

Technical Memo



Responsive partner.
Exceptional outcomes.

To: Patrick Fahn, North Dakota Public Service Commission

From: Samantha Swanberg, Wenck Associates, Inc.

Copy: Kevin Magstadt, P.E., Wenck Associates, Inc.

Date: August 16, 2016

Subject: PU-14-840 Dore Crude Oil Loop Pipeline Project – Re-vegetation Inspection Report

Re-vegetation Inspection Report

Site Visit: July 27, 2016

Dore Crude Oil Loop Pipeline Project – PSC Case No. PU-14-840

In attendance:

- Myles Fisher – Land and ROW – Kinder Morgan, Inc.
- Samantha Swanberg – Environmental Scientist – Wenck Associates, Inc.

The Dore Crude Oil Loop Pipeline (Project) connects the Dore Junction to Hiland's Dore Terminal in McKenzie County, North Dakota. The Project was constructed and operated by Hiland Crude, L.L.C., a Kinder Morgan, Inc. owned company. The Project includes a 12-inch diameter underground pipeline with a total length of approximately 13 miles. At the time of inspection, the right-of-way (ROW) seeding was completed. The seeding was finished in July 2015 with some areas reseeded in the spring of 2016. All areas along the ROW had vegetation growing. There were some areas with weeds in the ROW, along with one area that would not have made the 70% revegetation goal. The sparsely vegetated area had between 40-60% vegetation. It had grasses and a small amount of weeds growing throughout, very few noxious weeds, along with sandy soils. Weeds can be expected after one growing season with pipeline disturbances. Overall, re-vegetation appears to be doing well for year one and moving in the right direction. Continual maintenance of the ROW will need to be done to help control the spread of weeds in some areas.

Some of the observed areas of interest include (see attached pictures and map):

- Pipeline ROW crosses irrigation canal (bored) and then goes through crop field (Photo #1, Point #2);
- Photo taken near road looking at road ditch and wheat field. Weeds (Canada thistle) observed throughout the road ditch (Photo #2, Point #3);
- Wheat field shows small undulation (center of photo) in the wheat where the pipeline ROW is located; did not appear to be any noticeable amount of soil subsidence (Photo #3, Point #3);

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- ROW goes through field. Trees in distance were bored under. There are still some differences in the vegetation in the field as a result of the pipeline disturbance (Photo #4, Point #4);
- Pipeline scar is still visible in rangeland. Grasses with some weeds growing throughout the ROW (Photo #5, Point #6);
- ROW crosses through crop field (Photo #6, Point #6);
- Pipeline ROW with pipeline markers, showing vegetation along a hilly area. Notice the light colored erosion control blanket on the hill in the background. Area was seeded in the fall of 2015 and the spring of 2016 and mowed in summer 2016 (Photo #7, Point #7);
- Zoomed in view from above photo. Light colored area is an erosion control blanket on the hillslopes in the background. Area was seeded in the fall of 2015 and spring of 2016 and mowed in summer of 2016. (Photo #8, Point #7);
- Grasses and some weeds growing, very few noxious weeds, along with some bare ground visible in pipeline ROW, likely 40-60% vegetation cover in this area. This is a grassland area and is not being grazed. Area was seeded in the fall of 2015 and re-seeded spring of 2016. Area was mowed in summer of 2016. Area has sandy soils (Photo #9, Point #8);
- ROW through alfalfa field. Vegetation looks very good (Photo #10, Point #9).

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

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

Date

Samantha Swanberg, Environmental Scientist

Date

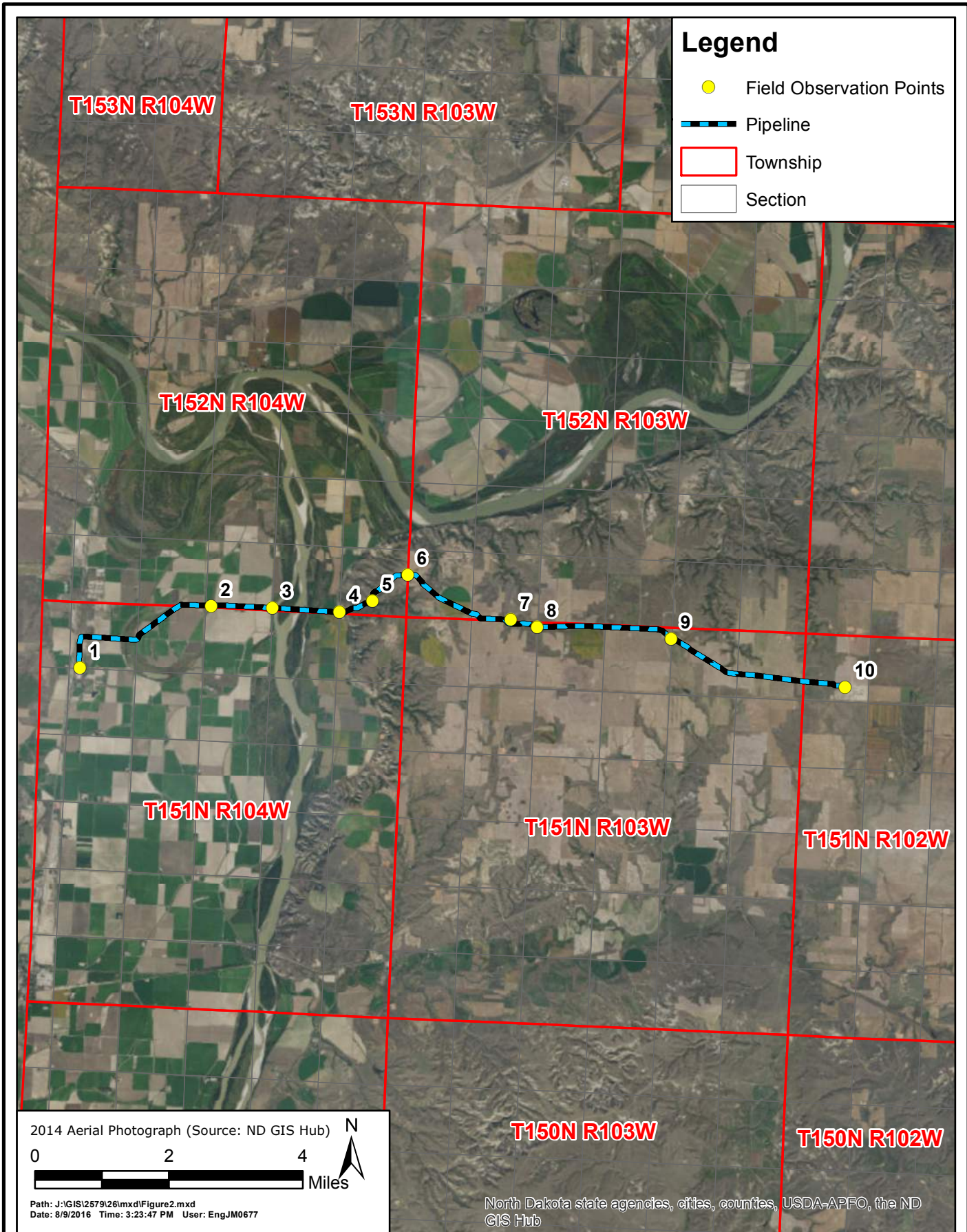
Enclosed

Attachment 1: Figure 1 – Inspection GPS Waypoints

Attachment 2: Photo Log with Notes

Attachment 1

Figure 1 – Inspection GPS Waypoints



Attachment 2

Photo Log with Notes



Photo 1. (GPS Point #2) – Pipeline ROW crosses irrigation canal (bored) and then goes through crop field. Direction looking east.



Photo 2. (GPS Point #3) – Photo taken near road looking at road ditch and wheat field. Weeds (Canada thistle) observed throughout the road ditch. Direction looking west.



Photo 3. (GPS Point #3) – Wheat field shows small undulation (center of photo) in the wheat where the pipeline ROW is located; did not appear to be any noticeable amount of soil subsidence. Direction looking west.



Photo 4. (GPS Point #4) – ROW goes through field. Trees in distance were bored under. There are still some differences in the vegetation in the field as a result of the pipeline disturbance. Direction looking west.



Photo 5. (GPS Point #6) – Pipeline scar is still visible in rangeland. Grasses with some weeds growing throughout the ROW. Direction looking west.



Photo 6. (GPS Point #6) – ROW crosses through crop field. Direction looking east.



Photo 7. (GPS Point #7) - Pipeline ROW with pipeline markers, showing vegetation along a hilly area. Notice the light colored erosion control blanket on the hill in the background. Area was seeded in the fall of 2015 and the spring of 2016 and mowed in summer 2016. Direction looking southeast.



Photo 8. (GPS Point #7) - Zoomed in view from above photo. Light colored area is an erosion control blanket on the hillslopes in the background. Area was seeded in the fall of 2015 and spring of 2016 and mowed in summer of 2016.



Photo 9. (GPS Point #8) – Grasses and some weeds growing, very few noxious weeds, along with some bare ground visible in pipeline ROW, likely 40-60% vegetation cover in this area. This is a grassland area and is not being grazed. Area was seeded in the fall of 2015 and re-seeded spring of 2016. Area was mowed in summer of 2016. Area has sandy soils. Direction looking west.



Photo 10. (GPS Point #9) – ROW through alfalfa field. Pipeline scar is barely visible, vegetation looks very good. Direction looking east.