

Sacagawea Pipeline Co.

Johnson's Corner Connector
Crude Oil Pipeline Project
Reclamation and Revegetation Inspection Report
PU-15-744

February 14, 2019

Prepared for:

North Dakota Public Service Commission
600 East Boulevard Ave
Bismarck, ND 58505-0480





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Introduction

The North Dakota Public Service Commission retained KLJ to complete a reclamation and revegetation inspection report for Case Number PU-15-744 also known as the Johnson's Corner Connector Crude Oil Pipeline. The project consisted of a 16" crude oil pipeline, constructed by Sacagawea Pipeline, LLC in McKenzie County North Dakota. The purpose of the inspection was to ensure the project was constructed in compliance with the siting laws and rules and the applicable PSC Orders for the Project, and to identify those aspects that required compliance.

Regulatory Purpose and Scope of Work

The North Dakota Energy Conversion and Transmission Facility Act authorizes the State to determine that the location, construction, and operation of energy transmission facilities that will produce minimal adverse effects on the environment and the welfare of citizens of North Dakota. The North Dakota Public Service Commission has contracted KLJ Engineering for inspection services on Case No PU-15-744.

KLJ is to document the reclamation and revegetation of the Project. The process includes inspection of the reclamation of subsoil and topsoil, as well as the seeding, and the status of revegetation.

Methods

Reclamation and revegetation of the project was inspected and documented on June 19, 2018. A drone was utilized to collect aerial photography along the pipeline, highlighting areas of both good revegetation and conformity to surroundings, as well as areas of concern. The equipment used during inspection includes a DJI Phantom 4 integrated GPS and 12-megapixel camera. (Appendix B, Pictures)



Inspection Observations and Findings

During inspection in June of 2018, the vegetation was observed to be well established. In areas of cropland, the pipeline scar was typically visible, but sustaining vegetation like adjacent conditions. In areas of grassland, revegetation was found to be well established, and beginning to blend with surrounding grassland.

Some areas of erosion were observed due to areas of natural drainage that have eroded into adjacent ground. This was typically seen in areas of un-stabilized cropland. There were also multiple pipelines in this area, some being recently installed in corridors adjacent to PU-15-744, which is evident in several photos.

Page 11, Location 5: Pipeline scar somewhat visible in cropland, but vegetation closely matches conditions of adjacent land.

Page 12, Location 7: Reclamation of PU-15-744 on left, more recent pipeline work on the right. Photo shows the status of vegetation completed in previous growing season.

Page 15, Location 14: Example of scar which has become well blended to adjacent conditions

Page 17, Location 17 and 18: Example of scar which has become well blended to adjacent conditions

Page 24, Location 32. Photo shows multiple areas of pipeline work adjacent to PU-15-744. Multiple markers visible in center of photo.

Page 25, Location 33 and 34: Vegetation well blended into surrounding conditions.



Areas of Concern

Page 13, Location 9 and 10: Areas of natural drainage causing erosion both on and off the pipeline corridor.

Page 19, Location 21: Minimal disturbance in grassland. At the bottom of the picture, vegetation is well established, but not as closely matching the surrounding conditions.

Recommendations for Resolution

Based on our observations, we found that the vegetation has been well established throughout the project. The erosion shown in locations 9 and 10 is likely due to concentrated drainage from adjacent areas. Monitoring of these areas in the spring could be beneficial to compare to adjacent farmland, but feel no further action is required at this time.

Determination of Reclamation

We feel that the revegetation has been established throughout the project as well as practical, with minimal impacts to the surrounding environments. Erosion observed in some areas of the project are as expected in farmland that does not contain established plants.



Signatures

The services performed by KLJ 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 judgement 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.

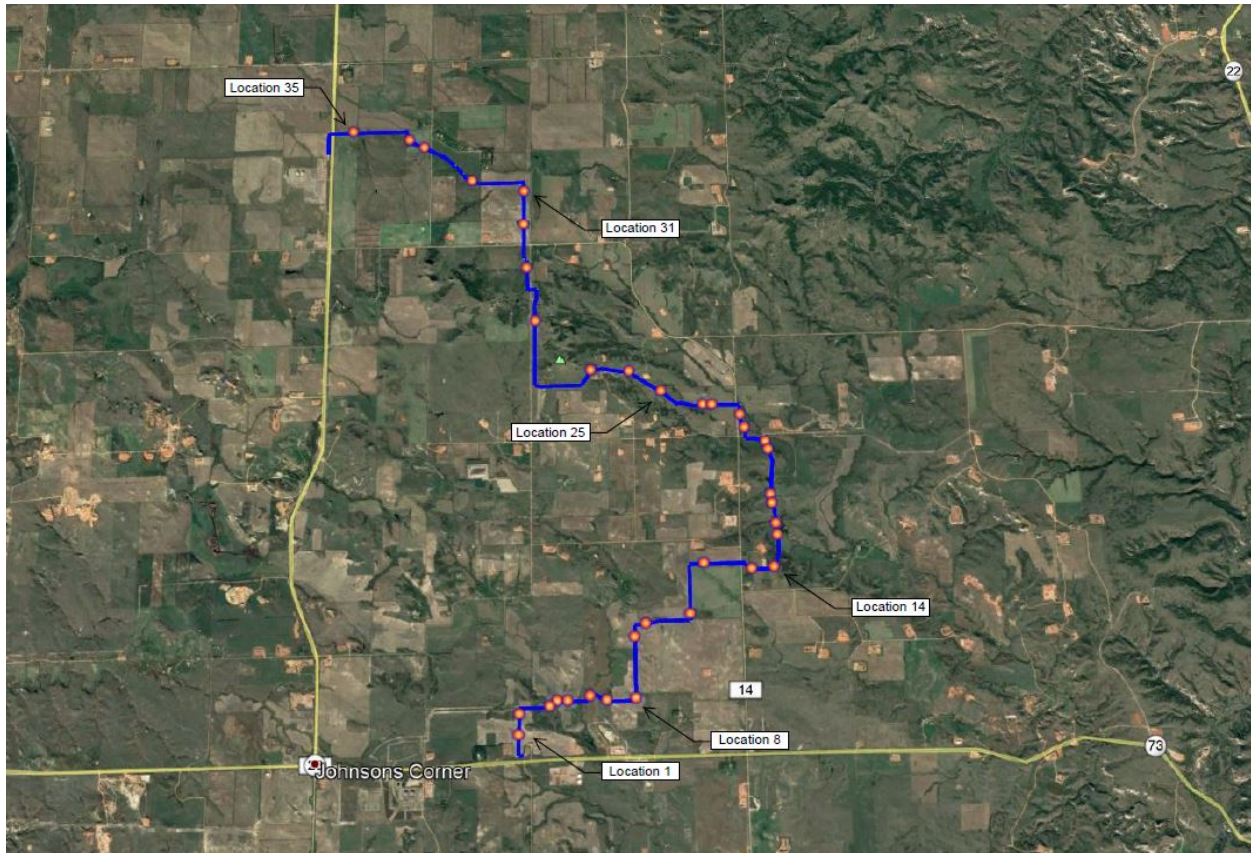
Lead Project Manager, Paul Lee

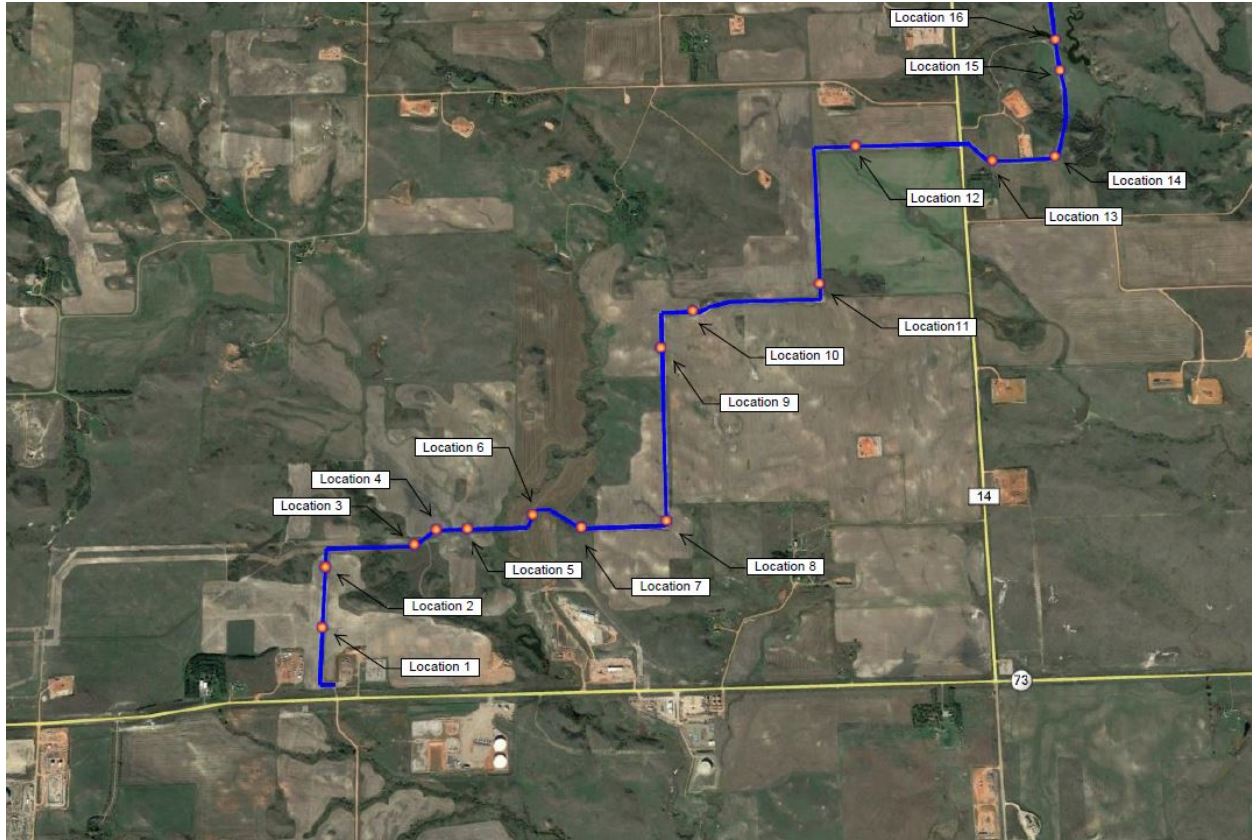
Paul Lee, PLS, Project Manager

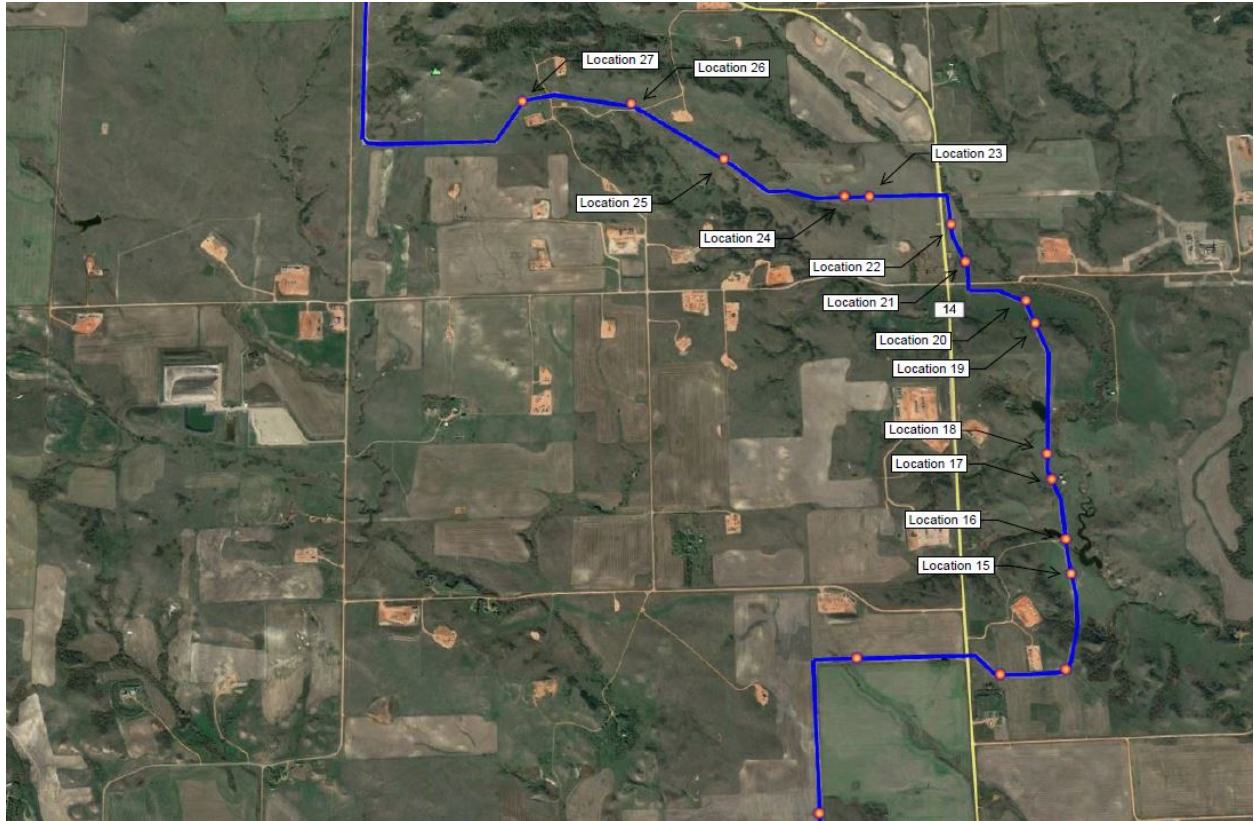
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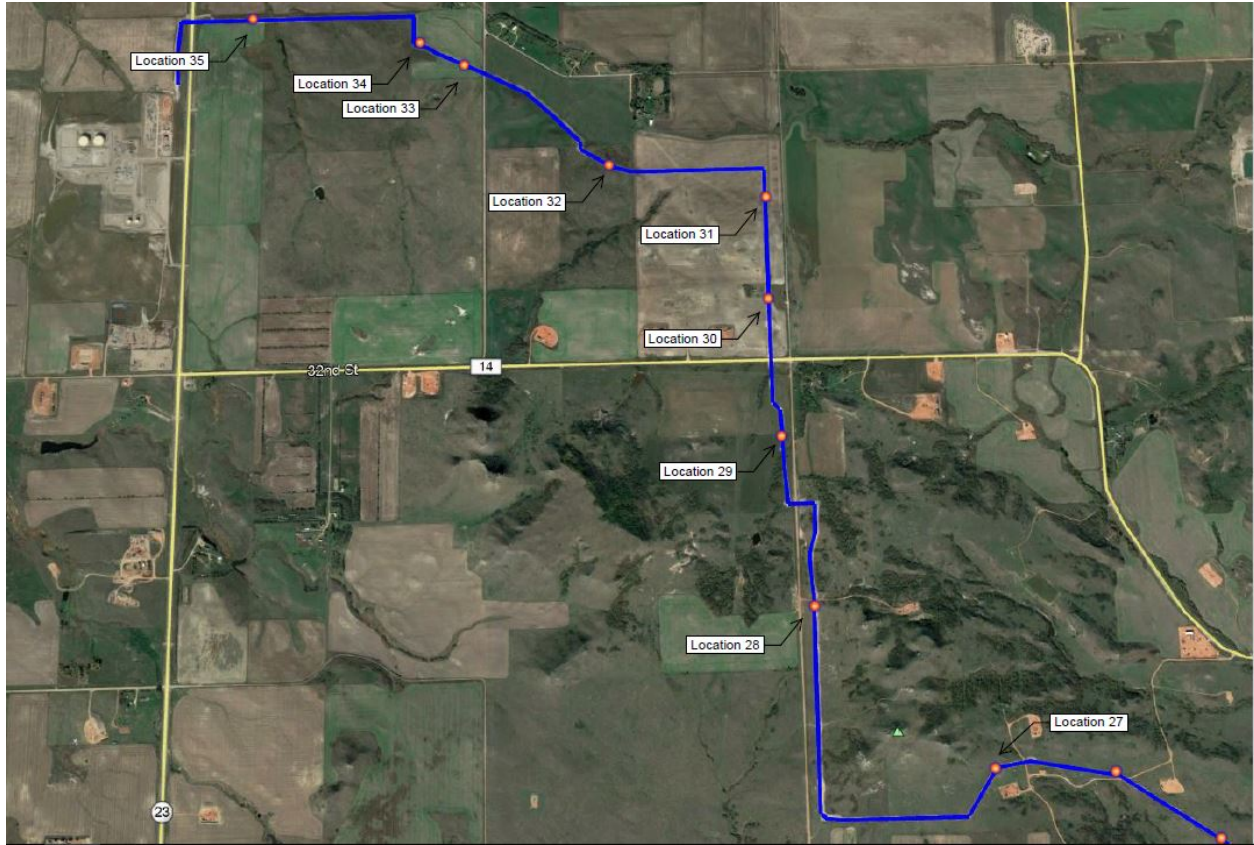


Appendix A: Map of Project and Observation Points











Appendix B: Photographs



Location 1, Looking North (47.807301, -102.901184)

Minimal disturbance. Erosion observed to be typical in farmland before plants are established.



Location 2, Looking North (47.810032, -102.901039)

Erosion observed to be typical in farmland before plants are established.



Location 3, Looking Northeast (47.810955, -102.894943)
Well vegetated, blending in with adjacent surroundings



Location 4, Looking West (47.811611, -102.893448)



Location 5, Looking West (47.811615, -102.891319)
Well vegetated, beginning to blend into existing conditions



Location 6, Looking Northeast (47.812176, -102.886841)
Minimal disturbance visible in cropland



Location 7, Looking East (47.811546, -102.883499)
Multiple pipeline scars in this location. Beginning to blend well into surrounding conditions



Location 8, Looking North (47.811737, -102.87764)



Location 9, Looking North (47.819866, -102.877708)
Scar visible from recent/adjacent work on a different pipeline



Location 10, Looking East (47.821632, -102.875366)



Location 11, Looking North (47.822784, -102.866325)
Scar becoming well blended into existing conditions



Location 12, Looking East (47.829647, -102.863251)
Minimal disturbance visible in cropland



Location 13, Looking East (47.828724, -102.85347)



Location 14, Looking Northeast (47.828869, -102.848923)
Well blended to surrounding conditions



Location 15, Looking North (47.833252, -102.848045)
Scar well blended into existing conditions



Location 16, Looking North (47.834862, -102.848213)
Well blended into adjacent grasslands



Location 17, Looking North (47.8377, -102.848877)
Well blended into native grassland



Location 18, Looking North (47.838921, -102.849091)
Well blended into existing grassland



Location 19, Looking Northwest (47.845276, -102.84922)



Location 20, Looking West (47.846405, -102.84977)
Minimal disturbance in cropland



Location 21, Looking North (47.848446, -102.853958)
Minimal disturbance in cropland



Location 22, Looking North (47.850338, -102.854813)



Location 23, Looking East (47.851868, -102.860634)



Location 24, Looking West (47.851913, -102.862465)
Minimal disturbance in cropland



Location 25, Looking Northwest (47.854008, -102.871193)
Scar visible from adjacent work



Location 26, Looking West (47.85701, -102.877846)



Location 27, Looking Southwest (47.857288, -102.88588)
Multiple pipelines in this area.



Location 28, Looking North (47.864723, -102.897507)



Location 29, Looking North (47.872643, -102.899307)



Location 30, Looking South (47.87928, -102.899864)
Scar becoming well blended in cropland



Location 31 Looking North (47.884327, -102.899765)
Pipeline turns to the West in the center of photo



Location 32, Looking Northwest (47.886139, -102.911003)
Multiple pipelines in this area. Recent work assumed to be from a different pipeline



Location 33, Looking Northwest (47.891479, -102.921448)
Minimal disturbance in cropland



Location 34 (47.892708, -102.92469)
Minimal disturbance in cropland



Location 35, Looking West (47.894169, -102.936989)
Minimal disturbance in cropland



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