

PSC Case No. PU-17-48

Arrow Field Services LLC

10" Residue Gas and 8" Natural Gas Liquid Pipelines - McKenzie County

Topsoil Removal Inspection Field Notes - 8/28/2017

Bartlett & West (BW) conducted a top-soil removal inspection of the Arrow Field Services 10" Residue Gas and 8" Natural Gas Liquid Pipelines (Case No. PU-17-48) on August 28, 2017. BW inspector Dan Christenson met with Arrow Field Services Lead Project Inspector, Mr. Fred Licking. Permits and records were reviewed, construction progress was discussed, and a construction inspection was conducted.

Actual construction work commenced on Friday August 25th, 2017. The type of work completed thus far includes survey staking, topsoil removal, construction matting, tree removal, and potholing. The pipeline right of way has survey stakes placed for pipeline alignment and topsoil/ subgrade removal operations. The top soil is being stripped and stockpiled within the pipeline right of way limits. The depth of topsoil being stripped was measured at various locations and the depth measured was consistently (\pm) 12 inches. Sub-grade excavation and erosion control is planned to begin once top soil stripping operations are completed. As of Monday afternoon August 28th, a half mile of top soil had been stripped from County Road 37 to 20th Street NW (see attached Figure location map). Arrow Field Services Lead Project Inspector Mr. Fred Licking estimated that top soil stripping for the 2.6 mile pipeline right of way would be completed by the following week. BW Inspector reminded Mr. Licking that the topsoil needs to be kept segregated from the sub-grade once excavation of sub-grade begins and until replacement occurs. The top soil stripped thus far is being piled on the west side of the right of way which generally has a higher elevation and will minimize the effects of erosion on the top soil stockpiles. Per the Public Service Commission Order for the project, the topsoil is not being stockpiled in natural drainages and is protected from compaction by heavy machinery. Construction matting has been placed across wetland WET1 as indicated in Section 14.2 of the Certificate of Corridor Compatibility and Route Permit Application. Mr. Licking indicated that five (5) trees were removed from the pipeline right of way on the south side of 20th Street NW. Per the Tree and Shrub Mitigation Specification for the project, ten 2-year-old saplings must be

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planted to replace those removed thus far. Arrow Field Services is placing rubber tires across existing roads when tracked equipment crosses to prevent damage.

Mr. Licking indicated that Arrow Field Services has received all necessary permits required to construct the pipeline project. At this point it appears that the site is being constructed in compliance with the siting laws and rules, and the PSC Order for the project. The pages following include photographs taken during the top soil removal inspection and a location map.



James Landenberger, Project Manager



Dan Christenson, Project Inspector



Figure 1. View from northern edge of wetland WET1, looking north. Topsoil removed to County Road 37.



Figure 2. View looking north at WET1. Construction matting across WET1, topsoil on right side of image will remain in place since this segment is to be directionally drilled.



Figure 3. View from pipeline right of way looking north towards WET1.



Figure 4. View from pipeline right of way looking south. Topsoil stockpiled along western edge of right of way.



Figure 5. View from pipeline right of way looking north. Topsoil stockpiled along western edge of right of way.

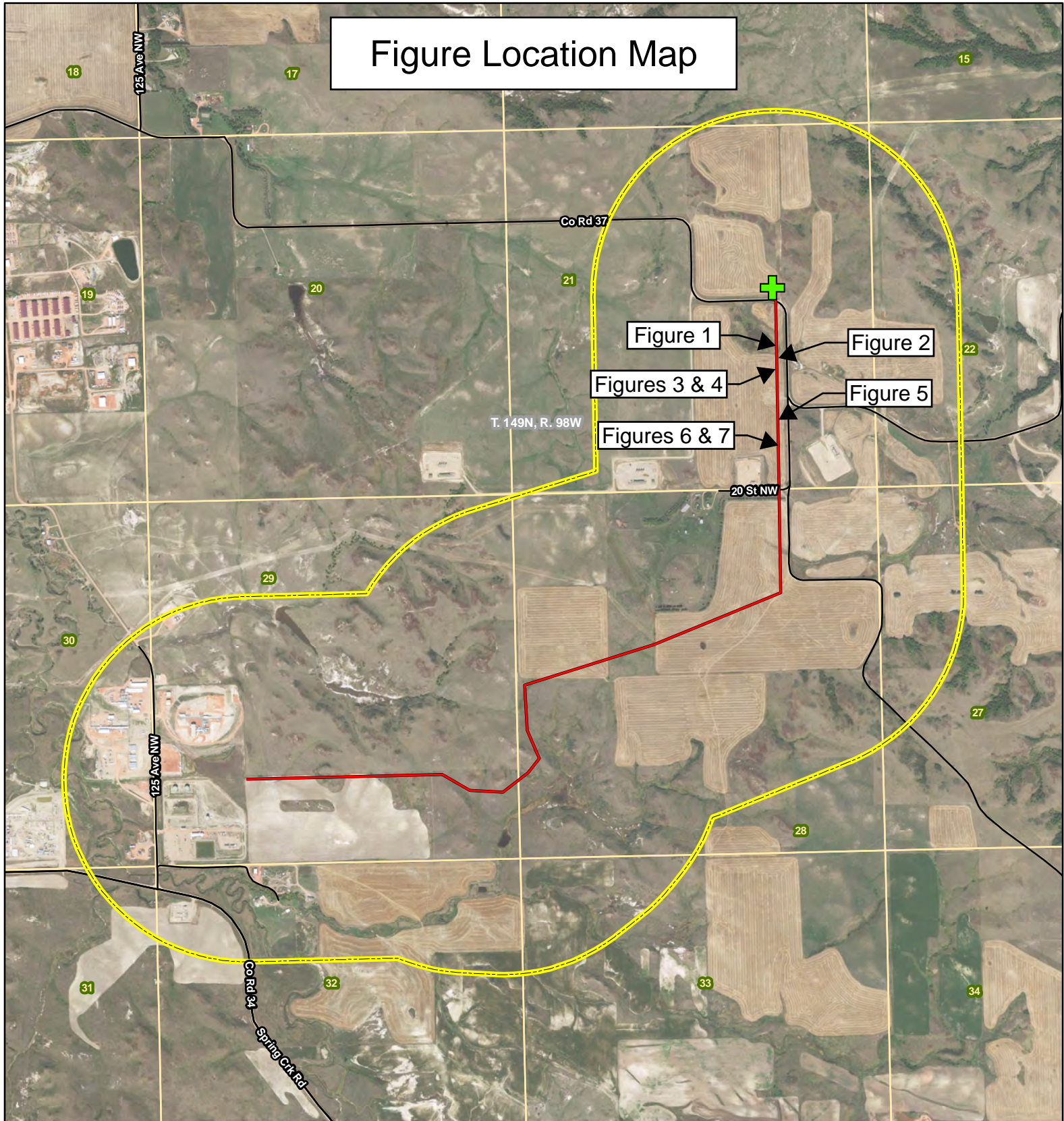


Figure 6. View from pipeline right of way looking south. Topsoil stockpiled along western edge of right of way.








Figure 7. View from western pipeline right of way edge looking north. Topsoil stockpiled along western edge of right of way.

Figure Location Map



Legend

-  Proposed Gas Plant Location
-  Existing Road
-  Proposed Transmission Pipeline
-  1-Mile Wide Analysis Area
-  Section Boundary



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Base Map: 2015 Aerial Imagery
Source: USDA/FSA -
Aerial Photography Field Office
Quadrangle: Tepee Buttes (1995),
Lone Butte NW (1995)
T. 149N, R. 98W
McKenzie County, North Dakota
Projection: NAD 1983 UTM Zone 13N

