

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

Savage Bakken Connector, Inc.
10-Inch Crude Oil Pipeline – McKenzie County
Savage Bakken Petroleum Hub Connector

Short Elliott Hendrickson Inc.
CONSTRUCTION INSPECTION REPORT

Report Includes:

- 1) Executive Summary
- 2) Construction Inspection Report
- 3) Map Locations of Photographs Taken
- 4) Location-Referenced Photographs



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EXECUTIVE SUMMARY

Date: 04/13/2017

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline

An inspection of the Savage Bakken 10" Crude Oil Pipeline route was conducted during the mid point of construction activities. This construction inspection was conducted to determine the condition of topsoil removal, topsoil and subsoil storage conditions, erosion control items and evidence of soil transposition, and pipeline installation and coverage depths. The attached inspection report gives details of items and stationing/descriptions of associated pictures taken.

- Topsoil removal and storage followed methods described in SEH report "Topsoil Removal Inspection Report" filed on 4/12/2017. Throughout project, topsoil was stored in windrows LT of pipeline centerline, with approximately 10-15 feet of existing vegetative ground cover between the farthest toe of topsoil windrow and easement boundary. Subsoils removed were stored on the RT of pipeline centerline between STA 4+30 - STA 34+00.
- Subsoils and topsoil were windrowed next to each other LT of pipeline centerline between STA 34+00 - STA 46+25, with 0-3 ft spacing between toe of each windrow.
- Existing gravel surfacing and subsoils stockpiled LT of centerline between STA 46+25 - STA 77+30. Effort was given to keep gravel surfacing segregated from subsoils.
- No earthwork (topsoil stripping or trenching) had taken place between STA 77+30 - STA 83+75.
- Topsoil stripped and stockpiled LT of pipeline centerline between STA 87+28 - STA 103+50. No subsoil work had been performed between this stationing at time of inspection.
- No topsoil stripping had taken place between STA 103+50 - STA 108+00. This area was Cleared & Grubbed, and appeared to have had recent standing water. Savage and ProPipe foremen were notified this area must have topsoil stripped prior to any further work (see inspection report 'Contractor Correspondence' section for more details).
- Pipeline trench was excavated to approximately 4 ft - 5 ft in depth. Portion of pipeline that was backfilled was covered with 2 ft - 3 ft of subsoil and compacted, with remaining 2 ft backfill to yet be placed. Once topsoil is placed, total cover depth will be between 58" - 70". This meets the requirements in CFR Title 49 Section 195.248 and the "Certification Relating to Order Provisions - Transmission Facility Siting" subpart 11 for cover depth.
- Overall construction site was observed to be in order, with minimal existing soil disruption for planned pipeline. Construction equipment stayed within topsoil stripped areas, and erosion control fiber rolls were installed at crossings of roadside ditches to minimize soil transposition from site. No erosion of topsoil or subsoils was observed.

Identified Issues (non-threatening of compliance):
STA 46+25 LT - end 5 feet of topsoil windrow was covered by subsoil. This resulted in a minute amount of topsoil mixing and is insignificant to amount of topsoil stockpiled for area.
STA 103+50 - STA 108+00 - No topsoil stripped and current construction mats in place. Savage and ProPipe foremen made aware that this area needs topsoil stripped prior to trenching for pipeline or construction of pump pad with gravel surfacing over centerline of pipeline. See attached Inspection Report for further observations of area and correspondence.


Inspector's Signature



INSPECTOR'S DIARY

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline		Contractor: Savage Bakken Connector	
Date: 04/13/2016	Day: Thursday		Subcontractor: ProPipe
Weather: sunny, wind SE @ 12-19mph		Temp: 60 F	Inspector: Matthew Schaible
Work Activities: * 10" Crude oil pipeline trenching, pipe laying and backfilling - This work consisted of trenching, topsoil and subsoil storage, and laying pipe in excavated trench and backfilling approximately 2 ft - 3 ft of subsoil at this time. Final backfill depth to be achieved once Savage installs private fiber optic line over backfilled pipe, at which time topsoil be placed over work area.			
Labor Force: Savage: 1-Project Manager ProPipe: 1-Foreman, 4-Operators, 2-Laborers			
Contractor Correspondence: * Once site inspection along pipeline route was completed, it was identified that a section of proposed pipeline had no topsoil stripped although Clearing & Grubbing had taken place, and would need stripped prior to trenching. This section was between STA 103+64 - STA 108+00. Matt Schaible talked with ProPipe foreman Red and informed him that topsoil in this area will need stripped to comply with governing rules and specifications for excavated subsoils in pipeline easement. Red said they were unsure if the area needed topsoil stripped and kept segregated due to the lowlands having been Cleared & Grubbed and sitting water was in area till recently. Red said it was planned for a graded pump pad with gravel surfacing to be constructed withing the pipeline easement area, and this was the reason ProPipe was unsure if the topsoil needed removed prior to trenching and pad construction. Matt informed Red that the topsoil would still need stripped and stored in a segregated manner to comply with siting laws and regulations. Red said it would be stripped prior to any subsoil construction taking place.			
Other Remarks: * Tyler Newman of Savage Services was made aware of the need for topsoil stripping between STA 103+64 - STA 108+00 prior to any construction of earthen pad with graveling services. Tyler said topsoil would be stripped and kept segregated from subsoils along with an area to the NE that will be a soil borrow site. Topsoil that is not spread over the area the pad is being constructed will be used over other areas of the pipeline.			

Inspector's Signature



INSPECTOR'S DIARY

Date: 04/13/2016

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline Contractor or Sub: ProPipe

Work Performed & Location:

Topsoil storage was observed along pipeline route, utilizing windrow storage methods LT of pipeline centerline near easement boundaries. Topsoil removal methods followed procedures documented in SEH "Topsoil Removal Inspection Report" filed on 4/12/2017. Following are specific area inspections and findings:

- * Between STA 4+30 - STA 8+90, topsoil was stockpiled LT of centerline and subsoil from trench excavation was stockpiled RT of centerline (see pictures #1 & 2). Topsoil was kept segregated and no erosion or transposition of soils were observed.
- * 12" Fiber Rolls were placed at end of construction activities near STA 4+30, and at ditch flowline along main entrance roadway to rail facility near STA 14+50 LT.
- * Between STA 14+76 - STA 28+06, topsoil was stockpiled in windrows on the LT of centerline and subsoils from trench excavation were stockpiled on RT. (see pictures #3-6).
- * At STA 34+50, topsoil removal depth was checked. It was observed that removal depth measured approximately 10"-12". (See picture #15).
- * Between STA 34+00 - STA 41+20, topsoil and subsoils windrow stockpiles were stored on the LT of centerline. Windrows were kept segregated with toe of each stockpile being separated by 1ft-3ft. (See photo #16). No transposition of soil from windrows observed.
- * Between STA 41+20 - STA 46+25, the toe of topsoil and subsoil were touching in areas, but no mixture of soil types was evident per color and soil type. (See picture # 17 & 18).
- * At STA 46+25, it was observed that topsoil windrow end was covered by subsoil and was not segregated. This was at the end of a topsoil windrow due to pipeline trenching continuing on through Savage gravel surfaced stockyard. Approximately 5ft of topsoil had been covered by subsoils. (See pictures #19-20).
- * Between STA 46+25 - STA 73+06 no topsoil was removed or stockpiled due to existing surfacing being composed of gravel and sand. This area was existing stockyard and rail storage facility. An effort was made by contractor to keep gravel surfacing separated from subsoils. (See pictures #21-26).
- * Between STA 77+30 - STA 83+78, no topsoil removal or trenching had taken place. Existing surfacing was mixture of sand and gravel with clay. Minimal vegetation. (See pictures #27-28). 12" Fiber Roles were in place at ditch flowline along 149th Ave NW.

CONTRACTOR EQUIPMENT:

ProPipe: 1 - Backhoe Loader, 4 - Excavators, 3 - Dozers, 1 - Smooth Drum Roller, 1 - Pipelayer with sidebooms

Inspector's Signature



INSPECTOR'S DIARY

Date: 04/13/2016

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline | Contractor or Sub: ProPipe

Work Performed & Location:

* Between STA 87+28 - STA 103+50, topsoil was stockpiled LT of pipe centerline. No trenching had taken place and no subsoils had been stockpiled at this time. (See pictures #30-31).

* At STA 87+50, a topsoil removal depth check was performed. The average removal depth was measured to be 12". (See picture # 32).

* Between STA 101+00 - STA 103+50, topsoil removal depth appeared to be between 10"-12", and remaining soil appeared to be continual topsoil. This could be due to the lowlands and presence of vegetative cover and wetlands. (See pictures #33-34).

* Between STA 103+64 - STA 108+00 no topsoil had been stripped. This area was Clear & Grubbed, and construction mats had been placed between STA 103+90 - STA 107+64. Construction mats had pushed into native soils. (See pictures #35-40). Matt Schaible consulted with ProPipe and Savage personnel regarding this site (see Contractor Correspondence section on pg 1).

10" Crude Oil Pipeline Installation was taking place, utilizing pipe laying equipment and excavators to backfill pipeline.

* Trenching operations into subsoils were excavated to depths ranging between 4 ft - 5 ft from top of subsoil. Trenching operations were complete between STA 4+30 - STA 77+30. (See pictures #2 & #13).

* Laid pipeline was being covered with approximately 2 ft - 3 ft of subsoil, and compacted by excavator. This cover left approximately 2 ft of open trench to top of subsoils. This was done due to Savage having a private fiber optic line installed over pipeline. Once fiber optic line is installed, remaining 2 ft of subsoil to be placed and compacted for a total of 48" - 60" of subsoil cover over pipeline (not including topsoil depth). (See pictures #5 & #12). Pipeline was backfilled to these depths between STA 4+30 - STA 8+00, STA 40+90 - STA 33+00, and STA 73+50 - STA 75+25.

* Depth of trench and pipe installation was checked at STA 8+20, STA 15+25, STA 26+00, and STA 33+00. Remaining pipeline was resting on blocks at bottom of trench between STA 33+00 - STA 77+10. (see pictures #22, 25, 27, & 31).

CONTRACTOR EQUIPMENT:

ProPipe: 1 - Backhoe Loader, 4 - Excavators, 2 - Dozers, 1 - Smooth Drum Roller, 1 - Pipelayer with sidebooms

Inspector's Signature



INSPECTOR'S DIARY

Date: 04/13/2016

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline	Contractor or Sub: ProPipe
Photo Description:	
Photo Number:	Description/Location:
(AH=Ahead Stationing, BK=Back Stationing)	
#1 - STA 4+30 AH, topsoil storage and subsoil storage	
#2 - STA 9+00 BK, pipeline backfill and trench depth	
#3 - STA 17+00, topsoil storage near easement	
#4 - STA 14+76 AH, trenching and removed topsoil area	
#5 - STA 18+00 AH, backfilled pipeline with remaining 2 ft of trench.	
#7 - STA 28+00 BK, existing and removed topsoil	
#9 - STA 28+00 RT AH, subsoil replacement	
#10 - STA 28+00 LT AH, continued topsoil windrow w/subsoil on RT of centerline	
#11 - STA 28+00 LT AH, no evident topsoil sediment deposition from windrow	
#12 - STA 32+00 AH, backfilled pipeline compacted with remaining 2 ft of trench	
#13 - STA 34+00 BK, pipeline	
#14 - STA 34+00 AH, topsoil and subsoil windrow LT	
#15 - STA 34+50 AH, Depth Check RT	
#16 - STA 35+25 BK, topsoil and subsoil windrows LT	
#17 - STA 41+40 AH, touching windrows	
#18 - STA 41+40 AH, touching windrows	
#19 - STA 46+25 BK, covered end of topsoil windrow (5' covered)	
#20 - STA 46+25 AH, covered end of topsoil windrow	
#21 - STA 46+40 AH, no topsoil removal, exist. gravel surface	
#22 - STA 46+45 AH, trenching depth with pipeline on blocks, subsoil storage LT	
#23 - STA 59+60 BK, rail stockyard	
#24 - STA 60+00 AH, rail stockyard	
#25 - STA 73+00 BK, stockyard trenching depth 5 ft, no topsoil	
#26 - STA 73+00 BK, rail stockyard trenching	
#27 - STA 77+30 AH, no topsoil removed currently prior to bore under highway	
#28 - STA 83+76 BK, unstripped topsoil area next to highway	
#29 - STA 83+78 AH, bore under highway	
*See attached map with location of each photo, and attached pages of photo's	

Inspector's Signature



INSPECTOR'S DIARY

Date: 04/13/2017

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline		Contractor or Sub: ProPipe	
Photo Description:			
Photo Number:		Description/Location:	
#30 - STA 94+15 BK, topsoil windrow storage			
#31 - STA 94+15 AH, topsoil windrow storage and pipeline blocking			
#32 - STA 87+50 RT, topsoil removal depth check			
#33 - STA 102+00 BK, topsoil storage			
#34 - STA 103+00 BK, topsoil removal depth showing vegetation still present			
#35 - STA 103+64 AH, Clearing & Grubing area/construction mats			
#36 - STA 103+80 AH, construction mats over topsoil			
#37 - STA 105+00 AH, pipeline centerline with no topsoil removed			
#38 - STA 105+00 AH, non-stripped topsoil, construction mats, pipeline			
#39 - STA 105+50 AH, Clearing & Grubing area (topsoil not removed)			
#40 - STA 104+00 AH, overview of non-stripped topsoil area			
*See attached map with location of each photo, and attached pages of photo's			
*(AH=Ahead Stationing, BK=Back Stationing)			

Inspector's Signature

143rd Avenue

Picture #7,9-111

Picture #3

Picture #4-5

Picture #2

Picture #1

Picture #12

Picture #21-22

Picture #19

Picture #17-18

Picture #15

Picture #13-14

Depth Check Symbol

Picture Symbol

42nd St NW

42nd St NW

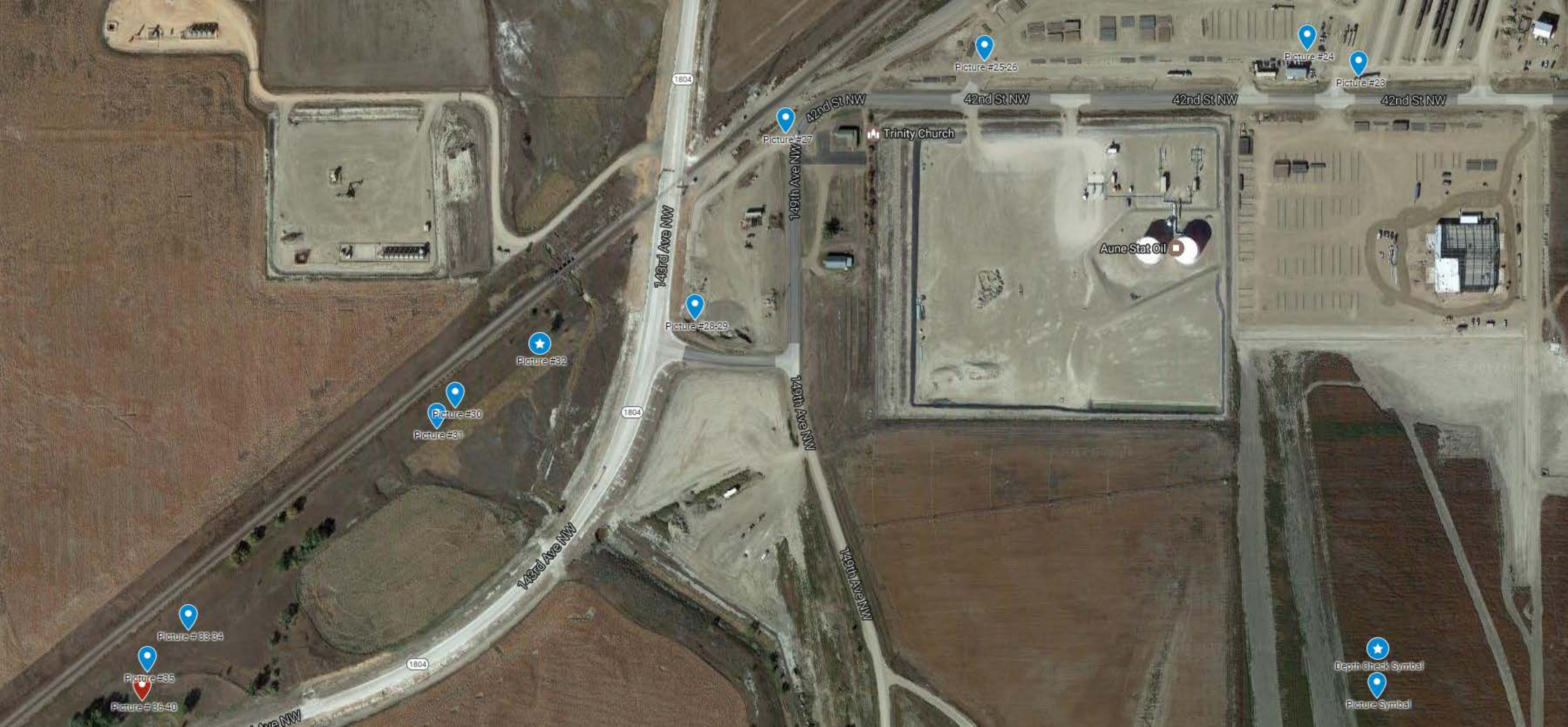
42nd St NW

42nd St NW

42nd St NW

42nd St NW

42nd St NW



Picture #25-26

Picture #24

Picture #23

Trinity Church

Aune Stat Oil

Picture #27

Picture #28-29

Picture #32

Picture #30

Picture #31

Picture #33-34

Picture #35

Picture #36-40

Depth Check Symbol

Picture Symbol

#1



#4



#2



#5



#3



#7



#9



#10



#14



#11



#15



#12



#16



#13



#18



#17



#21



#19



#22



#20



#23



#24



#27



#25



#28



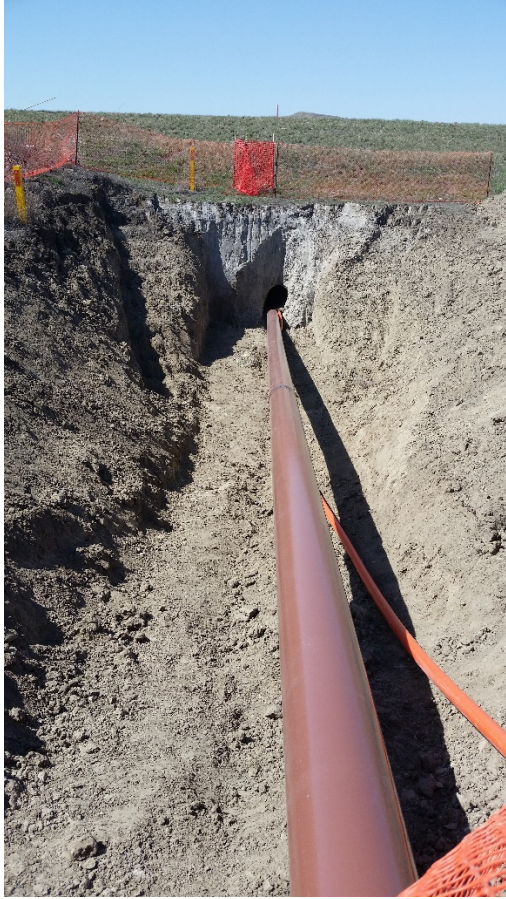
#26



#30



#29



#33



#34



#31



#32



#35



#36



#39



#37



#40



#38

