



**PU-24-351
Offer Tail Power Company
Abercrombie Solar
Topsoil Inspection Report**

File No. 227708967

May 28, 2026

Prepared for:

North Dakota Public Service Commission
600 E. Boulevard Avenue
Bismarck, ND 58505-0480

Prepared by:

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1.0 EXECUTIVE SUMMARY

The North Dakota Public Service Commission (PSC) retained Stantec Consulting Services Inc (Stantec) to complete topsoil inspection(s) during construction of the Otter Tail Power Company's (i.e. Otter Tail) Abercrombie Solar project, PU-24-351 (i.e., the Project, formerly known as "Flickertail Solar") in Abercrombie, North Dakota. The purpose of the inspections is to ensure the Project is constructed in compliance with the siting laws and rules and the applicable PSC Orders for the Project, which includes a requirement that topsoil must be segregated from subsoil during the installation of the project facilities.

Construction involving soil grading for the Project began May 13th, 2026. Stantec was present to observe the commencement of topsoil salvage and stockpiling by Ottertail's contractors Landwehr (Landwehr) Construction and Egan Construction, (Egan). Landwehr is conducting civil work and Egan is in charge of electrical work. Both Landwehr and Egan had a project superintendent present during the inspection and plan to oversee construction and other subcontractors.

This Topsoil Inspection Report includes documentation of topsoil stripping, segregation, and stockpiling during the May 13th, 2026, on-site inspection of the Project. Stantec has observed topsoil removal and stockpiling performed by the Ottertail Contractors. By and large, soil removal and storage processes are satisfactory.



2.0 BACKGROUND INFORMATION

2.1 INTRODUCTION

Otter Tail has begun construction on the Abercrombie Solar project, a proposed 295.1 MW Solar Energy Conversion Facility in Richland County, North Dakota. The approximately 2,659 acre site is located mostly within cultivated fields, and contained within private parcels, with access from County Road 6 and 172nd Ave. SE. The Project is proposed to permanently impact 29.9 acres. These impacts include solar components and their foundations, access roads, collection lines, and the collector substation. Topsoil removed from the area with permanent impacts may be thinly spread in adjacent areas or used to level low-lying (i.e., non-wetland) areas within the Project.

2.2 PURPOSE & SCOPE

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 aim to 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 PSC Findings of Fact, Conclusions of Law, and Order (Order). The PSC issued its Findings of Fact, Conclusions of Law, and Order in Case No. PU-24-351 on June 18th, 2025, granting Certificate of Site Compatibility No. 70.

The PSC retained Stantec to complete construction inspections, and specifically a topsoil inspection, of the Project. The inspection process included a review of the Application, the Project's Order, and other applicable documents. The primary intent of the initial topsoil inspection is to document compliance with PSC's Certificate Relating to Project Order Provision #15, which states: "*Company understands and agrees that topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas, roadways, and locations of associated facilities, must be carefully stripped and segregated from the subsoil. Any area on which excavated subsoil will be placed must first be stripped of topsoil. The stripped topsoil must not be stockpiled in natural drainages, and must be protected from water erosion. Care must be taken to protect topsoil from unnecessary compaction by heavy machinery. Unless otherwise approved by the Commission, topsoil must be removed before topsoil freezes in the late fall/early winter to the point that frost inhibits proper soil segregation. After backfilling with subsoil 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.*"

The project entails development on cropland for the solar facility and topsoil replacement is not expected to occur over the entire project area, as many of the associated infrastructure will remain for the entirety of the solar operation, and beyond the time-frame of the construction inspections.



2.3 REGIONAL SOILS

The entirety of the Project is located in the Red River Valley, also referred to as the Glacial Lake Agassiz Basin. Soils in this region are generally formed from Glacial Lake Agassiz sediment deposits underlain by glacial till. These lacustrine sediment deposits consist of very fine clay particles, with the topography of the region described as extremely flat. This leads to the area having fewer pothole wetlands than surrounding ecoregions, despite the area being very poorly drained and prone to flooding. The majority of the soils present throughout the Project would be classified as mollisols and vertisols characterized by a relatively dark, thick "A" (topsoil) horizon. Some soils may be salt-affected, which have adverse properties from salinity and/or sodicity. Many of the soils in this area are drained via surface ditches and/or subsurface tile.

The main difference between topsoil and subsoil in this region is most often the presence of calcium carbonates, accumulation of salts such as sodium, and a reduction in organic matter. Calcareous subsoils can be visually distinguished by the lighter colors associated with calcium carbonates and/or a reduction in organic matter. Subsoil generally has lower organic matter content than topsoil, making it typically lighter in color. It may also have different chemical and physical properties (i.e., texture) than the topsoil.

Topsoil identification on saline or sodium affected soils (i.e., alkali or sodic soils) is sometimes less apparent solely by color, but topsoil can be distinguished by accumulations of salt, clay and/or associated structure (i.e., columnar clay pans). Salt-affected sodic soils, when tilled or disturbed, are typically hard and cloddy when dry, often coated with a visible salt crust. Accumulation of salts in the subsoil is common and 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 saline/sodic subsoils.

2.4 TOPSOIL STRIPPING AND SEGREGATION BEST PRACTICES

Topsoil has biological, physical and chemical properties that are critical to successful reclamation after soil disturbances, such as site mass grading requires. The surface layer of most soils is considered topsoil primarily due to 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 according to natural variations in the depth of this darker layer of organic-matter-rich soil.

During site preparation and mass grading work, operators are to segregate topsoil and subsoil. Mixing subsoil with the topsoil can be detrimental to the re-vegetation and vegetative productivity of the soil. Soil productivity in this area is driven by the parent material of outwash and microtopography. Some areas have an accumulation of salts or smectitic clay that restrict plant root growth. Equipment operators need to 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.



2.5 INSPECTION METHODOLOGY

Stantec visually inspected the Project by walking or driving within the Project site in the presence of Otter Tail's on-site representative. During the inspection, work done by contractors/equipment operators was observed to verify that the topsoil has been properly removed, piled, and kept segregated from subsoil. An iPhone was used to collect photographs during the inspection with the utilization of Arc GIS's Field Maps application for GPS locating and documentation purposes. Location-referenced photographs are provided in Appendix A and Geographical Information System (GIS) generated map(s) of observation locations are provided in Figures 1.

Stantec shared the PSC order provisions relating to topsoil stripping, segregation, and protection with individuals present during the inspection and provided opportunity for Otter Tail and its contractors to ask questions on expectations for topsoil stripping depths and segregation. Stantec then observed the contractor's topsoil stripping, segregation of stockpiling practices. Visual inspections were made by Stantec at various locations to confirm the proper depths of topsoil stripping were reached and mixing of the underlying subsoils were not being mixed with the topsoil being stripped. Additionally, two borings were observed within the project area crossing 172nd Ave SE. and 173rd Ave SE. These are marked at photo points 9 & 10 and 11 & 12 in Figure 1.



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Inspection Results
May 2026

3.0 INSPECTION RESULTS

Site Grading and topsoil removal began the day of the first inspection on May 13th, 2026, roughly in the north center of the project site. Matt Retka and Jarrett Lardy, both Soil Scientists with Stantec, were present to ensure PSC order provisions were understood and followed.

Work was only taking place in a few locations during Stantec's inspection on May 13th. Only areas East of I-29 had begun construction. This included stripping along a north/south corridor that was along the west side of 172nd Ave. SE., within a proposed laydown area and access road. Stripped topsoil was then pushed to the northeast corner of the site and stockpiled.

Retka and Lardy met with representatives from Otter Tail and Egan upon arrival to the site on the morning of May 13th, 2026, to review PSC topsoil requirements with all involved parties. Mr. Retka stated the requirements set forth in PSC order provision #12 related to topsoil. Stantec also discussed expectations of potential tile repair timelines with Egan, as tile drainage lift pumps were observed within the project area.

In conclusion, contractors appropriately removed and stockpiled initial topsoil stripping. Initial topsoil stripped depths were determined to be in the 12" deep range. Otter Tail's representative noted their diligence at topsoil management for this project, as there are compaction compliance requirements during mass grading operations in order to support the lines, panels, and access roads. The importance of segregation and stockpiling of the topsoil was also at the forefront of the contractor's and owner's attention, as the planned site revegetation will require adequate topsoil to achieve adequate quality. Borings were appropriately completed at the two roadway crossing described.

Stantec had follow-up communications with Otter Tail's representative on May 18th regarding topsoil stockpiling associated with stripping of permanent features (e.g., access roads) and the subsurface tile lines likely to be damaged from future trenching electrical operations. Otter Tail responded that topsoil stockpiling is being worked through with the design team, and potential future damage to tile is addressed in landowner agreements. Stantec also requested GIS files of proposed project components to reference during future inspections and reports.

Stantec has determined that equipment operators have demonstrated competency concerning topsoil and subsoil removal and segregation in compliance with the Commission's Order. Silt fence was installed surrounding the project as well as excluding wetlands on the south end of the project. In communication with the Public Service Commission, Stantec does not anticipate a 2nd topsoil inspection after the remaining trenching activities cease. Topsoil handling and soil erosion will continue to be monitored by Stantec during the subsequent construction inspection(s) and reporting.



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Signature
May 2026

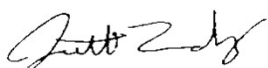
4.0 SIGNATURE

Stantec's Field Inspector, Jarrett Lardy, prepared this report. The report was reviewed by Stantec's Project Manager and North Dakota Professional Soil Classifier, Matt Retka.

The conclusions in this Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from the ND PSC and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the ND PSC in accordance with Stantec's contract with the ND PSC. While the Report may be provided to applicable authorities having jurisdiction and others for whom the ND PSC is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.



Jarrett Lardy
Field Inspector
Soil Scientist

May 22, 2026
Date



Matt Retka
Project Manager
Senior Soil Scientist

May 28, 2026
Date



FIGURES

Figure 1: Topsoil Observation Locations Map

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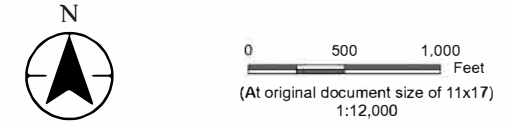
Figure No.
1

Title
Topsoil Observation Locations

Client/Project
North Dakota Public Service Commission
PU-24-351 Flickertail Solar

Project Location
Richland Co., ND

227708967
Prepared by KJM on 2026-05-22



Legend

- TS Topsoil Observation Point Location
- PLSS Sections



Notes

1. Coordinate System: NAD 1983 StatePlane North Dakota South FIPS 3302 Feet
2. Data Sources: Stantec, ND PSC, ESRI, USGS, Georeferenced map provided by Abercrombie Solar LLC and Minnkota Power Cooperative
3. Background: ESRI World Imagery



APPENDIX A

Observation Point Photolog

PU-24-351 (Abercrombie Solar): Observation Point Photolog



Observation Point: 1

Date Taken: May 13, 2026 11:15 AM
Direction Photo is Taken: West

Photo Description: Stripped topsoil for permanent road

Latitude: 46.44616064
Longitude: -96.82048348



Observation Point: 2

Date Taken: May 13, 2026 11:20 AM
Direction Photo is Taken: North

Photo Description: Appropriate segregation of topsoil and subsoil along proposed road

Latitude: 46.4461162
Longitude: -96.82085827

PU-24-351 (Abercrombie Solar): Observation Point Photolog



Observation Point: 3
Date Taken: May 13, 2026 11:26 AM
Direction Photo is Taken: West
Photo Description: Appropriate depth of utility trenched to 4ft below ground level
Latitude: 46.44371255
Longitude: -96.82269343



Observation Point: 4
Date Taken: May 13, 2026 11:29 AM
Direction Photo is Taken:
Photo Description: Minor subsoil mixing from utility borehole location. Discussed with Otter Tail representative to avoid large scale issues like this.
Latitude: 46.44372657
Longitude: -96.82274262

PU-24-351 (Abercrombie Solar): Observation Point Photolog



Observation Point: 5
Date Taken: May 13, 2026 11:35 AM
Direction Photo is Taken: North

Photo Description: Recently installed silt fence near disturbed soils.

Latitude: 46.44377835
Longitude: -96.8206347



Observation Point: 6
Date Taken: May 13, 2026 11:47 AM
Direction Photo is Taken: West

Photo Description: Some topsoil and subsoil mixing at laydown yard. Discussed with Otter Tail rep. Was informed equipment got stuck.

Latitude: 46.42989079
Longitude: -96.82040628



Observation Point: 7
Date Taken: May 13, 2026 11:53 AM
Direction Photo is Taken: West

Photo Description: Appropriately installed silt fence excluding wetland

Latitude: 46.42952597
Longitude: -96.82120698

PU-24-351 (Abercrombie Solar): Observation Point Photolog



Observation Point: 8
Date Taken: May 13, 2026 11:59 AM
Direction Photo is Taken: West

Photo Description: Appropriately bored under 172nd Ave

Latitude: 46.4259622
Longitude: -96.81961345



Observation Point: 9
Date Taken: May 13, 2026 12:00 PM
Direction Photo is Taken: Northeast

Photo Description: Completed Bore location under 172nd Ave. No issues

Latitude: 46.4258647
Longitude: -96.81957081



Observation Point: 10
Date Taken: May 13, 2026 12:07 PM
Direction Photo is Taken: Southwest

Photo Description: Completed Bore location under 173rd Ave. No issues

Latitude: 46.42983307
Longitude: -96.79864721

PU-24-351 (Abercrombie Solar): Observation Point Photolog



Observation Point: 11
Date Taken: May 13, 2026 12:06 PM
Direction Photo is Taken: East

Photo Description: Appropriately bored under 173rd Ave

Latitude: 46.42976975
Longitude: -96.79852815



Observation Point: 12
Date Taken: May 13, 2026 12:21 PM
Direction Photo is Taken: North

Photo Description: Overlooking proposed substation being used for equipment staging. Appropriate silt fence.

Latitude: 46.42758553
Longitude: -96.82598367