed that impacts to selection and policy criteria were considered and kept at a minimum.

#### 3.1.3 Land & Agricultural Impacts

The pipeline was installed at a depth that is equivalent to the depth of other pipelines within the Project route and at a depth that exceeds the typical tillage depth. Therefore, the pipeline will not interfere with normal agricultural operations on cropland. Above-ground facilities located on cropland were limited to pipeline appurtenances such as valves, line markers, and cathodic protection rectifiers. Therefore, minimal long-term loss of farmland has occurred. Following construction, agricultural lands were returned to preconstruction uses to the optimum extent practicable (Docket #1, Consolidated Application). At the time of inspection it was stated by Bridger's inspector that since construction was completed ahead of schedule, farmers were able to plant crops on the ROW that spring (2016), a few farmers were unable to fertilize the ROW in their cropland as the pipeline crews were still reclaiming the area.

#### 3.1.4 Setbacks

The Project was in a rural setting; the pipeline route does not pass within 500 feet of any rural residences (Docket #1, Consolidated Application, Corridor App.).

#### 3.1.5 ND State-Owned or Managed Lands

The ND Parks & Recreation Department (NDPR) indicated that no state parks or other lands they manage were in the vicinity of the Project (Docket #1, Consolidated Application Tab 3, 4). Therefore no state owned or managed lands were potentially impacted by the Project. There was no letter of response from the Department of Trust Lands seen in the docket.

### 3.2 PROJECT DESIGN & ENGINEERING

#### 3.2.1 Length & Infrastructure

The Project was authorized as 15 miles of 16-in diameter underground crude oil pipeline, as described in the Application and at the notice of opportunity for hearing. It also includes block valve, pipeline markers, and rectifiers (Docket #1, Consolidated Application, Tab 2). The site inspection observations coincide with these parameters.

### **3.2.2 Right-of-Way Corridor**

Construction work space was authorized at approximately 100 feet wide to allow adequate room for topsoil separation, work equipment and pipe stringing. Additional temporary work space was authorized in areas such as steep slopes and staging areas for streams, wetlands, and road crossings, for safety reasons, to provide an area for prefabrication of a section of pipeline, or for storage of top soil and subsoil material. Bridger also had access to the adjacent 50 feet of ROW from its existing line ROW (Docket #1, Corridor and Route Application, Tab 3).

In most cases, no additional ROW was required as Bridger has multiple line rights, in their existing ROW. Where additional ROW was required, easements were acquired from landowners adjacent to the existing Bridger ROW for its existing 8-inch pipeline. Generally the ROW had a width of 100 feet for construction and 50 feet of permanent ROW (Docket #1, Corridor and Route Application, Tab 3), and this was confirmed during the site visit.

### **3.2.3 Compliance with US DOT Regulations**

There was no written verification or certification of compliance with US DOT PHMSA 49 CFR Parts 195.

### **3.2.4 Engineering Design Drawings**

Engineering design drawings were not provided. A preliminary design drawing for the depth of horizontal directional drill crossing under the Heart River was provided (Docket #28, Late-filed Exhibit 4).

### **3.2.5 As-built Drawings and GIS Files**

No as-built alignment drawings were submitted to the PSC. No associated CAD files (acceptable alternative to GIS) have been received. The PSC should pursue receipt of the drawings and their accuracy should be confirmed.

## **3.3 PRE-CONSTRUCTION**

### **3.3.1 PSC-Required Documents**

An Application for Waiver of Procedures and Time Schedules was received on 17 February 2015 (Docket #2, Application Waiver). On 29 April 2015 the PSC sent out a notice of filings and notice of opportunity for hearings (Docket #10, Notice of Filings).

A Certificate of Corridor Compatibility No. 172 and Route Permit No. 184 were issued on 30 September 2015, in accordance with the Order and Certification Relating to Order Provisions signed on 30 September 2015 (Docket #33, Findings of Fact, Conclusions of Law and Order).

A Ten-Year Plan was not filed within this docket but Bridger Pipeline LLC's 2015 ten year plan was filed under PU-15-372.

### **3.3.2 Pre-Construction Conference/Notice of Intent to Start Construction**

The project conducted a pre-construction conference on 27 October 2015. Meeting minutes were taken, as well as a list of attendees (Docket #43, Preconstruction Conference Minutes). Notice of intent to start construction was sent on 27 October 2015 (Docket #41, Notice of intent to start construction).

### 3.3.3 PSC Approval of Modifications

There were no notifications to modify the facility filed to date. Observations of on-the-ground infrastructure coincided with maps on the Application.

### 3.3.4 Permits and Approvals from Other Agencies

It was indicated in the Applications that consultation with federal, state, and local agencies would be required to obtain permits for the Project. Agencies consulted with and permits identified as required for the Project included:

- U.S. Fish and Wildlife Service (USFWS)
- U.S. Forest Service – Medora Ranger District
- Lake Ilo National Wildlife Refuge
- North Dakota Game and Fish Department (NDGFD)
- North Dakota Parks and Recreation Department (NDPRD)
- North Dakota State Water Commission (NDSWC)
- North Dakota State Historical Preservation Office (SHPO)
- North Dakota Department of Health (NDDH)
- U.S. Army Corps of Engineers (USACE)
- Billings County Planning Department
- Stark County – County Planner
- North Dakota Department of Trust Lands – Surface Management Division
- North Dakota Industrial Commission
- ND Department of Transportation - District 5

All consultations with the above mentioned agencies and their responses have been documented with the PSC. Not all agencies responded or commented back (Docket #1, Consolidated Application, Tab 4). Initial contact with USACE stated the Corps would need a permit application to fully evaluate the project; no permit application or following response from the Corps was on file. There was initial contact with Billings County and they stated they would need a permit application before construction could start; no application is on file. SHPO, ND State Water Commission, Stark County Floodplain Administrator, and ND Department of Health commented back (Docket #1, Consolidated Application, Tab 4, Docket #15, Comments NDDoH). ND Game and Fish Department stated the National Wetland Inventory indicates various wetlands within the project corridor, steps should be taken to protect any wetlands and drainage patterns and they did not believe this project will have significant adverse effects on wildlife or wildlife habitat (Docket #1, Consolidated Application Tab 4). ND Parks and Recreation stated the project does not affect state park lands that we manage or Land and Water Conservation Fund recreation projects that they coordinate (see Section 3.51)(Docket #1, Consolidated Application, Tab 4).

### 3.3.5 North Dakota One-Call Participation

There was no written documentation that Bridger participated in North Dakota One-Call. Pin flags marking other pipelines in the area were observed while on site, during the topsoil inspection. Bridger does state that they participate in and support the North Dakota One-Call system in the Route Application (Docket #1, Consolidated Application Tab 3). With these observations, it can be assumed One-Call was used appropriately prior to and during construction. No reports of damage to underground facilities were reported to the PSC.

## 3.4 CULTURAL RESOURCES

### 3.4.1 Cultural Site Avoidance

No historic properties were affected by pipeline construction. The ND State Historic Preservation Office (SHPO) concurred with this conclusion (Docket #5, Letter enclosing ND SHPO). Therefore, no mitigation plans were deemed necessary. No discoveries of cultural or historic materials were reported during construction.

## 3.5 NATURAL RESOURCES

### 3.5.1 Wildlife

The US Fish and Wildlife Service (USFWS) and Lake Ilo National Wildlife Refuge were sent an overview of the project, and no letters/comments from them were in the Application (Docket #1, Consolidated Application Tab 4).

The North Dakota Parks and Recreation Department (NDPRD) was sent an overview of the Project and recommends that the Project be accomplished with minimal impacts and that all efforts be made to ensure that critical habitats are not disturbed. They stated the project does not affect state park lands that we manage or Land and Water Conservation Fund recreation projects that they coordinate. The NHI biological conservation database has been reviewed to determine if any plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, one animal species of concern and several significant ecological communities were documented within sections and in adjacent sections to project area. They defer any additional comments regarding animal species to the ND Game and Fish Department and/or the USFWS (Docket #1, Consolidated Application Tab 3, Tab 4).

### 3.5.2 Wetlands

Wetland determinations were conducted using Aerial photos and USGS topographic maps identifying US Corps of Engineers waters of concern within North Dakota along the Project route (Docket #1, Consolidated Application Tab 3). Wetlands, canals, streams and rivers were avoided to the extent practicable. During the inspection it appeared that neither wetlands nor waterbodies had been impacted during construction.

### 3.5.3 Reporting

Monthly construction reports indicated that no environmental incidents or issues occurred during construction (Docket #44, 45, Monthly Construction Reports). There were no reports filed documenting the presence of threatened or endangered species or bald or golden eagles during construction or operation to date.

### 3.5.4 Reclamation & Reseeding

At the time of the site inspection, the pipeline trench had been backfilled, soils had been recontoured, and reseeded had been completed in May of 2016. There were some areas of soil subsidence in croplands and grasslands along the pipeline and the company will be addressing the settling issues and reseeded of those areas (**Appendix A**, Photos 1, 2, 5, 8, 11, 14, 20). The company wanted to wait till crops were harvested from the area before they worked on these areas. Wenck recommends the PSC request documentation from Bridger once vegetation has fully established in all reseeded areas of the project.

### 3.5.5 Tree & Shrub Mitigation

It appeared that in general, major woody areas were avoided through Project siting (**Appendix A**, Photos 1, 21). A Tree and Shrub Inventory report was not found in the

documentation, however in the pre-construction meeting minutes (Docket #43, Pre-construction conference minutes), it was stated that a preconstruction tree and shrub count inventory had been completed and it was anticipated that no trees would need to be removed and that the post-construction inventory will verify how many of any are impacted. The proposed route was located in a previously disturbed area, a ROW of an existing pipeline. Wenck recommends the PSC request documentation from Bridger that no trees were removed or a post-construction tree and shrub inventory.

### **3.5.6 Noxious Weeds**

Contractors required to clean equipment and materials prior to entrance to ROW to minimize spread of noxious weeds (Docket #1, Consolidated Application). Weeds were observed on site, which is expected within the first year. Kochia was observed along the ROW, sparse in some areas and heavy in others (**Appendix A**, Photos 6, 7, 22). Very little to no Canada thistle or other noxious weeds were seen on or near the ROW.

## **3.6 CONSTRUCTION, RECLAMATION & SOILS**

### **3.6.1 Construction Management & Safety**

Monthly construction reports were submitted for the duration of construction (Docket #44, 45, 47, 49, Monthly Construction Reports). Each report indicated whether any safety or environmental incidents had occurred, and documented that construction of the Project proceeded in accordance with the Application and safety requirements. No major adverse weather occurred during construction, so no delay of construction was necessary (Docket #44, 45, 47, 49, Monthly Construction Reports).

### **3.6.2 Pipeline Depth**

The pipeline must be buried to 48in in rangeland and cultivated land and 48in at the bottom of ditch for road crossings. The Route Application specifies minimum 4ft soil cover. It appeared that the pipe was buried to the 4ft depth while on site for previous inspections, but Wenck did not visually confirm the depth of the pipeline. Bridger's Environmental Inspector stated that the pipeline was buried to at least the specified depth and deeper where it bored under roads.

### **3.6.3 Erosion & Sedimentation**

The Project Applications state BMPs would be used during and after construction to minimize soil erosion and protect surface water. One drainage area had erosion and the company was aware of the site and has plans to fix this area; an erosion control device would need to be placed at this location to stop further erosion (**Appendix A**, Photo 14). The company should document their compliance and provide to the PSC.

### **3.6.4 Soil Segregation & Staging**

In general it appeared that measures were taken to minimize the overall impact of the Project and the extent of land and soil disturbance. Wenck observed that topsoil appeared to be replaced or in the process of being replaced, to the required depth and separately from subsoils (Docket#46, Construction inspection report) (**Appendix A**, Photos 1, 4, 6-20). An area on U.S. Forest Service land was doubled ditched per U.S. Forest Service request as stated by Bridger's inspector (**Appendix A**, Photos 1, 3).

### 3.6.5 Reclamation & Roads

Monthly construction reports indicated that cleanup and reclamation had occurred concurrently with construction activities (Docket #44, 45, 47, 49, Monthly Construction Reports). At the time of the inspection, the pipeline trench had been backfilled, soils had been recontoured, and reseeding had been completed in May 2016. Roads within the Project area that were bored under appeared to be in good condition and properly maintained. There was one "two-track" road that had some soil subsidence that needed to be fixed; the company was aware of it and has plans to fix it in the near future (**Appendix A**, Photo 18). The company should document their compliance and provide to the PSC.

### 3.6.6 Fencing, Repairs & Waste

Existing fences or gates that were impacted by pipeline construction appeared to be repaired or replaced.

## 3.7 OPERATION

### 3.7.1 Safety & Record-keeping

No concerns were identified during the site review that would indicate that Project operation was out of compliance with the Application or safety regulations. Examples of operational safety measures observed at the site include: use of personal protective equipment, and warning signs marking the pipeline route (some were not in place at time of inspection, Bridger stated they will be adding more sign markers soon, see Section 3.7.3) (**Appendix A**, Photos 4, 9, 10, 16). No reports of extraordinary events were filed to date with the PSC. There was a dirt bike accident involving a teenager that happened on-site after hours during construction of the pipeline; work was shut down for the rest of the week.

### 3.7.2 Maintenance

Bridger indicated that the pipeline is regularly inspected and maintained. There was no waste, debris, or abandoned equipment observed during the inspection. The site appeared to be regularly maintained.

### 3.7.3 Public Contact & Safety

Not all of the warning signs marking the location of the pipeline have been installed or are in place at fence lines and road crossings, many of the fence line sign marker had not been installed at the time of the inspection (**Appendix A**, Photos 4, 9, 10, 16). When the crew goes out to finish up or fix areas for restoration they will be adding more sign markers. Bridger indicated that resident/landowner concerns and issues are handled and makes every reasonable attempt to alleviate problems caused by the Project. The company representative responsible to receive and resolve landowner issues with is Tom Litman (Docket #42, Landowner contact info). Wenck recommends the PSC request documentation from Bridger that they complete installation of all sign markers.

## 4.0 Issues to Resolve and Recommendations

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### 4.1 PROJECT SPECIFICATIONS NEEDING WRITTEN VERIFICATION

Several components of the Project were asserted in the Application or proposed construction and could be verified in writing, but have not been filed with the PSC. Table 2-1 summarizes these items, which are indicated as those shaded in the "Written Verification" column, indicating no written verification was provided where applicable and necessary. Wenck does not consider any of these items to be critical for Project compliance. However Wenck suggests they be on file with the PSC to confirm compliance and recommends the PSC request from Bridger the following list of "Necessary" items, and if the PSC deems appropriate, the list of "Potential" items could also be requested.

#### Necessary Items

- Provide as-built maps and associated GIS/CAD files
- Verification that no trees or shrubs were removed

#### Potential Items

- Written documentation that Bridger participated in North Dakota One-Call
- Written documentation of Bridger's Ten-Year Plan
- Written documentation of compliance with US DOT 49 CFR Part 195
- Written documentation of completion of sign marker installation
- Written documentation that soil subsidence, soil subsidence on two-track road and erosion on drainage area have been fixed

### 4.2 REVEGETATION & CROP PRODUCTION

When the as-built construction inspection of the project was conducted, reseeding of the project had been completed a few months prior. Wenck recommends the PSC request monitoring and documentation to ensure the vegetation is established throughout the project; that areas with soil subsidence have been fixed; that best management practices (erosion control devices) have been placed at the upland drainage area and any remaining areas that may need it; and pipeline markers have been installed.

## 5.0 Conclusions

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Overall, the Project appeared to have been constructed as designed with minimal impacts to the surrounding natural or human environment. The Project route was maintained and the company stated they are currently in the process of addressing settling issues and reseeding of areas, as they wanted to wait till crops are harvested from the area. There were a few minor issues that may need to be resolved before the Project is considered complete and in full compliance. This includes: documentation of satisfactory vegetation establishment throughout the project, written verification of participation in North Dakota One-Call, documentation of Tree and Shrub mitigation, documentation of sign marker installation completion, and provision of associated GIS files for as-built design drawings. None of these are critical issues, but the PSC should determine which are necessary for the company to comply with and then notify the company what actions are required on their part.

## 6.0 References

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North Dakota Public Service Commission (ND PSC). 2016. Online Case Search. Available from: [http://www.psc.nd.gov/database/company\\_case\\_list.php](http://www.psc.nd.gov/database/company_case_list.php). Accessed January-September 2016.

Pauley, Bud. 2016. Inspector. Avery Pipeline Services, Bridger Pipeline. Personal Communication: discussion during site visit on August 2016.

## 7.0 Signatures

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The services performed by Wenck staff for this project have been conducted in a manner consistent with the degree of care and technical skill appropriately exercised by professionals currently practicing in this area under similar time and budget constraints. Recommendations and findings contained in this report represent our professional judgment and are based upon available information and technically accepted practices at the present time and location. Other than this, no warranty is implied or expressed.

Lead Project Manager, Kevin Magstadt and Environmental Scientist, Samantha Swanberg, prepared the report.

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Kevin Magstadt, P.E., Principal/Regional Manager

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Date

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Samantha Swanberg, Environmental Scientist

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Date

# Photographs



**Photo 1.** (GPS Point #460) – ROW near tree row, trees were not removed at this location; some grasses starting to grow with a few rocks throughout in an area of rangeland. Area has been grazed. Direction: West.



**Photo 2.** (GPS Point #461) – Soil subsidence in grassland on USFS lands. This area will need to be restored. Bridger is aware of this and will address the settling issue soon. Notice the narrow ROW, this area was double ditched as requested by the U.S. Forest Service. Direction: West.



**Photo 3.** (GPS Point #461) – Notice the very narrow ROW, far less than the typical 100 or 75ft ROW. This area was double ditched, not top-soiled, as requested by the U.S. Forest Service. There are a few prairie dog holes along this area. Direction: West.



**Photo 4.** (GPS Point #462) – ROW in pasture land with grasses and many wild sunflowers growing. Wild sunflowers are common in disturbed areas; they will likely be abundant in year 1 and 2 along the ROW in this area. Fence was replaced/fixed in the background. Direction: West.



**Photo 5.** (GPS Point #464) – White alkaline area. Inspector stated this area was often soggy and difficult to deal with; also it was likely broadcast seeded (not drilled). Native vegetation appears to be coming in well in most areas, with the exception of an area with white crusts near pipeline centerline. Small amount of soil subsidence was observed.

Direction: East.



**Photo 6.** (GPS Point #465) – Pipeline ROW goes through a wheat field. Weeds observed as more abundant in ROW compared to outside of the ROW. Direction: West.



**Photo 7.** (GPS Point #466) – Pipeline ROW to the right of photo in pasture/rangeland, with an abundance of weeds, some foxtail barley and grasses. Direction: South.



**Photo 8.** (GPS Point #467) – ROW through pasture that was being grazed. Soil subsidence observed. Some grasses growing. Bridger is aware of soil subsidence areas and is waiting till crops have been harvested from the project area before they go in to fix these areas. Direction: North.



**Photo 9.** (GPS Point #468) – ROW going through a sunflower field. Plants look slightly shorter and less dense within the ROW compared to the adjacent portions of the field.  
Direction: Northeast.



**Photo 10.** (GPS Point #471) – Other side of the sunflower field. The inspector stated that Bridger was doing restoration work on this area in the spring because a gully had started to form along this area (not in the trench line) due to rain. The farmer was able to plant but was unable to fertilize the area. Direction: Southwest.



**Photo 11.** (GPS Point #469) – Wheat field with soil subsidence and ruts. This area along the edge of the wheat field was unable to be planted. The company is aware of this area and will be addressing it soon. Direction: West.



**Photo 12.** (GPS Point #470) – Pipeline ROW is paralleling another pipeline (to the left). This area had white alkaline crusts on surface; note white spots in right center of photo and in the left center of photo within parallel pipeline's ROW. Direction: Northeast.



**Photo 13.** (GPS Point #472) – Pipeline ROW in pasture/rangeland; this area has been grazed. Some grasses were growing. Contours appeared to match up well on sloping hills.  
Direction: Northeast.



**Photo 14.** (GPS Point #473) – Upland drainage area, which has started to erode. Area will need to be fixed and erosion control devices should be added. Bridger is aware of this location and will be addressing and should provide documentation to PSC.



**Photo 15.** (GPS Point #475) – Pipeline ROW goes through wheat field (center of photo). Area looks good. Direction: South.



**Photo 16.** (GPS Point #475) – Pipeline ROW, goes through a corn field. The stand of corn plants appeared thinner and were stunted in growth (shorter) compared to adjacent part of the field. Direction: North.



**Photo 17.** (GPS Point #476) – Pipeline ROW going through field. Direction: South.



**Photo 18.** (GPS Point #476) – Pipeline ROW veering off to the right of photo. The two-track road is an unimproved section line. The company used bore pipe here and went down deeper than the typical ROW (as needed for an unimproved section line). There is soil subsidence in road area. The company is aware of this soil subsidence and will be addressing it soon. Direction: North.



**Photo 19.** (GPS Point #477) – Pipeline ROW in hay field that has been recently mowed (part of easement, used to help control weeds). Direction: Southwest.



**Photo 20.** (GPS Point #478) – Pipeline ROW through a wheat field that had some soil subsidence. Inspector stated this will be fixed when all crops have been harvested from project area. Direction: Northeast.



**Photo 21.** (GPS Point #479) – Pipeline ROW through wheat field. The crop within the ROW appeared to be growing similarly in size and density to the adjacent part of the field, indicating proper soil replacement and restored function. Direction: Northeast.

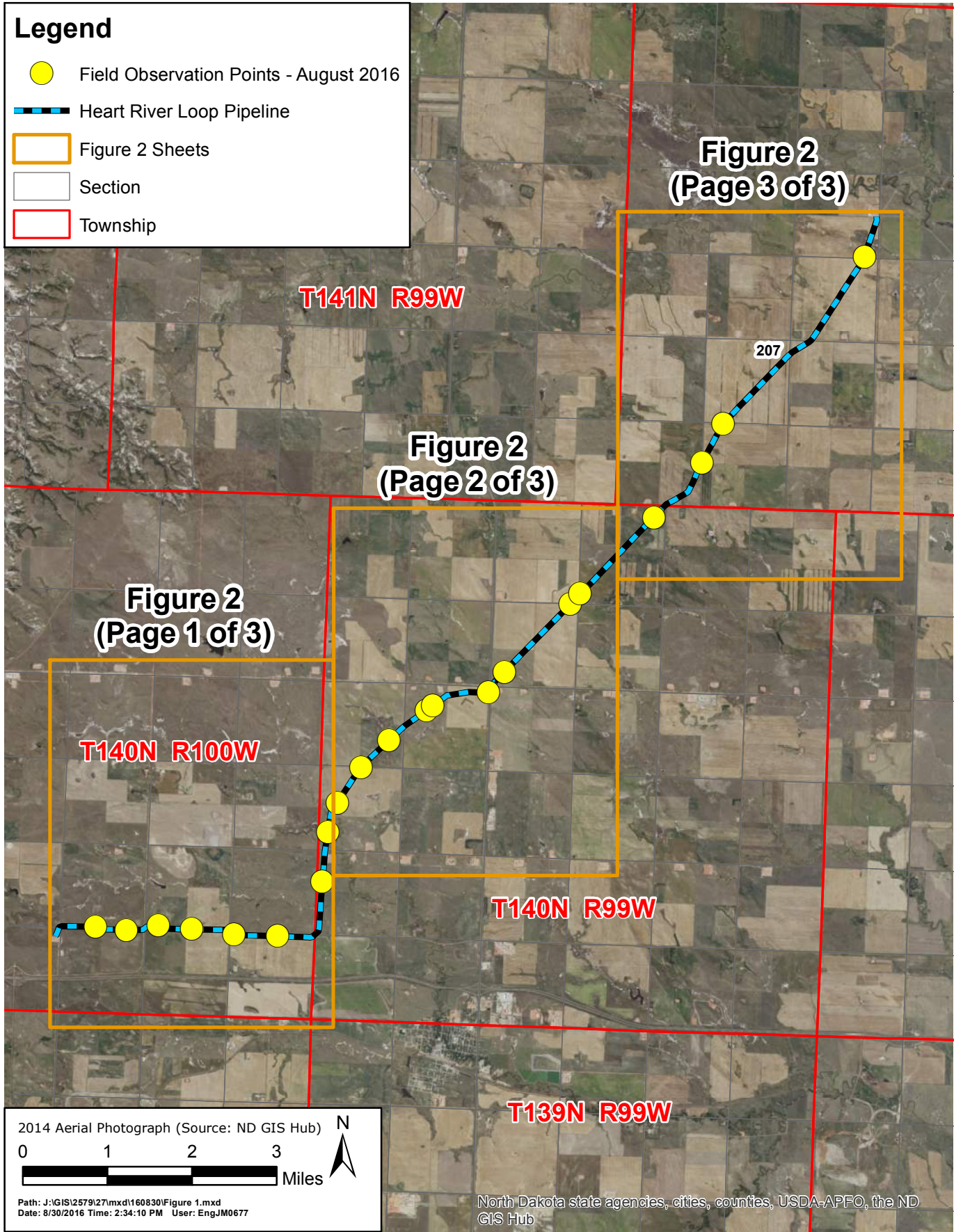


**Photo 22.** (GPS Point #480) – Pipeline ROW connecting to Skunk Hill Station (to the left of photo). Note higher density of annual weeds and visible difference in vegetation through cropland within this portion of the ROW. Direction: North.

## **Field Observation Points**

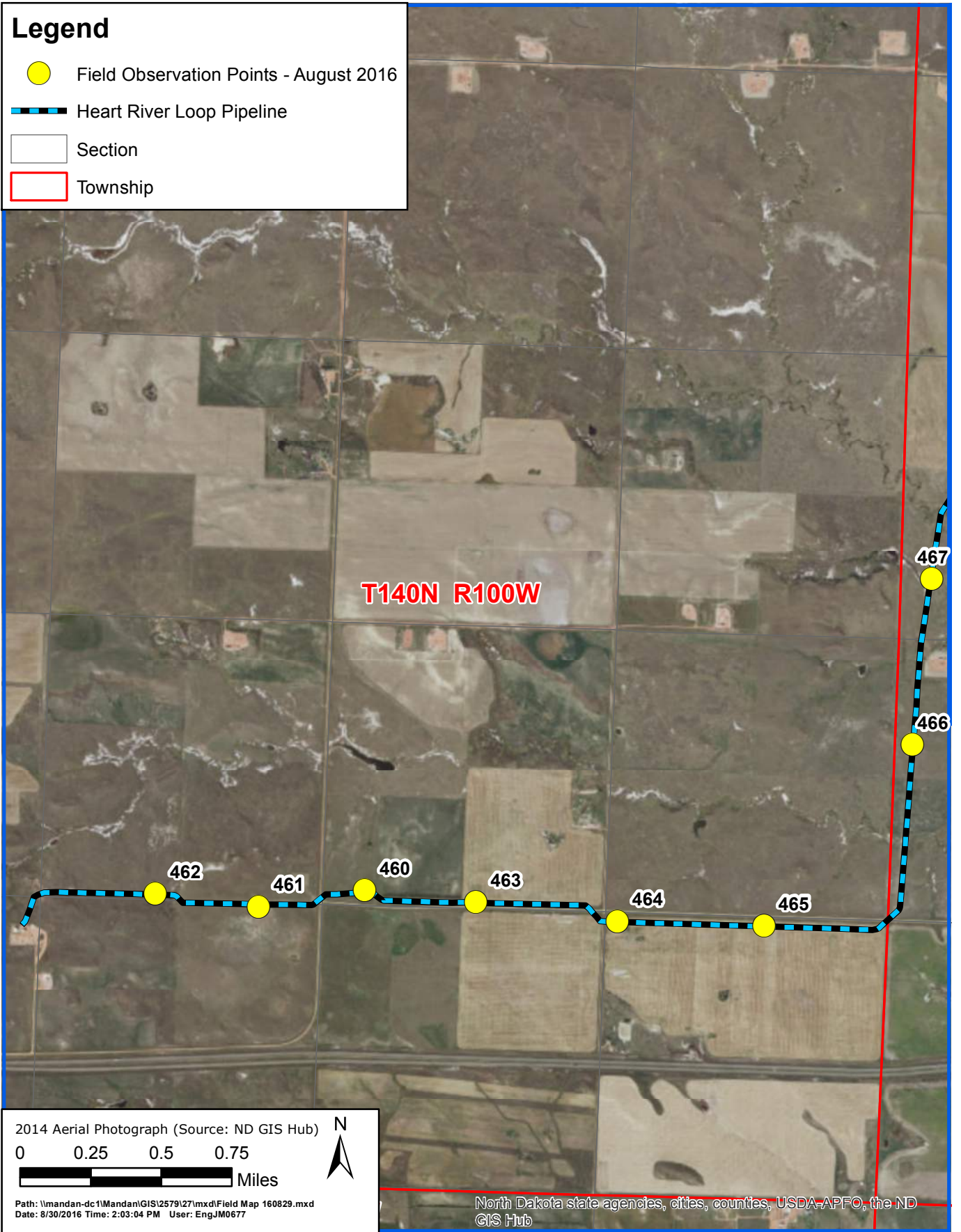
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- Field Observation Points - August 2016
- Heart River Loop Pipeline
- Figure 2 Sheets
- Section
- Township



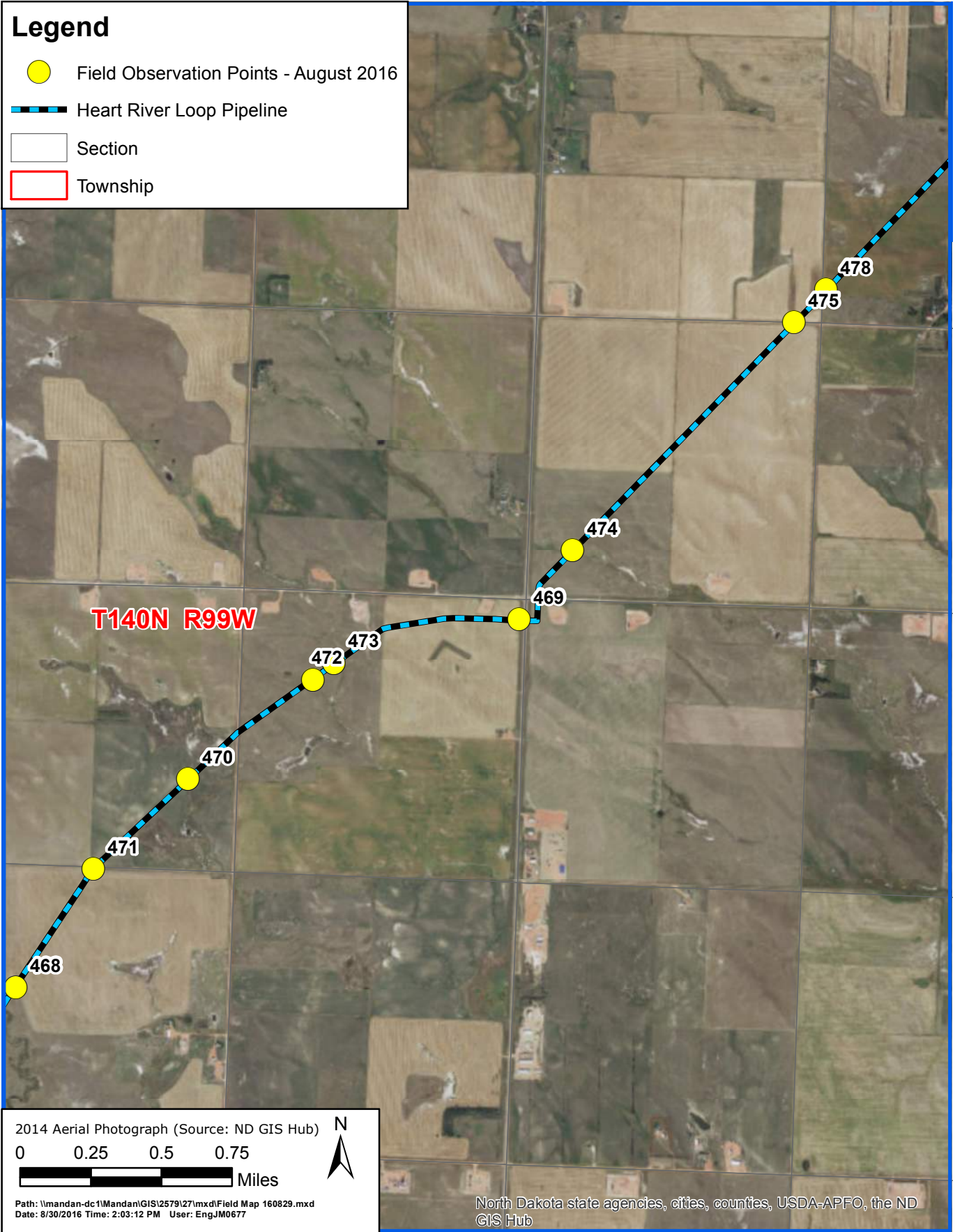
# Legend

- Field Observation Points - August 2016
- Heart River Loop Pipeline
- Section
- Township



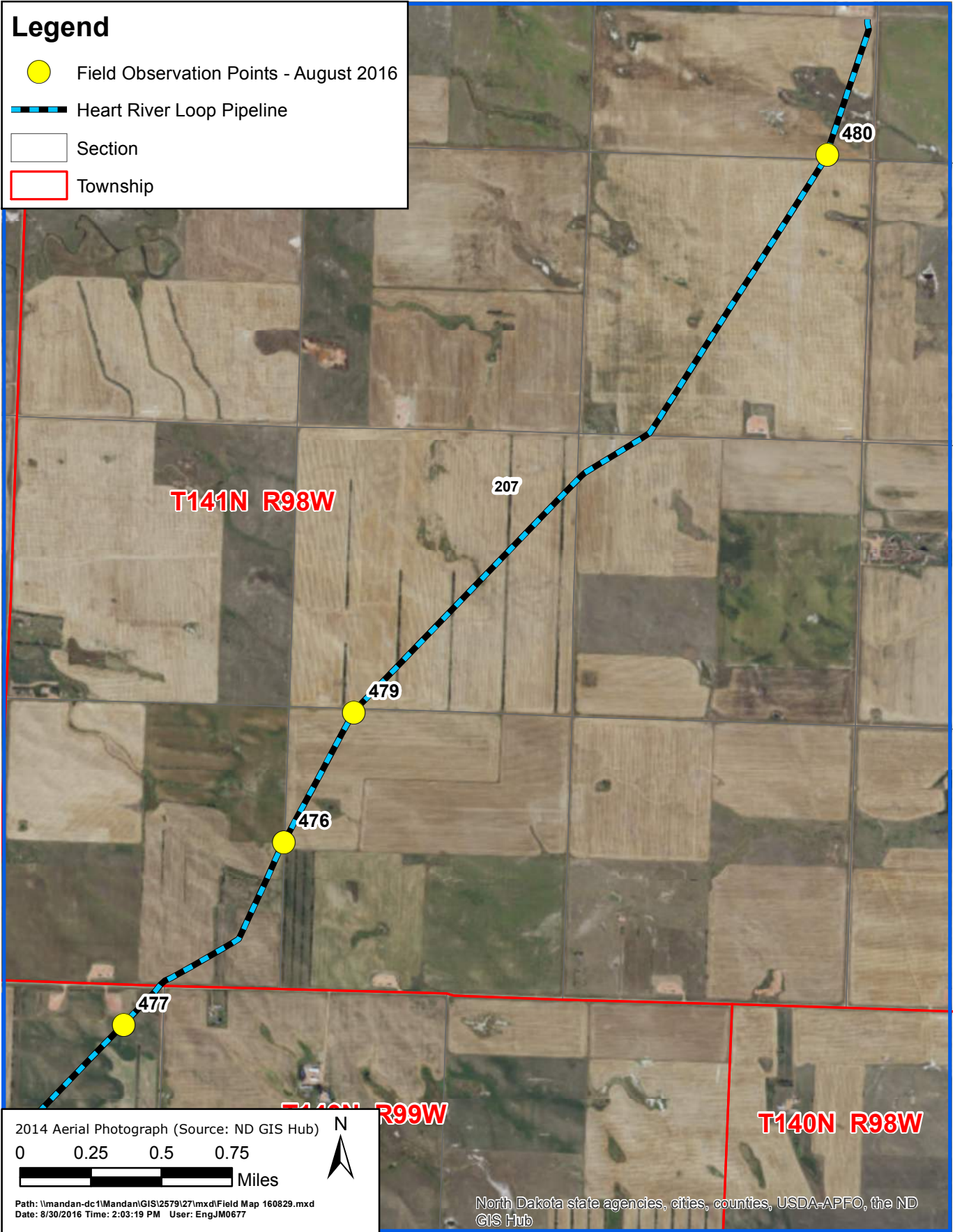
# Legend

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- Heart River Loop Pipeline
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- Field Observation Points - August 2016
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