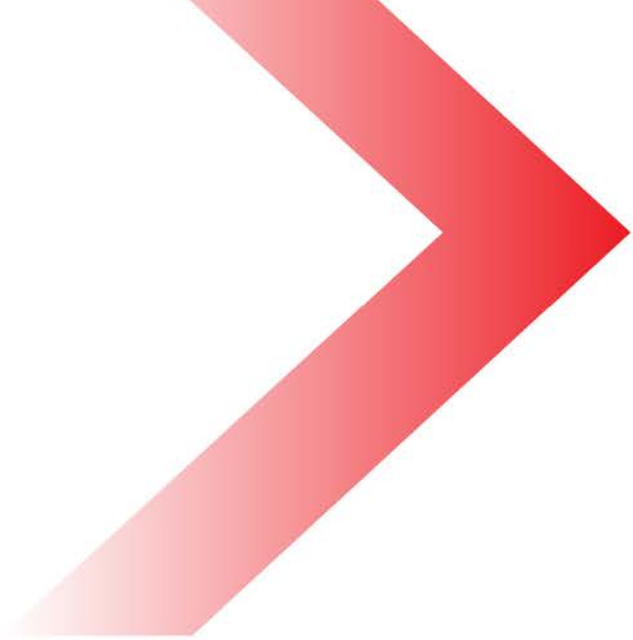




ENGINEERING, REIMAGINED



# PU-16-140 TOPSOIL INSPECTION

Plains Terminal 24-Inch Crude Oil Pipeline – McKenzie Co.  
Johnson's Corner to Dakota Access Pipeline

*August 22, 2017*

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## Executive Summary

The North Dakota Public Service Commission retained KLJ to complete a Topsoil inspection report for Case Number PU-16-140, also known as the Johnsons Corner to Dakota Access Pipeline. The Plains Terminals Project consisted of a 24-Inch crude oil pipeline, of approximately 3.5 miles in length 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.

Construction was monitored to insure the Certificate of Corridor Compatibility and Route Permit was followed. This included verification of work locations, width of right-of-way, topsoil stripping depth, segregation of topsoil, and erosion and sediment control. Two on-site inspections were performed and documented during the topsoil removal phase. Prior to beginning earthwork, the ROW was cleared/mowed in order to assist in stripping. In the areas observed, all distinguishable amounts of topsoil (4-12 inches typical) was being cleared and placed at the edge of the ROW or in alternative locations on the project if necessary. Per discussion with contractor, some topsoil stockpiles were kept clear of low areas, where heavy drainage would be likely to cause issues with erosion along the stockpiles. Silt fence was installed in these locations to prevent erosion outside of the work area. This resolution is documented in pictures 6 and 10.

On August 4<sup>th</sup>, 2017 Paul Lee visited the worksite for approximately 5 hours. During inspection, the work activities include mowing within the ROW and topsoil stripping. Depth of topsoil varied but was observed to typically be in the range of 4" to 5" with low areas containing up to 12". Procedures of topsoil removal and stockpile were discussed while on site in order to determine the best places to stockpile. Efforts were made to reduce the risk of erosion or pooling of water due to the pile locations.

A second visit to the site took place on August 8<sup>th</sup>. Paul Lee spoke with Joe Pease to discuss some areas of thin or mixed topsoil where other pipeline installations had previously taken place. The contractor agreed to salvage whatever topsoil they could distinguish in these locations.

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## 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



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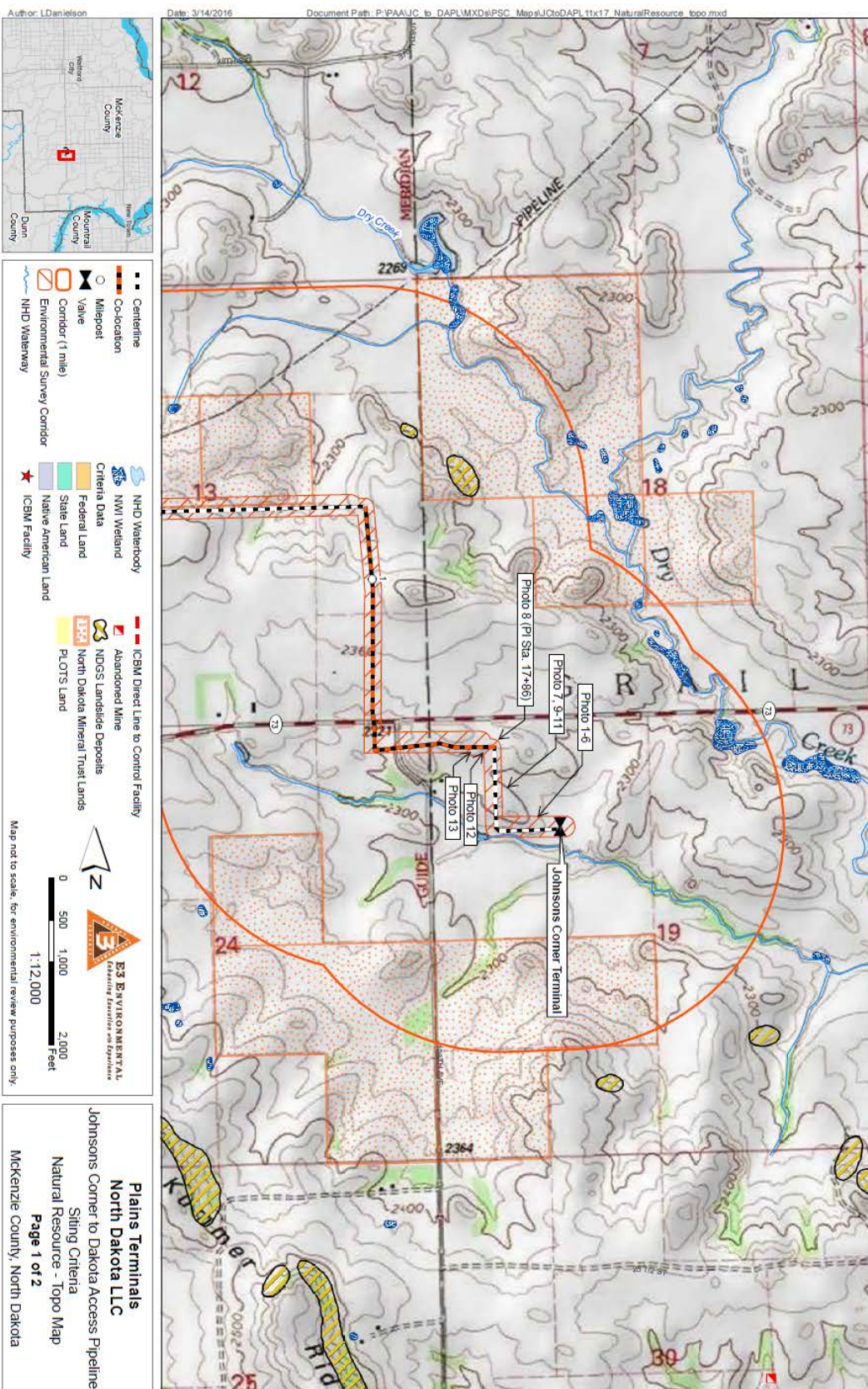
Paul Lee, PLS, Project Manager

3/20/2019

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Date

Maps





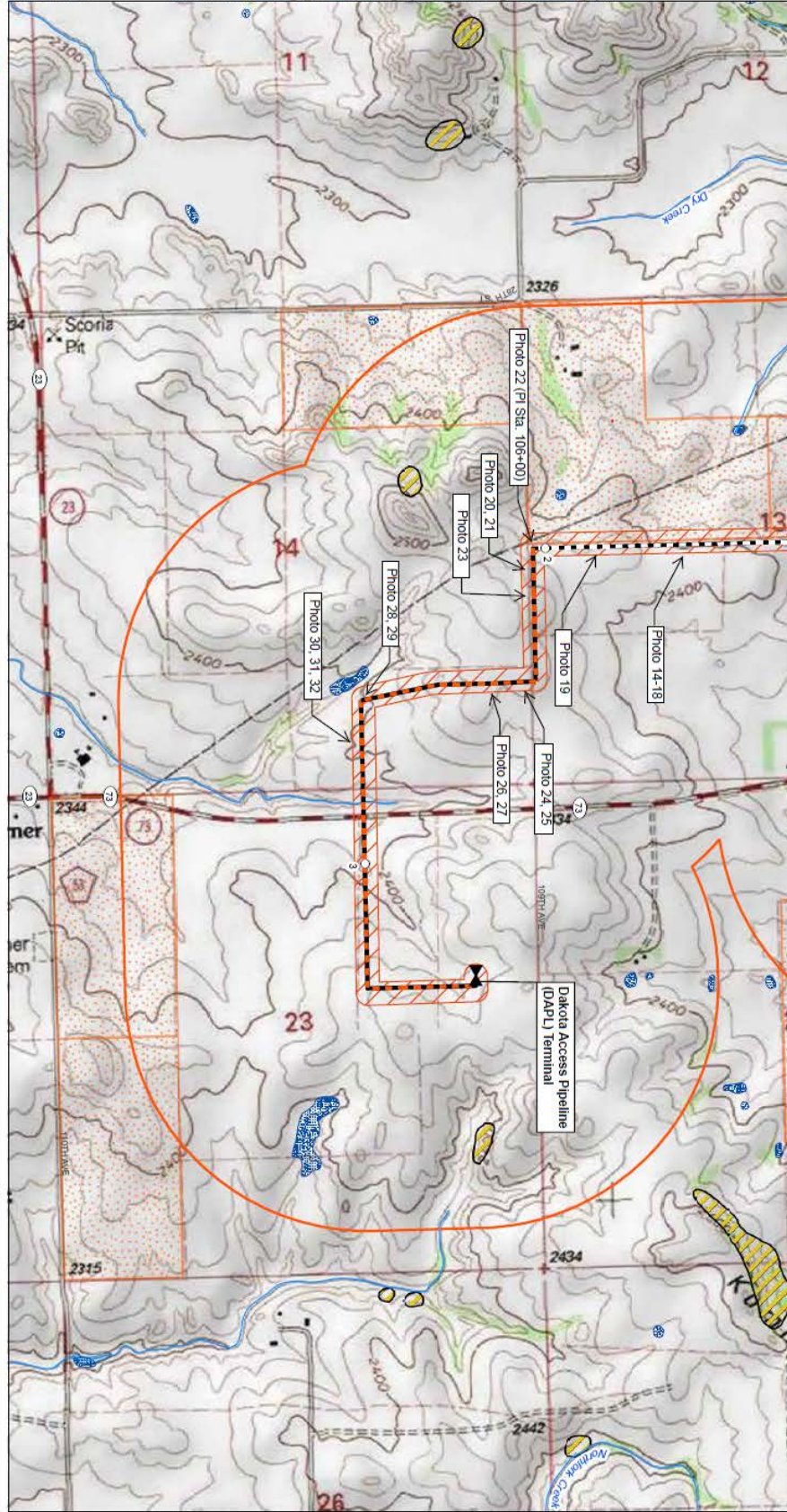
**Legend**

- Centerline
- Co-location
- Midpost
- Valve
- Corridor (1 mile)
- Environmental Survey Corridor
- NHD Waterway
- NHD Waterbody
- NWMI Wetland
- Criteria Data
- Federal Land
- State Land
- Native American Land
- ICBM Direct Line to Control Facility
- Abandoned Mine
- NDGS Landslide Deposits
- North Dakota Mineral Trust Lands
- PLOTS Land
- ICBM Facility

**E3 ENVIRONMENTAL**  
Engineering, Assessment and Operations

Map not to scale, for environmental review purposes only.

0 500 1,000 2,000 Feet  
1:12,000



**Plains Terminals**  
North Dakota LLC  
Johnson's Corner to Dakota Access Pipeline  
Siting Criteria  
Natural Resource - Topo Map  
Page 2 of 2  
McKenzie County, North Dakota

*Photographs August 4, 2017*



*Photo 1: Sta. 3+00 looking east to start of project at 0+00*



*Photo 2: Sta. 3+00 looking west*



*Photo 3: Sta. 3+00 showing 8 inches topsoil removal*



*Photo 4: Sta. 4+00 looking west*



*Photo 5: Sta. 4+00 showing top soil removal depth*



*Photo 6: Sta. 5+50 looking west showing top soil pile along drainage area.  
See photo 10 on August 8 showing replacement of topsoil stockpile with silt fence.*



*Photo 7: Sta. 13+00 looking south showing stripping operation and equipment*




*Photo 8: Sta. 17+86 point of intersection angle Lt. 88°46'00"*



*Photo 9: Sta. 12+00 looking north showing an old road under the stripping of limited top soil*

*Daily Construction Progress Report August 4, 2017*

Daily Construction Progress Report				
	<b>Client:</b>	N. Dak. Public Service Commission	<b>Report Number:</b>	1
	<b>Project:</b>	PU-16-140 Plains JC-DAPL Pipeline	<b>Date:</b>	8/4/2017
	<b>KL&amp;J Project Number:</b>	1216124	<b>Pages:</b>	1 and 2
Project Contact Information				
Title	Name	Company	Office Phone	Cell Phone
Client Contact		ND Public Service Commission	701-328-4188	N/A
KLJ Project Manager	Paul Lee	KLJ	701-250-3501	701-351-5551
Field Inspector				
Construction Manager	Joe Pease	QCS		580-677-1227
Contractor Project Manager	Erik Anthony	Plains		307-472-9907
Daily Construction Conditions				
<b>Weather Conditions:</b>	clear windy 12MPH			
<b>Temp (High/Low):</b>	77/45			
<b>Tailgate Meeting (Yes/No):</b>				
Daily Construction Activity				
Construction Activity	Footage Installed Today	Total % To-Date	Comments/Description	
ROW Clearing	14,200	0	this area was mowed when I was on site, mowing continued	
Topsoil Removal	1,700	0	ongoing this area was completed during inspection	
Level/Grade ROW	NA	0		
HDD Boring	NA	0		
Ditch	NA	0		
Pipe Hauling/Stringing	NA	0		
Bending	NA	0		
Pipe Lower/Pull-in	NA	0		
Backfill/Compaction	NA	0		
Welding	NA	0		
Coating	NA	0		
Clean Up	NA	0		
Topsoil Replace/Final Grade	NA	0		
Final Reclamation & Reseeding	NA	0		
Installed Quantities				
Material	Quantity Installed Today	Total Quantity To-Date	Comments/Description	
Mainline Block Valve Setting	NA	NA		
Pig Launcher	NA	NA		
Pig Receiver	NA	NA		
Fence Crossings	NA	NA		
Gates in Fence	NA	NA		
Silt Fence	NA	NA		
Waddles	NA	NA		
Erosion Blankets	NA	NA		
Straw Bales	NA	NA		
Sand Bag Trench Breakers	NA	NA		
Swamp Mats	NA	NA		
Trench Breakers	NA	NA		



*Photographs August 8, 2017*



*Photo 10: Sta. 7+00 looking west at the channel with topsoil removed to safe location and silt fence installed as previously committed to on site.*



*Photo 11: Sta. 14+00, 7 inches topsoil removed.*



*Photo 12: Sta. 19+00 looking east, pipe being delivered.*



*Photo 13: Station 22+00*



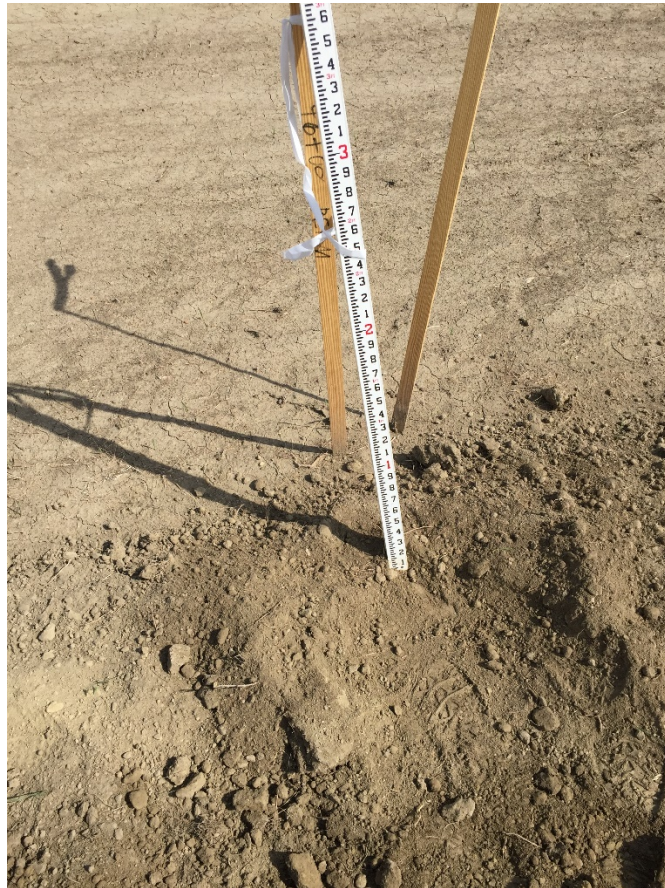
*Photo 14: Sta. 92+00 showing back side of topsoil pile along R/W.  
The previous pipe installation is visible to the north or left with no vegetation.*



*Photo 15: Sta. 92+00 looking east.*



*Photo 16: Sta. 92+00 looking west*



*Photo 17: Sta. 92+00 showing 4-5 inches top soil removal.  
Notice soil is same from previous pipe installation on the left, outside of R/W.*



*Photo 18: Sta. 92+00 showing 4-5 inches topsoil removal.  
Notice soil is same from previous pipe installation on the left outside of R/W.*



*Photo 19: Facing west, Sta. 100+00. Area to right is previously installed pipeline. Area on the left side is the current project.*



*Photo 20: Sta. 108+00, 8-10 inches of topsoil.*



*Photo 21: Sta. 108+00, 8-10 inches of topsoil.*



*Photo 22: Angle pt. Sta. 106+00.*



*Photo 23: Sta. 113+00 area to be bored.*



*Photo 24: Sta. 126+00 8-9 inches topsoil.*



*Photo 25: Sta. 128+00 pipe staged, preparing to weld.*



Photo 26: Sta. 130+00 looking west.

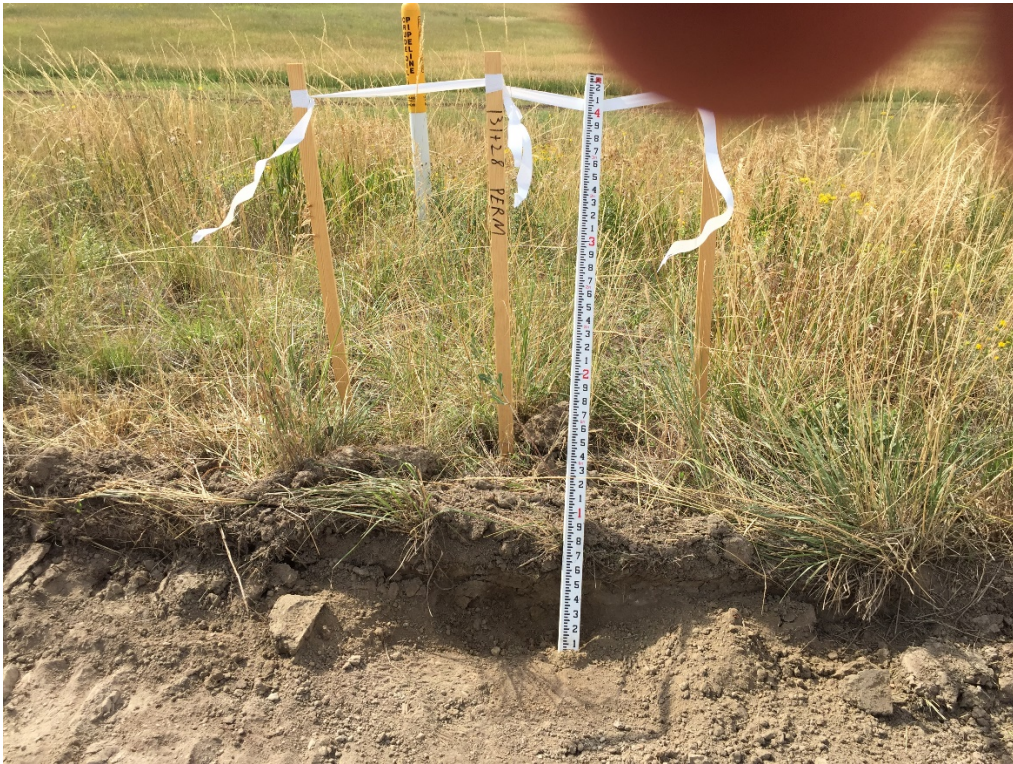


Photo 27: Sta.131+28 8-9 inches of topsoil.



Photo 28: Sta. 142+00 Looking west.

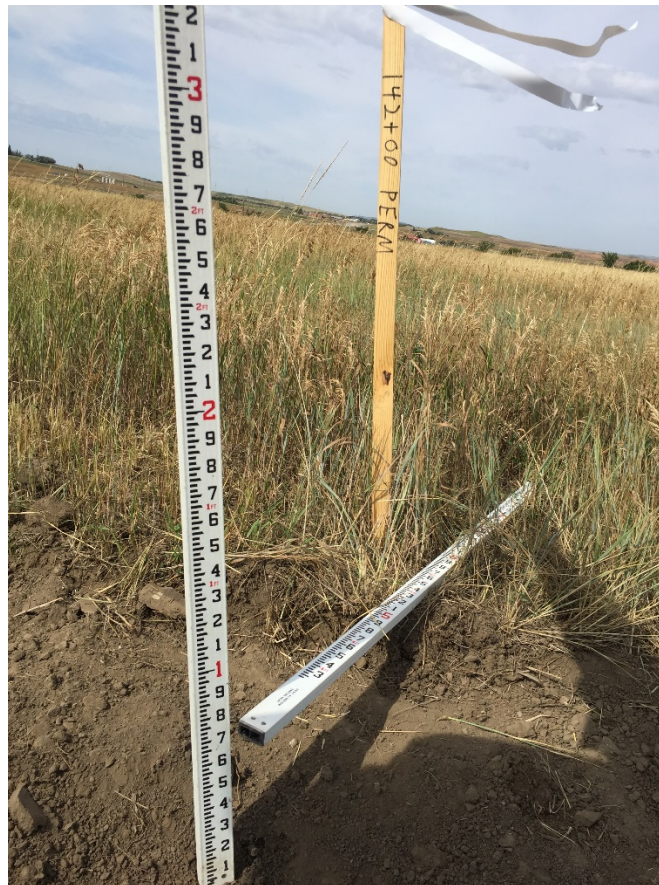
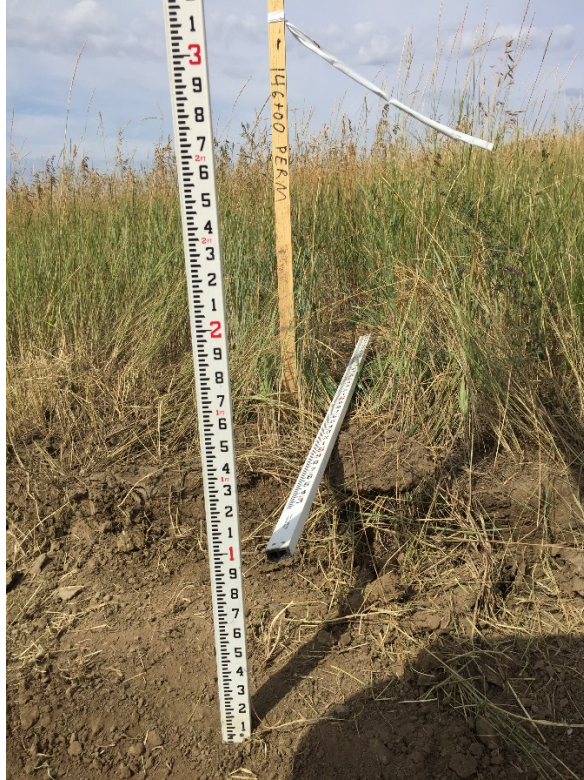


Photo 29: Sta. 142+00 7-8 inches of topsoil.



*Photo 30: Sta. 146+00 9-10 inches of topsoil.*




*Photo 31: Sta. 146+00 looking north.*



*Photo 32: Sta. 147+00 looking south.*

*Daily Construction Progress Report August 8, 2017*

Daily Construction Progress Report				
	<b>Client:</b>	N. Dak. Public Service Commission	<b>Report Number:</b>	2
	<b>Project:</b>	PU-16-140 Plains JC-DAPL Pipeline	<b>Date:</b>	8/8/2017
	<b>KL&amp;J Project Number:</b>	1216124	<b>Pages:</b>	1 and 2
Project Contact Information				
Title	Name	Company	Office Phone	Cell Phone
Client Contact	0	ND Public Service Commission	701-328-4188	N/A
KLJ Project Manager	Paul Lee	KLJ	701-250-3501	701-351-5551
Field Inspector				
Chief Field Inspector	Joe Pease	QCS		580-677-1227
Contractor Field Foreman	Erik Anthony	Plains		307-472-9907
Daily Construction Conditions				
<b>Weather Conditions:</b>	Clear and windy 20mph+			
<b>Temp (High/Low):</b>	86/72			
<b>Tailgate Meeting (Yes/No):</b>				
Daily Construction Activity				
Construction Activity	Footage Installed Today	Total Footage To-Date	Comments/Description	
ROW Clearing	0	all	Project mowing complete	
Topsoil Removal	0	14,600	0+00 to 146+00	
Level/Grade ROW	NA	NA		
HDD Boring	NA	NA		
Ditch	NA	NA		
Extra Depth Ditch	NA	NA		
Non-Native Bedding/Padding	NA	NA		
Pipe Lower/Pull-in	NA	NA		
Backfill/Compaction	NA	NA		
Topsoil Replacement	NA	NA		
Final Grade ROW	NA	NA		
Final Reclamation & Reseeding	NA	NA		
Installed Quantities				
Material	Quantity Installed Today	Total Quantity To-Date	Comments/Description	
HDPE Fittings	NA	NA		
Pig Launcher	NA	NA		
Pig Receiver	NA	NA		
Mainline Block Valve Setting	NA	NA		
Fence Crossings	NA	NA		
Gates in Fence	NA	NA		
Silt Fence	NA	NA		
Waddles	NA	NA		
Erosion Blankets	NA	NA		
Straw Bales	NA	NA		
Sand Bags	NA	NA		
Swamp Mats	NA	NA		
Trench Breakers	NA	NA		
Rock Shield	NA	NA		

Photos (See previous page 1)	
Photo 10, Sta. 7+00 looking west at the channel with topsoil removed to safe location and silt fence installed as previously committed to on site.	
Photo 11, Sta. 14+00 7 inches topsoil removed. Photo 12, Sta. 19+00 looking west pipe being delivered. Photo 13, Sta. 22+00 looking west.	
Photo 14, Sta. 92+00 showing back side of tops of top soil pile along R/W the previous pipe installation is to the north or left with no vegetation.	
Photo 15, Sta. 92+00 looking east. Photo 16, Sta. 92+00 looking west. Photo 17, 18, Sta. 92+00 showing 4-5 inch top soil removal. Notice soil is same from previous pipe installation on the left out side of R/W. Photo 19, facing west Sta. 100+00 area to right is previously installed pipe line left side is R/W.	
Photo 20, 21 Sta. 108+00 8-10 inch. Topsoil. Photo 22, Angle pt. Sta. 106+00. Photo 23, Sta. 113+00 area to be bored. Photo 24, Sta. 126+00 8-9 inches top soil.	
Photo 25, Sta. 128+00 Pipe delivered preparing to weld. Photo 26, Sta. 130+00 looking west. Photo 27, Sta.131+28 8-9 inch. Topsoil. Photo 28, Sta. 142+00 Looking West.	
Photo 29, Sta. 142+00 7-8inch topsoil. Photo 30, Sta. 146+00 9-10 inch topsoil. Photo 31, Sta. 146+00 looking North. Photo 32, Sta. 147+00 looking south.	
Sub Contractors On-Site	
Disposition/Comments:	
I arrived on site at 9:00 AM, I stopped at the stripping operation and visited with Joe Pease (QCS) we reviewed several areas of ongoing stripping/topsoil removal.	
one area was the hill at 95+00 the top soil was very thin and this area has 2 other pipelines previously installed in the corridor the contractor monitored the soil change stripping at least the top 4-6 inches in this area as a hill top was light on topsoil. I also review the channel at 6+00 they have cleaned up the top soil and installed the silt fence as we previously discussed with Joe Pease and Chad Tucker (Carlson McCain) Photo 11. I reviewed the remainder of the project area and stripping opporation.	
the contractor is using two dozers to strip with one man watching for containment with in the R/W. Joe Pease told me that they are starting to line up welders and the pipe has started to be delivered to the project site and placed along the alinement. They are still waiting for boring permits from the NDDOT to cross the state roads in two locations.	
Inspectors Name:	Paul Lee
Date: 8/8/2017	
Inspectors Time (hrs.):	4.5 hours on site