

**Basin Electric Pioneer to Judson 345kV Transmission Line**

**Williams County, North Dakota**

***Topsoil Inspection Report***

***Docket Number: PU-23-338***

Prepared for North Dakota Public Service Commission



April 2024

# Topsoil Inspection Report

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Appendix A Photo Log and Observation Maps

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# 1 Executive Summary

The North Dakota Public Service Commission (PSC) retained Meadowlark Environmental, LLC (Meadowlark) to complete topsoil inspection for the construction of the Basin Electric Pioneer to Judson Transmission line in Williams County, North Dakota (ND), constructed by Basin Electric, LLC. The purpose of the inspections is to ensure the project is constructed in compliance with siting laws and rules and the applicable PSC Orders for the project.

The topsoil inspection was conducted on April 4, 2024, by Zach Peterson and Samantha Calkins with Meadowlark Environmental, LLC. The inspection occurred during the start of construction activities to observe the removal of topsoil and segregation from subsoil. Construction began with the excavation for the foundation of Structure 32, located in Section 11, T154N, R103W in Williams County, North Dakota. The structure is located in a relatively flat portion of hayland. Prior to using an auger to drill the hole for the concrete foundation, a small area next to the foundation site was cleared of vegetation and topsoil to be used for staging topsoil and subsoil removed by the auger for the structure foundation. Topsoil from the cleared area and foundation hole were piled on side of the cleared area, and subsoil from the foundation hole was stored on the opposite side with straw waddles placed in between to prevent mixing of the subsoil and topsoil piles. Equipment operators demonstrated the necessary skill for proper topsoil removal and knowledge of topsoil removal and segregation requirements. No major issues were observed. Overall, equipment operators demonstrated the ability to remove topsoil until the color change between topsoil and subsoil appeared and properly segregated topsoil piles from the subsoil. Vegetation removal was consistent with the vegetation mitigation plan.

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## 2 Background and Scope

### 2.1 Introduction

The Pioneer to Judson 345-kV Transmission Line is being constructed by Basin Electric Power Cooperative (Basin Electric). The Project is an approximately 14.6-mile-long electric transmission line that will be built within a 150-foot-wide easement connecting Basin Electric's Pioneer 345-kV Switchyard, located within the Pioneer Generation Station (PGS), to the existing Judson 345-kV Substation. The Project is needed to connect the PGS Phase IV facilities to electrical grid resources, which will fill a need for additional capacity in the region to meet the growing demand and provide an adequate supply of electrical power in the Williston Basin.

Approximately 81 steel structures ranging from 105 to 165 feet tall and utilizing drilled concrete piers for structure foundations will be constructed for the Project. Construction of the Project began on April 4, 2024, and is anticipated to be completed in summer of 2024.

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, Certificate of Corridor Compatibility No. 231, and Route Permit No. 241 on March 5, 2024, for Case No. PU-23-338.

### 2.2 Regulatory Purpose and Need

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) charges the Public Service Commission with determining 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. Inspections during construction ensure that such projects are built 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.

### 2.3 Scope of Work

The North Dakota Public Service Commission retained Meadowlark to perform a topsoil inspection for the Project. Meadowlark's scope of work was to complete and document an on-site inspection during the start of construction to verify that topsoil was being removed and segregated from subsoil in compliance with the siting laws, rules, and applicable Commission Orders. This report contains site visit observations and a summary of findings and issues that should be addressed for the Project.

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## 3 Findings of Site Inspection

### 3.1 Methods

Zach Peterson, Project Manager/Field Inspector and Samantha Calkins, Field Inspector for Meadowlark visited the Project site on April 4, 2024, to conduct the topsoil inspection. Clay Baumeister, Construction Chief for Basin Electric's third-party construction company for the Project accompanied Meadowlark during the inspection. The inspection occurred between 10:00 AM and 12:00 PM. Construction activities for the Project were commencing for the Project at the time of the visit.

Mr. Peterson and Ms. Calkins observed equipment operators removing topsoil along flat grassland to document that operators demonstrated the proper skill and techniques for removing topsoil and segregating the topsoil from any subsoil removed. The ability of operators to identify changes in soil color and characteristics as well as understanding the rules and regulations for topsoil removal were also noted. Photos (iPhone 12) were taken with a GIS overlay and without the overlay at observation points to record the geographic locations of the observation points visited during the inspection.

### 3.2 On-Site Inspection Observations

Mr. Peterson and Ms. Calkins met Mr. Baumeister at the location of Structure 32 where the first foundation was being excavated for the construction of the Project. Structure 32 is located in Section 11, T154N, R103W in Williams County, North Dakota. A skid steer stripped an area directly adjacent to the foundation location of vegetation and topsoil to be used for placing separate piles of topsoil and subsoil removed during the excavation of the foundation. Topsoil depth for the cleared area and foundation location was 6 to 8 inches. An auger was then used to bore a hole to a depth of approximately 20 feet for the concrete foundation, in conjunction with a skid steer that was operated to move and contain the soil that was periodically brought to the surface by the auger. Both equipment operators carefully removed and contained the topsoil and subsoil into separate piles in the cleared area adjacent to the foundation. Additionally, topsoil and subsoil piles were separated by a 22-foot straw wattle.

Both the skid steer and auger equipment operators demonstrated the proper understanding of the rules for topsoil and subsoil removal and how to properly identify the change in soil characteristics between the topsoil and subsoil layers. Multiple passes with the skid steer were used over the same ground to remove the topsoil in increments until the subsoil became visible. This technique adequately removed the topsoil at proper depths across the varying contours of the area being cleared. The auger slowly drilled into the top layer of the soil to a similar depth of topsoil removed from the cleared area was reached. The topsoil from the auger was lifted out of the drilled hole and placed on the cleared area while a spotter confirmed that the auger had drilled to a depth where subsoil began to appear in the excavated hole. Soil removed from the foundation excavation was placed on the cleared area and moved into separate piles of topsoil and subsoil by the skid steer. Topsoil removal was being conducted in compliance with the Commission's Order.

## 4 Issues to Resolve and Recommendations

Topsoil segregation was noted to be acceptable in the areas observed. Equipment operators were reminded to strip soil, where it existed, down to a maximum of 12 inches or to the depth where subsoil appeared. Equipment operators have demonstrated proficiency in topsoil removal and segregation in compliance with the Commission's Order.

Potential Issues	Recommendations
<b>Varying depths of topsoil along Project route.</b>	Equipment operators were made aware that topsoil depth will vary amongst the structure locations and care must be taken to ensure that topsoil is removed in the same manner as the first excavation and kept separated from any subsoil removed during the foundation excavations.

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## 5 Signatures

The services performed by Meadowlark staff for this project have been conducted in a manner consistent with the technical skill and degree of care exercised by professionals currently practicing in this discipline under similar time and budget constraints. Findings and recommendations represent our professional judgement and are based on available information and accepted practices. No warranty is implied or expressed beyond this.



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Zach Peterson, Inspector

04/16/2024

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Date

## Appendices

## Photo Log and Observation Maps



Photo #: 1

Direction: Northeast

Description: Area of stripped topsoil where removed soil from foundation excavation was placed, note the color change showing the subsoil.

Observer: Zach Peterson

Date: 04/04/2024

Latitude: 48.176391

Longitude: -103.905340



Photo #: 2

Direction: North

Description: View showing the pile of topsoil removed from area shown in previous photo.

Observer: Zach Peterson

Date: 04/04/2024

Latitude: 48.176395

Longitude: -103.905341



Photo #: 3

Direction: East

Description: View of the skid steer removing topsoil.

Observer: Zach Peterson

Date: 04/04/2024

Latitude: 48.176395

Longitude: -103.905337



Photo #: 4

Direction: Northeast

Description: View of Auger used to bore 20ft hole.

Observer: Zach Peterson

Date: 04/04/2024

Latitude: 48.176343

Longitude: -103.905307



Photo #: 5

Direction: South

Description: View of Auger boring hole with topsoil (right) and subsoil (left) piles in the foreground.

Observer: Zach Peterson

Date: 04/04/2024

Latitude: 48.176465

Longitude: -103.905344



Photo #: 6

Direction: South

Description: View showing berms of topsoil (right) and subsoil (left) before wattle is placed.

Observer: Zach Peterson

Date: 04/04/2024

Latitude: 48.176542




Longitude: -103.905294

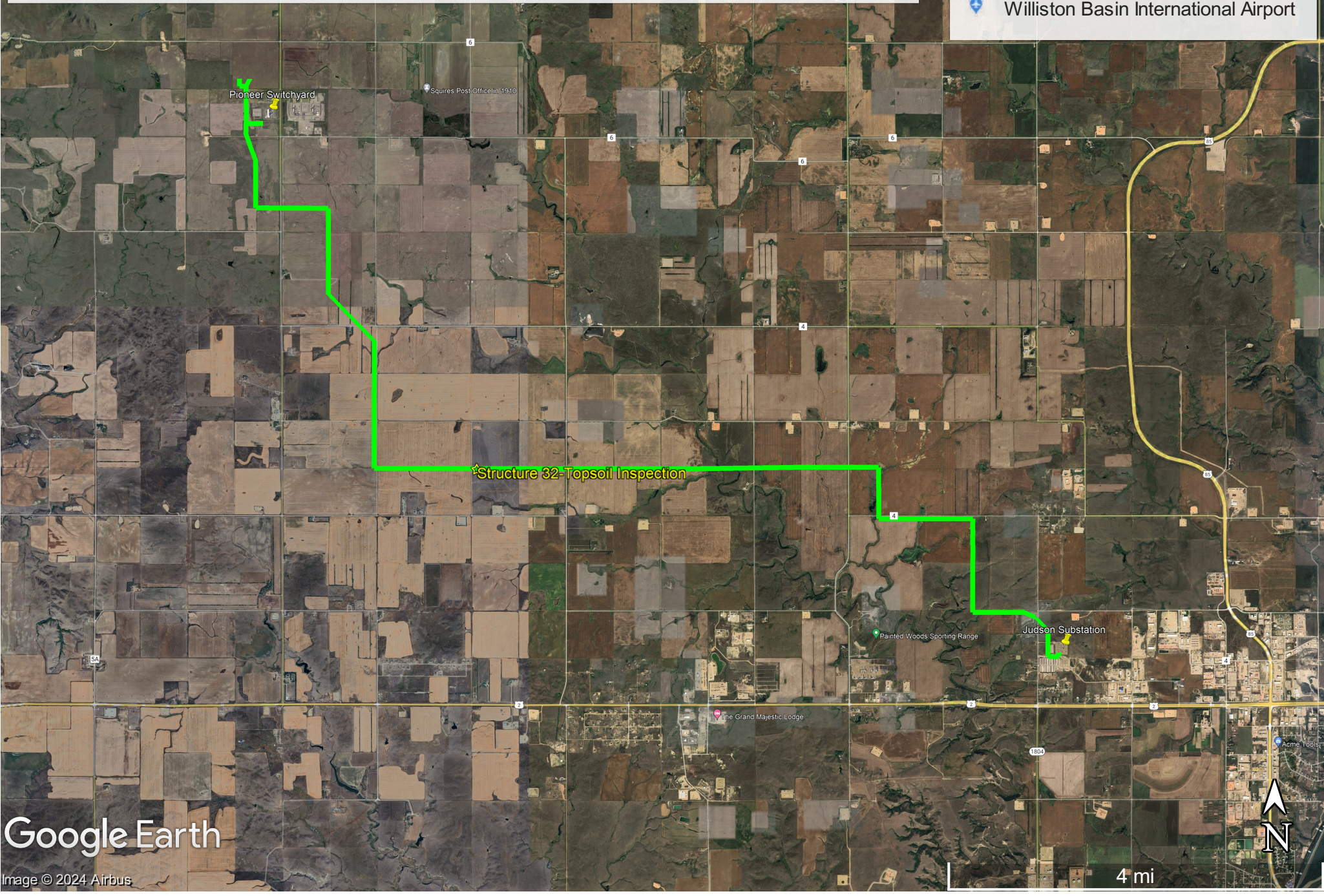
**Project Location Map**

# Basin Electric Pioneer to Judson 345-kV Transmission Line

PU-23-338  
Topsoil Inspection Report Map

## Legend

-  Project Centerline
-  Structure 32-Topsoil Inspection
-  Williston Basin International Airport



Google Earth

Image © 2024 Airbus

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