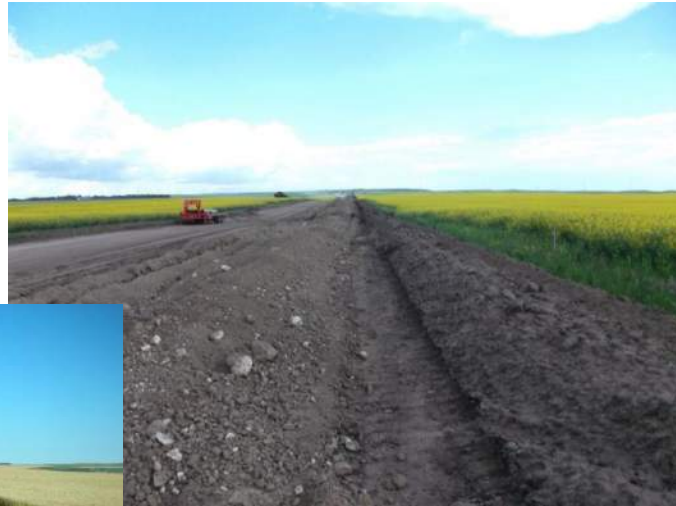


# Topsoil Removal Inspection Report Cenex 10" Refined Fuels Pipeline PU-17-97



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

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# Executive Summary

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The North Dakota Public Service Commission (PSC) retained Wenck Associates, Inc. (Wenck) to complete topsoil inspections during construction of the 10" Refined Fuels Pipeline Project in Williams, Mountrail, and Ward Counties, North Dakota (ND), constructed by Cenex Pipeline L.L.C. (Cenex). The purpose of the inspections was to ensure the PU-17-97 project was constructed in compliance with the siting laws, rules and the applicable PSC Orders for the Project, which includes a requirement that topsoil must be segregated from subsoil during installation of the pipeline.

A pre-construction conference call was held for the Project on 20 May 2019; Wenck attended the call. Prior to inspections, Wenck reviewed Project documents to become familiar with the Project and PSC Orders for the Project. Construction involving soil disturbance for the Project began 5 June 2019 on Spread 2 by Loenbro and 10 June 2019 on Spread 1 by Frontier Services, Inc. (Frontier). Wenck inspectors were present during the initial topsoil stripping work for both spread crews. Follow-up inspections were completed 6 and 18 June and 2 and 3 July 2019. Details of these initial inspections were summarized in the Interim Topsoil Inspection Report previously submitted to the PSC (Wenck, July 2019). Wenck completed additional inspections of the Project area on 17 and 29 July, and 20 August 2019 and observed topsoil and subsoil removal and segregation done by both contractor crews on the two separate pipeline spreads.

Overall, soil removal and storage processes appeared satisfactory and were completed properly at most areas of the project. Initially, the topsoil stripping process implemented by Frontier on Spread 1 raised some concern due to topsoil remaining on one side of the right-of-way; however, it was determined that their methodology complied with PSC order provisions. Minor, isolated instances of soil segregation or mixing were observed along both spreads of the ROW. These minor issues were resolved on-site with contractors or communicated to the respective field superintendents.

# 1.0 Background and Scope

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## 1.1 INTRODUCTION

The Cenex 10" Refined Fuels Pipeline (Project) in Williams, Mountrail, Ward counties, ND, is comprised of two spreads. Spread 1, constructed by Frontier, is approximately 59.2 miles in ND originating in Section 34, T156N, R97W, Williams County heading west and intersecting with the North Dakota and Montana border in Section 22, T153N, R104W, Williams County. Spread 1 ends in Richland County, Montana (MT). Spread 2, constructed by Loenbro, is approximately 90.5 miles originating in Section 35, T156N, R97W, Williams County heading east through Williams, Mountrail, and Ward Counties, ending at the CHS terminal approximately one mile west of Minot in Section 20, T155N, R83W, Ward County. The total distance of the pipeline is approximately 181.5 miles, of which 149.7 miles is in North Dakota.

The pipe for the Project will be 10-inch diameter steel pipe with 0.307 inches wall thickness for line pipe except at river and road crossing sites where the thickness will be 0.365 inches. The maximum operating pressure for the pipeline will be 1,440 pounds per square inch throughout the Project. The Project will include 13 main line valves, one pipeline pig launcher located at the terminal in Glendive, Montana, and one pig receiver located at the terminal in Minot, North Dakota. Valves will be located on either side of the following rivers: The Little Muddy, White Earth, and Little Knife. The pipeline will transport approximately 38,000 barrels of refined fuels per day but will have a maximum capacity of 60,000 barrels per day.

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-17-97 on 14 March 2018, granting Certificates of Corridor Compatibility No. 202 and Route Permit No. 212 for the Project.

## 1.2 REGULATORY PURPOSE AND SCOPE OF WORK

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. 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 Orders.

The North Dakota PSC retained Wenck Associates, Inc. (Wenck) to complete construction inspections, specifically beginning with topsoil inspections, of the Project. The inspection process included a review of the Application for Corridor Compatibility and Route Permit, the Project's Order, and other applicable documents. PSC Order Provision #12 for the Project states: *"Company understands and agrees that all topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas where cuts will be made, must be stripped and segregated from the subsoil. Any area on which excavated subsoil will be placed must also be stripped of topsoil. After backfilling is completed, any excess subsoil must be placed over the excavation area, blending the grade into existing*

*topography. Topsoil must be replaced over areas from which it was stripped only after the subsoil is replaced.”*

Wenck’s scope of work was to perform and document on-site inspections during the topsoil removal phase of the Project to verify that topsoil was properly removed and kept segregated from subsoil until replacement occurred. The initial inspections on day-one of topsoil stripping activities provide an opportunity to train equipment operators on the specific topsoil stripping requirements and depth variability of topsoil resources along the Project. The number of on-site inspections is based on Wenck’s determination that equipment operators demonstrated proficiency concerning topsoil and subsoil removal and segregation in compliance with the Commission’s Order.

This final topsoil inspection report includes, but is not limited to, documentation of site visit observations and a summary of findings and issues that should be addressed for the Project to be considered in full compliance.

## **1.3 BACKGROUND**

### **1.3.1 Regional Soils**

The majority of the project is located in the dissected uplands of the Northwestern Glaciated Plains and Missouri Coteau. The primary soils of the region were formed in Wisconsin-aged till or residuum of weathered shale, siltstone, or sandstone of the Sentinel Butte Formation. The regional geology typically consists of a mantle of till (when present) overlying the older residual sediments. The majority of the soils present throughout the Project would be classified as mollisols and characterized by a relatively dark, thick “A” (topsoil) horizon. The primary exception to this are the entisols soils found nearer summit and shoulder-slopes of hilltops, that lack a mollic epipedon (i.e., thick A horizon). Some soils would be considered salt-affected, which have adverse properties from salinity and/or sodicity.

The main difference between topsoil and subsoil in this region are most often the presence of calcium carbonates, salts such as sodium, and the reduction in organic matter. Calcareous soils can be visually distinguished by the lighter colors associated with calcium carbonates, which generally also correlates to a reduction in organic matter. Topsoil segregation on saline and sodium affected soils (i.e., natric soils) are usually less apparent, but can distinguished by accumulations of salt, clay and/or associated columnar structure (i.e., clay pans). Salt-affected sodic soils, when tilled or disturbed, are typically hard and cloddy when dry, often coated with a visible salt crust.

### **1.3.2 Soil Stripping and Segregation Best Practices**

Topsoil has biological, physical and chemical properties that are critical to successful reclamation of the project site. The surface layer of most soils is generally preferred for topsoil because of its content of organic matter. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth. Topsoil, typically considered the A horizon, should be stripped to the correct depth according to natural variations in the depth of this top layer of organic matter rich soil.

During pipeline installation preparation and excavation work, contractors are to segregate topsoil and subsoil. Mixing subsoil with the topsoil can be detrimental to the re-vegetation and vegetative productivity of a site. Subsoil material generally has lower organic matter content than topsoil, making it typically lighter in color. It may also have different chemical (i.e., salts) and physical properties (i.e., texture) than the topsoil. Occasionally, the most

unfavorable characteristic of subsoil horizons is the accumulation of salts. Salts, such as sodium, among others, can severely restrict plant growth. The presence or absence of existing plant roots can be used as an indication between topsoil and unsuitable subsoil in certain situations, such as clay-pan subsoils.

To summarize, hilltops and steeper sloping terrain generally have thinner topsoil layers; while lower, flatter foot-slopes and swales typically have thicker topsoil layers. The most common exception to this are salt-affected soils, where the accumulation of salts and clay often restrict plant root growth. Equipment operators should be aware of the natural soil landscape relationships, as well as the potential for accumulations of salts, both of which drive topsoil thicknesses, and adjust stripping depths accordingly.

## 2.0 Findings of Site Inspection

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### 2.1 METHODS

Wenck staff completed on-site inspections of the Project between 17 July and 20 August 2019. Jeremy Hackley, Field Inspector visited the project on 17 July 2019, accompanied by Nute Bishop and Jeffrey Moss, Environmental Inspectors, KLJ. Sara Simmers, Project Manager, and Zach Leitner, Field Inspector visited the Project on 29 July 2019, accompanied by Scott Lawson, Co-Owner, Frontier; Matt Oliver, Construction Superintendent, Frontier; and Nute Bishop, Environmental Inspector, KLJ. Matt Retka, Soil Classifier, and Zach Leitner, Field Inspector visited the Project on 20 August 2019, accompanied by Brian Sandefur, Environmental Inspector, KLJ; Matt Oliver, Construction Superintendent, Frontier; and Travis Gillett, Construction Superintendent, Loenbro.

The Project was inspected visually by driving to access points and walking or driving within the Project right-of-way (ROW). Two pipeline contractor companies worked on two different spreads; Loenbro started and has continued to work on Spread 2 working east since 5 June 2019. Frontier started and has continued to work on Spread 1 working west since 10 June 2019. Contractors/equipment operators were observed during the topsoil removal phase of the Project to check that topsoil has been properly removed, piled, and kept segregated from subsoil. Digital photographs 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 and Trimble GeoXT, submeter accuracy, NAD83 datum) (**Table 1**).

### 2.2 ON-SITE INSPECTION OBSERVATIONS

#### **Spread 1-Frontier**

On 17 July 2019, Mr. Hackley visited Spread 1 of the Project. Frontier staff were observed stripping topsoil and installing pipe. Topsoil removal was being done south of U.S. Highway 2 at the northeast corner of the intersection of Williams County roads 8 and 9. An isolated observation of subsoil mixing was discussed with Mr. Bishop. This incident took place in an area with very steep topography where manipulation with a dozer would be difficult (**Appendix A, Observation Point 140**). Observations within agriculture fields found that crops had begun to grow on topsoil stockpiles during the time of removal and prior to re-distribution within the ROW (**Appendix A, Observation Point 155**). Topsoil and subsoil stockpile segregation was appropriate. In wetland areas, the “double-ditch” method of trenching was used in which only the width of the trench is excavated. Topsoil appeared to have been removed in isolated piles, with the subsoils removed in a linear stockpile. It’s not clear if a full 12 inches of topsoil was removed. Topsoil was replaced in the trench appropriately within these wetland areas (**Appendix A, Observation Points 158-167**).

On 29 July 2019, Ms. Simmers and Mr. Leitner visited Spread 1 of the Project. Reclamation within the wetland area where the “double ditch” process was conducted looked according to standards (**Appendix A, Observation Point 646**). Observations were made of ROW reclamation with subsoil mixing due to deep ripping. Further subsoil mixing was observed as a result of removing large rocks (**Appendix A, Observation Points 648, 651**). Topsoil removal was observed in progress and appropriately stripped to color change on the trenching side of the ROW. On the traffic side of the ROW, approximately 4-inches of in situ

topsoil remains (**Appendix A, Observation Points 652, 655, and 656**). Discussions of Frontier methodology were conducted with Mr. Lawson and Mr. Oliver.

The next topsoil inspection of Spread 1 was conducted on 20 August 2019. Overall, the topsoil handling appeared to be conducted in a manner consistent with the PSC Order Provisions. Reclamation procedures to mitigate topsoil compaction of in-situ topsoil, and the need to assure subsoil mixing does not occur during potential deep ripping, was discussed with Mr. Oliver. (**Appendix A, Observation Points 2715-902**).

### **Spread 2-Loenbro**

On 17 July 2019, Mr. Hackley visited Spread 2 of the Project. Measurements of stripping depth were made at different topographical locations along the ROW. Those locations were appropriately stripped to depth. An isolated issue of topsoil and subsoil stockpiles touching was observed. A discussion with Mr. Moss concluded that a grader would manipulate stockpiles to achieve little to no mixing (**Appendix A, Observation Points 146, 147, 151, and 152**).

The next topsoil inspection for Spread 2 occurred on 20 August 2019. Mr. Retka and Mr. Leitner met and were accompanied by Mr. Moss. Spread 2 ROW clearing and topsoil stripping was observed at the eastern most extent of current project progress. Inspections continued west, where HDD preparations were being made at Shell Creek. No work was being conducted in the White Earth River Valley, partially due to some unanticipated cultural resources findings. Mr. Moss explained that this was being appropriately reported and handled with SHPO and the ND PSC. Wenck later met with Travis Gillett of Loenbro where an isolated area lacking adequate topsoil removal was observed. Wenck recommended further topsoil stripping of this area before trenching activities (**Appendix A, Observation Points 2731 and 2732**). Discussions ensued with Mr. Gillett regarding winter operations and the requirement to cease topsoil stripping once frost impedes proper soil segregation. Overall, the topsoil handling appeared to be conducted in a manner consistent with the PSC Order Provisions (**Appendix A, Observation Point 2736-904**).

### **Summary**

Contractors on both Spread 1 and 2 were made aware of isolated segregation issues and areas where additional topsoil stripping is required. These issues were addressed and/or a resolution proposed. Overall, the contractors on both Spread 1 and 2 did a satisfactory job with the stripping of topsoil in most areas, and paid attention to topsoil stripping depths which tended to vary several inches depending upon the location. Adequate stripping and stockpiling of subsoil were observed along areas of uneven terrain in order to create a level workspace for equipment and pipe installation. Topsoil stockpiles were kept free of subsoils with few exceptions.

## 3.0 Issues, Resolutions, and Recommendations

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Wenck staff held a general discussion with Mr. Oliver and Mr. Lawson about the methodology Frontier uses for the upland majority of the ROW. Frontier's methodology consists of stripping all topsoil from the trench side. The other side of the ROW is stripped of 2-3 inches of topsoil. This side is used to string pipe and drive vehicles. According to Mr. Lawson, Frontier only continues to strip topsoil off this side of the ROW to provide a level surface to string pipe. During reclamation they deep rip the compaction, then reapply the few inches of stockpiled topsoil. Wenck staff expressed a concern with this method of deep ripping for reclamation. With a depth of in situ topsoil at 2-5 inches still present, the deep ripping would mix subsoil into the topsoil. Wenck's recommendation to Frontier was to minimize mixing where possible if compaction was not deep by having equipment operators reduce their ripping depth. Mr. Lawson felt they could restrict their ripping depth to 5-6 inches. Mr. Lawson was confident in their method since they've used it in the area with excellent reclamation results. This methodology is in compliance with Order Provision #12 which states in part "*Company understands and agrees that all topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas where cuts will be made, must be stripped and segregated from the subsoil.*"

Further discussions reviewed the previous issue of topsoil-subsoil mixing that was observed within and around a group of wetlands in the SE quarter of Section 20, T156N, R97W, of Williams County (Spread 1). Matt Oliver of Frontier explained that the method used in wetlands was to remove 12-inches of topsoil then subsoil with a backhoe from only within the width of the trench. A motor grader would have little to no access to the area due to saturation of the soil. The backhoe would then place soils on in situ topsoil adjacent to the trench, then scrape the soil back into the trench after the pipe had been installed. This method is described in the Construction Environmental Program (CEP), Chapter 4, Section 4.5, page 33. Although this methodology is not specifically addressed in the Public Service Commission's Order Provisions, the method seemed to have been indirectly approved and has been considered resolved.

During topsoil inspections, locations were observed where the subsoil pile was touching the topsoil pile, and very few locations where subsoil was mixed slightly with the topsoil. Both types of mixing are minimal and were known to occur by the contractors. The mixed soils are located on the surface of the stockpile and will be the first layer spread when replacing the soils. As a result, any mixed soils will be covered with the majority of the topsoil.

## 4.0 References

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North Dakota Public Service Commission (ND PSC). 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 May-July 2019.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook. Energy Information Administration, [www.eia.doe.gov/oiaf/1605/coefficients.html](http://www.eia.doe.gov/oiaf/1605/coefficients.html)

Lawson, Scott. Oliver, Matt. Frontier Services, Inc. Personal Communication: discussion during site visits on July 29 and August 20, 2019 and on project coordination for site visits.

Moss, Jeff. Bishop, Nute. Sandefur, Brian. KLJ Engineering. Personal Communication: discussion during site visits on July 17, 29 and August 20, 2019 and on project coordination for site visits.

## 5.0 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.



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Sara Simmers, Project Manager

9/12/19  
Date

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Matt Retka, Professional Soil Classifier

9/12/19  
Date

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## 1. Observation Point Coordinates

Observation Point	Date	Lat.	Long.	Observation Point	Date	Lat.	Long.
133	17-Jul-19	48.29536	-103.48103	652	29-Jul-19	48.29518	-103.51092
134	17-Jul-19	48.29534	-103.48071	653	29-Jul-19	48.29832	-103.5196
135	17-Jul-19	48.29552	-103.48083	655	29-Jul-19	48.29045	-103.54501
136	17-Jul-19	48.29543	-103.49007	656	29-Jul-19	48.27491	-103.6525
140	17-Jul-19	48.29851	-103.52247	2715	20-Aug-19	48.210994	-102.022308
141	17-Jul-19	48.29838	-103.52299	2716	20-Aug-19	48.21077	-102.021092
144	17-Jul-19	48.29874	-103.34331	2717/2718	20-Aug-19	48.208891	-102.009834
146	17-Jul-19	48.24452	-102.80556	2720	20-Aug-19	48.209021	-102.010634
147	17-Jul-19	48.24446	-102.80567	2722	20-Aug-19	48.20902	-102.010672
151	17-Jul-19	48.20995	-102.66862	2723/2724	20-Aug-19	48.212685	-102.029172
152	17-Jul-19	48.21098	-102.67132	2725/2726	20-Aug-19	48.212491	-102.027997
155	17-Jul-19	48.28894	-103.1375	2728	20-Aug-19	48.217629	-102.164935
158	17-Jul-19	48.29944	-103.18547	2729	20-Aug-19	48.217713	-102.165071
159	17-Jul-19	48.29936	-103.18546	2731	20-Aug-19	48.22615	-102.22024
160	17-Jul-19	48.29942	-103.18487	2732	20-Aug-19	48.22649	-102.221671
161	17-Jul-19	48.29943	-103.1837	2735	20-Aug-19	48.211082	-102.676634
162	17-Jul-19	48.29943	-103.18289	2736	20-Aug-19	48.288988	-103.143126
163	17-Jul-19	48.29944	-103.18228	2739	20-Aug-19	48.153382	-103.929637
164	17-Jul-19	48.29942	-103.18161	901	20-Aug-19	48.287214	-103.08848
165	17-Jul-19	48.29945	-103.18075	902	20-Aug-19	48.287226	-103.085961
166	17-Jul-19	48.29943	-103.17946	903/904	20-Aug-19	48.299362	-103.183911
167	17-Jul-19	48.29944	-103.17828				
645	29-Jul-19	48.28873	-103.12951				
646	29-Jul-19	48.28878	-103.13167				
647	29-Jul-19	48.29943	-103.18484				
648	29-Jul-19	48.29986	-103.21523				
649	29-Jul-19	48.29867	-103.27069				
651	29-Jul-19	48.29898	-103.35757				

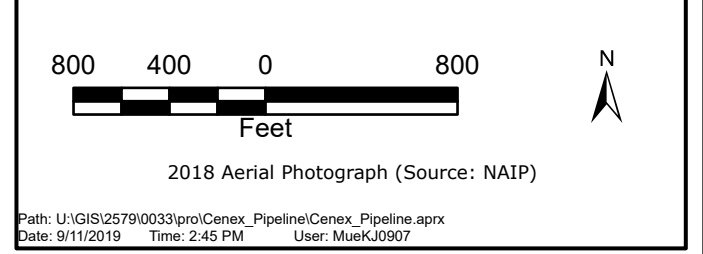
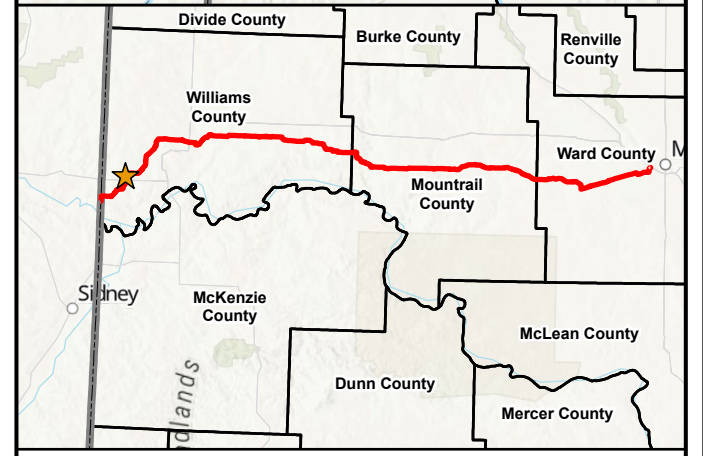
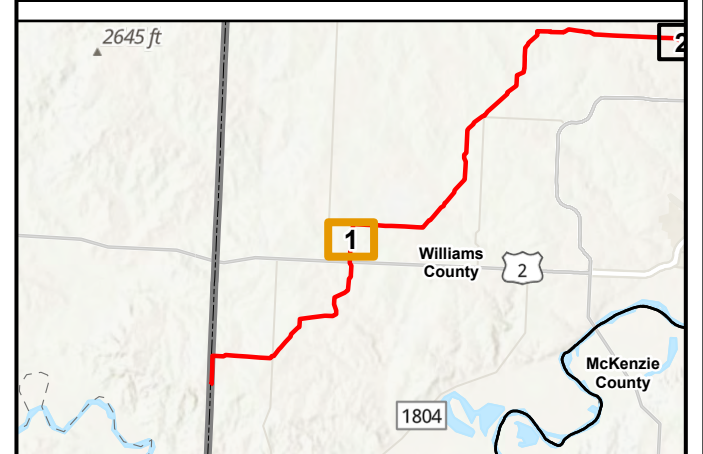
### Topsoil Observation Locations



**North Dakota  
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**Cenex Pipeline  
Figure 1**

- Cenex Pipeline Centerline (PU-17-97)
- Ts Topsoil Observation Point Location - Spread 1
- Ts Topsoil Observation Point Location - Spread 2






PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION  
Topsoil Observation Locations

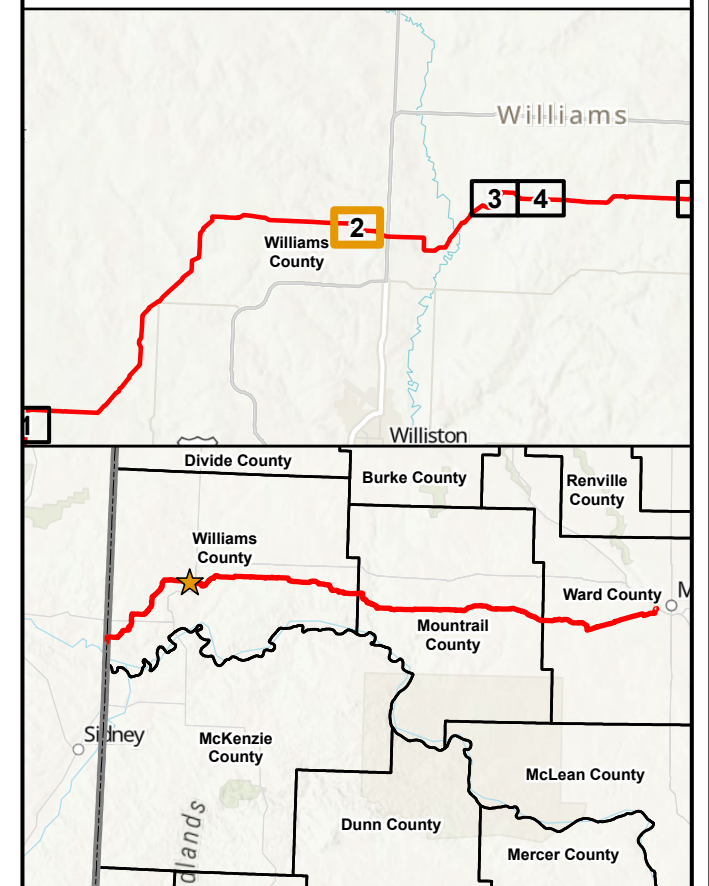


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Map 1 of 14

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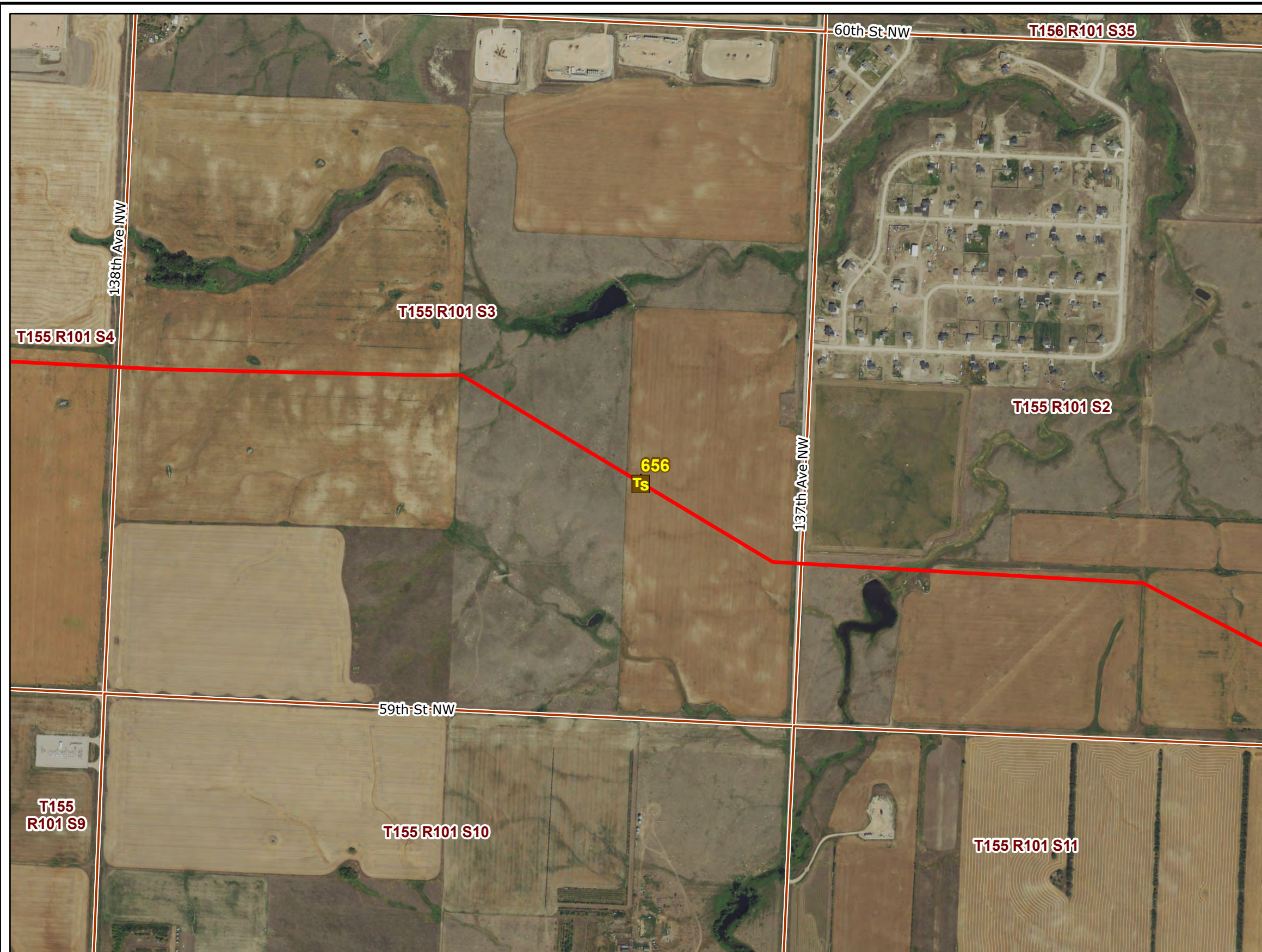
**Cenex Pipeline  
Figure 2**

-  Cenex Pipeline Centerline (PU-17-97)
-  Topsoil Observation Point Location - Spread 1
-  Topsoil Observation Point Location - Spread 2



2018 Aerial Photograph (Source: NAIP)

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PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations



Responsive partner. Exceptional outcomes.

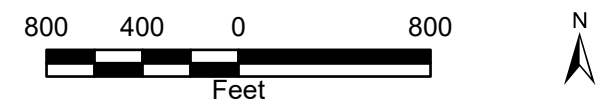
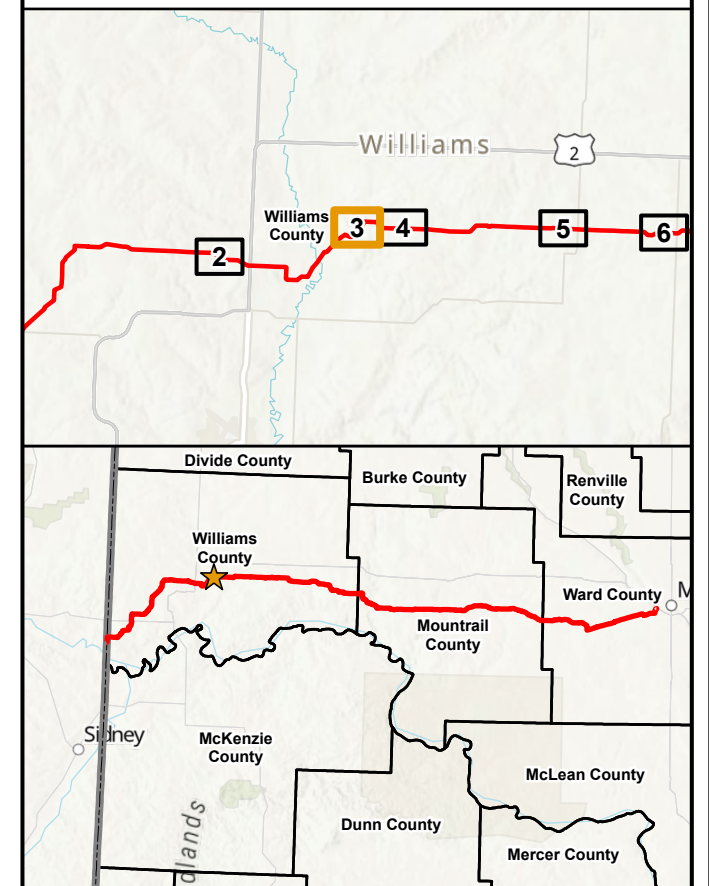
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Map 2 of 14

North Dakota  
Public Service Commission

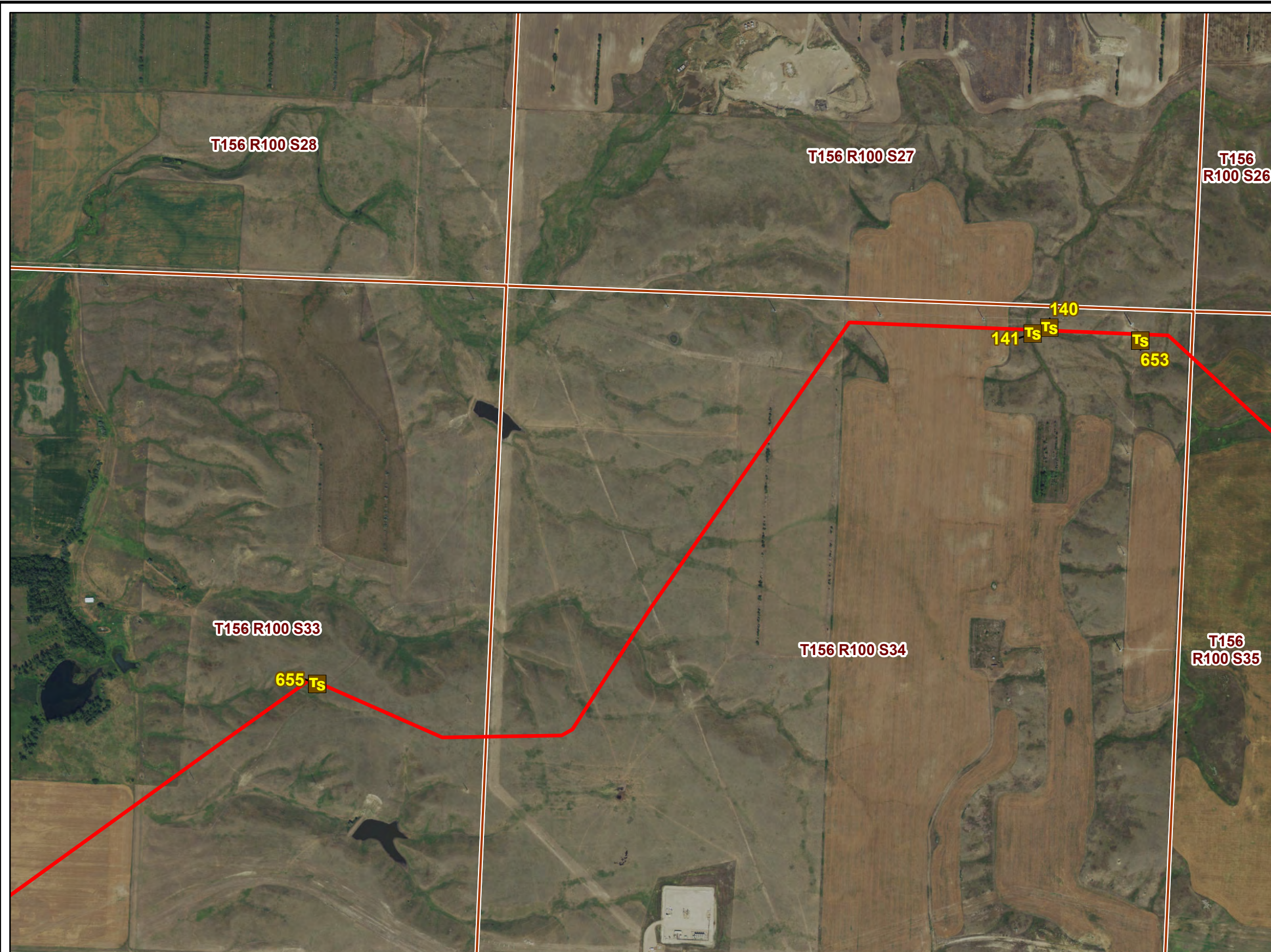
Cenex Pipeline  
Figure 3

- Cenex Pipeline Centerline (PU-17-97)
- Ts Topsoil Observation Point Location - Spread 1
- Ts Topsoil Observation Point Location - Spread 2



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PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations



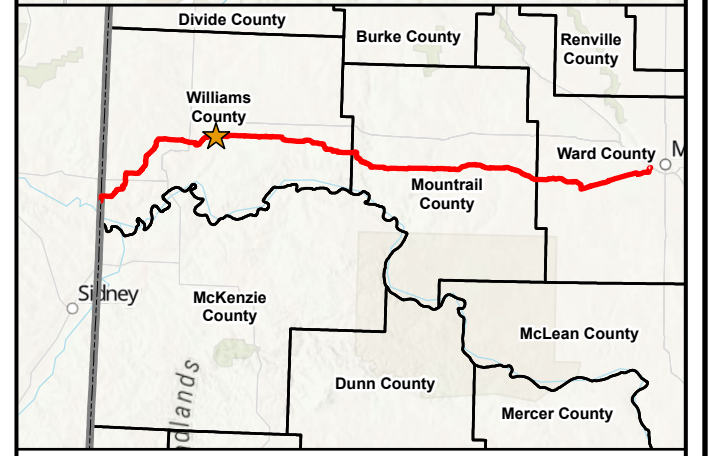
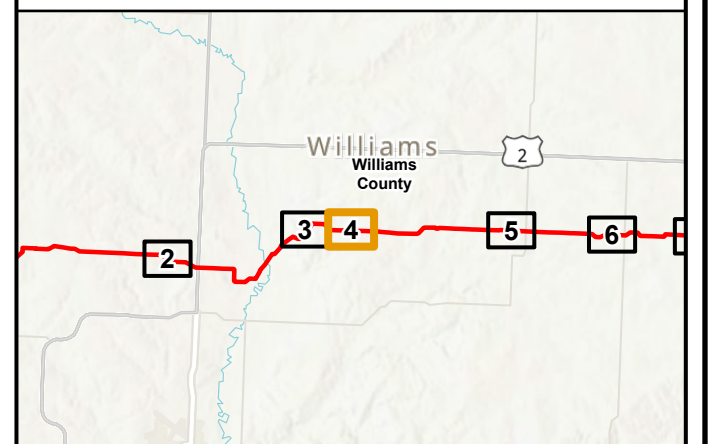
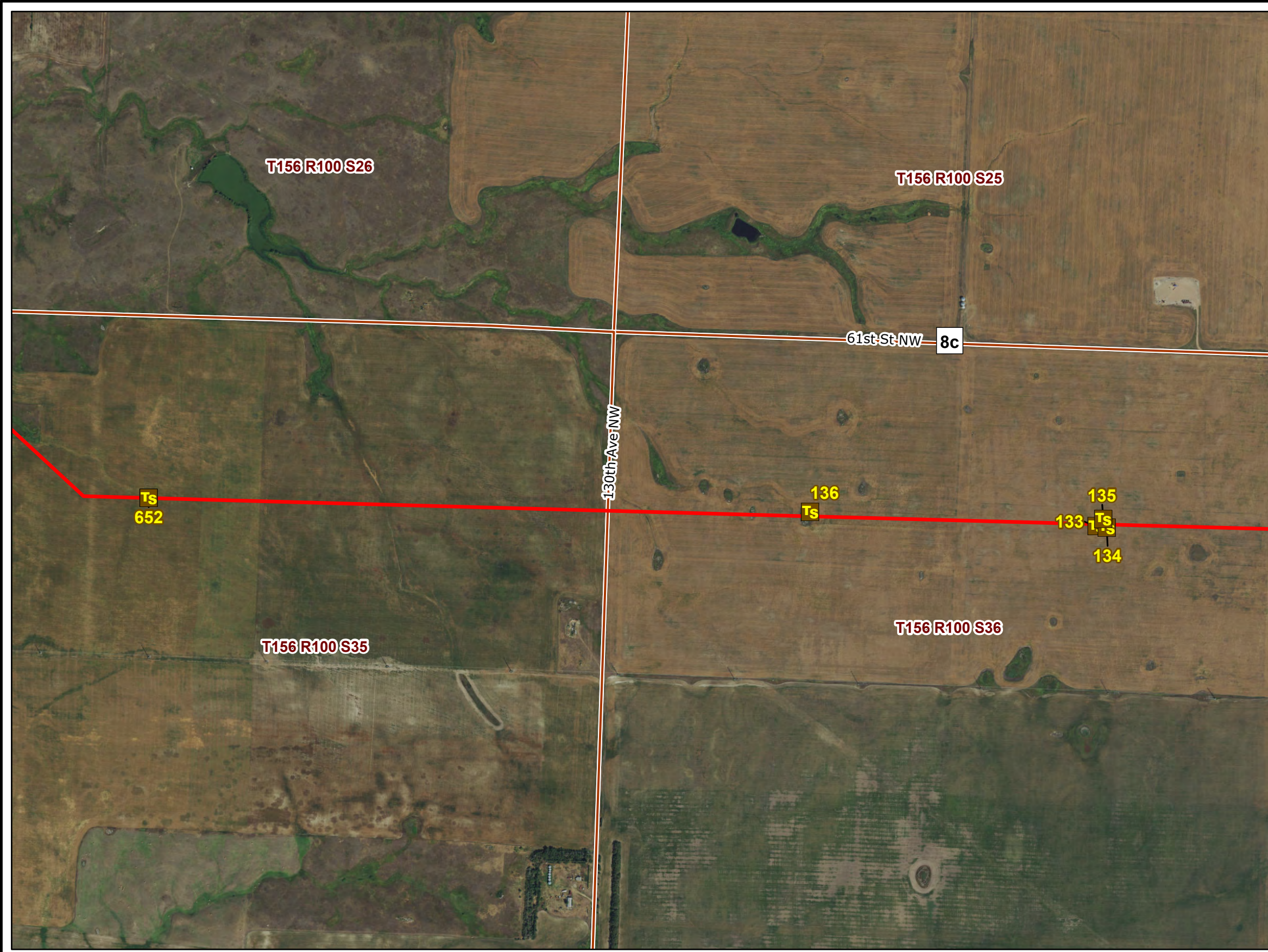
Responsive partner. Exceptional outcomes.

SEPT 2019

Map 3 of 14

Cenex Pipeline  
Figure 4

- Cenex Pipeline Centerline (PU-17-97)
- Ts Topsoil Observation Point Location - Spread 1
- Ts Topsoil Observation Point Location - Spread 2



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PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION




Topsoil Observation Locations

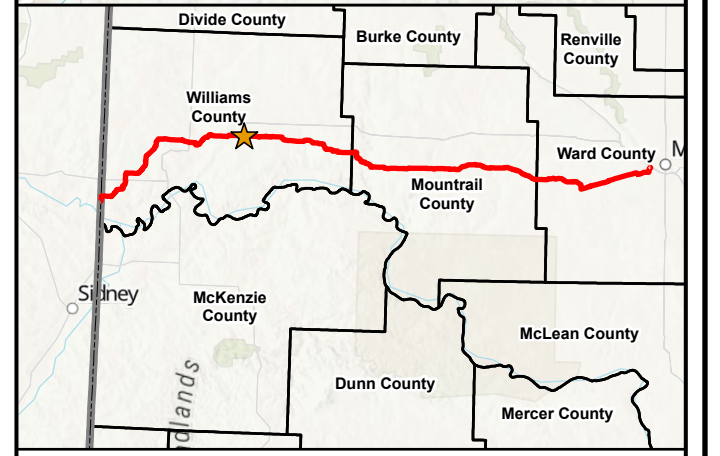
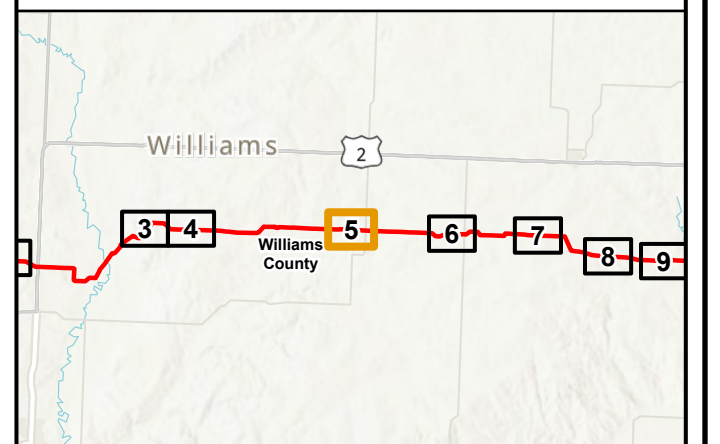


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Map 4 of 14

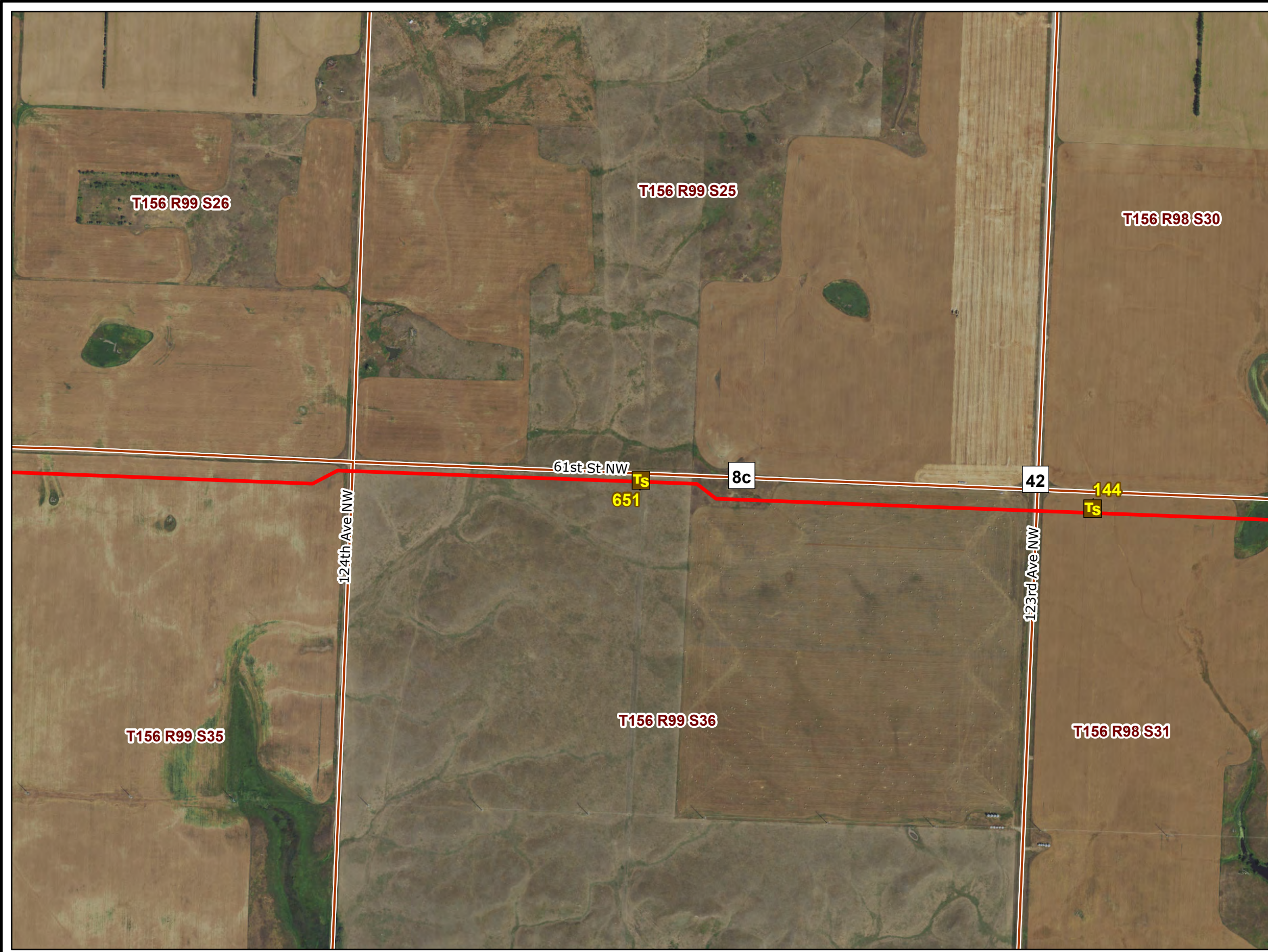
**Cenex Pipeline  
Figure 5**

-  Cenex Pipeline Centerline (PU-17-97)
-  Topsoil Observation Point Location - Spread 1
-  Topsoil Observation Point Location - Spread 2



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PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations






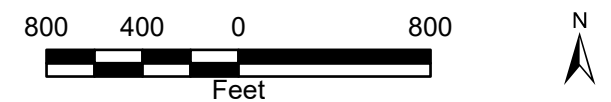
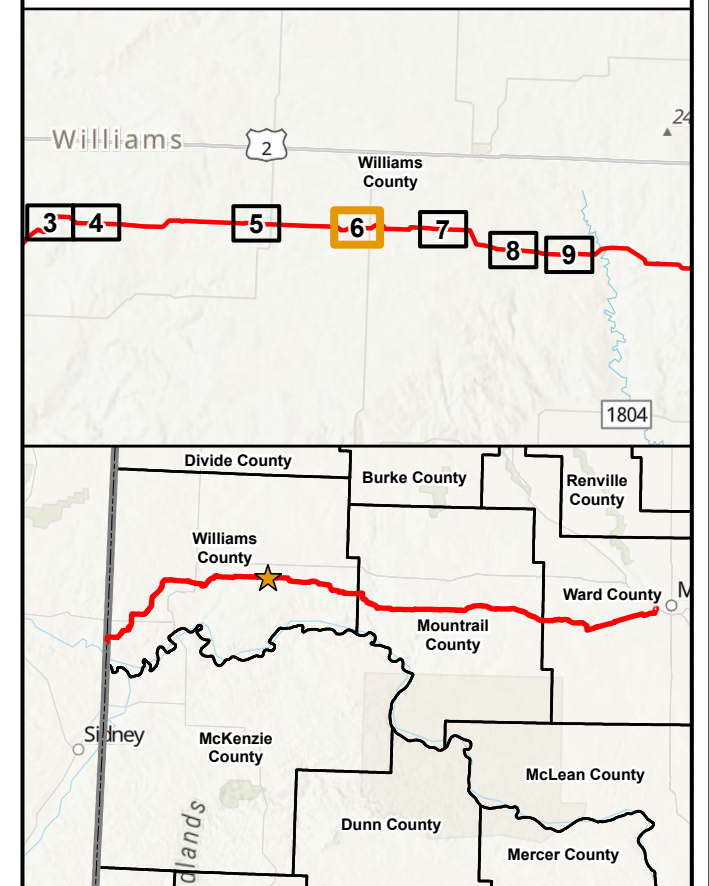
SEPT 2019

Map 5 of 14

**North Dakota  
Public Service Commission**

**Cenex Pipeline  
Figure 6**

-  Cenex Pipeline Centerline (PU-17-97)
-  Topsoil Observation Point Location - Spread 1
-  Topsoil Observation Point Location - Spread 2



2018 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0033\pro\Cenex\_Pipeline\Cenex\_Pipeline.aprx  
Date: 9/11/2019 Time: 2:46 PM User: MueKJ0907



PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations






Responsive partner. Exceptional outcomes.

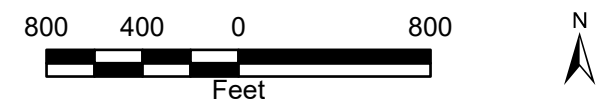
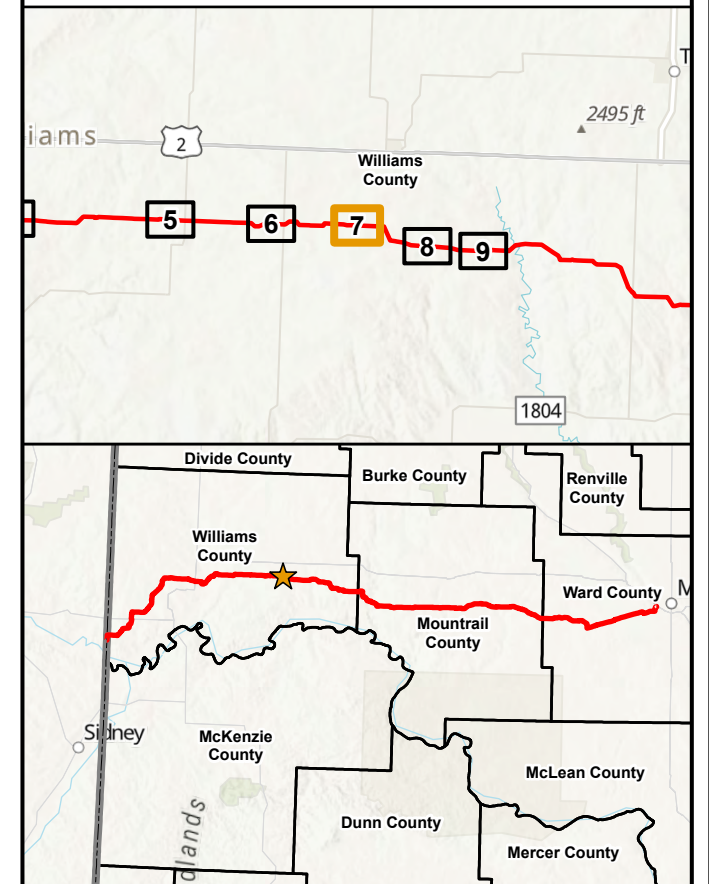
SEPT 2019

Map 6 of 14

**North Dakota  
Public Service Commission**

**Cenex Pipeline  
Figure 7**

-  Cenex Pipeline Centerline (PU-17-97)
-  Topsoil Observation Point Location - Spread 1
-  Topsoil Observation Point Location - Spread 2



2018 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0033\pro\Cenex\_Pipeline\Cenex\_Pipeline.aprx  
Date: 9/11/2019 Time: 2:47 PM User: MueKJ0907



PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations






Responsive partner. Exceptional outcomes.

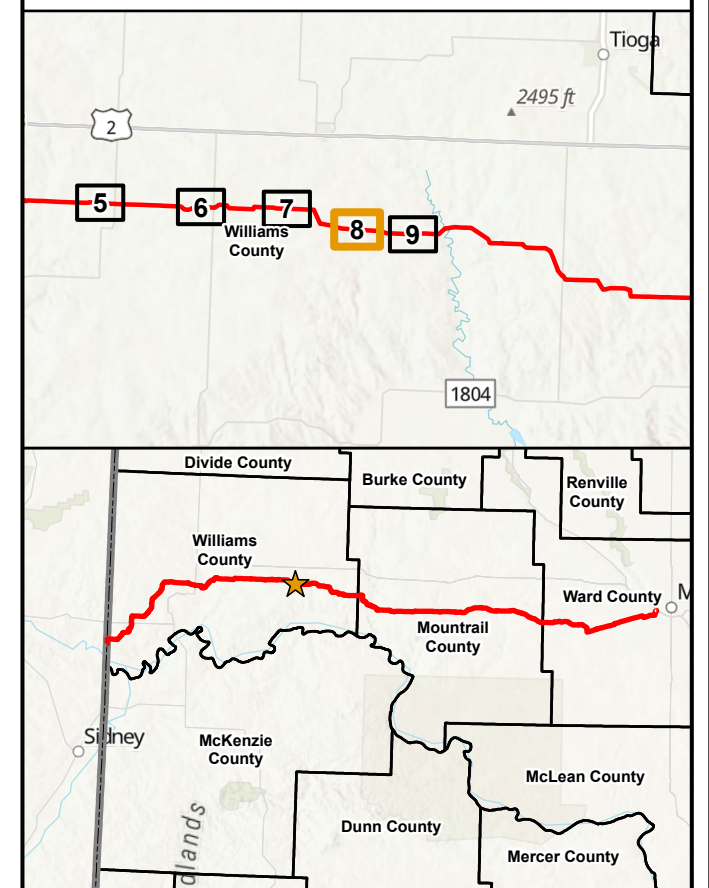
SEPT 2019

Map 7 of 14

**North Dakota  
Public Service Commission**

**Cenex Pipeline  
Figure 8**

-  Cenex Pipeline Centerline (PU-17-97)
-  Topsoil Observation Point Location - Spread 1
-  Topsoil Observation Point Location - Spread 2



2018 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0033\pro\Cenex\_Pipeline\Cenex\_Pipeline.aprx  
Date: 9/11/2019 Time: 2:47 PM User: MueKJ0907



PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations



Responsive partner. Exceptional outcomes.

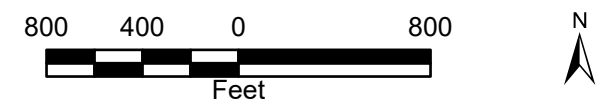
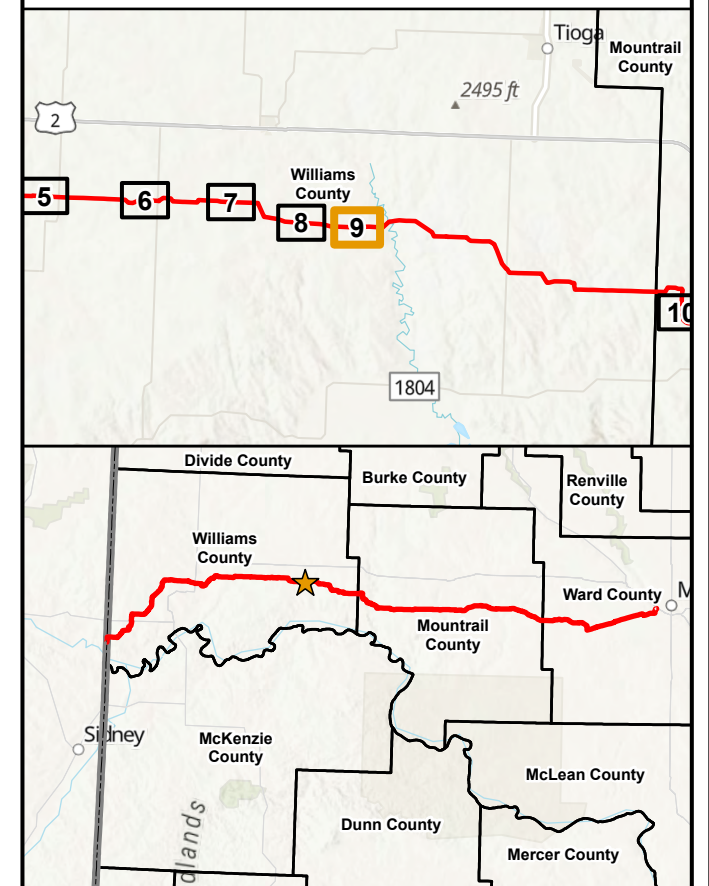
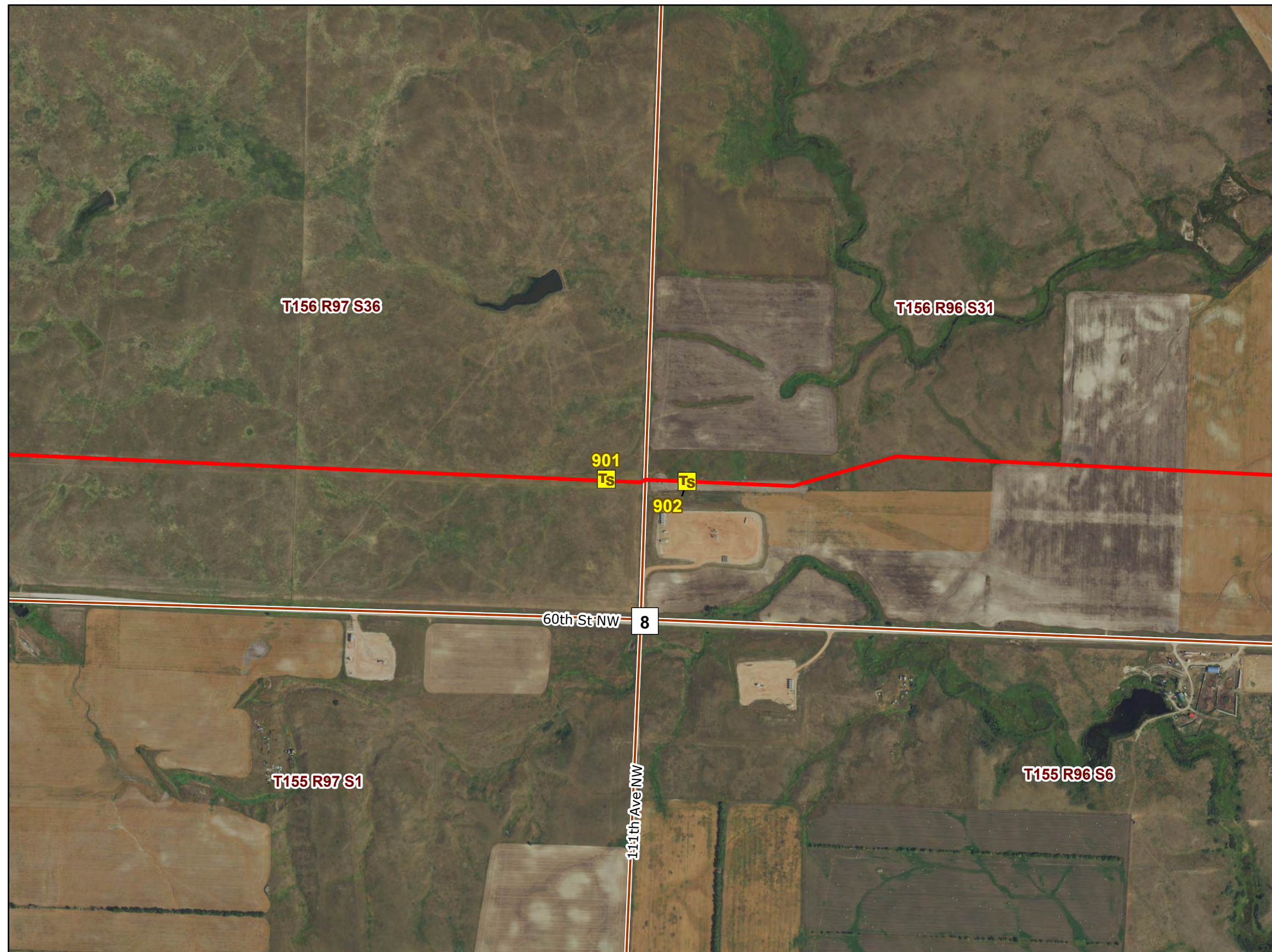
SEPT 2019

Map 8 of 14

**North Dakota  
Public Service Commission**

**Cenex Pipeline  
Figure 9**

- Cenex Pipeline Centerline (PU-17-97)
- TS Topsoil Observation Point Location - Spread 1
- TS Topsoil Observation Point Location - Spread 2



2018 Aerial Photograph (Source: NAIP)  
 Path: U:\GIS\257910033\pro\Cenex\_Pipeline\Cenex\_Pipeline.aprx  
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PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations



Responsive partner. Exceptional outcomes.

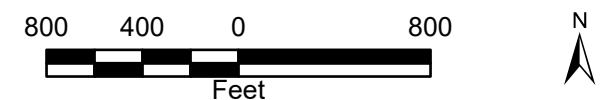
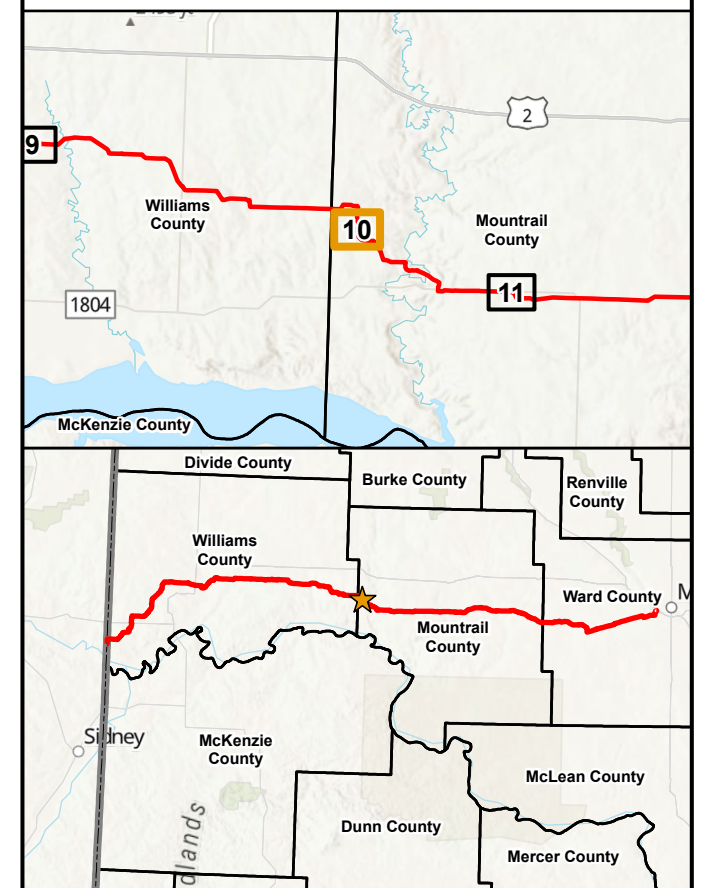
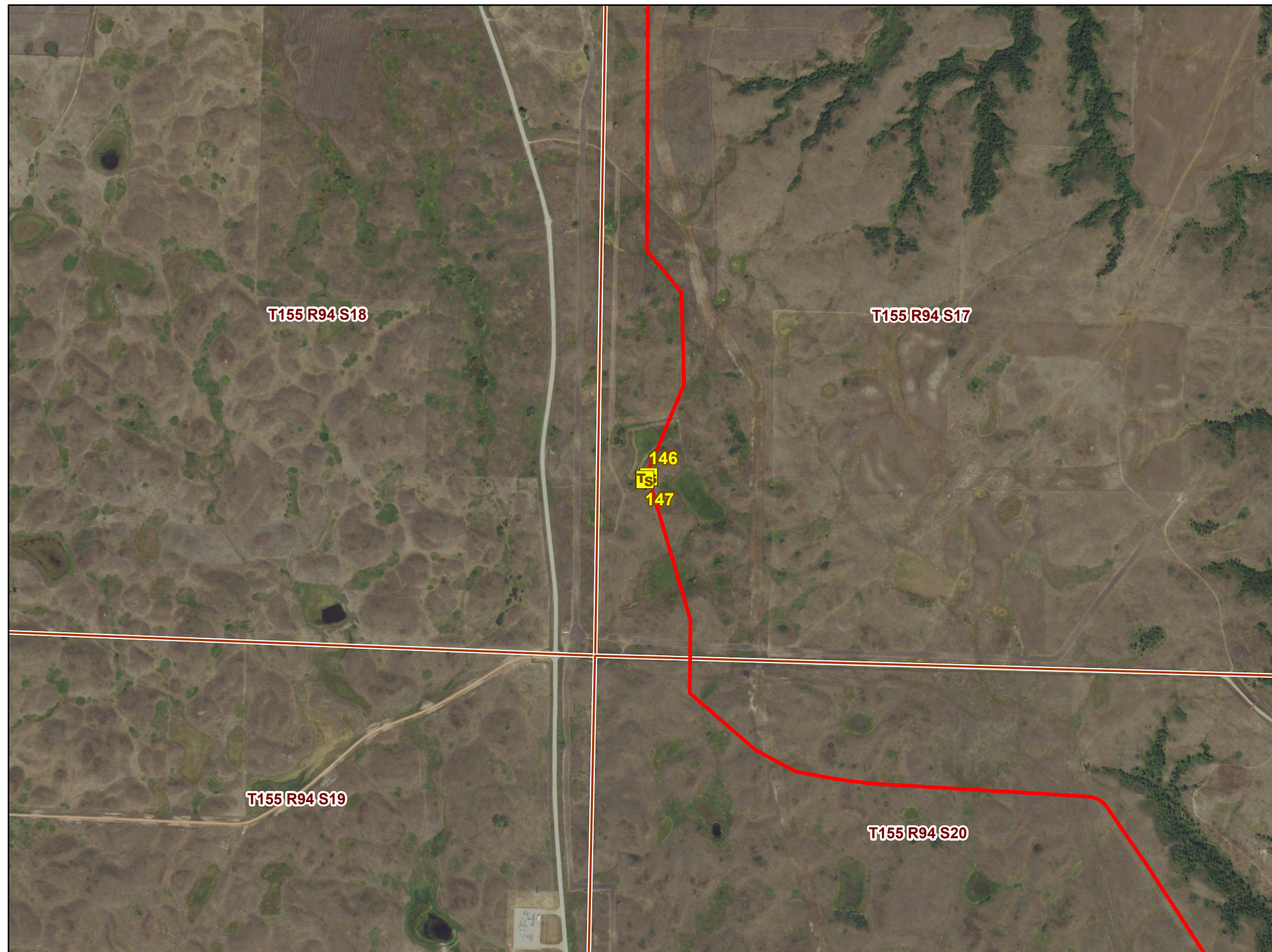
SEPT 2019

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**North Dakota  
Public Service Commission**

**Cenex Pipeline  
Figure 10**

- Cenex Pipeline Centerline (PU-17-97)
- 146 Topsoil Observation Point Location - Spread 1
- 147 Topsoil Observation Point Location - Spread 2



2018 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0033\pro\Cenex\_Pipeline\Cenex\_Pipeline.aprx  
Date: 9/11/2019 Time: 2:48 PM User: MueKJ0907

PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations






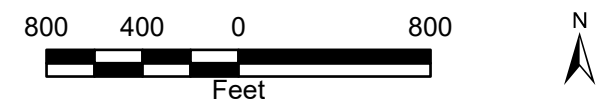
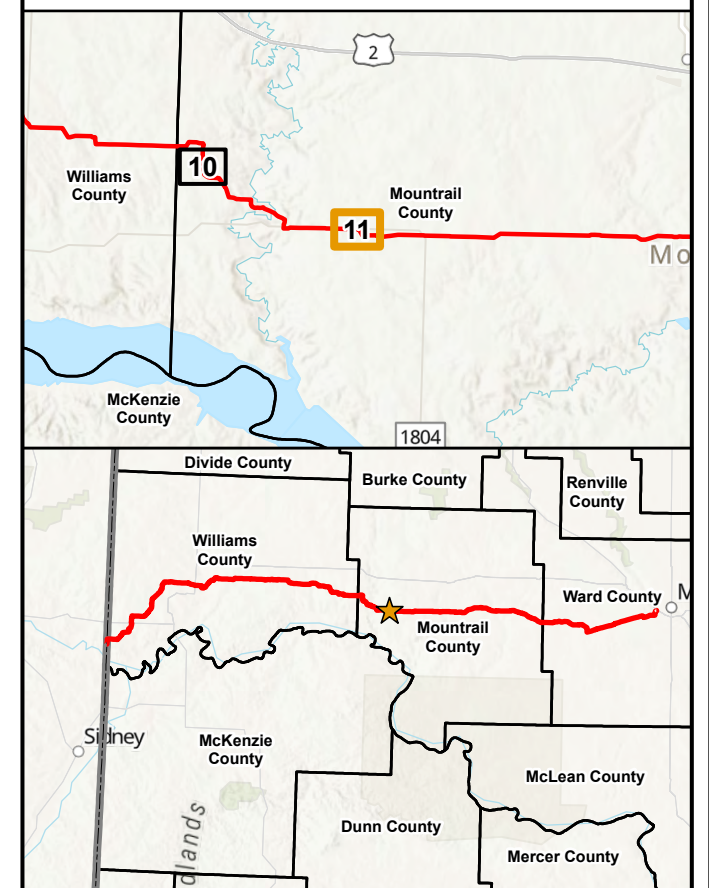
Responsive partner. Exceptional outcomes.

SEPT 2019

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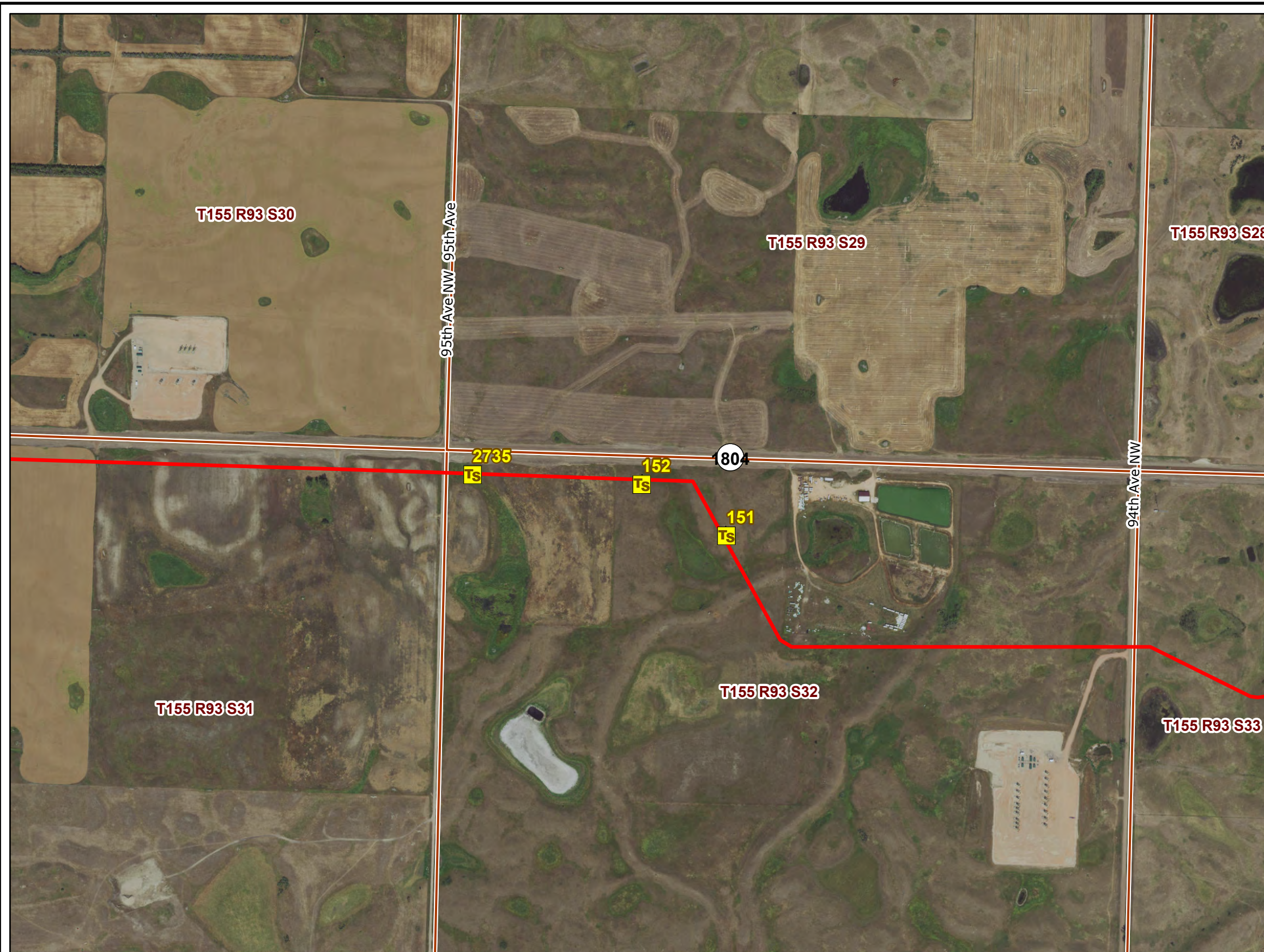
**Cenex Pipeline  
Figure 11**

-  Cenex Pipeline Centerline (PU-17-97)
-  Topsoil Observation Point Location - Spread 1
-  Topsoil Observation Point Location - Spread 2



2018 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0033\pro\Cenex\_Pipeline\Cenex\_Pipeline.aprx  
Date: 9/11/2019 Time: 2:48 PM User: MueKJ0907



PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations






Responsive partner. Exceptional outcomes.

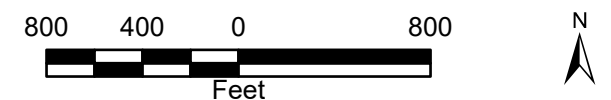
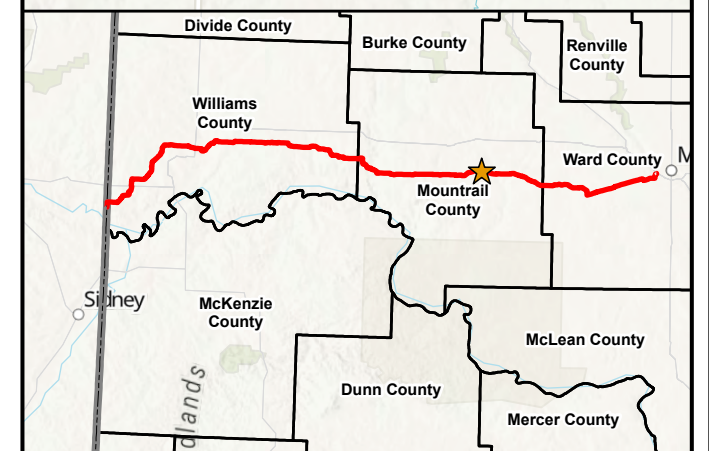
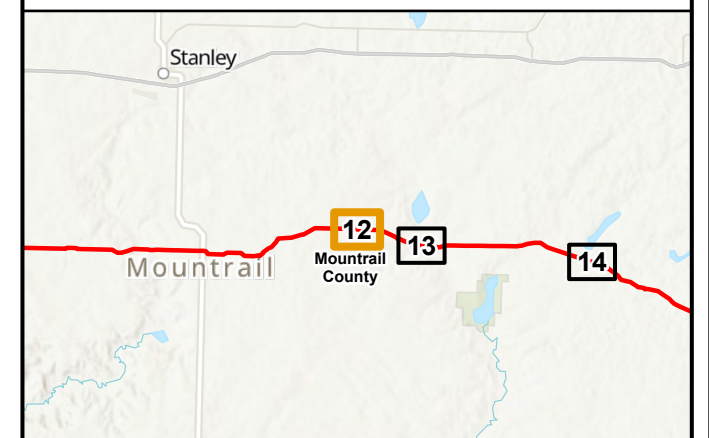
SEPT 2019

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**North Dakota  
Public Service Commission**

**Cenex Pipeline  
Figure 12**

-  Cenex Pipeline Centerline (PU-17-97)
-  Topsoil Observation Point Location - Spread 1
-  Topsoil Observation Point Location - Spread 2



2018 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0033\pro\Cenex\_Pipeline\Cenex\_Pipeline.aprx  
Date: 9/11/2019 Time: 2:48 PM User: MueKJ0907



PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

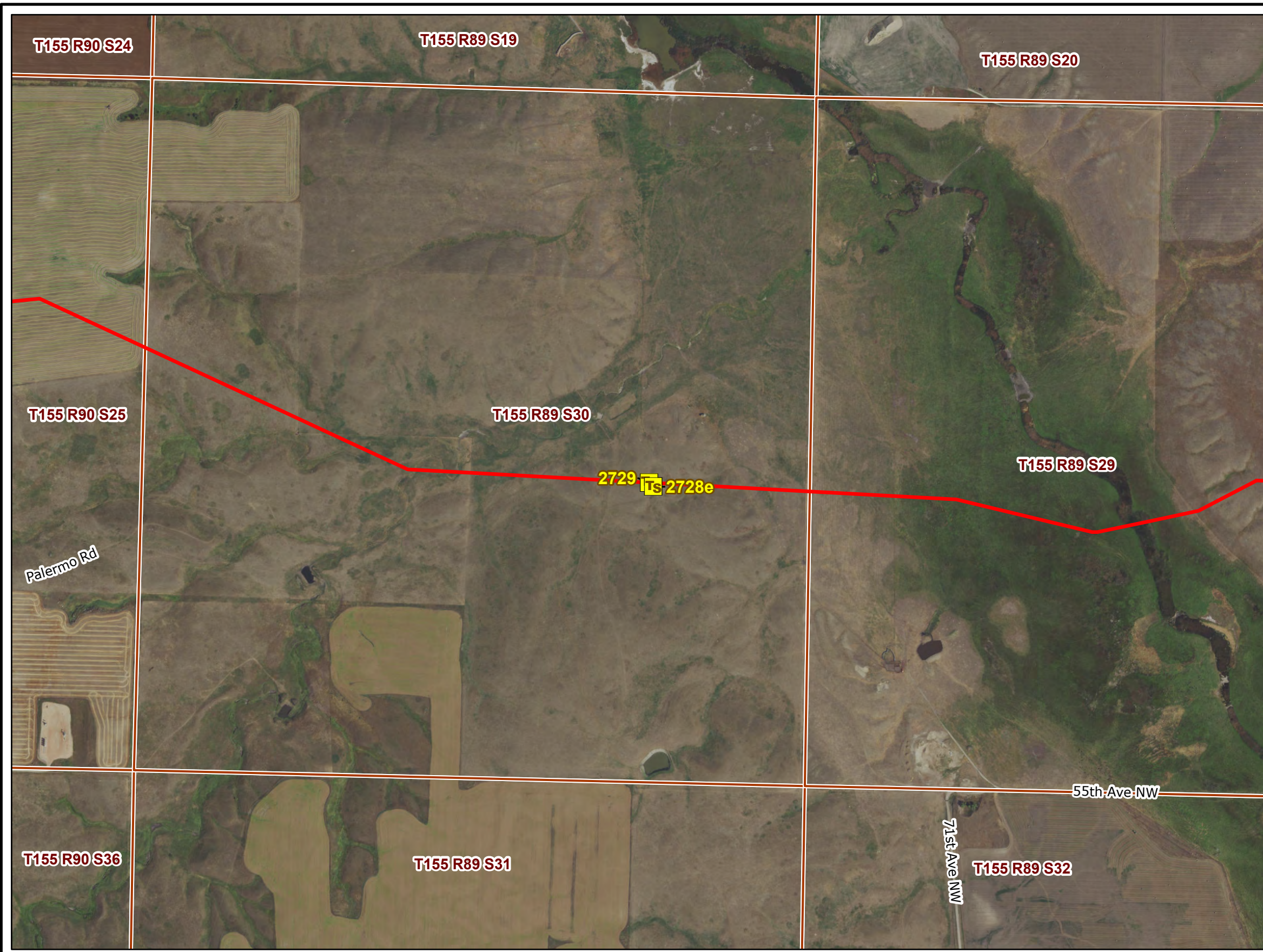
Topsoil Observation Locations



Responsive partner. Exceptional outcomes.

SEPT 2019

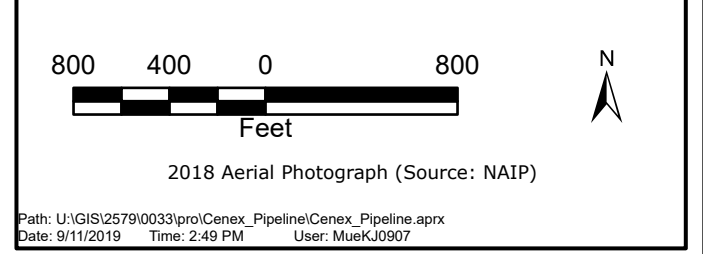
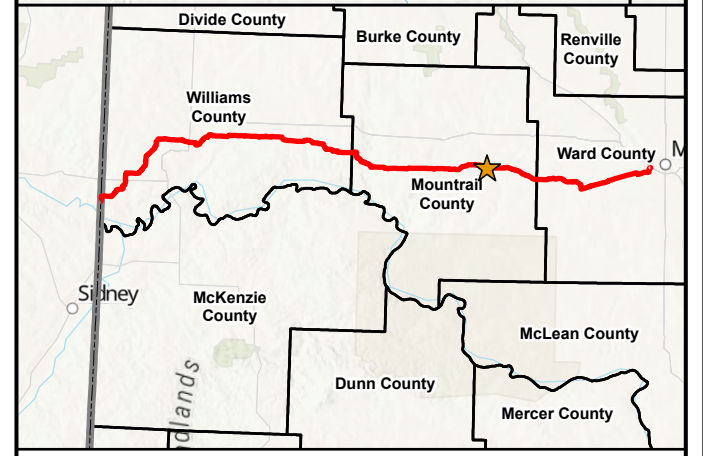
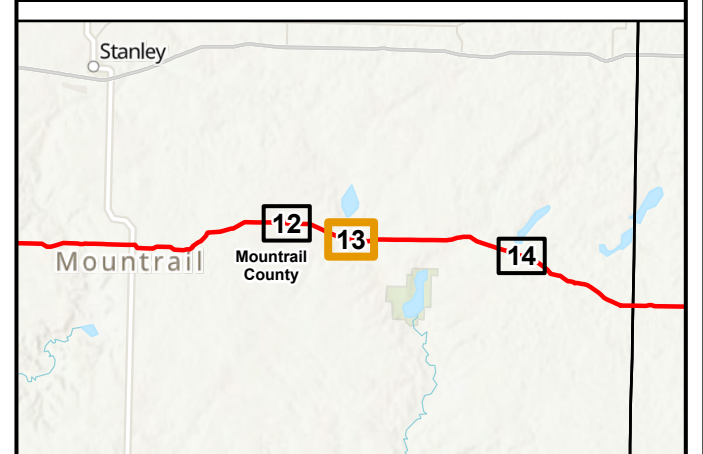
Map 12 of 14



**North Dakota  
Public Service Commission**

**Cenex Pipeline  
Figure 13**

- Cenex Pipeline Centerline (PU-17-97)
- Ts Topsoil Observation Point Location - Spread 1
- Ts Topsoil Observation Point Location - Spread 2






PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION  
Topsoil Observation Locations

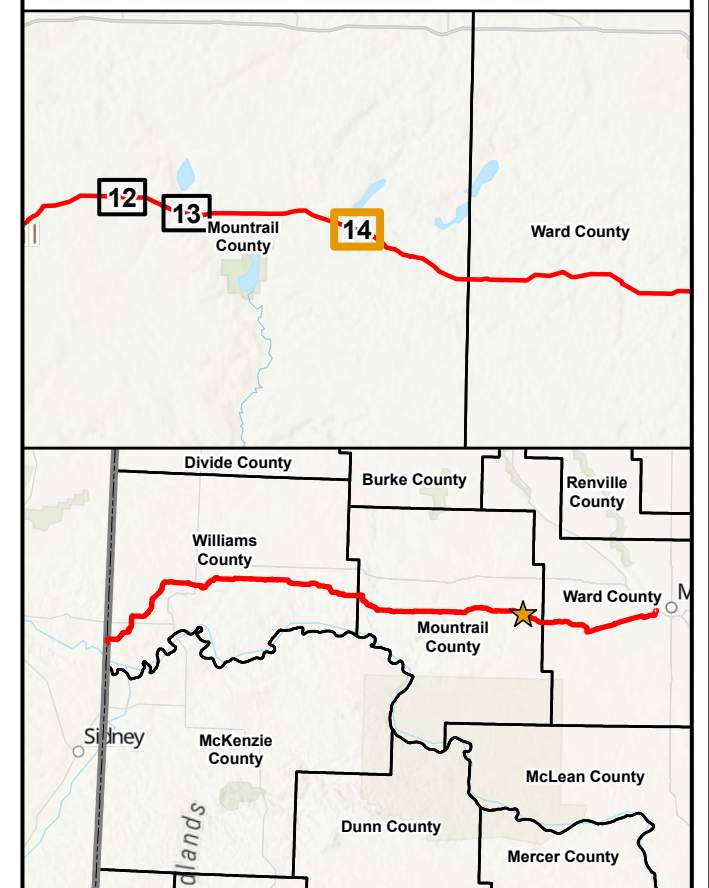


SEPT 2019  
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**North Dakota  
Public Service Commission**

**Cenex Pipeline  
Figure 14**

-  Cenex Pipeline Centerline (PU-17-97)
-  Topsoil Observation Point Location - Spread 1
-  Topsoil Observation Point Location - Spread 2



2018 Aerial Photograph (Source: NAIP)  
 Path: U:\GIS\2579\0033\pro\Cenex\_Pipeline\Cenex\_Pipeline.aprx  
 Date: 9/11/2019 Time: 2:49 PM User: MueKJ0907



PU-17-97 CENEX PIPELINE TOPSOIL INSPECTION

Topsoil Observation Locations



Responsive partner. Exceptional outcomes.

SEPT 2019

Map 14 of 14

On-Site Photographs

## Cenex - On-Site Photographs

**Observation Point: 133**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 3892+00 Spread 1

Photo Description: Rock pile moved off ROW from low spot in terrain. Topsoil and subsoil mixed within and on top of rockpile.

Latitude: 48.29536

Longitude: -103.48103

**Observation Point: 134**

Date Taken: July 17, 2019

Direction Photo is Taken: West

Station 3892+00 Spread 1

Photo Description: East side of same rockpile.

Latitude: 48.29534

Longitude: -103.48071

**Observation Point: 135**

Date Taken: July 17, 2019

Direction Photo is Taken: South

Station 3892+00 Spread 1

Photo Description: View of same rockpile from northside of ROW. Timber mats present through low area. Discussed with Nute Bishop, KLJ Environmental Inspector for Spread 1. Not a delineated wetland by KLJ.

Latitude: 48.29552

Longitude: -103.48083

## Cenex - On-Site Photographs

**Observation Point: 136**

Date Taken: July 17, 2019

Direction Photo is Taken: Southwest  
Station 3869+00 Spread 1Photo Description: Rock pile moved off ROW.  
Subsoil stockpile segregated in front of rockpile.  
Timber mats in place.

Latitude: 48.29543

Longitude: -103.49007

**Observation Point: 140**

Date Taken: July 17, 2019

Direction Photo is Taken: Southeast  
Station 3786+00 Spread 1Photo Description: Subsoil spill on top of topsoil  
stockpile. Discussed with Mr. Bishop and issue  
resolved on site.

Latitude: 48.29851

Longitude: -103.52247

**Observation Point: 141**

Date Taken: July 17, 2019

Direction Photo is Taken: South  
Station 3785+00 Spread 1Photo Description: Topsoil and subsoil  
segregated although touching. Discussed with  
Mr. Bishop and how grader would manipulate  
stockpiles to achieve little to no mixing. Tiered  
ROW due to surrounding topography.

Latitude: 48.29838

Longitude: -103.52299

## Cenex - On-Site Photographs

**Observation Point: 144a**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 4235+00 Spread 1

Photo Description: Topsoil and subsoil segregated properly.

Latitude: 48.29874

Longitude: -103.34331

**Observation Point: 144b**

Date Taken: July 17, 2019

Direction Photo is Taken: West

Station 4235+00 Spread 1

Photo Description: Topsoil and subsoil segregated properly.

Latitude: 48.29874

Longitude: -103.34331

**Observation Point: 155**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 4762+00 Spread 1

Photo Description: ROW awaiting topsoil redistribution. Topsoil stockpile on north side of ROW overgrown with vegetation. Topsoil stockpile on south side of ROW has been redistributed.

Latitude: 48.28894

Longitude: -103.13750

## Cenex - On-Site Photographs

**Observation Point: 158**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 4630+00 Spread 1

Photo Description: Start of timber mats on ROW.

Latitude: 48.29944

Longitude: -103.18547

**Observation Point: 159**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 4630+00 Spread 1

Photo Description: South side of ROW. Topsoil stripped to color change.

Latitude: 48.29936

Longitude: -103.18546

**Observation Point: 160a**

Date Taken: July 17, 2019

Direction Photo is Taken: Northeast

Station 4633+00 Spread 1

Photo Description: Timber mats have continued on ROW. Straw wattles in place. Wetland vegetation present.

Latitude: 48.29942

Longitude: -103.18487

## Cenex - On-Site Photographs

	<p><b>Observation Point: 160b</b>  Date Taken: July 17, 2019  Direction Photo is Taken: Southeast  Station 4633+00 Spread 1</p> <p>Photo Description: South side of ROW shows no evidence of topsoil stripping over trenched area. Through discussion with KLJ and Frontier, it was determined Frontier would use the "double-ditch" method through wetlands or areas with moist soils, in which only the width of the trench is excavated.</p> <p>Latitude: 48.29942  Longitude: -103.18487</p>
	<p><b>Observation Point: 160c</b>  Date Taken: July 17, 2019  Direction Photo is Taken: Northeast  Station 4633+00 Spread 1</p> <p>Photo Description: View of topsoil stockpiles and small rockpile.</p> <p>Latitude: 48.29943  Longitude: -103.18370</p>
	<p><b>Observation Point: 161a</b>  Date Taken: July 17, 2019  Direction Photo is Taken: Southeast  Station 4635+00 Spread 1</p> <p>Photo Description: Timber mats continue. No straw wattles present. Observation point taken outside of assumed delineated wetland area.</p> <p>Latitude: 48.29943  Longitude: -103.18370</p>

## Cenex - On-Site Photographs

**Observation Point: 161b**

Date Taken: July 17, 2019

Direction Photo is Taken: South

Station 4635+00 Spread 1

Photo Description: South side of ROW shows no evidence of topsoil stripping beyond trench area.

Latitude: 48.29943

Longitude: -103.18370

**Observation Point: 162a**

Date Taken: July 17, 2019

Direction Photo is Taken: Northeast

Station 4638+00 Spread 1

Photo Description: Timber mats continue. Straw wattles in place along assumed delineated wetland boundary. Wetland vegetation present.

Latitude: 48.29943

Longitude: -103.18289

**Observation Point: 162b**

Date Taken: July 17, 2019

Direction Photo is Taken: Southeast

Station 4638+00 Spread 1

Photo Description: Southside of ROW shows no evidence of topsoil stripping beyond trench area.

Latitude: 48.29943

Longitude: -103.18289

## Cenex - On-Site Photographs

**Observation Point: 163a**

Date Taken: July 17, 2019

Direction Photo is Taken: Northeast

Station 4640+00 Spread 1

Photo Description: Timber mats continue. No straw wattles present.

Latitude: 48.29944

Longitude: -103.18228

**Observation Point: 163b**

Date Taken: July 17, 2019

Direction Photo is Taken: Southeast

Station 4640+00 Spread 1

Photo Description: South side of ROW shows no evidence of topsoil stripping beyond trench area.

Latitude: 48.29944

Longitude: -103.18228

**Observation Point: 164a**

Date Taken: July 17, 2019

Direction Photo is Taken: Northeast

Station 4642+00 Spread 1

Photo Description: Timber mats continue. Straw wattles in place within delineated wetland area.

Latitude: 48.29942

Longitude: -103.18161

## Cenex - On-Site Photographs

**Observation Point: 164b**

Date Taken: July 17, 2019

Direction Photo is Taken: Southeast

Station 4642+00 Spread 1

Photo Description: Southside of ROW shows no evidence of topsoil stripping beyond trench area.

Latitude: 48.29942

Longitude: -103.18161

**Observation Point: 165a**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 4643+00 Spread 1

Photo Description: Timber mats discontinued.

Latitude: 48.29945

Longitude: -103.18075

**Observation Point: 165b**

Date Taken: July 17, 2019

Direction Photo is Taken: Southeast

Station 4643+00 Spread 1

Photo Description: South side of ROW correctly stripped of topsoil to color change outside of delineated wetland area.

Latitude: 48.29945

Longitude: -103.18075

## Cenex - On-Site Photographs

**Observation Point: 166a**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 4647+00 Spread 1

Photo Description: Timber mats and straw wattles present approaching delineated wetland area from the west.

Latitude: 48.29943

Longitude: -103.17946

**Observation Point: 166b**

Date Taken: July 17, 2019

Direction Photo is Taken: Southeast

Station 4647+00 Spread 1

Photo Description: Topsoil has been replaced over trenched area correctly.

Latitude: 48.29943

Longitude: -103.17946

**Observation Point: 167a**

Date Taken: July 17, 2019

Direction Photo is Taken: Southeast

Station 4648+00 Spread 1

Photo Description: Topsoil replaced over trenched area correctly.

Latitude: 48.29944

Longitude: -103.17828

## Cenex - On-Site Photographs

**Observation Point: 167b**

Date Taken: July 17, 2019

Direction Photo is Taken: Northwest

Station 4648+00 Spread 1

Photo Description: Topsoil stockpile present.  
Topsoil awaiting redistribution.

Latitude: 48.29944

Longitude: -103.17828

**Observation Point: 146**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 5713+00 Spread 2

Photo Description: Topsoil stripped at hill summit  
at approximately 4 inches. Approximately 4  
inches of subsoil stripped to grade and level  
ROW.

Latitude: 48.24452

Longitude: -102.80556

**Observation Point: 147**

Date Taken: July 17, 2019

Direction Photo is Taken: South

Station 5713+00 Spread 2

Photo Description: Topsoil and subsoil touching.  
Discussed with Jeffery Moss, KLJ Environmental  
Inspector for Spread 2, and how grader would  
manipulate stockpiles to achieve little to no  
mixing.

Latitude: 48.24446

Longitude: -102.80567

## Cenex - On-Site Photographs

**Observation Point: 151**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 3160+00 Spread 2

Photo Description: Approximately 6 inches of topsoil properly stripped from backslope.

Latitude: 48.20995

Longitude: -102.66862

**Observation Point: 152**

Date Taken: July 17, 2019

Direction Photo is Taken: East

Station 5120+00 Spread 2

Photo Description: Topsoil stockpile properly placed within ROW.

Latitude: 48.21098

Longitude: -102.67132

**Observation Point: 645**

Date Taken: July 29, 2019

Direction Photo is Taken: East

Spread 2

Photo Description: Beginning of Spread 2, Loenbro, heading east. Topsoil reapplication was according to standards.

Latitude: 48.28873

Longitude: -103.12951

## Cenex - On-Site Photographs

**Observation Point: 646a**

Date Taken: July 29, 2019

Direction Photo is Taken: West

Spread 1

Photo Description: Beginning of Spread 1, Frontier, heading west to Sydney. Few areas where topsoil reapplication was thin on hilltops. Suggestion to Frontier to allocate some topsoil from adjacent foot and toe slopes when possible. Area was within row crop ag and was disked after reclamation, increasing subsoil mixing.

Latitude: 48.28878

Longitude: -103.13167

**Observation Point: 646b**

Date Taken: July 29, 2019

Direction Photo is Taken: West

Spread 1

Photo Description: Closer view of subsoil mixing on hilltops.

Latitude: 48.28878

Longitude: -103.13167

**Observation Point: 647a**

Date Taken: July 29, 2019

Direction Photo is Taken: East

Spread 1

Photo Description: Wetland area where a matted working site was needed. Double ditch process was used, where the top foot was removed for topsoil and the subsoil was then piled next to it as best as possible without mixing. Middle strip was left unaltered. Needed time to dry before bringing dozers in for final reclamation. Reclamation looked according to standards.

Latitude: 48.29943

Longitude: -103.18484

## Cenex - On-Site Photographs

**Observation Point: 647b**

Date Taken: July 29, 2019

Direction Photo is Taken: West

Spread 1

Photo Description: Area directly to west of wetland site where regular topsoil stripping methods were applied, beginning approximately at red line.

Latitude: 48.29943

Longitude: -103.18484

**Observation Point: 648a**

Date Taken: July 29, 2019

Direction Photo is Taken: East

Spread 1

Photo Description: Topsoil reclamation occurring late due to wet period during previous month. Topsoil was reapplied and then ripped to alleviate deep compaction. Ripping mixed subsoil with topsoil in these areas. Recommended ripping before topsoil reapplication.

Latitude: 48.29986

Longitude: -103.21523

**Observation Point: 648b**

Date Taken: July 29, 2019

Direction Photo is Taken: West

Spread 1

Photo Description: Area where deep ripper mixed sub and topsoil when trying to alleviate compaction. Mixing evident where light brown colors appear in the lower right corner of the photo. Left side of photo has not had topsoil reapplied yet.

Latitude: 48.29986

Longitude: -103.21523

## Cenex - On-Site Photographs



**Observation Point: 649a**

Date Taken: July 29, 2019

Direction Photo is Taken: West

Spread 1

Photo Description: Reapplication of topsoil looked good.

Latitude: 48.29867

Longitude: -103.27069



**Observation Point: 649b**

Date Taken: July 29, 2019

Direction Photo is Taken: South

Spread 1

Photo Description: Rock and soil berm was removed during initial topsoil stripping and replaced after pipeline installation. Extends to the south as seen in the photo.

Latitude: 48.29867

Longitude: -103.27069



**Observation Point: 651a**

Date Taken: July 29, 2019

Direction Photo is Taken: East

Spread 1

Photo Description: going through native prairie pasture on State land. Rock removal occurring in photo background with spotter present for bobcat operator. Large rocks are present in pasture area. Test Station present where pipeline intersection occurs, indicated by red arrow.

Latitude: 48.29898

Longitude: -103.35757

## Cenex - On-Site Photographs

**Observation Point: 651b**

Date Taken: July 29, 2019

Direction Photo is Taken: West

Spread 1

Photo Description: Large rocks are numerous in prairie area. Complications with minor soil mixing occurred during the removal of large rocks, but difficult not to; visible as lighter colored subsoils on surface mixed with rocks. Currently on the 4<sup>th</sup> pass of rock removal.

Latitude: 48.29898

Longitude: -103.35757

**Observation Point: 652a**

Date Taken: July 29, 2019

Direction Photo is Taken: East

Spread 1

Photo Description: ROW currently stripped and trench filled, waiting for the reclamation crew. Middle strip where vegetation is present is left unstripped where pipe is strung to create level surface. Only 2-3 inches of topsoil is removed from the traffic side of ROW to reduce soil profile disturbance. On the ditch side, all topsoil is removed.

Latitude: 48.29518

Longitude: -103.51092

**Observation Point: 652b**

Date Taken: July 29, 2019

Direction Photo is Taken: NA

Spread 1

Photo Description: Ground view of pipeline corridor unstripped soil. Test hole was dug in middle region where minimal topsoil was stripped for the purpose of reducing soil profile impacts. Roughly 4 inches of topsoil was present in this photo.

Latitude: 48.29518

Longitude: -103.51092

## Cenex - On-Site Photographs

**Observation Point: 653a**

Date Taken: July 29, 2019

Direction Photo is Taken: West

Spread 1

Photo Description: Waiting for reclamation crew to come through. Steep topography was present in which a two-tone system was used for pipeline installation to reduce the amount of subsoil reallocation. Pipeline must be placed in virgin ground. Pipeline placement was slightly adjusted due to the presence of an archeological site (stone circles) on hilltop to north.

Latitude: 48.29832

Longitude: -103.5196

**Observation Point: 653b**

Date Taken: July 29, 2019

Direction Photo is Taken: East

Spread 1

Photo Description: Two-tone system was used in steep topography.

Latitude: 48.29832

Longitude: -103.5196

**Observation Point: 655a**

Date Taken: July 29, 2019

Direction Photo is Taken: Northwest

Spread 1

Photo Description: Topsoil has been removed using Frontier system, and pipeline has been strung.

Latitude: 48.29045

Longitude: -103.54501

## Cenex - On-Site Photographs

**Observation Point: 655b**

Date Taken: July 29, 2019

Direction Photo is Taken: Southeast  
Spread 1

Photo Description: Topsoil has been removed using Frontier system, and pipeline has been strung.

Latitude: 48.29045

Longitude: -103.54501

**Observation Point: 656**

Date Taken: July 29, 2019

Direction Photo is Taken: Southeast  
Spread 1

Photo Description: Topsoil removal process in progress. Topsoil is being removed down to color change on the trench side.

Latitude: 48.27491

Longitude: -103.6525

**Observation Point: 2715**

Date Taken: August 20, 2019

Direction Photo is Taken: West  
Spread 2

Photo Description: Some mixing in topsoil pile. Discussed issue with Mr. Moss, KLJ.

Latitude: 48.21099387

Longitude: -102.022308

## Cenex - On-Site Photographs

**Observation Point: 2716**

Date Taken: August 20, 2019

Direction Photo is Taken: East

Spread 2

Photo Description: Overlooking tiered ROW and segregated stockpiles.

Latitude: 48.21077009

Longitude: -102.021092

**Observation Point: 2717**

Date Taken: August 20, 2019

Direction Photo is Taken: North

Spread 2

Photo Description: A staked non-stripped area served as a monument within the ROW showing acceptable 10-inches of stripped topsoil.

Latitude: 48.20889125

Longitude: -102.009834

**Observation Point: 2718**

Date Taken: August 20, 2019

Direction Photo is Taken: North

Spread 2

Photo Description: Monument showing acceptable 10-inches of stripped topsoil.

Latitude: 48.20889125

Longitude: -102.009834

## Cenex - On-Site Photographs

**Observation Point: 2720**

Date Taken: August 20, 2019

Direction Photo is Taken:

Spread 2

Photo Description: Monument showing an appropriate 7-inches of topsoil stripped from ROW.

Latitude: 48.20902097

Longitude: -102.010634

**Observation Point: 2722**

Date Taken: August 20, 2019

Direction Photo is Taken: West

Spread 2

Photo Description: Overlooking appropriately stripped ROW.

Latitude: 48.20902004

Longitude: -102.010672

**Observation Point: 2723**

Date Taken: August 20, 2019

Direction Photo is Taken:

Spread 2

Photo Description: Appropriately stripping of Zahl-like soil.

Latitude: 48.2126848

Longitude: -102.029172

## Cenex - On-Site Photographs

**Observation Point: 2724**

Date Taken: August 20, 2019  
 Direction Photo is Taken: West  
 Spread 2

Photo Description: Appropriately stripping of Zahl-like soil.

Latitude: 48.2126848  
 Longitude: -102.029172

**Observation Point: 2725**

Date Taken: August 20, 2019  
 Direction Photo is Taken: West  
 Spread 2

Photo Description: Tiered ROW due to surrounding topography.

Latitude: 48.21249143  
 Longitude: -102.027997

**Observation Point: 2726**

Date Taken: August 20, 2019  
 Direction Photo is Taken:  
 Spread 2

Photo Description: Monument showing 10-inches of topsoil stripped from ROW.

Latitude: 48.21249143  
 Longitude: -102.027997

## Cenex - On-Site Photographs

**Observation Point: 2728**

Date Taken: August 20, 2019

Direction Photo is Taken:

Spread 2

Photo Description: Adequate topsoil/subsoil piles

Latitude: 48.21762859

Longitude: -102.164935

**Observation Point: 2729**

Date Taken: August 20, 2019

Direction Photo is Taken:

Spread 2

Photo Description: Gravelly soil appropriately stripped to 9-inches.

Latitude: 48.2177133

Longitude: -102.165071

**Observation Point: 2731**

Date Taken: August 20, 2019

Direction Photo is Taken: East

Spread 2

Photo Description: Location of ROW which is recommended to have an additional 3-inches stripped.

Latitude: 48.22614979

Longitude: -102.22024

## Cenex - On-Site Photographs

**Observation Point: 2732**

Date Taken: August 20, 2019  
 Direction Photo is Taken: Northwest  
 Spread 2

Photo Description: Location of ROW which is recommended to have an additional 3-inches stripped.

Latitude: 48.22648991  
 Longitude: -102.221671

**Observation Point: 2735**

Date Taken: August 20, 2019  
 Direction Photo is Taken: Northwest  
 Spread 2

Photo Description: Isolated area of mixing & inadequate strip depth.

Latitude: 48.21108211  
 Longitude: -102.676634

**Observation Point: 901**

Date Taken: August 20, 2019  
 Direction Photo is Taken: West  
 Spread 2

Photo Description: Satisfactory reclamation of ROW. Recommend rock picking.

Latitude: 48.28721445  
 Longitude: -103.08848

## Cenex - On-Site Photographs

**Observation Point: 902**

Date Taken: August 20, 2019

Direction Photo is Taken:

Spread 2

Photo Description: Satisfactory reclamation of 8-inches of topsoil on ROW.

Latitude: 48.28722568

Longitude: -103.085961

**Observation Point: 2736**

Date Taken: August 20, 2019

Direction Photo is Taken: East

Spread 1

Photo Description: Satisfactory reclamation of ROW. Recommend rock picking.

Latitude: 48.28898835

Longitude: -103.143126

**Observation Point: 2739**

Date Taken: August 20, 2019

Direction Photo is Taken: North

Spread 1

Photo Description: ROW with tiered topsoil stripping.

Latitude: 48.15338181

Longitude: -103.929637

## Cenex - On-Site Photographs



**Observation Point: 903**

Date Taken: August 20, 2019  
Direction Photo is Taken: West  
Spread 1

Photo Description: Wetland area reclamation seems satisfactory.

Latitude: 48.29936239  
Longitude: -103.183911



**Observation Point: 904**

Date Taken: August 20, 2019  
Direction Photo is Taken: East  
Spread 1

Photo Description: Wetland area reclamation seems satisfactory.

Latitude: 48.29936239  
Longitude: -103.183911



Responsive partner.  
Exceptional outcomes.