

Andeavor Y Grade Hub Reclamation Inspection Report PU-18-72



Prepared for:
**North Dakota
Public Service Commission**

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Executive Summary

The North Dakota Public Service Commission (PSC) retained Wenck Associates, Inc. (Wenck) to complete a reclamation and revegetation inspection following construction of the Andeavor 6 and 8-inch Natural Gas Liquids (NGL) Pipeline (Project) in Stark, Billings, and McKenzie Counties, North Dakota (ND), constructed by Andeavor Field Services LLC (Andeavor). 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, which includes requirements for restoration and repair of infrastructure affected by Project construction, reclamation, and reseeding.

The Project was constructed June 2018 through November 2018, and initial reclamation activities began in November 2018. Wenck completed a revegetation site inspection 18 and 19 August 2020. This report includes documentation from the site inspection and the status of reclamation and revegetation efforts to date.

Overall, the reclamation of the Project was satisfactory; however, the revegetation of the Project is not satisfactory. The ROW had been reclaimed and recontoured to as near as is practicable topography as prior to construction. Establishment of seeded grasses in hay lands and grasslands was lacking with a majority of annual weed cover and areas where desirable species were not observed. Cropland production was comparable within versus outside of the ROW, though a few parcels had a greater aerial coverage of annual weeds species as compared to outside of the ROW. The as-built inspection was done one year ago in August 2019; since that time the establishment of planted grasses has not visibly improved in terms of absolute cover and relative cover in comparison to annual weed cover.

1.0 Background and Scope

1.1 INTRODUCTION

The Andeavor 6 and 8-inch mixed natural gas liquids (NGLs) is comprised of four pipeline segments. The first segment, the North Segment, is in McKenzie County and will transport NGLs, or Y-Grade product, approximately 17 miles from Oasis Midstream Services LLC's Wild Basin Gas Plant to an interconnection with an existing 42-mile pipeline previously permitted and constructed by BakkenLink Pipeline, LLC in T149N, R98W, Section 30, McKenzie County. The second segment is the existing BakkenLink Pipeline permitted by the Commission in Case No. PU-10-218. The third segment, the South Segment, interconnects with the existing BakkenLink Pipeline in T142N, R99W, Section 3, Billings County, to transport the NGLs south approximately 22 miles to Andeavor's Belfield Gas Plant in Stark County. At the Belfield Gas Plant, the mixed NGLs are separated into discrete components. The fourth segment, the Transfer Line Segment, is comprised of four pipelines that transport the four discrete components approximately 5 miles from Andeavor's Belfield Gas Plant to the Fryburg Rail Terminal in Billings County. The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC), which issued its Findings of Fact, Conclusions of Law, and Order in Case No. PU-18-72 on 13 June 2018, granting Certificates of Corridor Compatibility No. 205, 206, and 207 and Route Permits No. 215, 216, and 217 for the Project.

Project construction was understood to be completed November 2018 and clean-up activities began concurrently with construction. However, Andeavor failed to supply monthly progress reports that would typically provide additional detail as to dates of project in-service commissioning, reclamation and re-seeding. Wenck assumes, based on the As-Built Inspection completed in August 2019, that this report documents current conditions in the Project area over one full growing season after the reseeded efforts, which were understood to be initiated in 2018.

1.2 REGULATORY PURPOSE AND SCOPE OF WORK

The North Dakota Energy Conversion and Transmission Facility Siting Act (North Dakota Century Code Chapter 49-22) authorizes the Public Service Commission to determine that the location, construction, and operation of jurisdictional energy conversion and transmission facilities will produce minimal adverse effects on the environment and the welfare of citizens of North Dakota. Construction inspections ensure that such projects are constructed in compliance with the siting laws (North Dakota Century Code Chapter 49-22) and rules (North Dakota Administrative Code Article 69-06) and the applicable Commission Orders.

The North Dakota PSC retained Wenck Associates, Inc. (Wenck) to complete a reclamation and revegetation inspection of the Project. The inspection process included a review of the Application for Corridor Compatibility and Route Permit, the Project's Order, and other applicable documents. The Findings of Fact, Conclusions of Law, and Order for the Project include the following findings and order provisions related to reclamation and revegetation.

- Order Provision 18. *Company understands and agrees that it shall, as soon as practicable upon the completion of the construction of the transmission facility,*

restore the area affected by the activities to as near as is practicable to the condition as it existed prior to the beginning of construction.

- *Order Provision 19. Company understands and agrees that all pre-existing township and county roads and lanes used during construction must be repaired or restored to a condition that is equal to or better than the condition prior to the construction of the transmission facility and that will accommodate their previous use, and that areas used as temporary roads or working areas during construction must be restored to their original condition.*
- *Order Provision 20. Company understands and agrees that reclamation, fertilization, and reseeded is to be done according to the Natural Resources Conservation Service recommendations, unless otherwise specified by the landowner and approved by the Commission.*
- *Order Provision 21. Company will fulfill its obligation for reclamation and maintenance of the approved transmission facility right-of-way, transmission facility, and associated facilities continuing throughout the life of the transmission facility.*
- *Order Provision 22. Company will repair all fences and gates removed or damaged during all phases of construction and operation of the transmission facility.*
- *Order Provision 23. Company will repair or replace all drainage tile broken or damaged as a result of construction and operation of the transmission facility*
- *Order Provision 24. Company agrees to comply with the Tree and Shrub Mitigation Specifications, attached.*
- *Order Provision 25. Company understands and agrees that it shall remove all waste that is a product of construction and operation, restoration, and maintenance of the site, and properly dispose of it on a regular basis.*

Wenck's scope of work was to perform and document a reclamation and revegetation inspection after one full growing season but not less than one year from the anniversary date of completion of fertilization and seeding. The reclamation and revegetation inspection must include a follow-up inspection of areas of concern identified in the as-built construction inspection. This report includes, but is not limited to, documentation of site visit observations and a summary of findings and issues that should be addressed for the Project to be considered complete and in compliance.

2.0 Findings of Site Inspection

2.1 METHODS

Joseph Sander, Wenck environmental scientist, inspected the Project route on 18 and 19 August 2020. The site was inspected by driving to access points, visually observing the route from public roads and fence lines, and where access was granted, walking within the Project right-of-way (ROW) to determine species composition. Geographic coordinates were recorded at observation points and potential problem areas using ESRI ArcGIS Collector and Survey123 software applications on a tablet utilizing internal satellite triangulation software or paired with a Trimble Global Positioning System (GPS) (**Table 1**). Observation Point locations were then overlaid on GIS generated maps along the Project route (**Figures 1-10**). Digital photographs were taken with the tablet, showing representative portions of the route and problem areas (**Appendix B**).

2.2 ON-SITE INSPECTION OBSERVATIONS

The as-built inspection was completed one year ago in August 2019. The ROW had been reclaimed and recontoured to as near as is practicable topography as prior to construction. Andeavor did not provide landowner information prior to monitoring, though had responded to the request and stated they were working to get the information. Therefore, observations of vegetation deviation from NRCS standards cannot be ascertained as compliant/noncompliant. Cropland production was comparable within versus outside of the ROW. Hay land production was not comparable to areas outside of the ROW. Hay land revegetation was largely below 50% aerial cover and in most cases the majority of aerial cover could be attributed to weed species. Rangeland production was not comparable to areas outside of the ROW. Rangeland revegetation was largely below 50% aerial cover; however, planted grasses were growing well, and weed species prevalence was less than that of hay lands yet, weed management will still be necessary to for successful revegetation. Weed management is necessary throughout the majority of the ROW. Discrepancies between as-built files were noted, as well as discrepancies between as-built indicated locations and field observations.

2.2.1 Cropland

The Project ROW crossed several parcels of cropland, primarily in Stark and Billings Counties, in association with the Transfer Line and South Segments; with minor parcels in McKenzie County in association with the Northern Segment. Crop growth was visually consistent in density, height, and color within and outside of the ROW and was successfully harvested in most parcels, indicating reclamation was successful (**Appendix B; Observation Points 2, 3, 4, 5, 22**). The majority of agricultural parcels were observed along the ROW; however, not every observation was recorded. Yield cannot be compared visually so it is unknown if yield was comparable within versus outside of the ROW. Annual weed cover was comparable within and outside of the ROW. Populations of annual weeds, typically kochia or green/yellow foxtail were noted to be greater in composition within the ROW in some parcels (**Appendix B; Observation Point 3**).

2.2.2 Hay Land

The Project ROW primarily crossed areas of grassland presumably used for hay land, or potentially under CRP, primarily in Stark and Billings Counties in association with the

Transfer Line and South Segments; however, several parcels of hay land were crossed in McKenzie County in association with the North Segment (**Appendix B; Observation Points 1, 6, 7, 8, 9, 10, 12, 13, 14, 20, 21, 23, 24, 31, 32, 33, 35, 36, and 38**).

Seed tags were not made available, but the species that were likely planted on most hay land parcels, as evidenced by vegetative cover noted during inspections, were the native grass species western wheatgrass and slender wheatgrass. These species are often recommended by the NRCS. It is important to note, slender wheatgrass dominated the percentage of successful grass species, while western wheatgrass comprised only a small percentage of successful revegetation. Western wheatgrass has a high failure rate of seeding and can take longer to colonize a disturbed area; however, largescale failure of western wheatgrass plantings would require follow up re-seeding efforts. Hay lands were also presumably seeded with alfalfa, as most hay land parcels within the ROW contained at least some portion of alfalfa prior to disturbance, although apparent seeding rates of alfalfa exceeded the previous occurrence and some parcels did not possess alfalfa in adjacent undisturbed areas. Therefore, the vegetative community within the ROW is mismatched and visually apparent among the landscape in some cases (**Observation Points 13, 14, 31, 32, 33**). The introduced grass species crested wheatgrass, smooth brome, quackgrass, and Kentucky bluegrass as well as introduced forbs of alfalfa and sweet clover may have also been planted as part of the seed mix or may have recolonized from adjacent areas (**Table 1**). Deviations from NRCS recommendations and land owner preferences cannot be known as Andeavor has not filed land owner agreements with the PSC.

Reclaimed hay land parcels had achieved less than 50% total aerial coverage on average, comprised mostly of weedy species at 40% aerial coverage, primarily kochia and green/yellow foxtail among other lesser components; about 30% alfalfa, 20% seeded grasses, and 10% introduced species likely from the original seedbank. No noxious weeds were observed in reclaimed hay land parcels.

2.2.3 Rangeland

The Project ROW crossed areas of grassland presumably used for rangeland, or potentially under CRP, nearly exclusively in McKenzie County with minor inclusions in Billings County (**Appendix B; Observation Points 25, 26, 27, 29, 30, 39, and 41**).

Seed tags were not made available, but the species that were likely planted on most rangeland parcels were the native grass species western wheatgrass, green needlegrass, and slender wheatgrass. These species are often recommended by the NRCS. The introduced grass species crested wheatgrass, smooth brome, quackgrass, and Kentucky bluegrass and introduced forb sweet clover may have also been planted as part of the seed mix or may have recolonized from adjacent areas (**Table 1**).

Reclaimed rangeland parcels had achieved less than 40% total aerial coverage on average, comprised mostly of weedy species at 40% aerial coverage, primarily kochia and green/yellow foxtail among other lesser components; about 30% seeded grasses, and 20% introduced species likely from the original seedbank. No noxious weeds were observed in reclaimed hay land parcels. Individual parcels varied considerably in successful revegetation and composition of desired and undesired species; however significantly high weedy areas stood out against the landscape and most times were observed near access points and areas of topographical breaks, suggesting compaction and potentially topsoil depth issues common among rangeland hilltops in McKenzie County, respectively (**Appendix B; Observation points 24, 29, 39**).

Kochia and green/yellow foxtail were the dominant annual weeds in grassland reclamations; however, a diversity of other weedy species were present such as curly cup gumweed, horseweed, cocklebur, and ragweed (**Table 1**). No noxious weeds were observed in reclaimed rangeland parcels.

Table 1. Species¹ Observed in Reclaimed ROW

Land Cover Class	Vegetative Class					
	Grasses		Forbs		Weeds	
	Native	Introduced	Native	Introduced	Native	Introduced
Cropland	NA	Green/Yellow Foxtail (<i>Setaria</i> sp.)	NA	NA		Kochia (<i>Bassia scoparia</i>)
Hay Land	Western wheatgrass (<i>Pascopyrum smithii</i>) Slender wheatgrass (<i>Elymus trachycaulus</i>) Canada wild rye (<i>Elymus canadensis</i>) Foxtail barley (<i>Hordeum jubatum</i>)	Quackgrass (<i>Elymus repens</i>) Smooth brome (<i>Bromus inermis</i>) Crested wheatgrass (<i>Agropyron cristatum</i>) Green/Yellow Foxtail (<i>Setaria</i> sp.)		Alfalfa (<i>Medicago sativa</i>) Sweet clover (<i>Melilotus officinalis</i>)	Horseweed (<i>Conyza canadensis</i>) Annual ragweed (<i>Ambrosia artemisiifolia</i>) Great ragweed (<i>Ambrosia trifida</i>) Cocklebur (<i>Xanthium strumarium</i>) Field bindweed (<i>Convolvulus arvensis</i>)	Kochia (<i>Bassia scoparia</i>)
Grassland	Western wheatgrass (<i>Pascopyrum smithii</i>) Slender wheatgrass (<i>Elymus trachycaulus</i>) Green needlegrass (<i>Nassella viridula</i>)	Quackgrass (<i>Elymus repens</i>) Smooth brome (<i>Bromus inermis</i>) Crested wheatgrass (<i>Agropyron cristatum</i>) Green/Yellow Foxtail (<i>Setaria</i> sp.)	Yellow coneflower (<i>Ratibida columnifera</i>)	Sweet clover (<i>Melilotus officinalis</i>)	Horseweed (<i>Conyza canadensis</i>) Annual ragweed (<i>Ambrosia artemisiifolia</i>) Great ragweed (<i>Ambrosia trifida</i>) Cocklebur (<i>Xanthium strumarium</i>) Field bindweed (<i>Convolvulus arvensis</i>)	Kochia (<i>Bassia scoparia</i>)

¹Noxious weeds in bold.

2.2.4 Stream/Wetland Crossings

Four open cut stream/drainage crossings were observed (**Appendix B; Observation Points 6, 9, 11, 41**). It was apparent, seeded vegetation did not match that of hydric conditions and a high rate of failure and weedy presence was observed. Some areas were poorly graded for conducive flow. Sevenmile Creek erosion was still evident from the as-built inspections. It is likely all open cut stream drainages require additional maintenance and/or vegetation management through appropriate seeding and weed management. Cherry Creek was also observed where the pipeline was horizontally bored underneath the stream (**Appendix B; Observation Point 40**).

2.2.5 Roads and Maintenance

Gravel roads crossed by the ROW had been bored underneath to avoid cuts and were in good condition. Access points through roadside ditches and approaches had a prevalence of weedy species. An access road, which appeared to be used by at least 3 different pipeline operators was left intact and is compacted and non-vegetated with roadside weedy presence (**Appendix B; Observation point 35**). Overall, the ROW was being maintained in good condition. No trash or equipment was observed. Valve sites were fenced, secure, and maintained well.

2.2.6 As-Built Inspection Concerns

The as-built inspection found that several permits and other required documentation had not yet been filed with the PSC. Wenck has found, since the submittal of the as-built inspection report, Andeavor has submitted the requested permits; however, there are no federal highway permits. Wenck understands unless the NDDOT has the delegated right to administer Federal rights for occupancy and crossing of HWY 23 and Interstate 94, Andeavor needs to submit the associated permits. Andeavor has also since submitted the as-built drawings and GIS files as requested. All other outstanding missing items noted in the as-built are yet to be submitted to the PSC.

At the time of the as-built inspection, Andeavor had not provided the as-built alignment files to the PSC. At this time, Wenck was in possession of 2 GIS shapefiles stated to be as-built alignments, received near the end of construction from Andeavor. Upon inspection, Wenck had documented 3 areas in which the alignment did not match the permitted route. The PSC issued a violation to Andeavor for these unpermitted re-routes. Andeavor submitted as-built alignments to the PSC after the as-built inspection, utilizing this GIS alignment, Wenck has discovered discrepancies between the 3 alignments provided which include deviations from the permitted route within and outside of the ROW and potential centerline ground truthing anomalies. Concerns associated with the as-built centerline are outlined below:

1. As built deviations from proposed (violations issued by the PSC).
 - a. T139N, R99W, S11/10 – The area inside the train track loop could not be inspected due to inability to access.
 - b. T141N, R109W, S34/T140N, R109W, S6 – The area is in good shape and does not appear to have been routed through any exclusion or avoidance areas and windbreak tree/shrubs appear intact, that can be visually ascertained.
 - c. T149N, R98W, S21/22 – Access was restricted due to topography and standing crops. The application maps stated this was an additional survey area with no avoidance or exclusion areas. Historical aerial imagery suggests this area to have been cleared of trees from a previous pipeline installation.

2. As-built centerline files for the project
 - a. As-built centerline files provided by Andeavor near the project completion date and the as-built centerline file submitted to the PSC (May 2020) are both depicted on **Figure 1; Reclamation Observation Locations**. (Note: none of the centerlines are the 'proposed' centerline per the original application, as Wenck does not possess that information; thusly the map does not include the original reroute deviations).
 - b. The two centerline files vary to some degree, mostly slight changes within the ROW; however, there are some greater deviations.
 - i. T149N, R98W, S29 appears to be a significant deviation from between the two as-built lines and field verified location does not appear to match the proposed path (**Appendix B; Reclamation Observation Points, map page: 24; Observation points #26-28**).
 - c. There were instances in which it appeared the as built centerline was not located in the field where the GIS files had indicated (**Observation points 17, 19, 32, and 33**).
3. Landowner NRCS Deviations
 - a. Andeavor did not provide landowner information associated with mentioned deviations from NRCS standards prior to monitoring, though had responded to a request and stated they were working to get the information. Therefore, observations of vegetation deviation from NRCS standards cannot be ascertained as compliant/noncompliant. This applies to areas where alfalfa was present in the seed mix, but not a constituent of the adjacent areas outside the ROW and areas where it did not seem as though seeding had taken place or vegetative stages were successful (**Observation points 12, 13, 14, 31, 32, 33**).
4. Trees and Shrubs
 - a. Andeavor had not submitted a tree and shrub inventory to the PSC at the time of the as-built inspections, and this remained true for the reclamation inspection. Unpermitted reroutes and deviations in the centerlines were inspected for potential tree and shrub mitigation violations. Wenck did not observe apparent issues with tree or shrub clearing (as confirmed with Google Earth aerial imagery and field **Observation points 16, 17, 18, 19, 32, and 33**); however, anomalies in ground truthing of the as-built centerline GIS file coincided largely with encroachment/avoidance to tree and shrub areas.

3.0 Issues, Resolutions, and Recommendations

3.1 AS-BUILT CENTERLINE

Wenck recommends the PSC follow up with Andeavor and ensure the provided GIS centerline files are correct and the cause of the minor discrepancies between the submitted file and the file previously provided to Wenck, and if any of the discrepancies are considered reroutes within the ROW. Wenck recommends the PSC to investigate the segment at Observation Points #26-28 for a potential violation if the deviation is outside of the permitted route. Wenck also recommends an investigation into the supplied as-built locations of the centerline and the apparent field indicated locations of the pipeline as evidenced, typically near tree and shrub locations; however, deviation may not be limited to only those areas.

3.2 VEGETATION MONITORING

Seeded and desired grass species did not comprise a majority of absolute cover in the majority of the ROW. Native species can be slow to colonize newly disturbed lands; however, competition with annual weed species is high, likely outcompeting for resources. Another source of native planting failure can be seeding rate and depth, of which cannot be known. Wenck recommends continual monitoring for at least 1 or 2 more years to ascertain if absolute cover of desired species increases from year to year, an indication seeding was successful. Wenck also recommends, if absolute cover does not increase next year, reseeding may be required.

3.3 WEED MANAGEMENT

Weed management is required throughout the majority of the ROW and the weed management plan should be implemented. Annual weeds should be monitored along the route in hay lands and rangelands per landowner preferences. Wenck recommends one or two years of mowing or herbicide application in June prior to seed ripening. This would reduce the annual weed seed bank within a year or two and allow the grass cover to better establish.

3.4 STREAM AND DRAINAGE OPEN CUTS

Stream and/or drainages crossed by the Project ROW were not seeded with hydric tolerant species; therefore, crossings were largely devoid of desirable vegetation, mostly comprised of weed species, and left susceptible to erosion. Wenck recommends seeding be appropriate for encountered hydric conditions and erosion controls be left in place until 70% vegetation is achieved. Wenck recommends these areas be reseeded.

3.5 REQUIRED DOCUMENTATION

Andeavor has submitted missing required permit documentation to the PSC; however, other required information highlighted in the as-built report has yet to be submitted to the case file. Wenck recommends the Andeavor Land Manager submit landowner agreements for deviations from NRCS standards, among other missing documents.

4.0 References

North Dakota Public Service Commission (ND PSC). 2020. Online Case Search. Available from: http://www.psc.nd.gov/database/company_case_list.php. Accessed August 2020.

5.0 Signatures

The services performed by Wenck 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 judgment 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 and Environmental Scientist, Matt Retka, reviewed the report; Joseph Sander, Environmental Scientist prepared the report.



Joseph Sander, Environmental Scientist

09/04/20

Date



Matthew Retka, Project Manager

09/04/2020

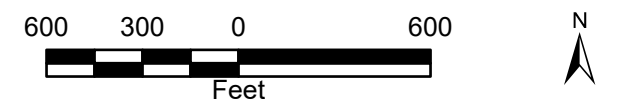
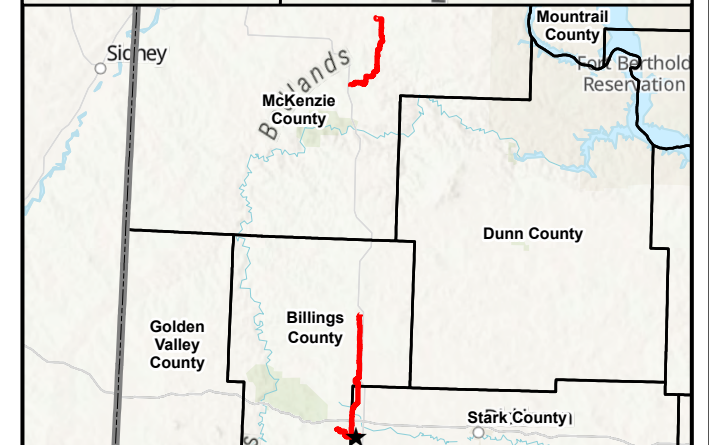
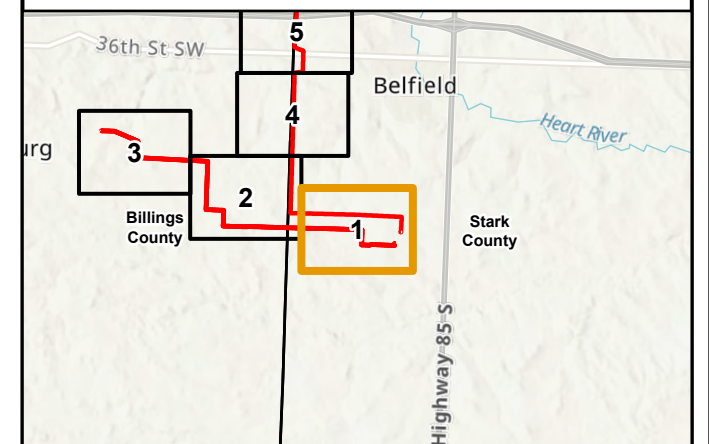
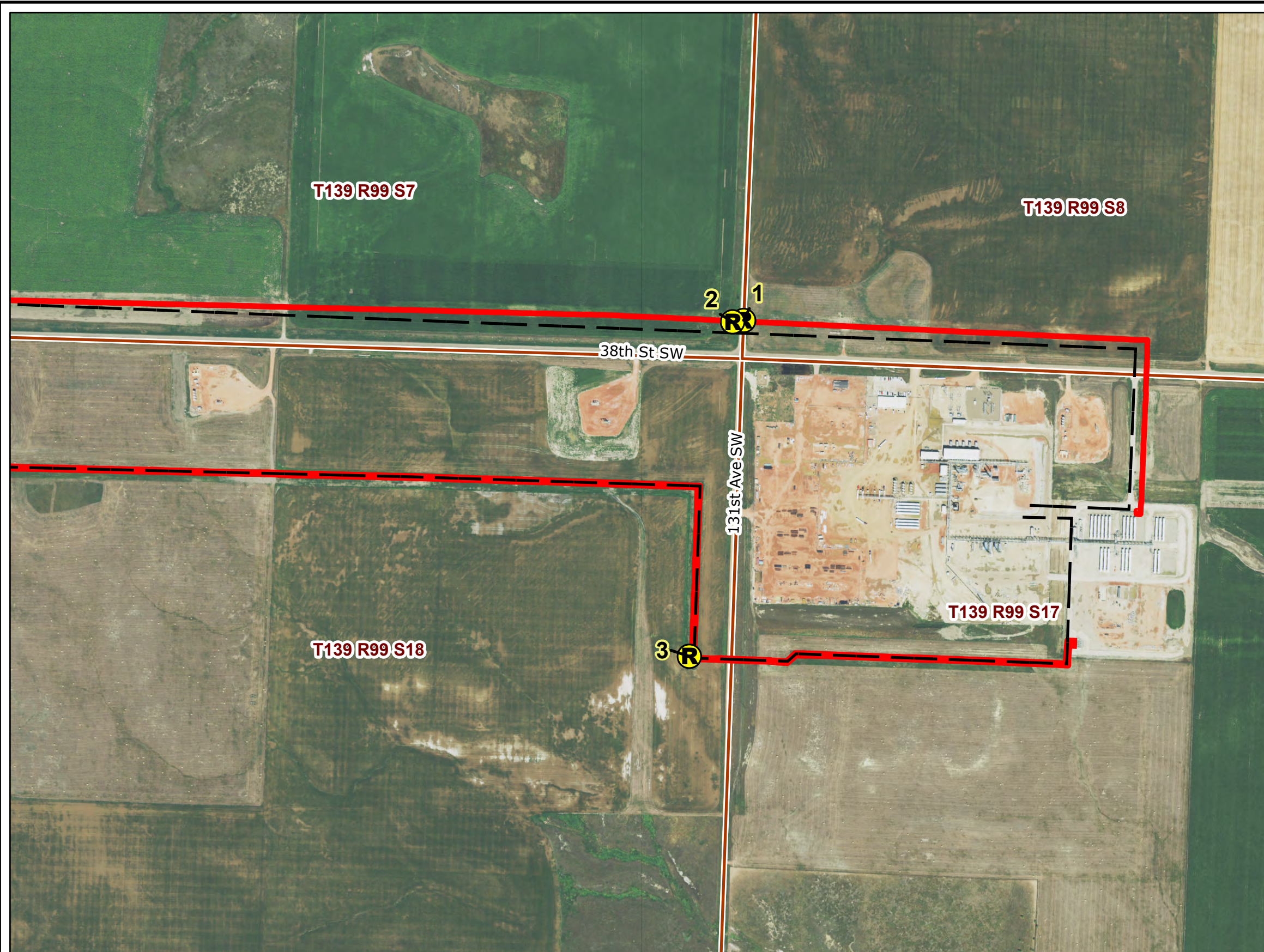
Date

Figures

North Dakota
Public Service Commission

Andeavor NGL Pipeline
Figure 1

- Ⓡ Reclamation Observation Point Location
- - - Andeavor As-built Centerline (2019)
- Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






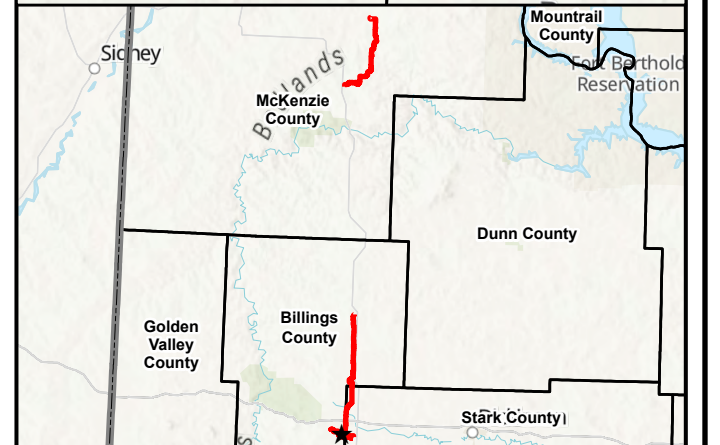
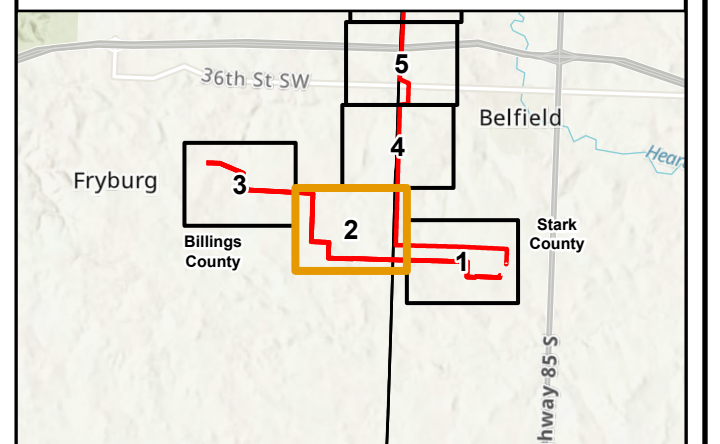
Responsive partner. Exceptional outcomes.

SEPT 2020

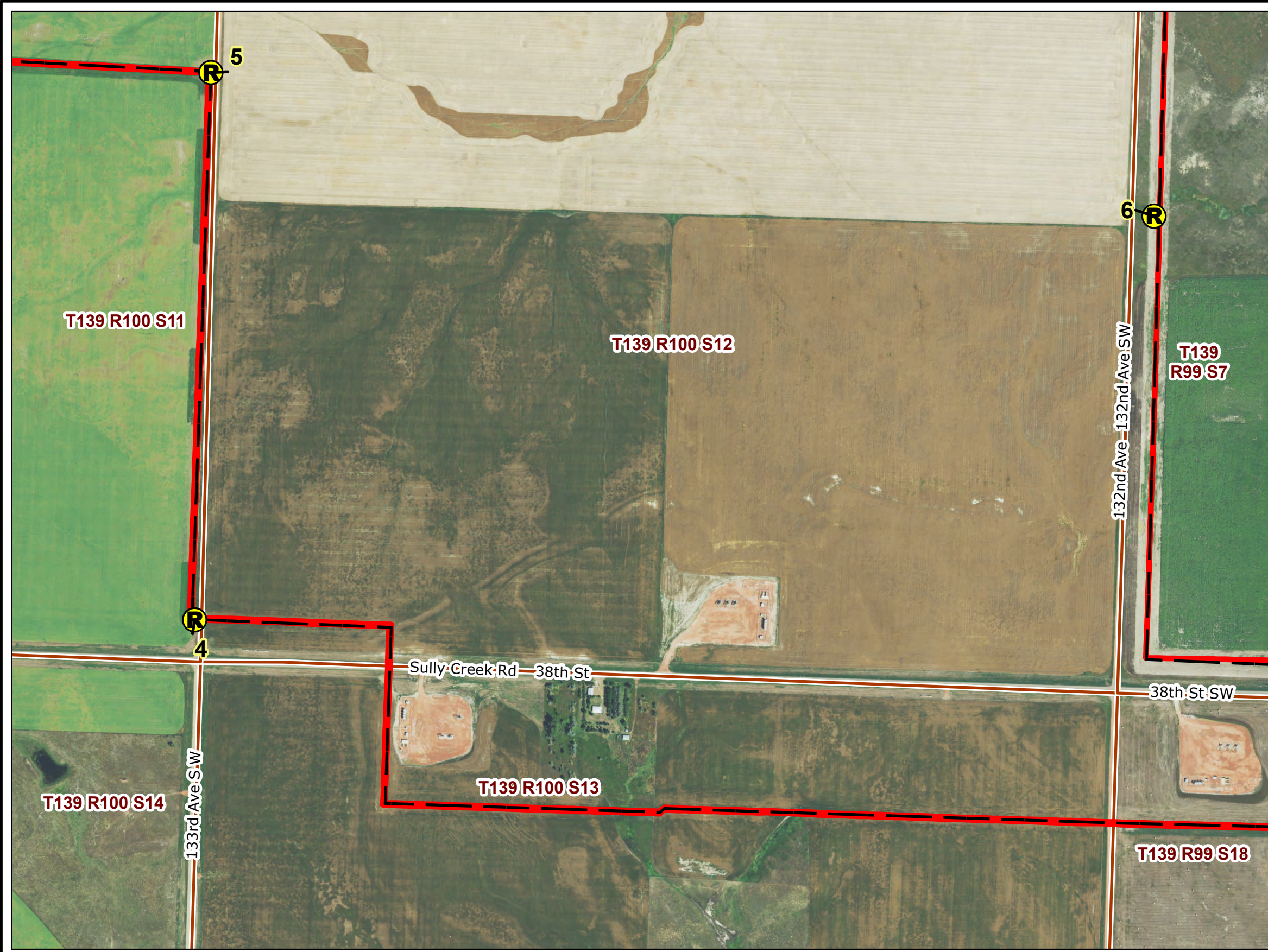
Map 1 of 35

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations

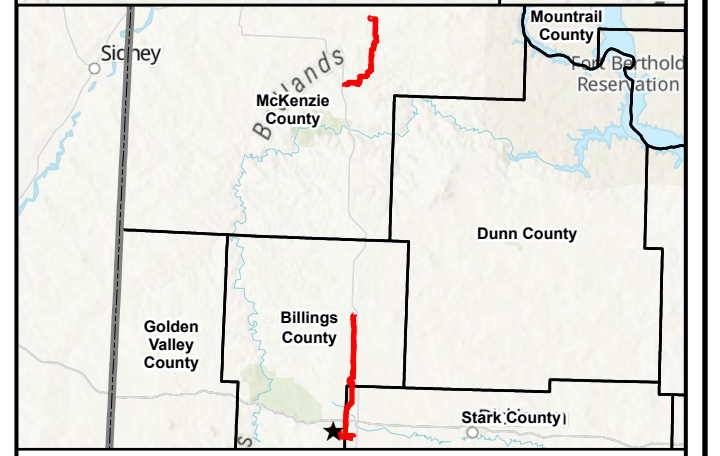
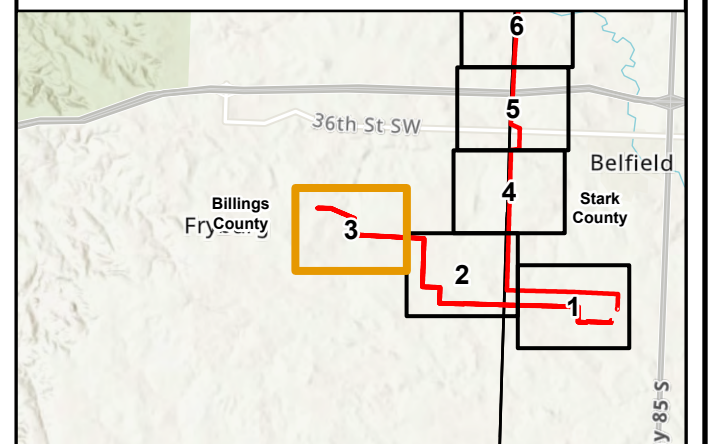
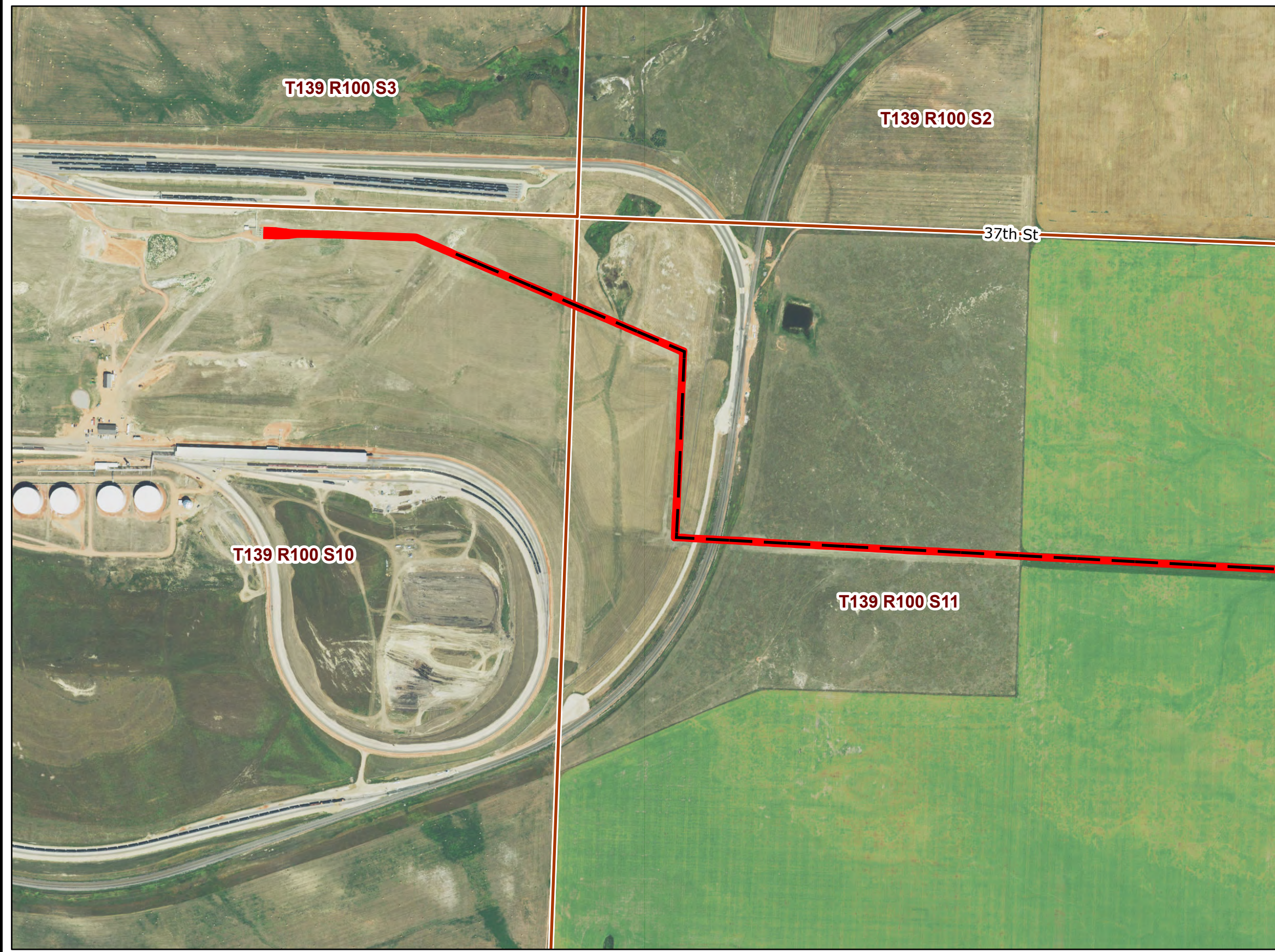


SEPT 2020

Map 2 of 35

Andeavor NGL Pipeline Figure 1




- 📍 Reclamation Observation Point Location
- - - Andeavor As-built Centerline (2019)
- Andeavor As-built Centerline (2020 PSC)

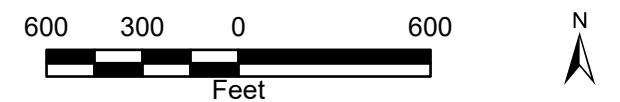
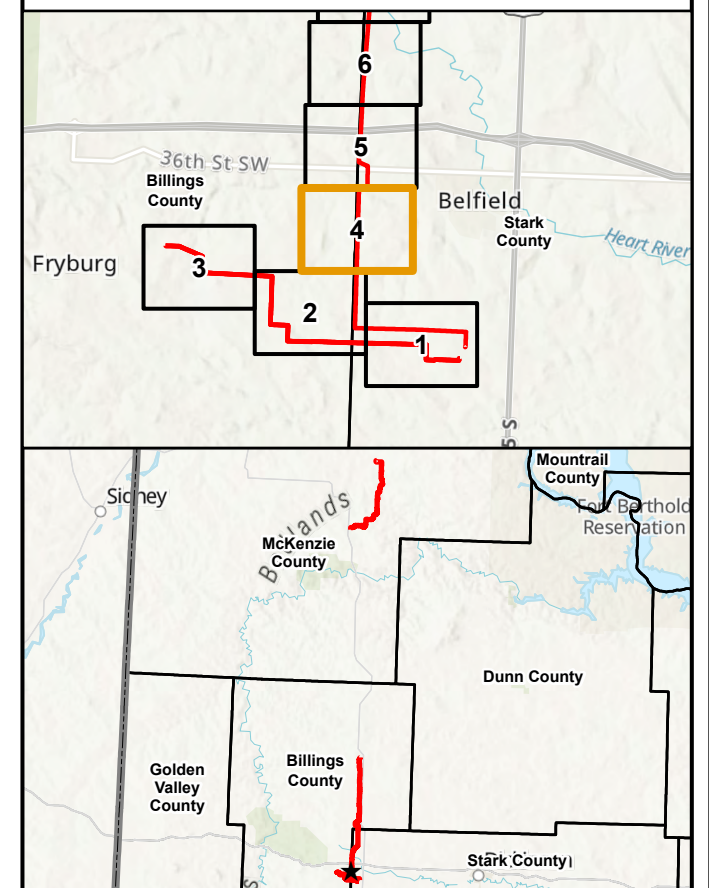


2019 Aerial Photograph (Source: NAIP)
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Date: 9/3/2020 Time: 9:29 AM User: MueKJ0907

**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






Responsive partner. Exceptional outcomes.

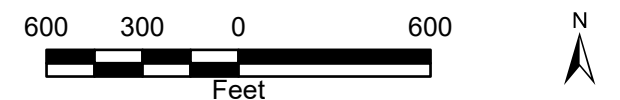
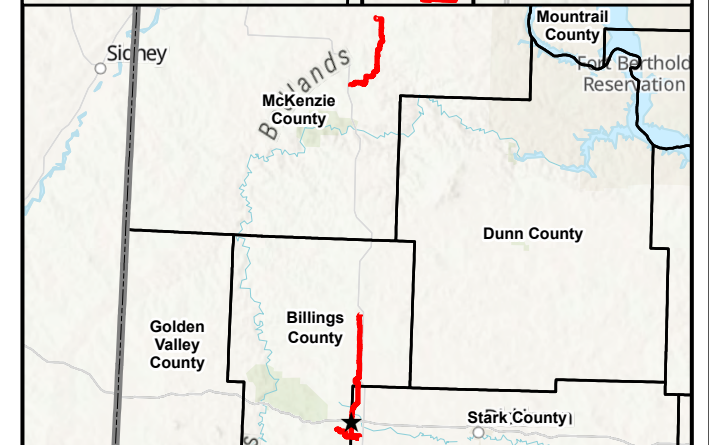
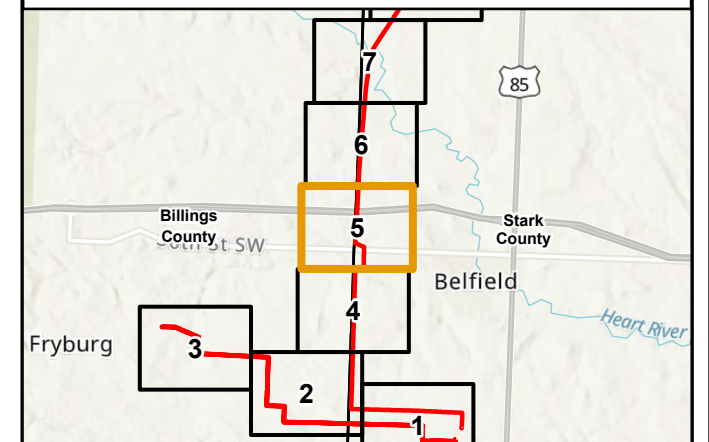
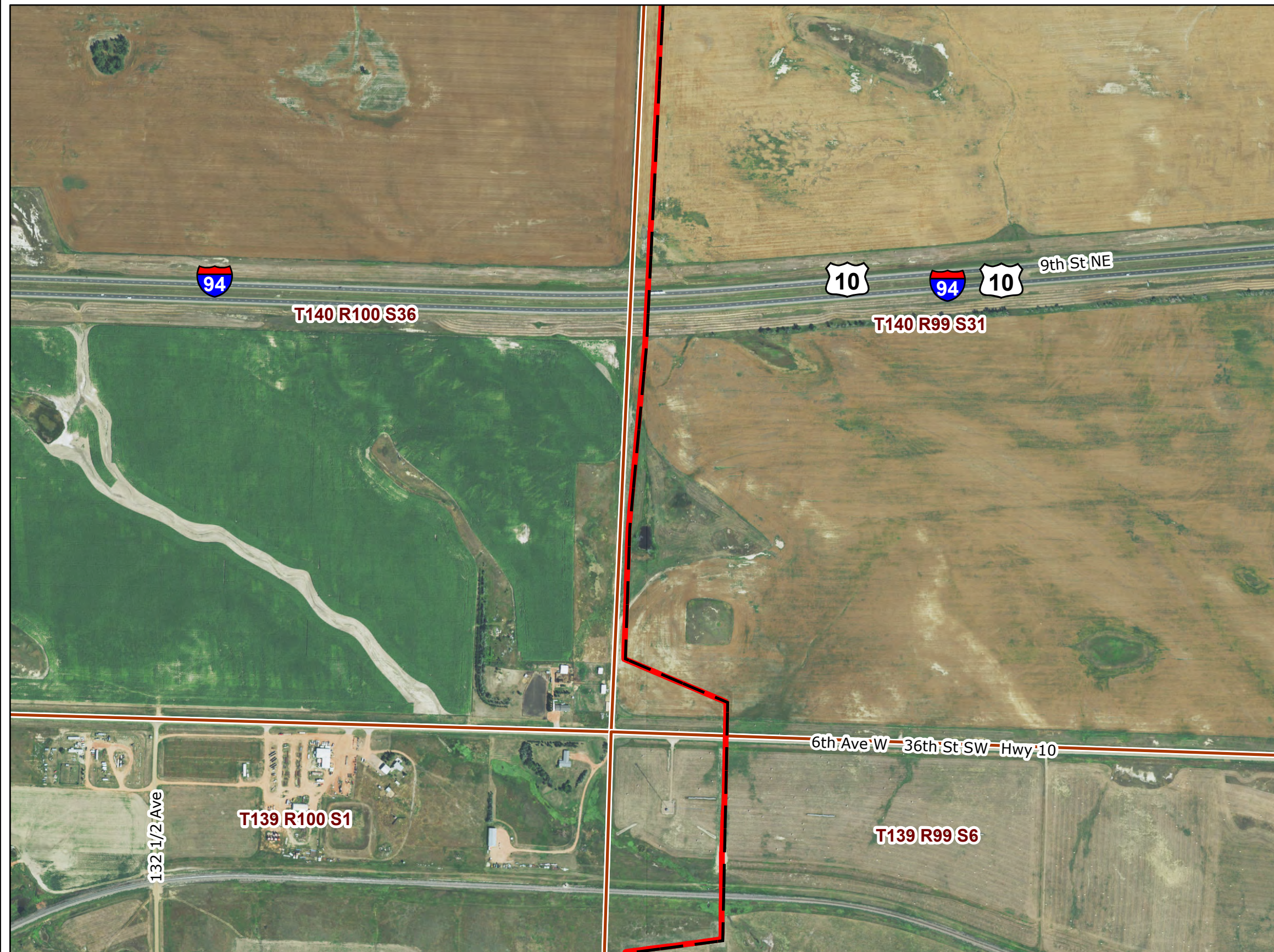
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
Date: 9/3/2020 Time: 9:29 AM User: MueKJ0907

PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



Responsive partner. Exceptional outcomes.

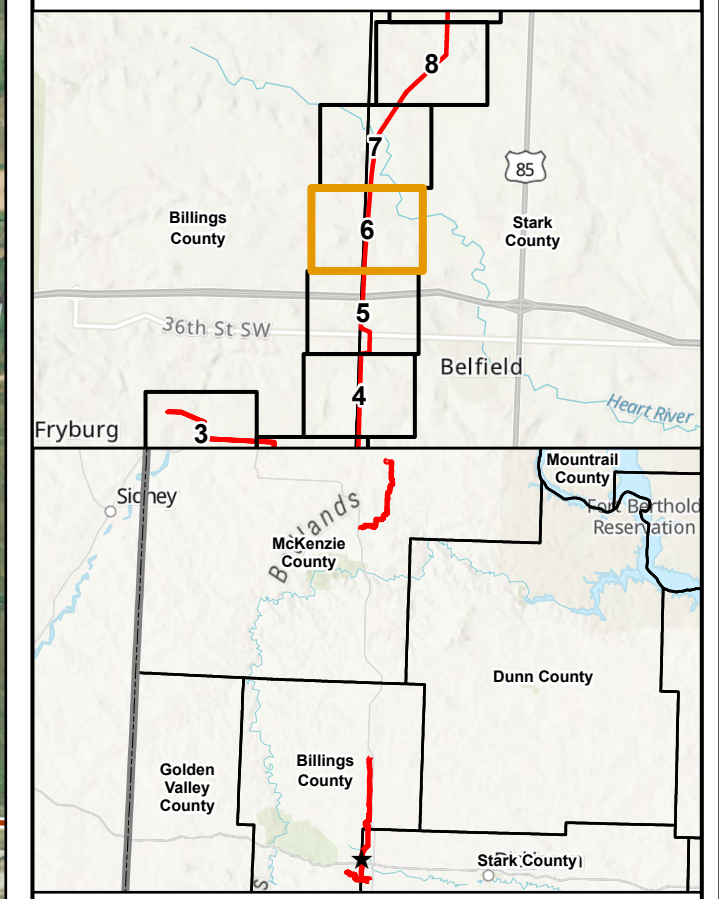
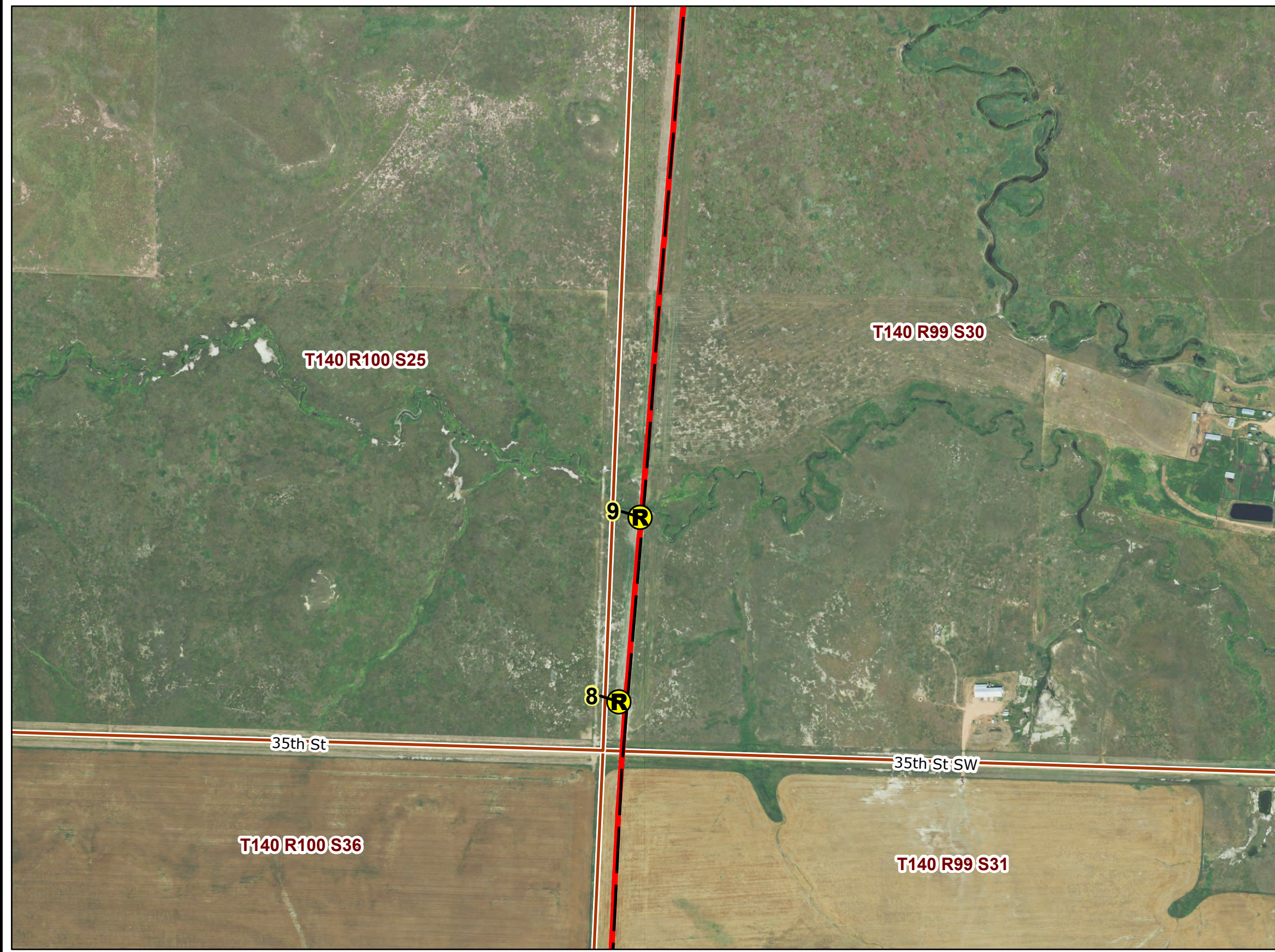
SEPT 2020

Map 5 of 35

**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

- Ⓡ Reclamation Observation Point Location
- — — Andeavor As-built Centerline (2019)
- — — Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






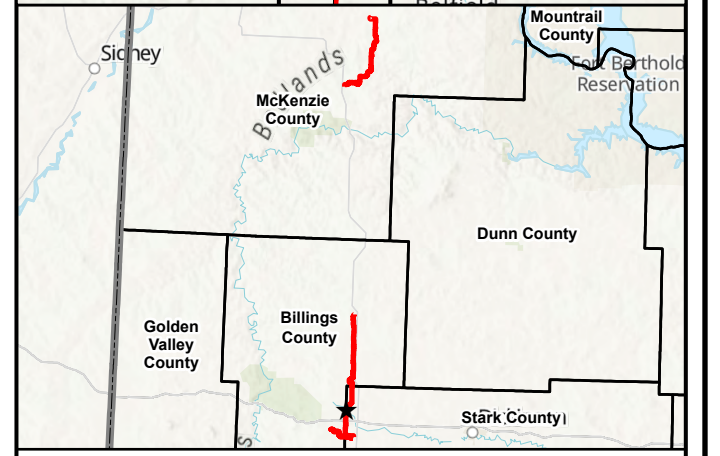
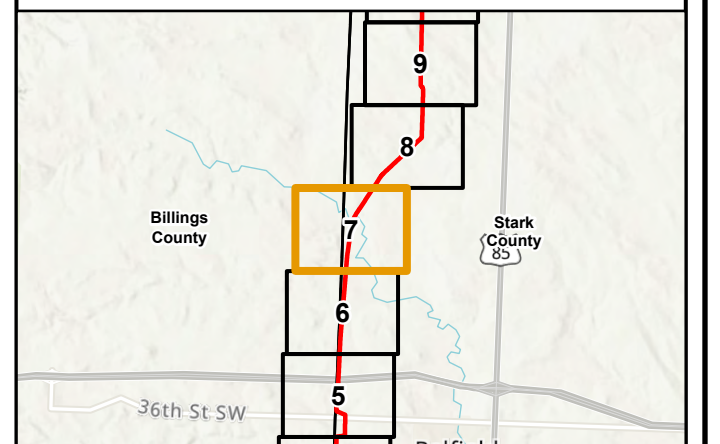
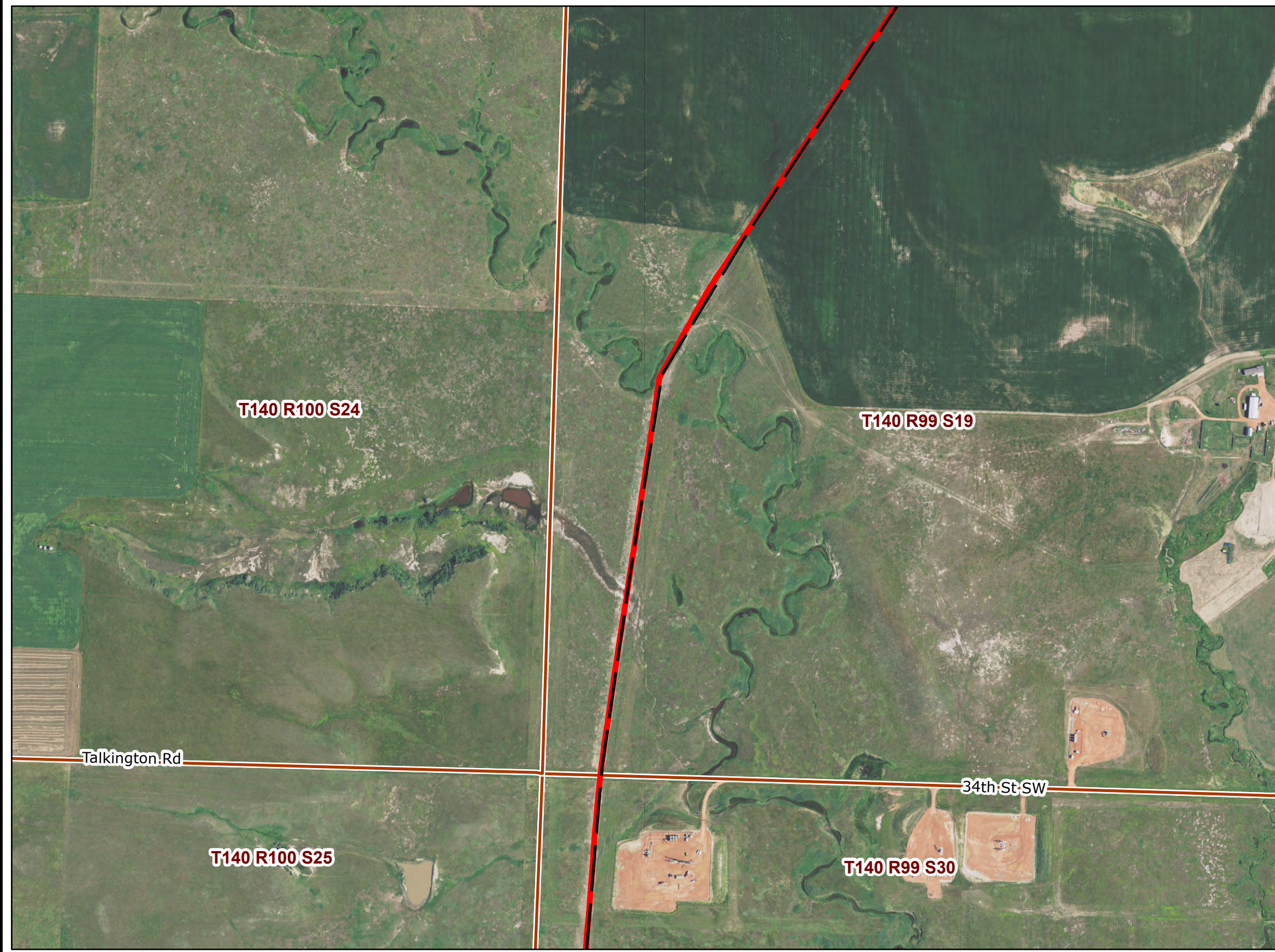
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
 Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
 Date: 9/3/2020 Time: 9:30 AM User: MueKJ0907

PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






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Responsive partner. Exceptional outcomes.

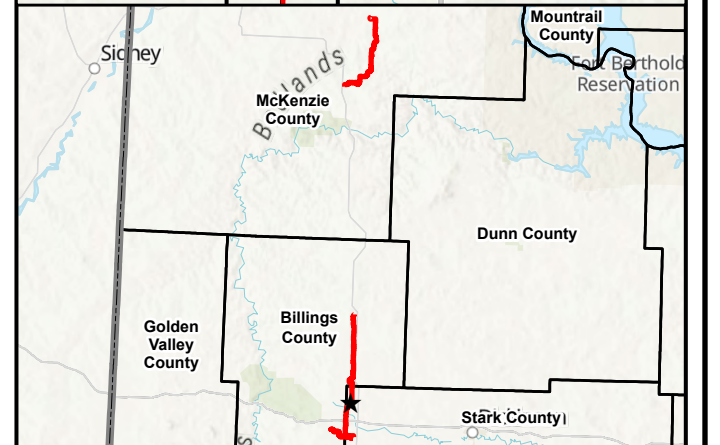
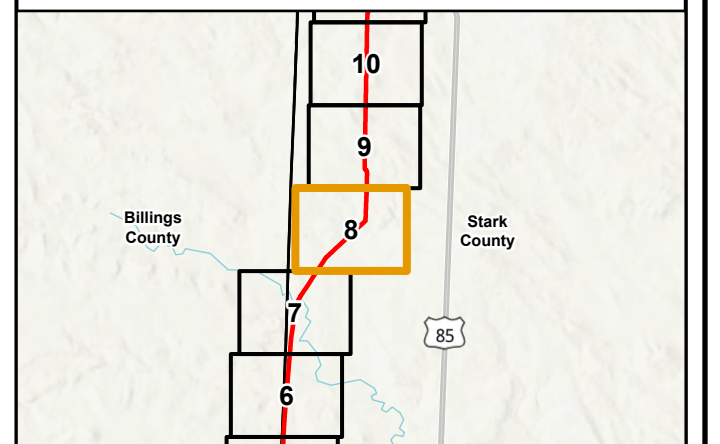
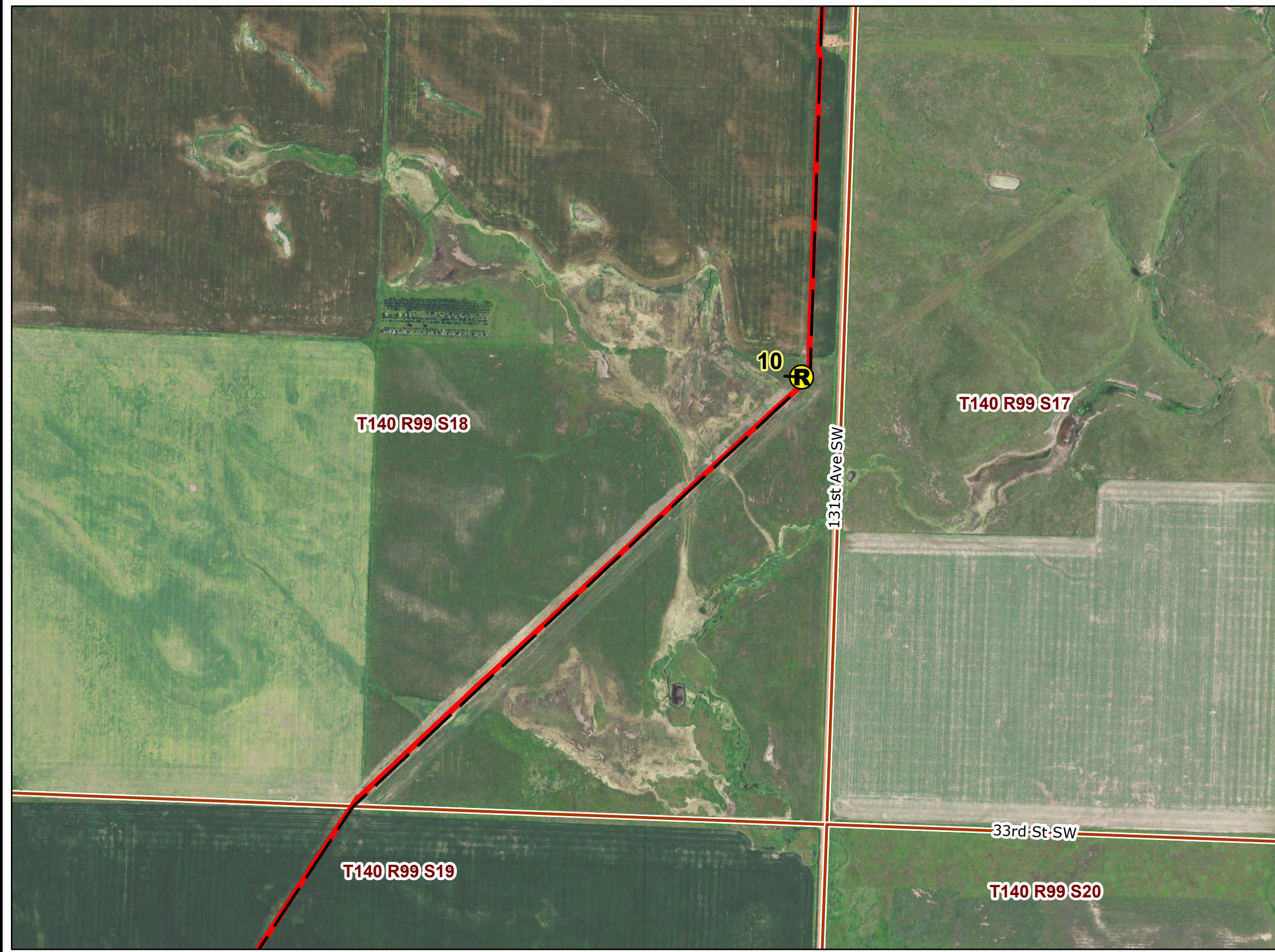
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
 Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



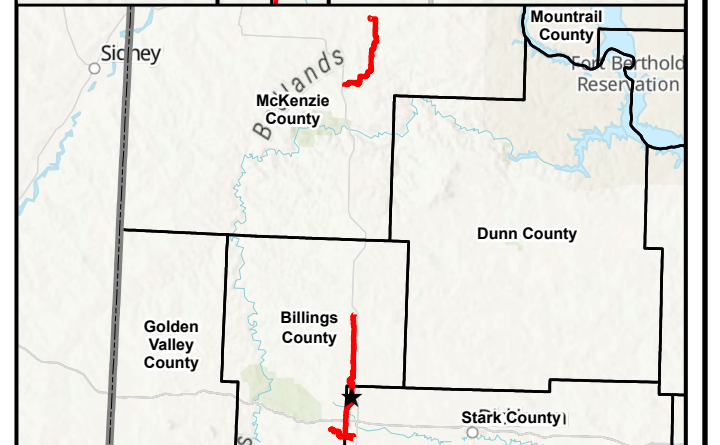
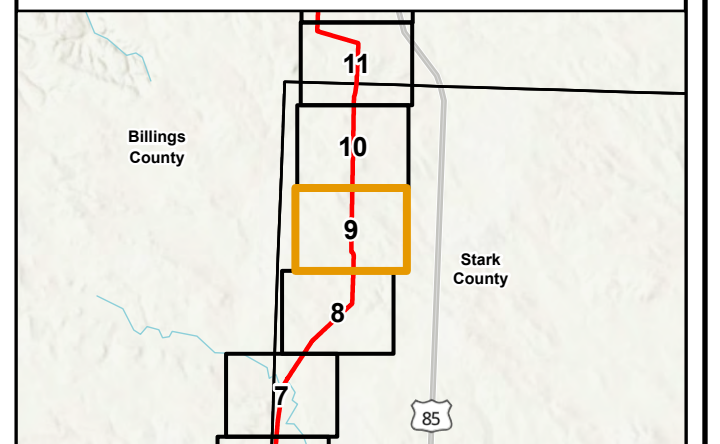
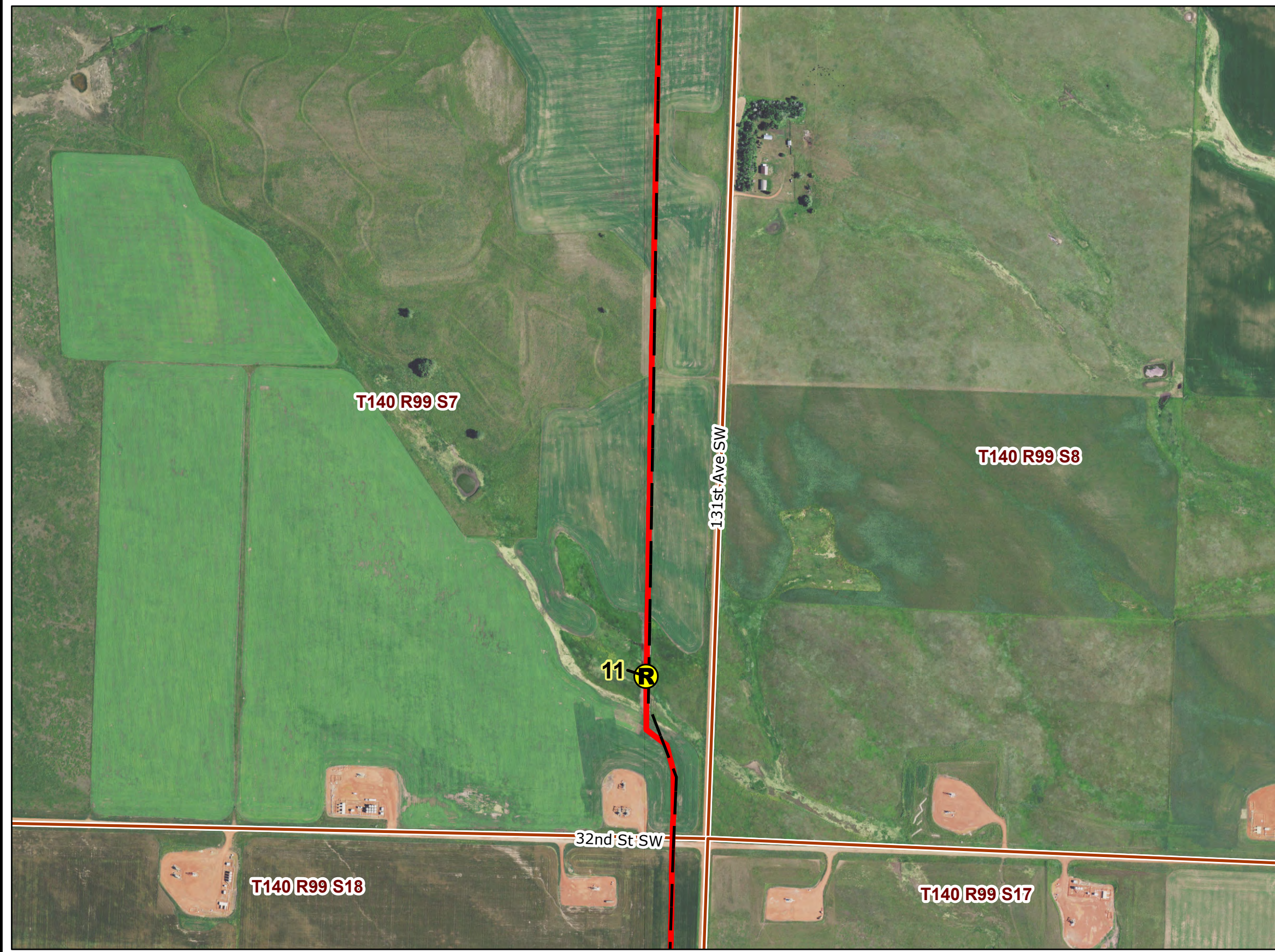
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

- Ⓡ Reclamation Observation Point Location
- — — Andeavor As-built Centerline (2019)
- — — Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
 Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION




Reclamation Observation Locations

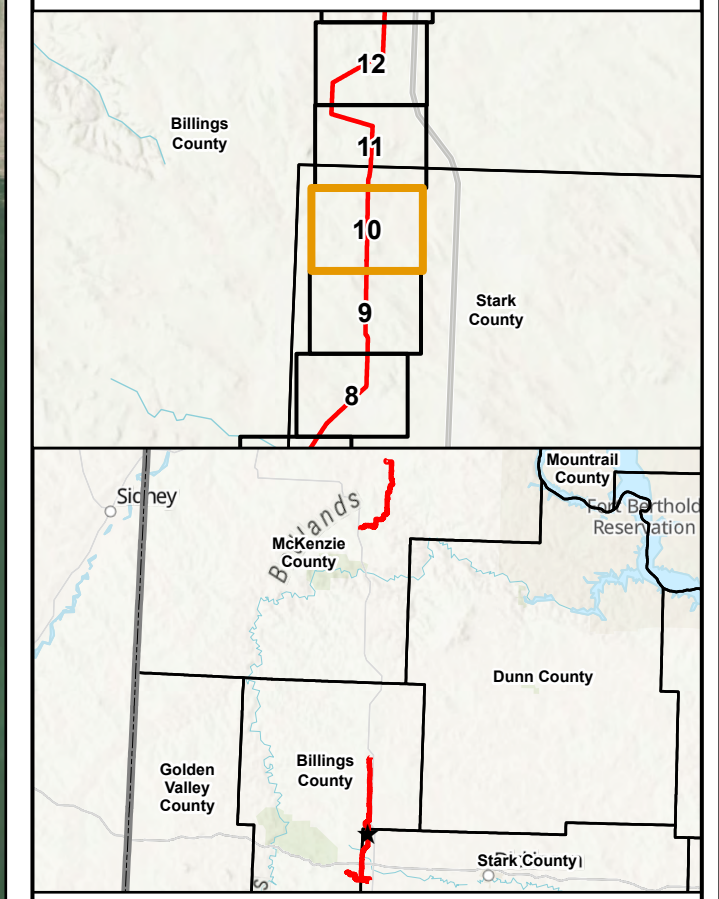
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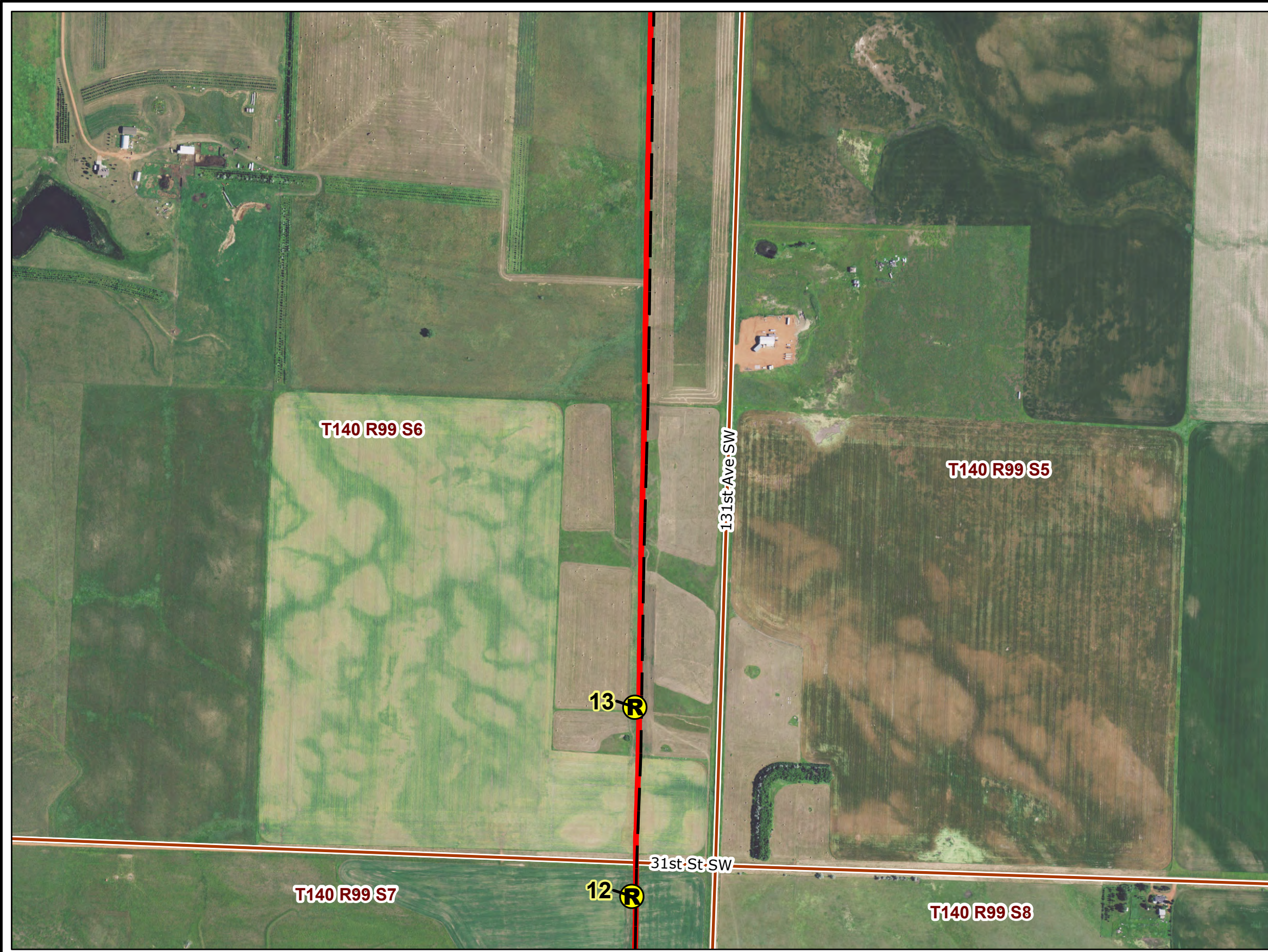
**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
 Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION




Reclamation Observation Locations

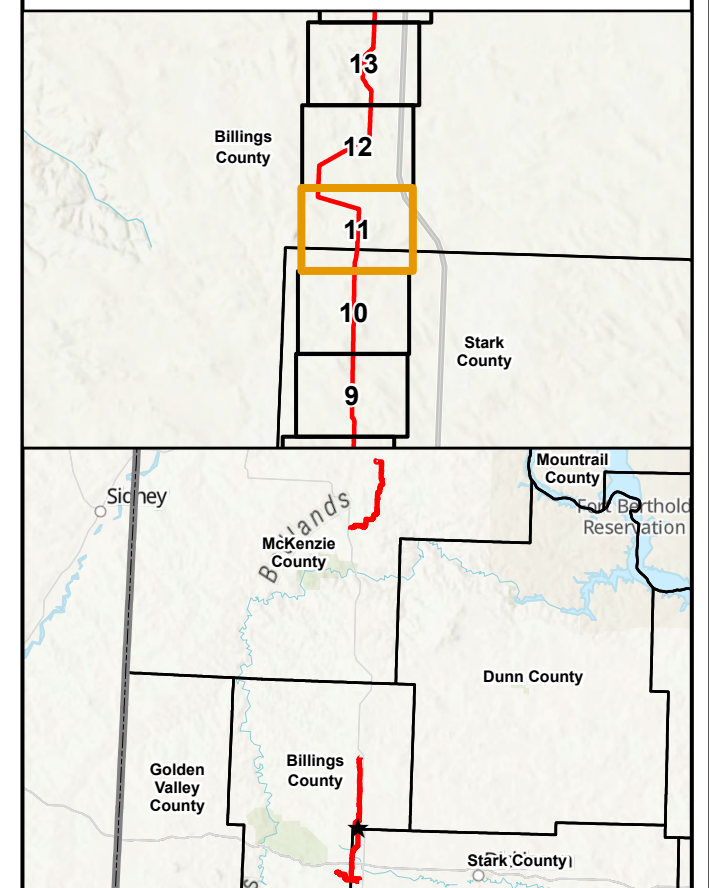


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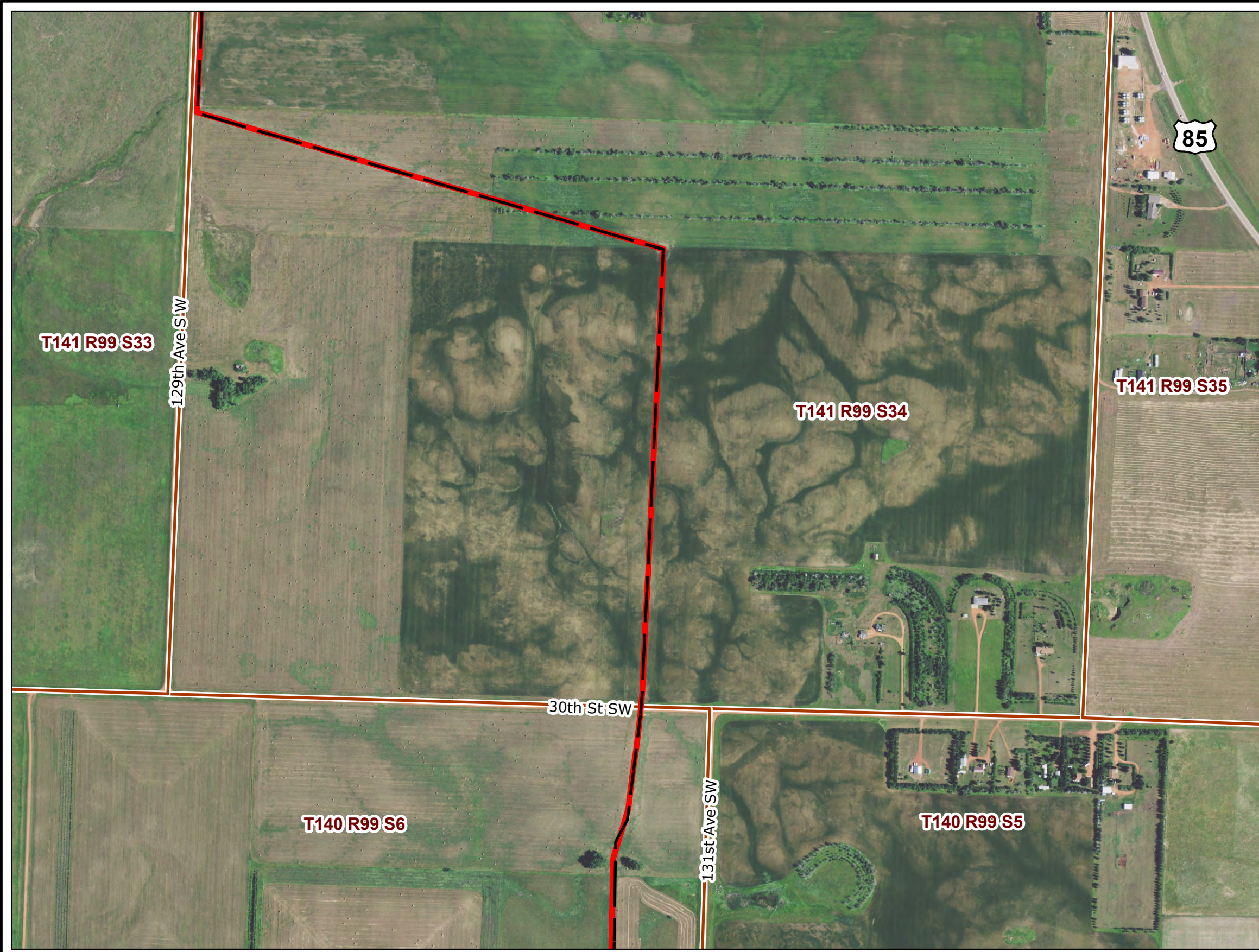
**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






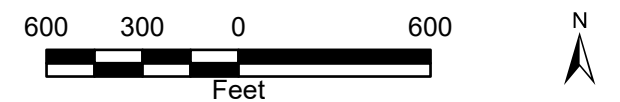
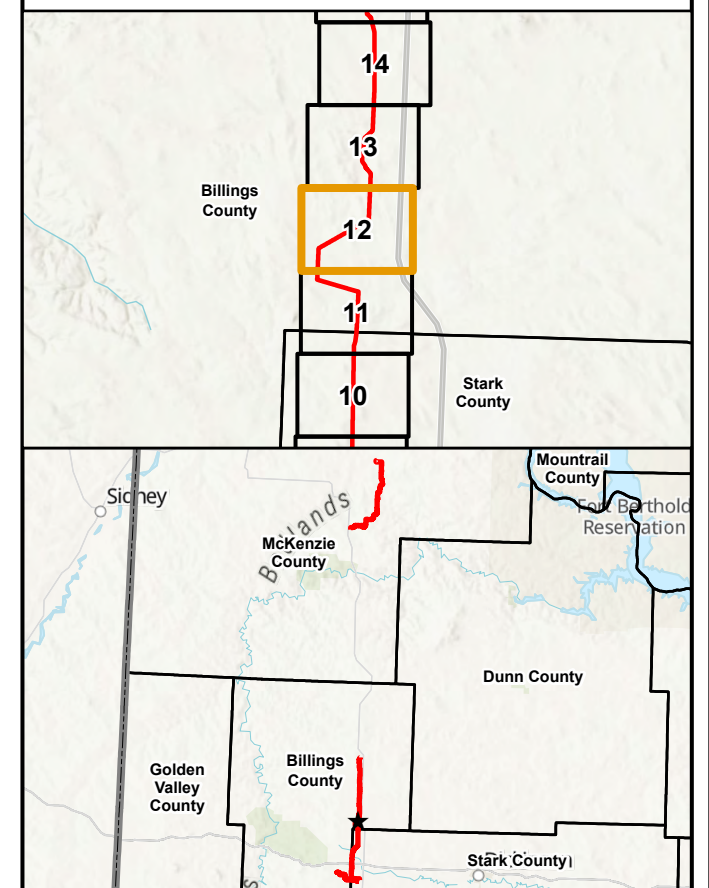
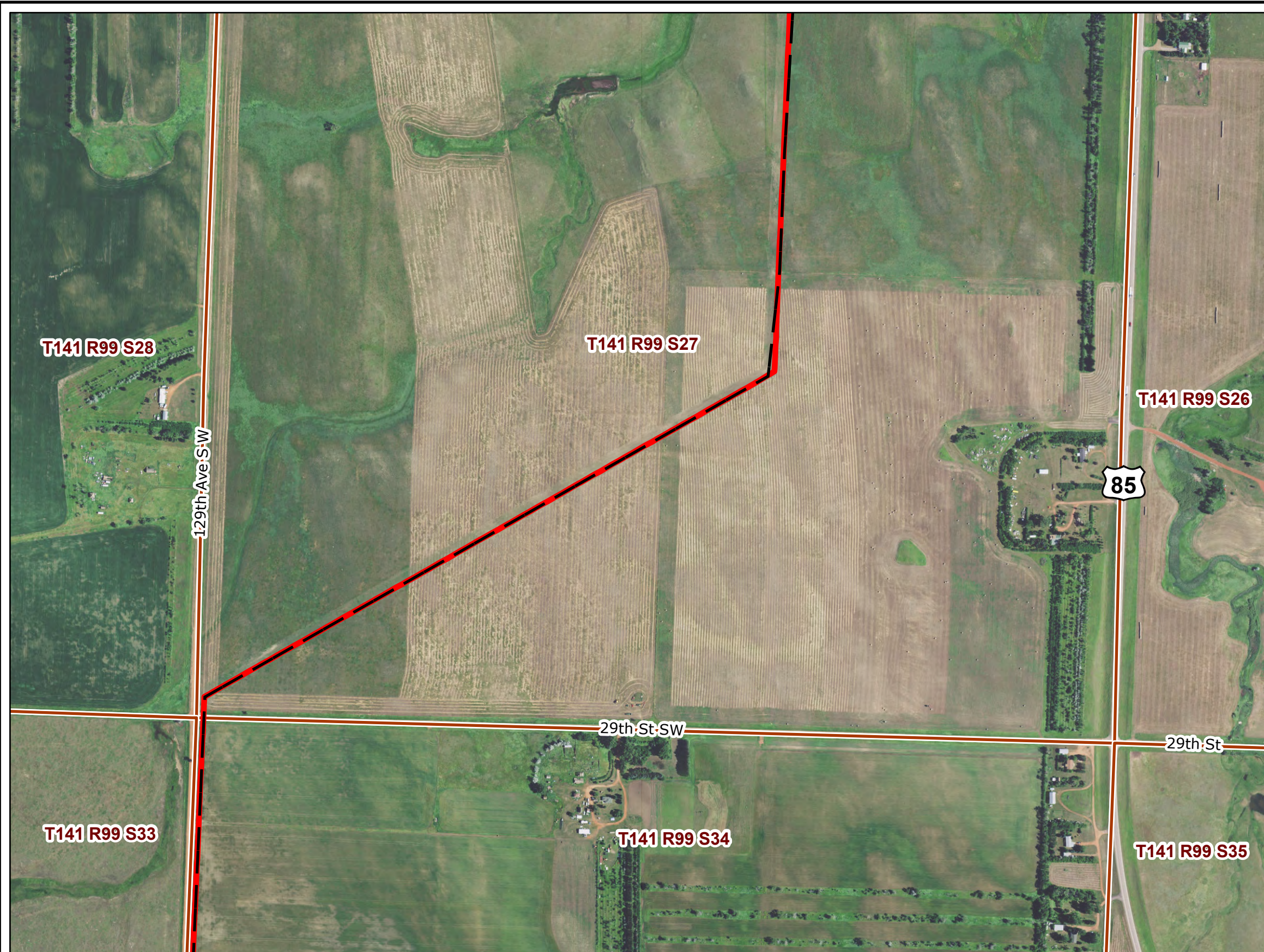
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**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



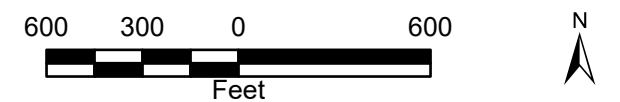
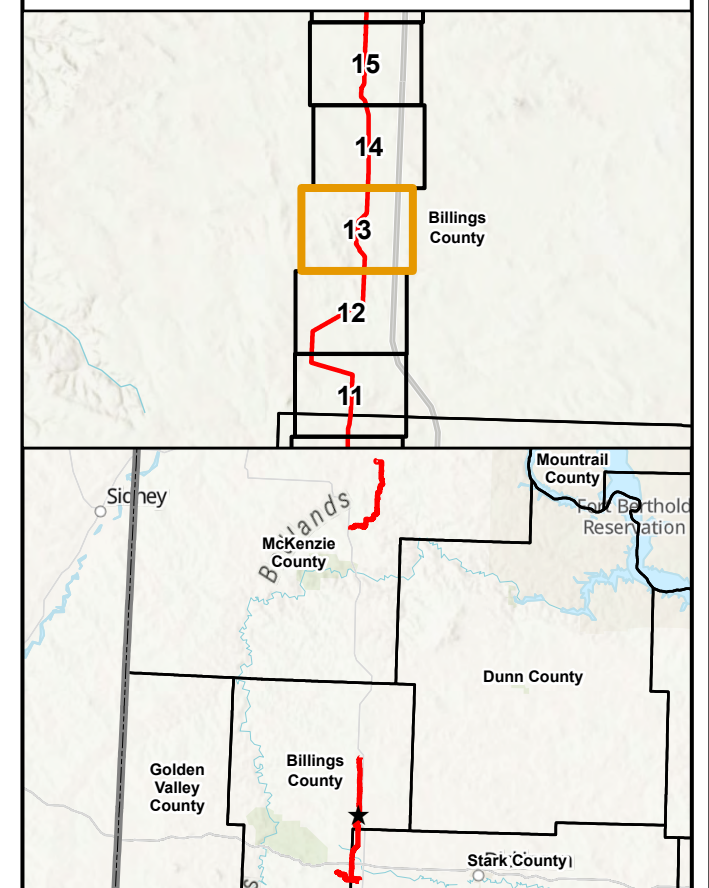
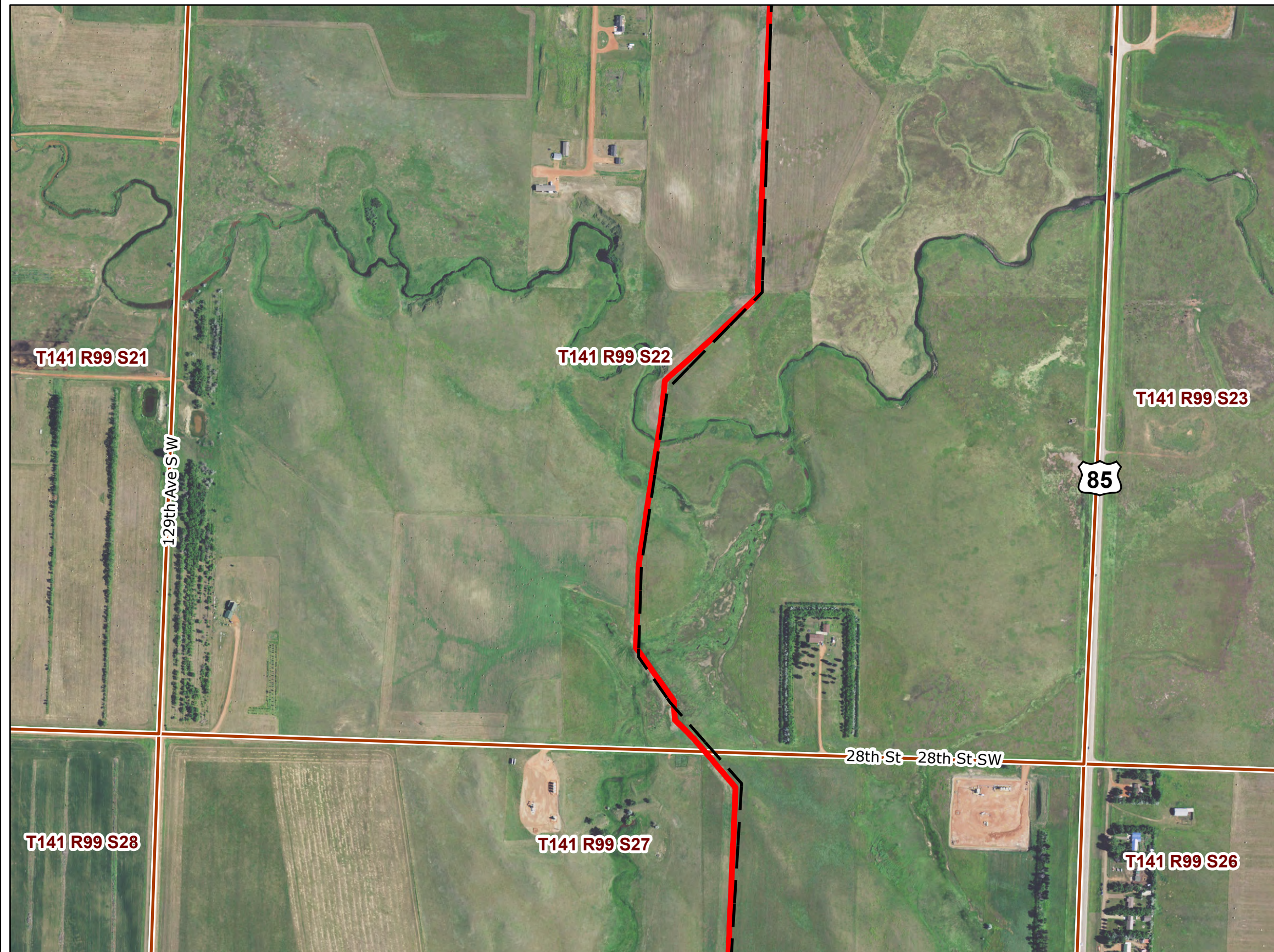
Responsive partner. Exceptional outcomes.

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Andeavor NGL Pipeline
Figure 1

- Ⓡ Reclamation Observation Point Location
- - - Andeavor As-built Centerline (2019)
- Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






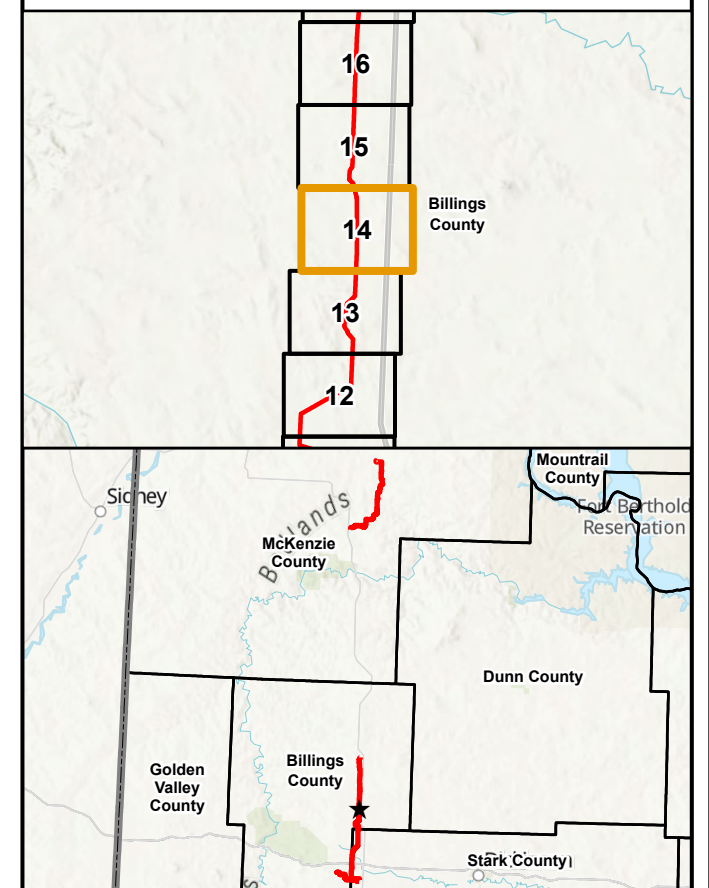
Responsive partner. Exceptional outcomes.

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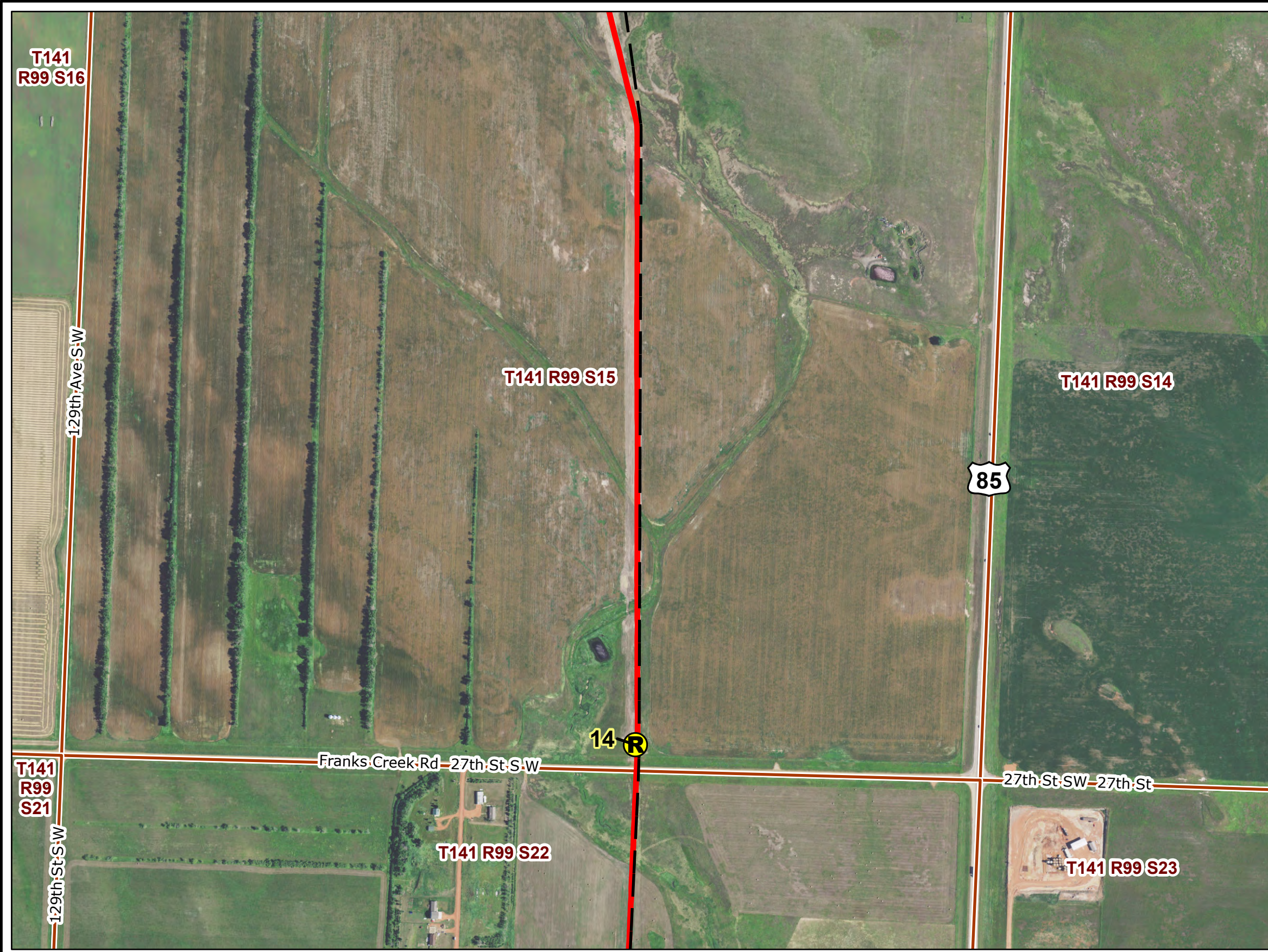
**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



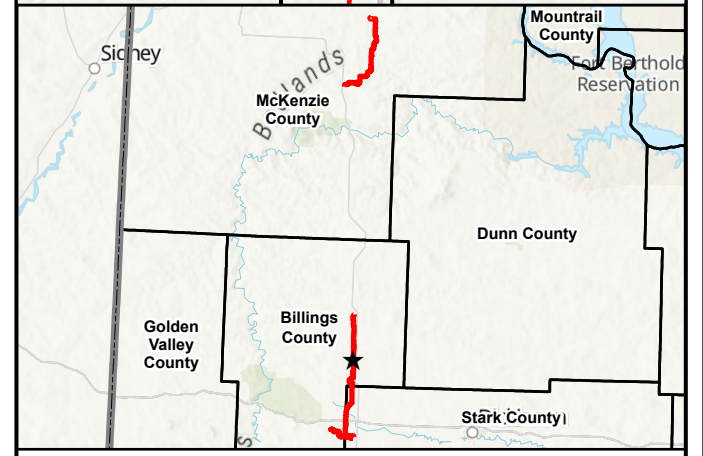
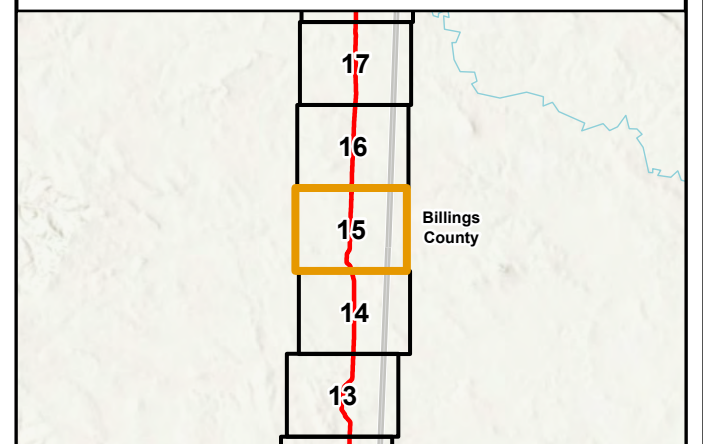
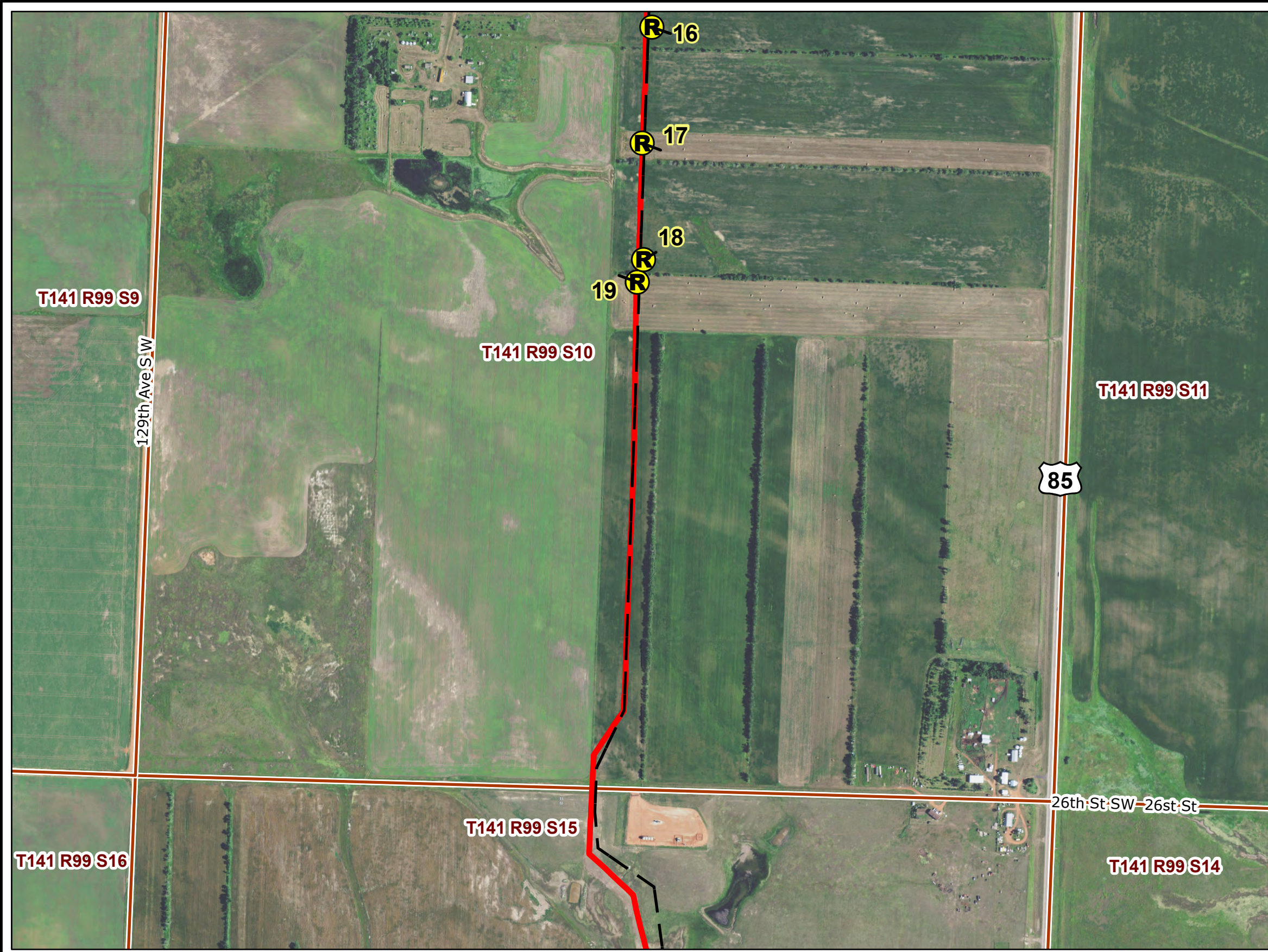
Responsive partner. Exceptional outcomes.

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**Andeavor NGL Pipeline
Figure 1**

- Ⓡ Reclamation Observation Point Location
- — — Andeavor As-built Centerline (2019)
- — — Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION




Reclamation Observation Locations

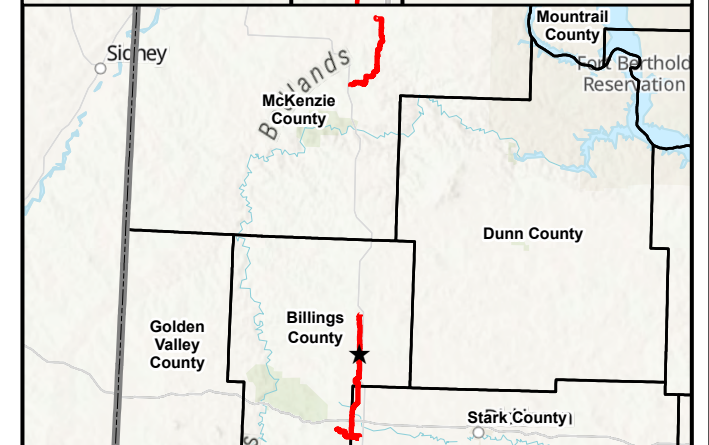
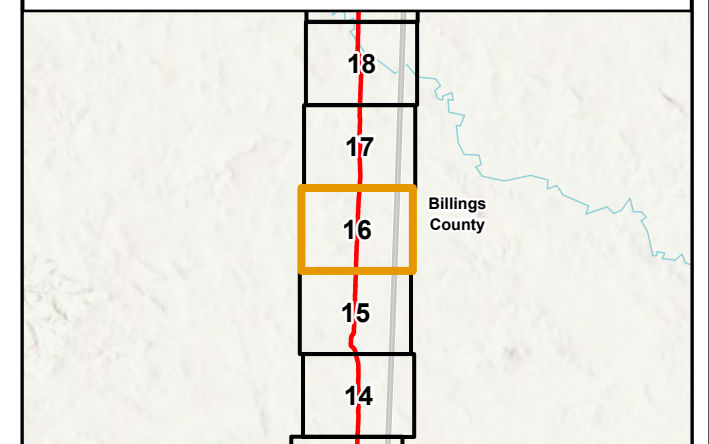
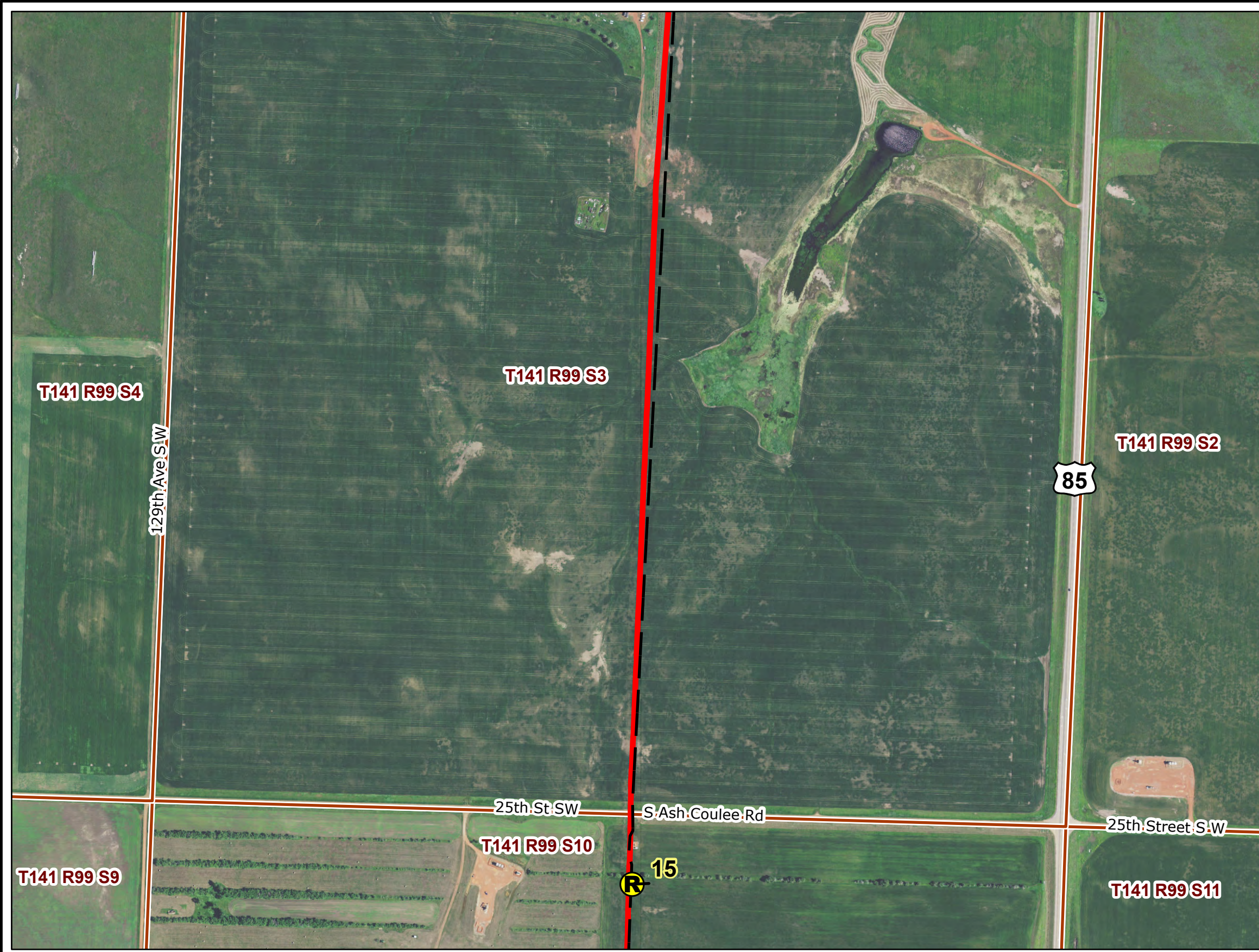


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**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION




Reclamation Observation Locations

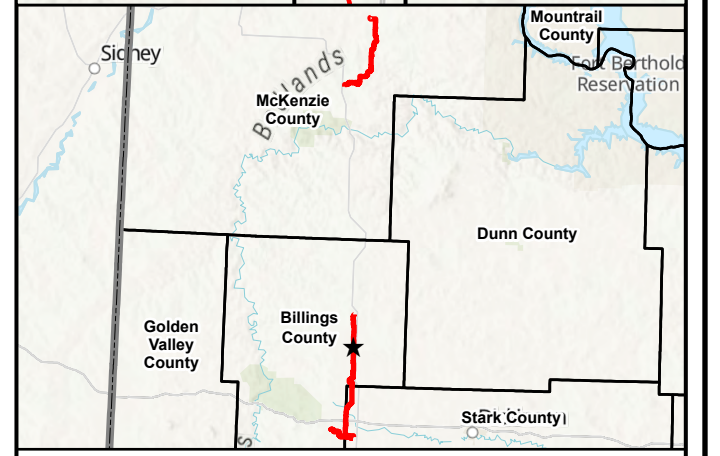
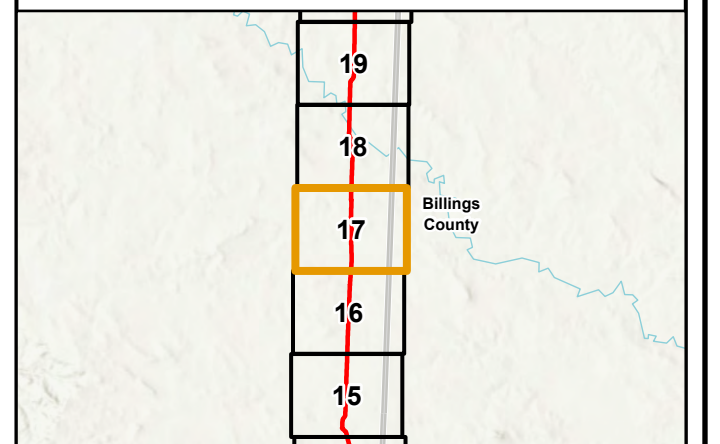
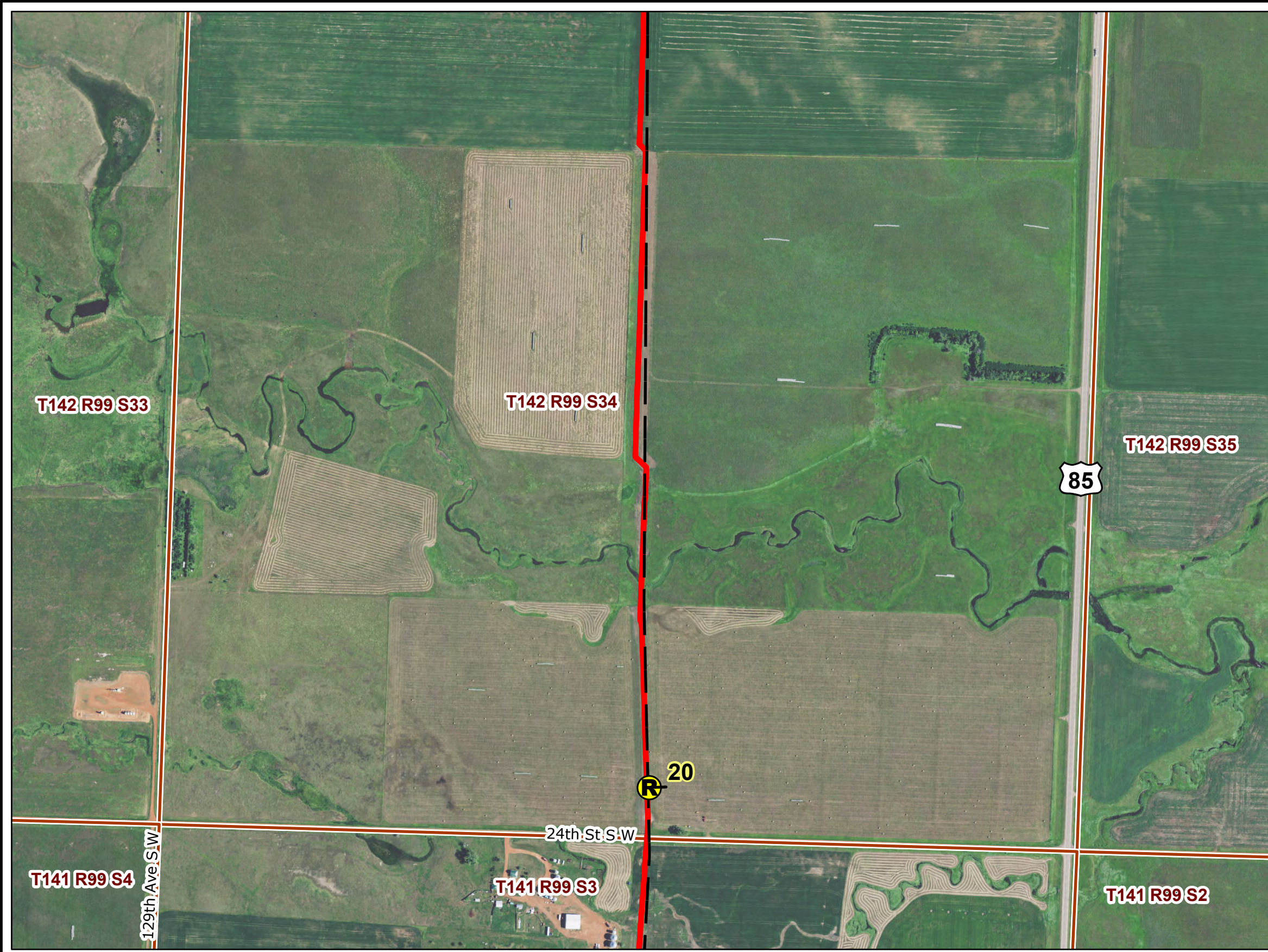


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**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






Responsive partner. Exceptional outcomes.

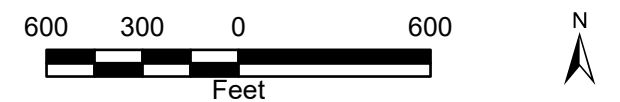
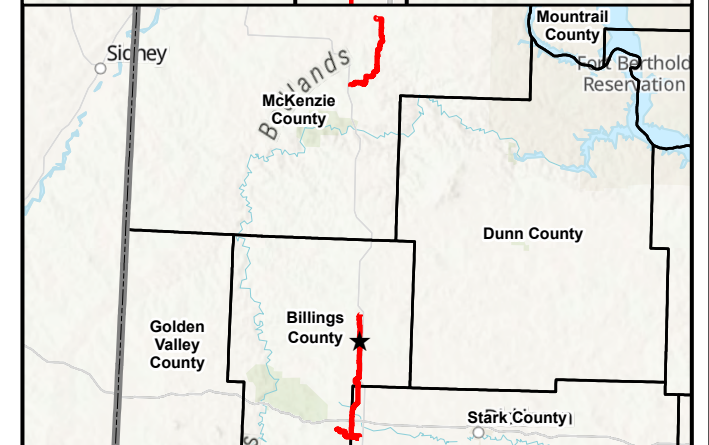
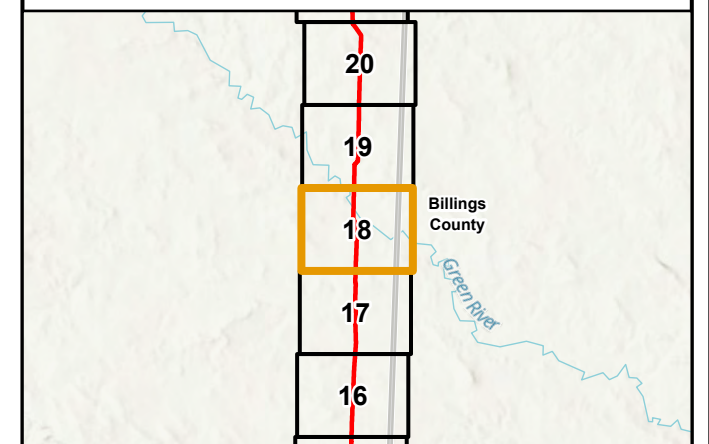
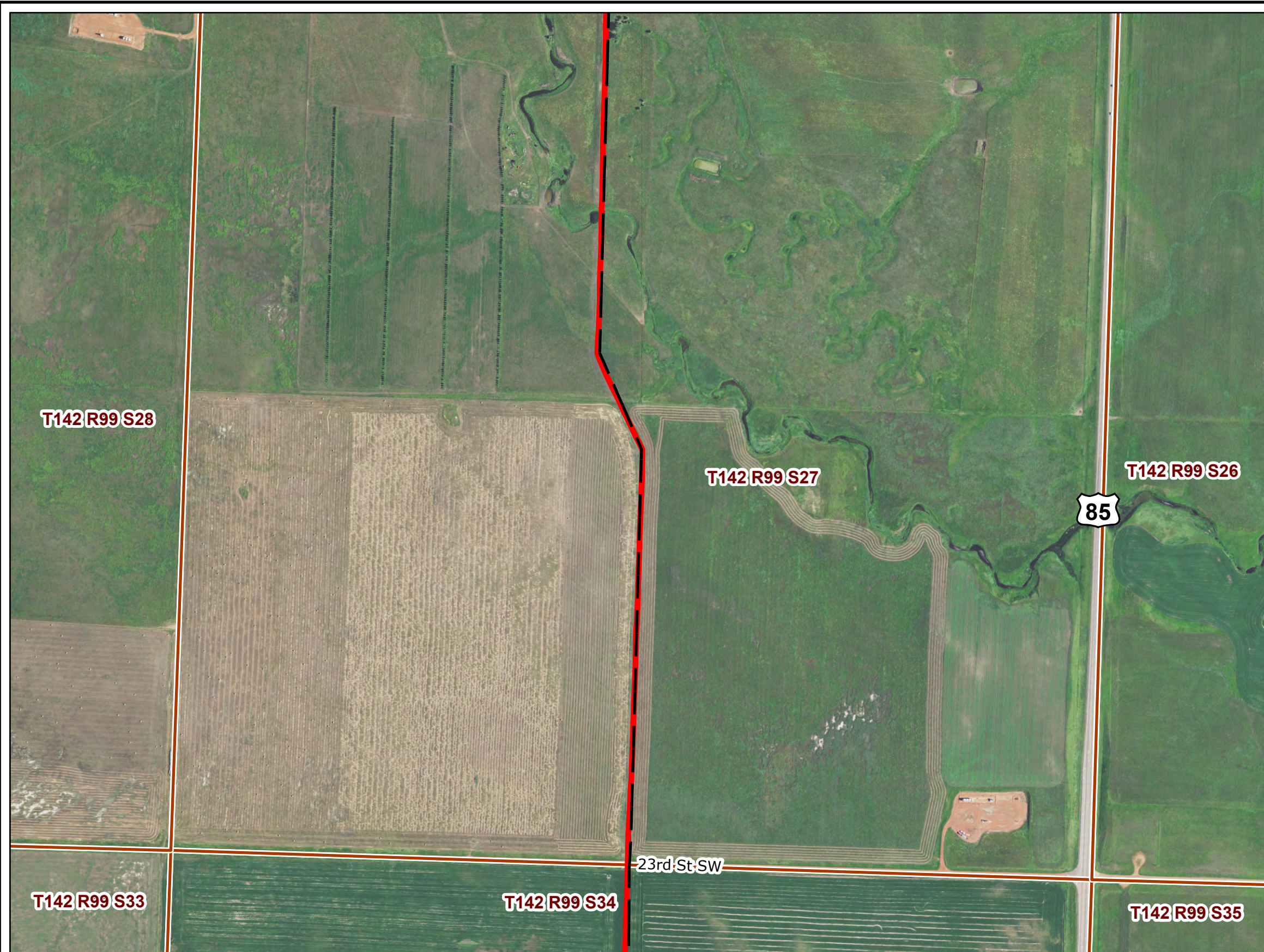
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






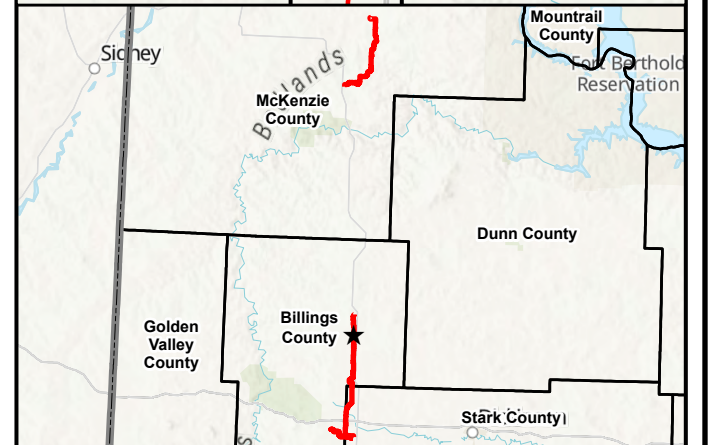
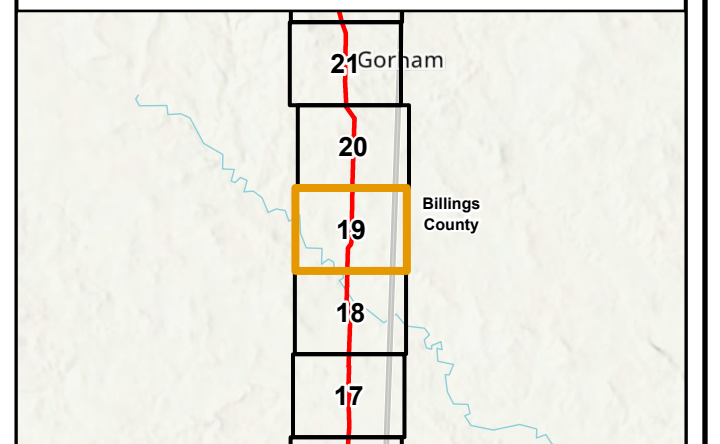
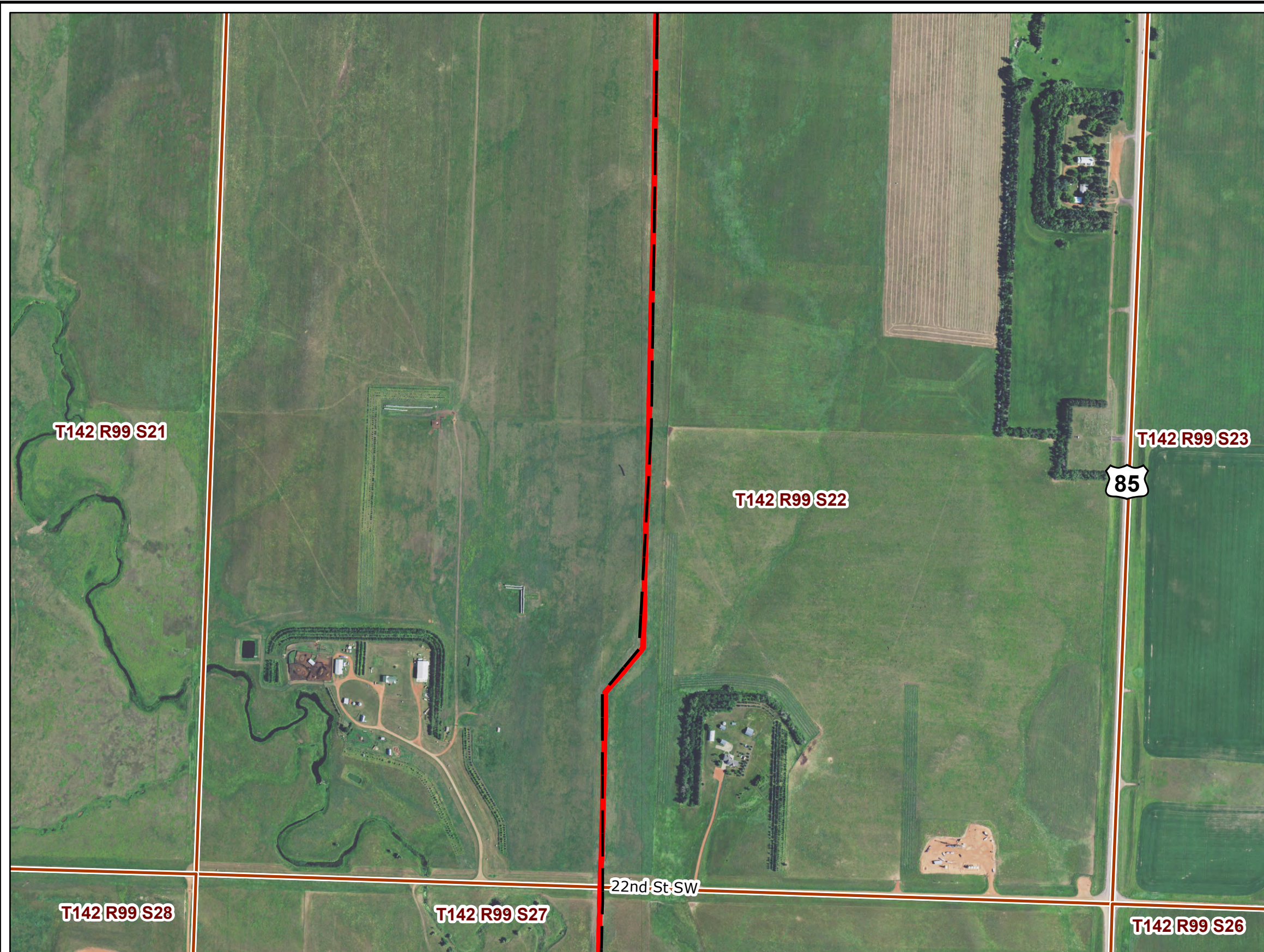
Responsive partner. Exceptional outcomes.

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**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)






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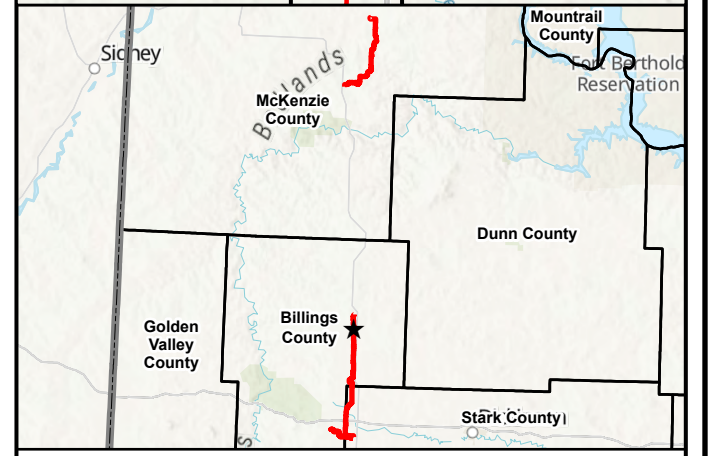
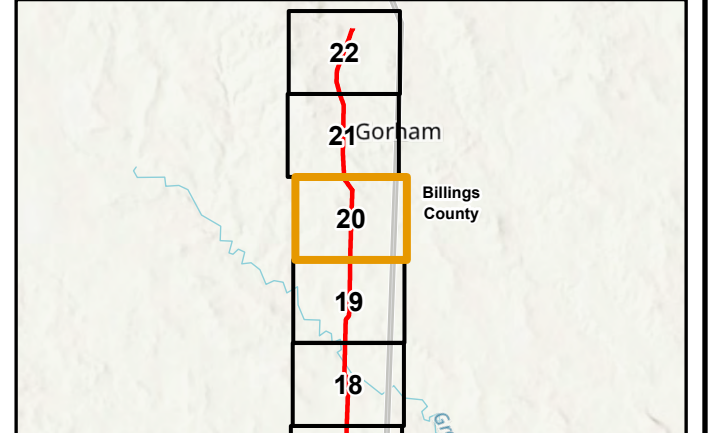
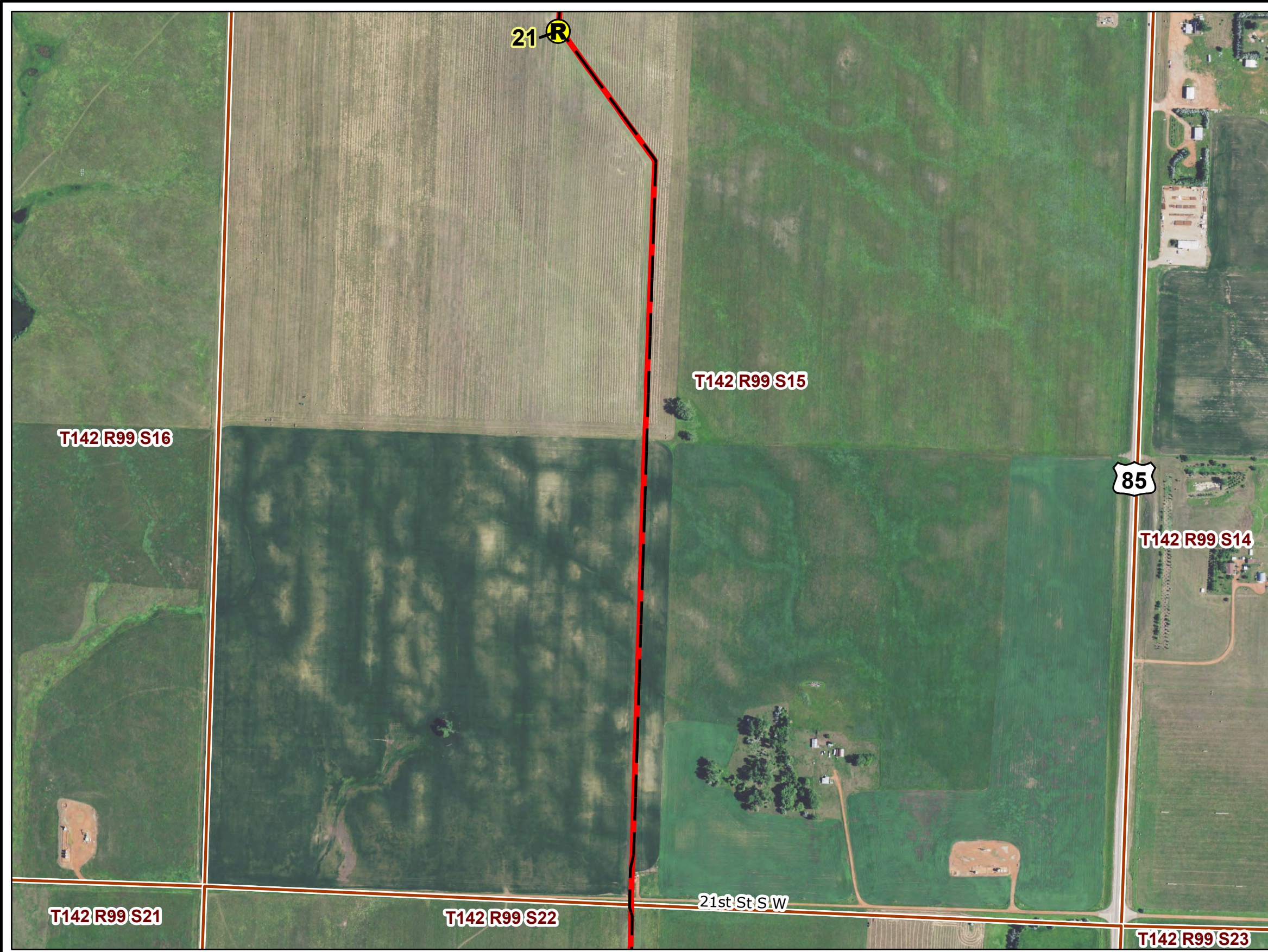
PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION
 Reclamation Observation Locations



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**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






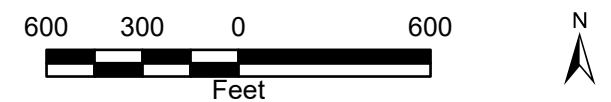
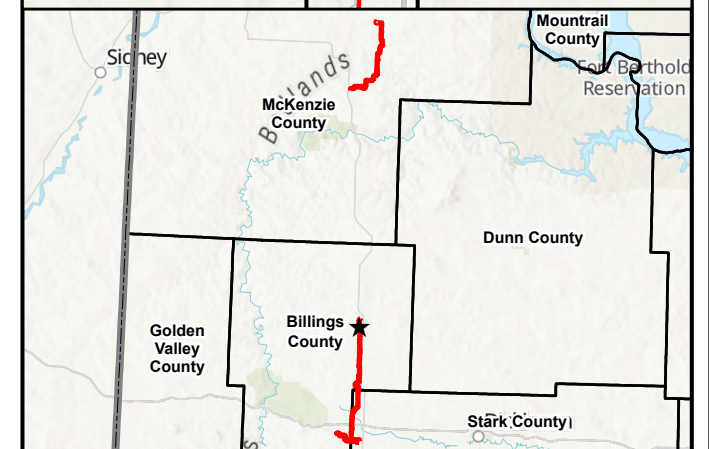
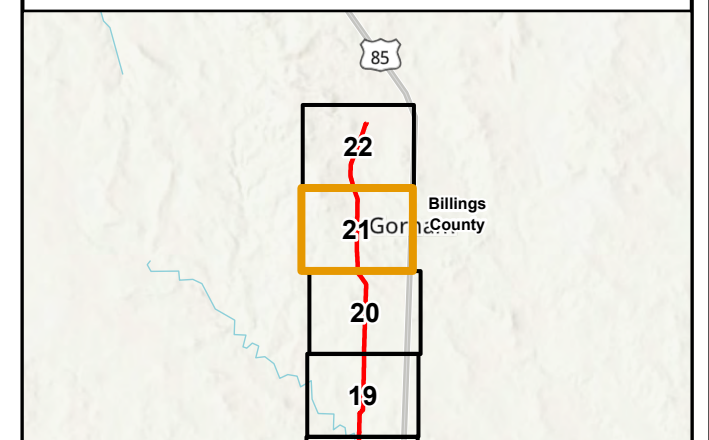
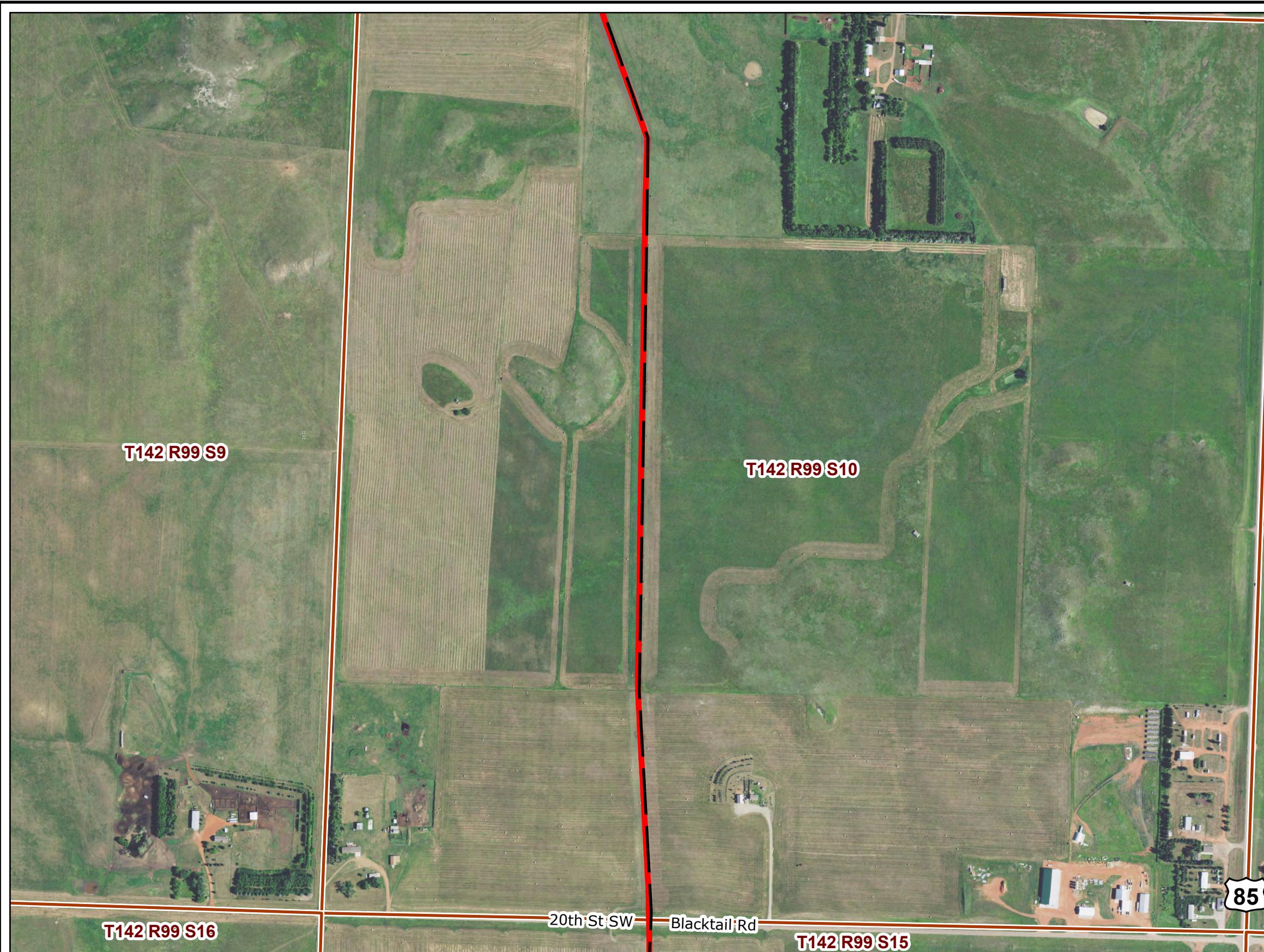
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

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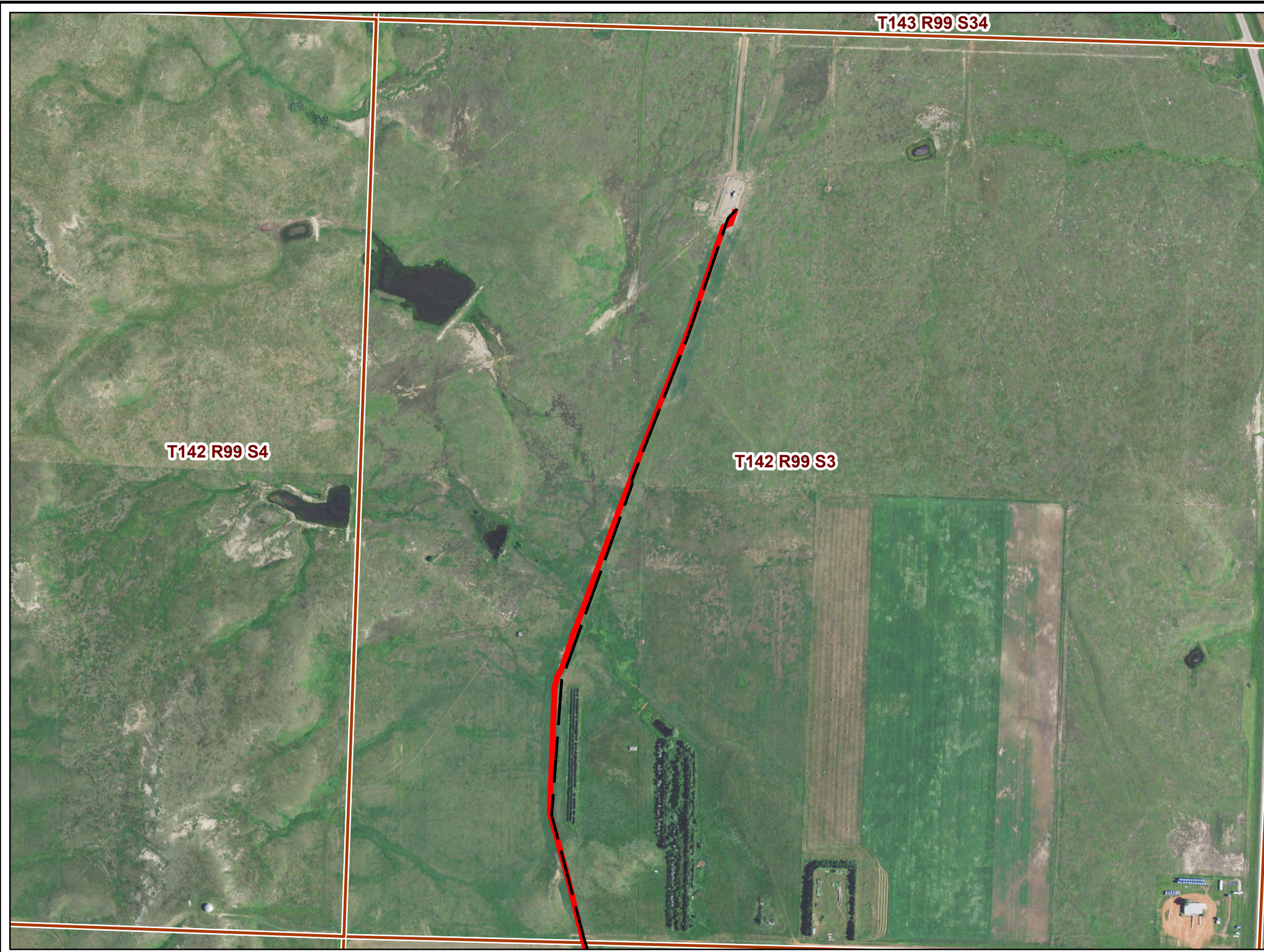
PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



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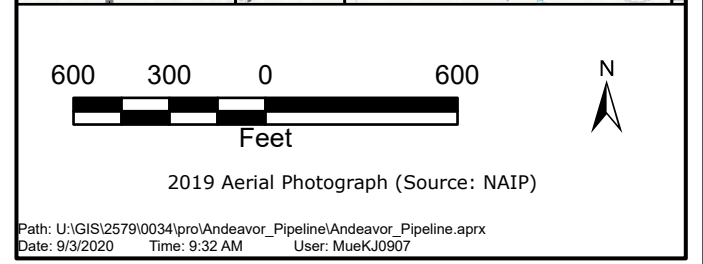
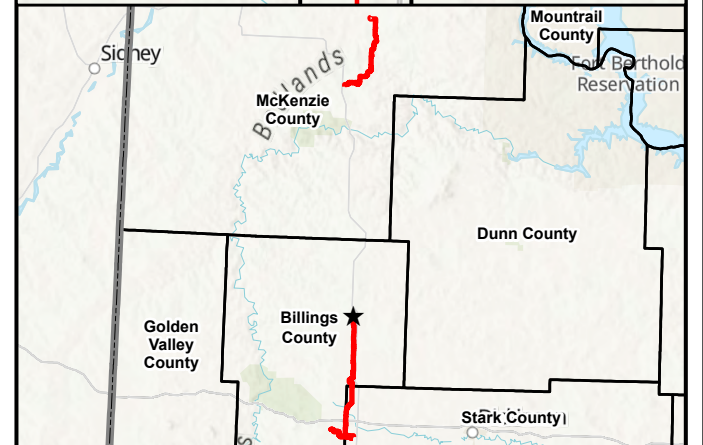
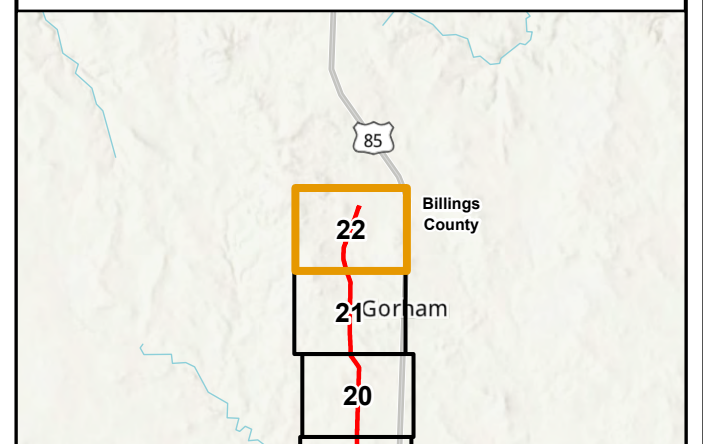
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

- Reclamation Observation Point Location
- Andeavor As-built Centerline (2019)
- Andeavor As-built Centerline (2020 PSC)



PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION




Reclamation Observation Locations

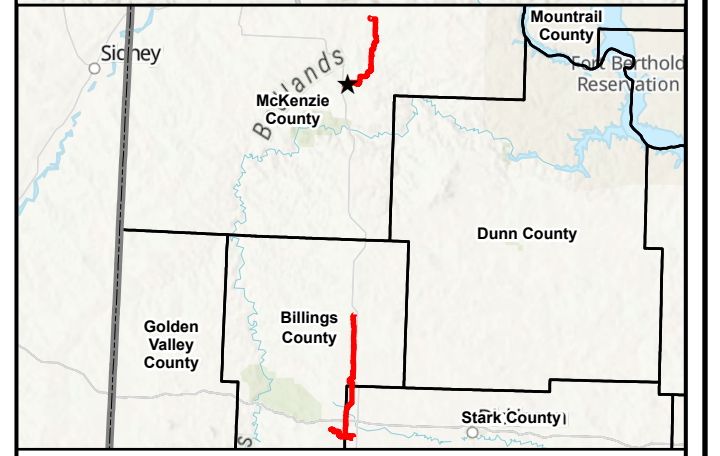
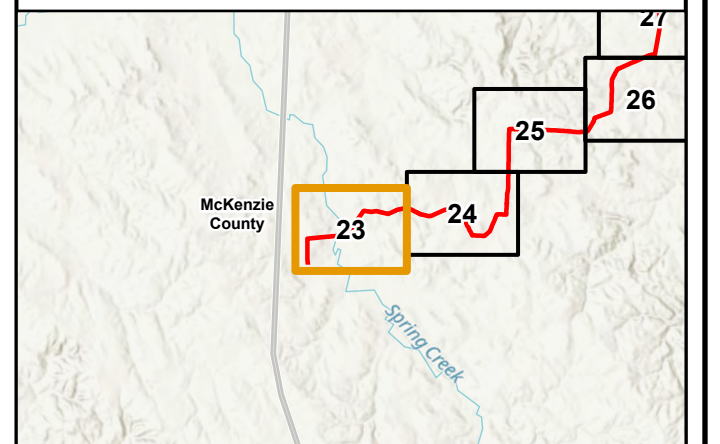
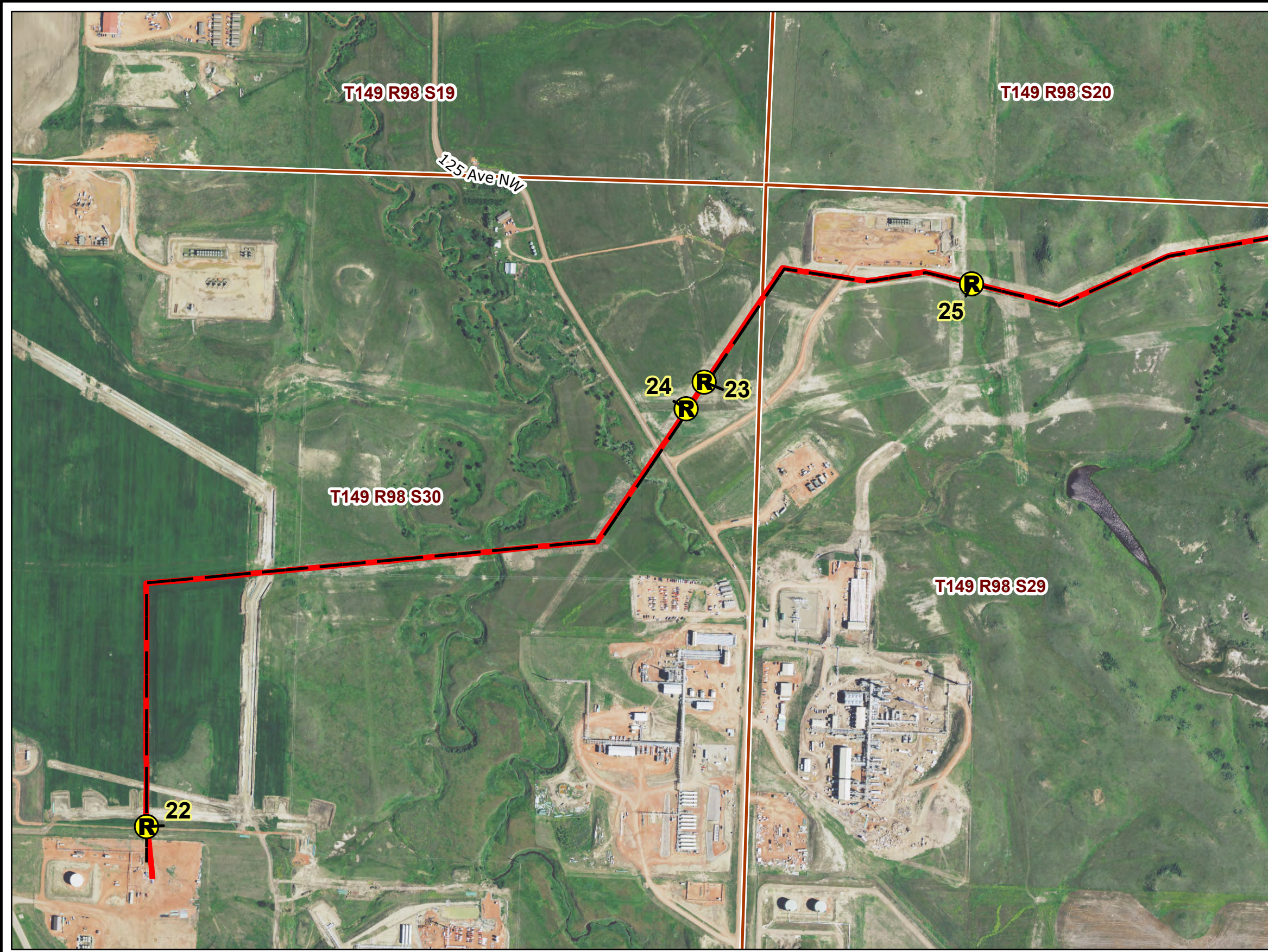


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**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
 Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






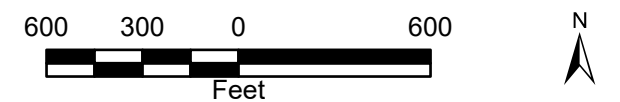
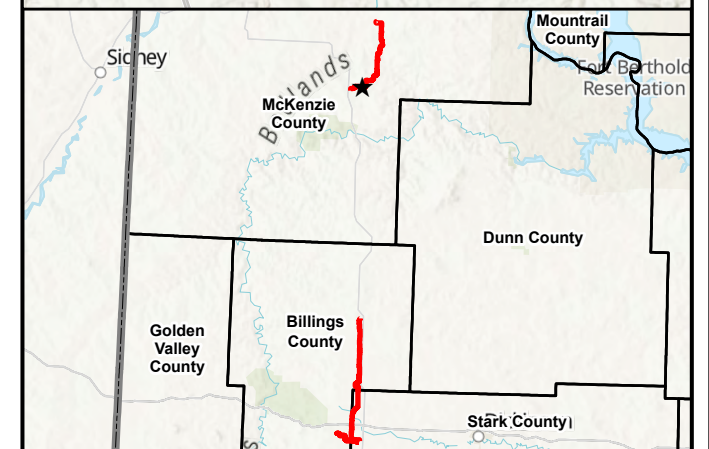
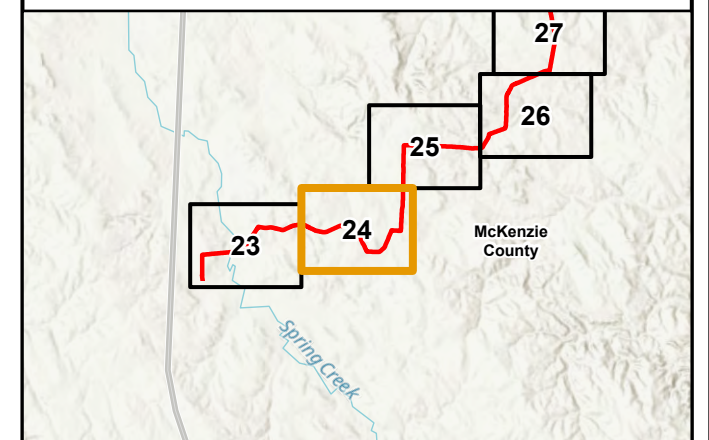
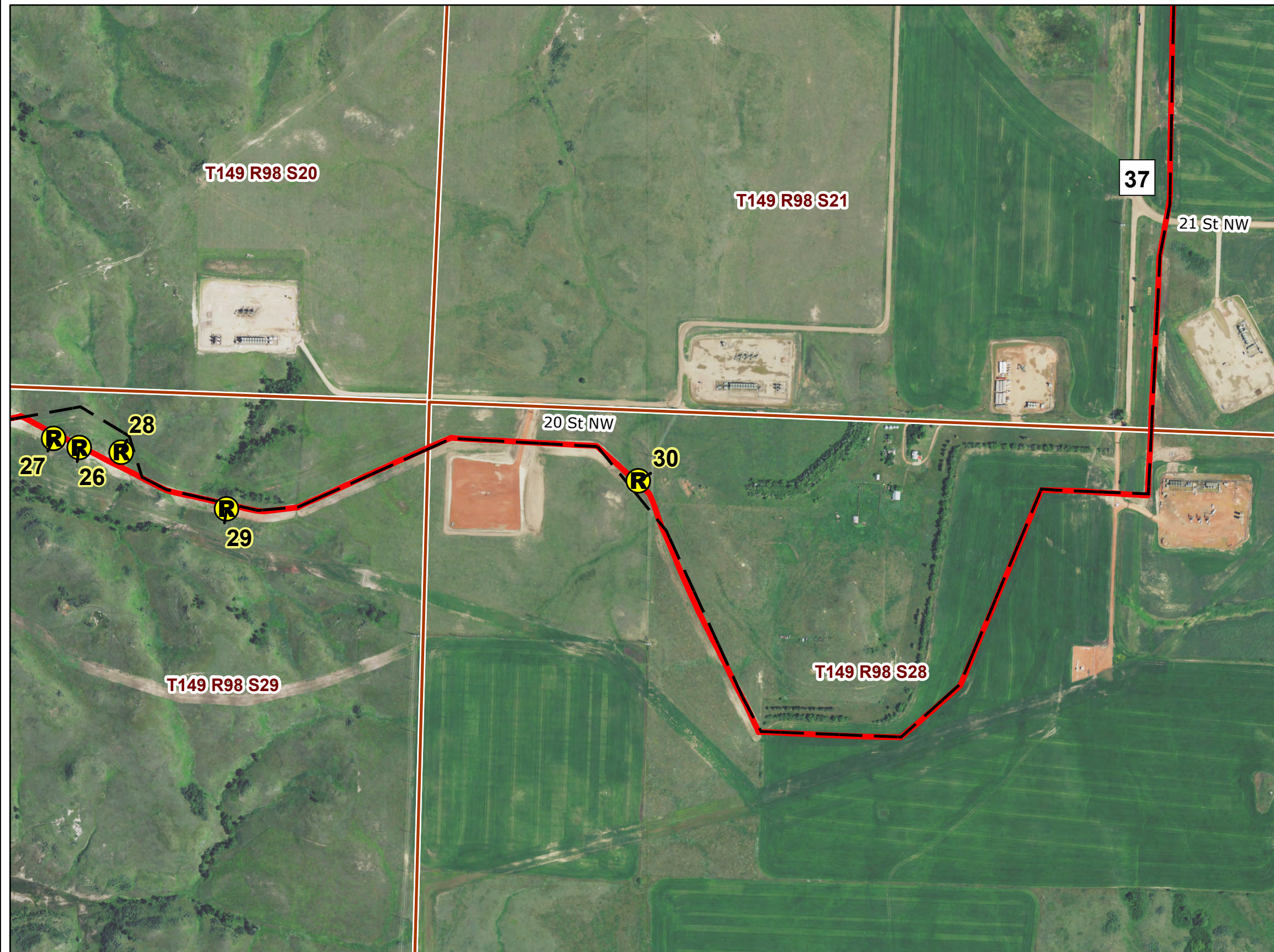
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

Path: U:\GIS\2579\0034\prj\Andeavor_Pipeline\Andeavor_Pipeline.aprx
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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



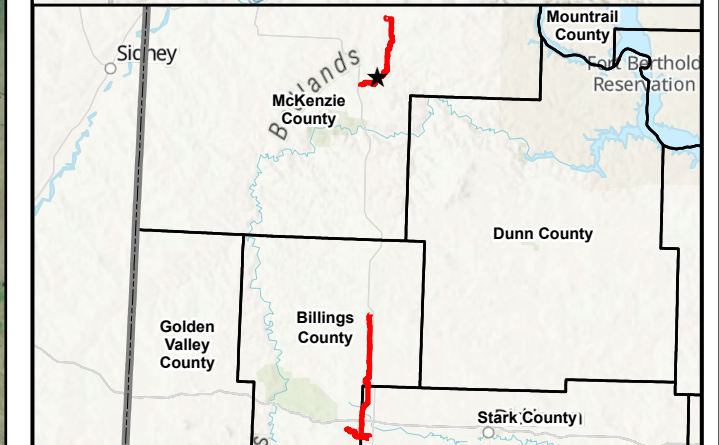
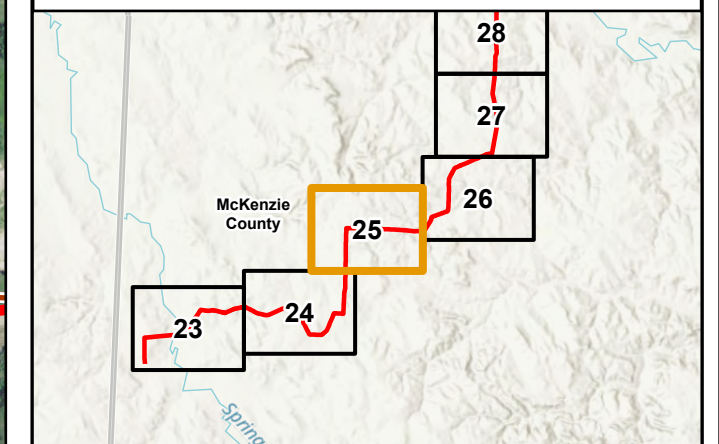
Responsive partner. Exceptional outcomes.

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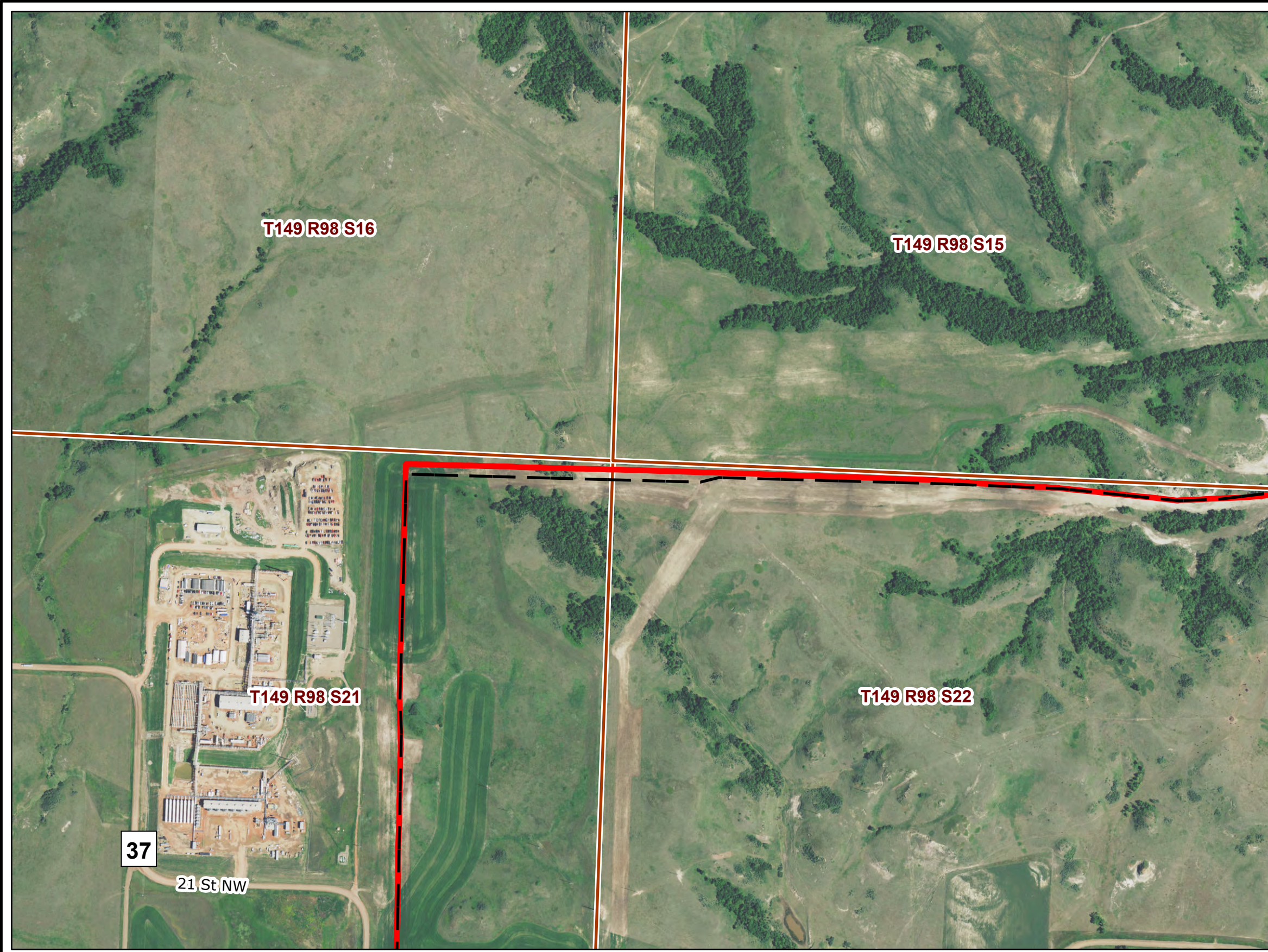
**Andeavor NGL Pipeline
Figure 1**

- 📍 Reclamation Observation Point Location
- - - Andeavor As-built Centerline (2019)
- Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






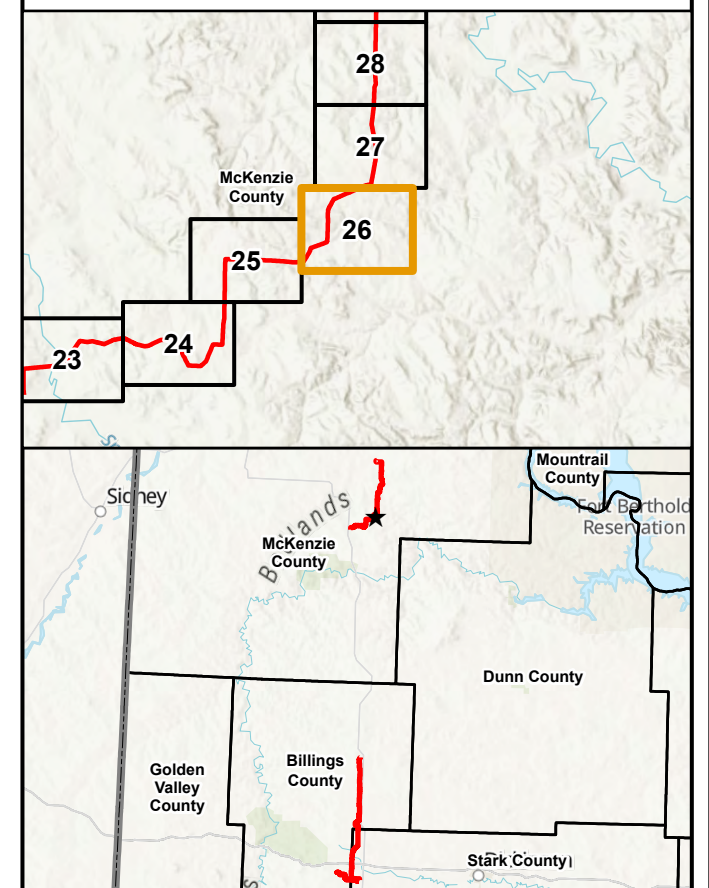
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**North Dakota
Public Service Commission**

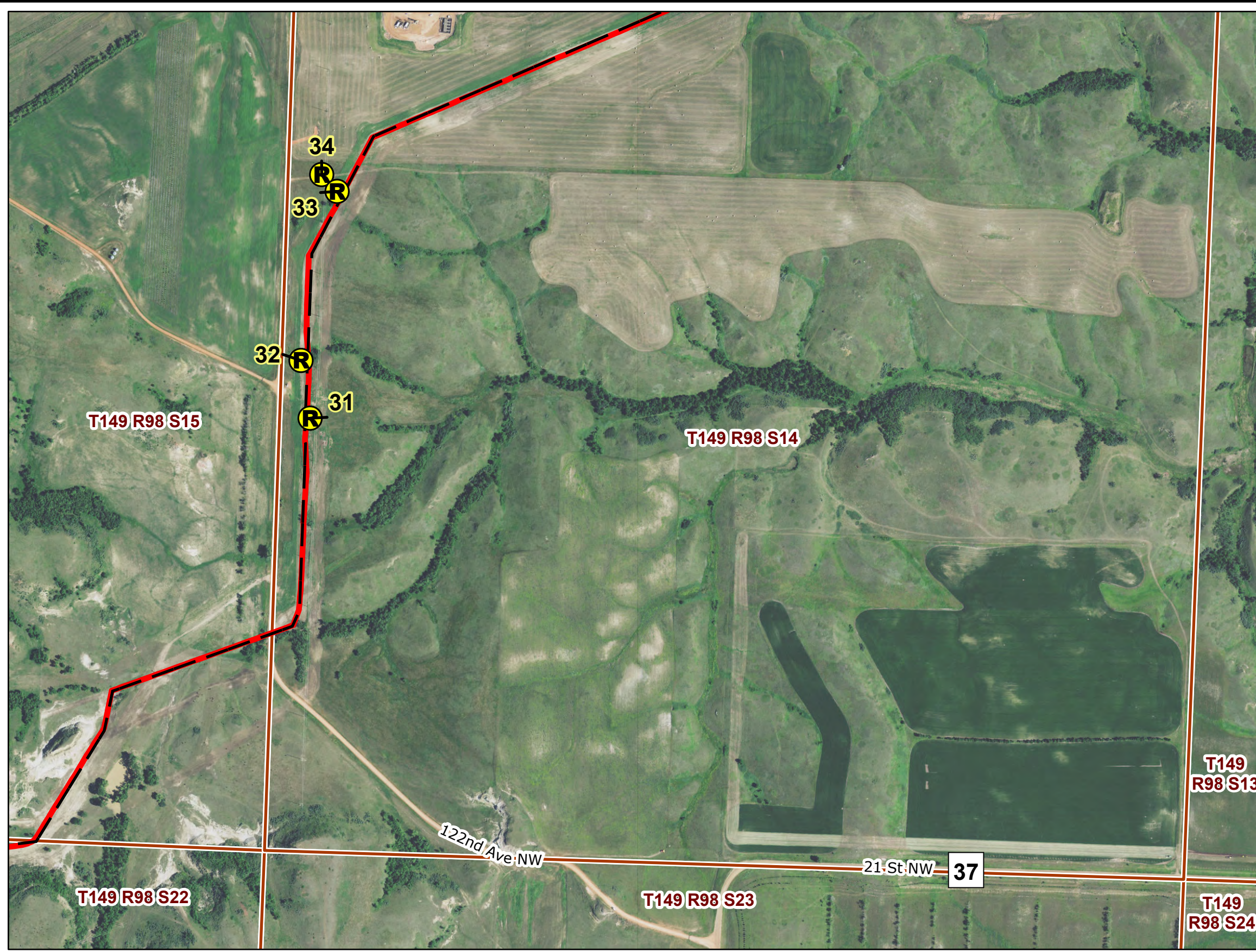
**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

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Date: 9/3/2020 Time: 9:33 AM User: MueKJ0907



PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



Responsive partner. Exceptional outcomes.

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Andeavor NGL Pipeline Figure 1

- Ⓡ Reclamation Observation Point Location
- — Andeavor As-built Centerline (2019)
- — Andeavor As-built Centerline (2020 PSC)

T149 R98 S10

T149 R98 S11

T149 R98 S12

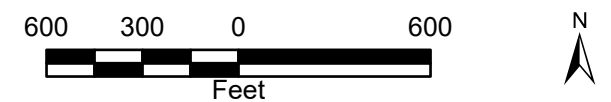
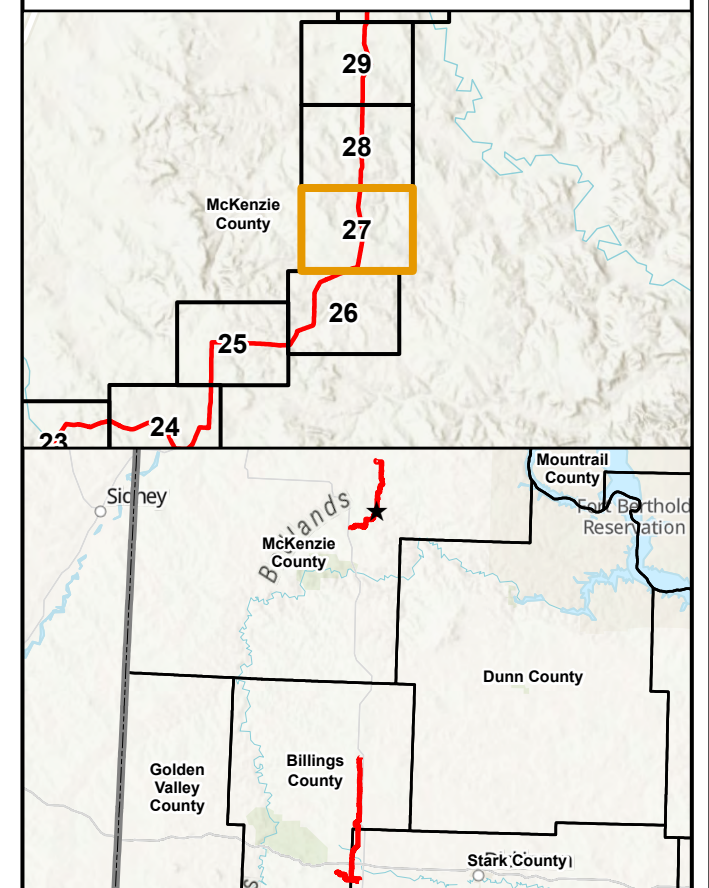
36 Ⓡ 35

122nd Ave NW

T149 R98 S15

T149 R98 S14

T149 R98 S13



2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






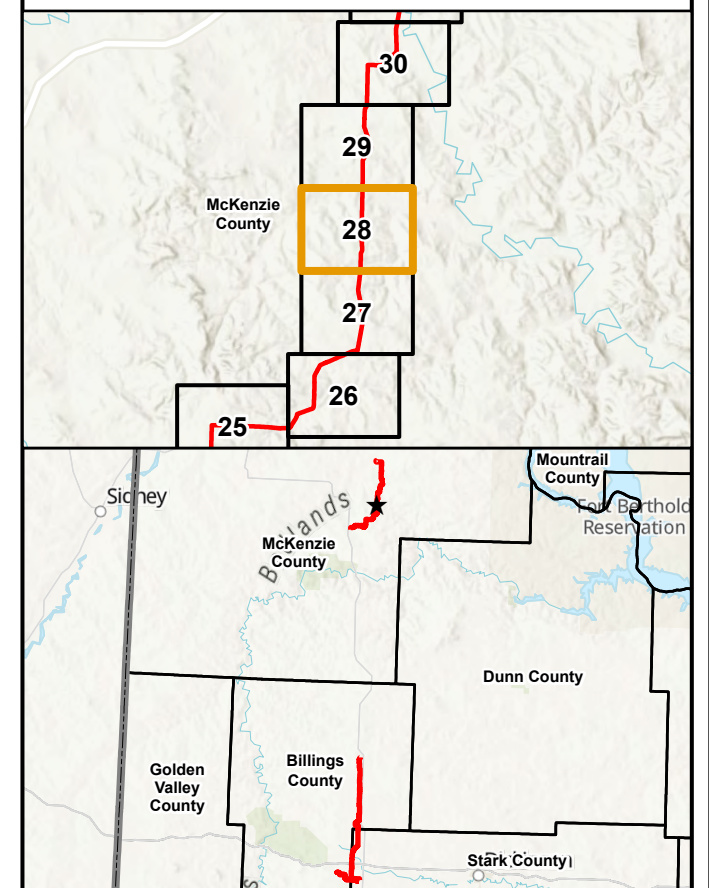
Responsive partner. Exceptional outcomes.

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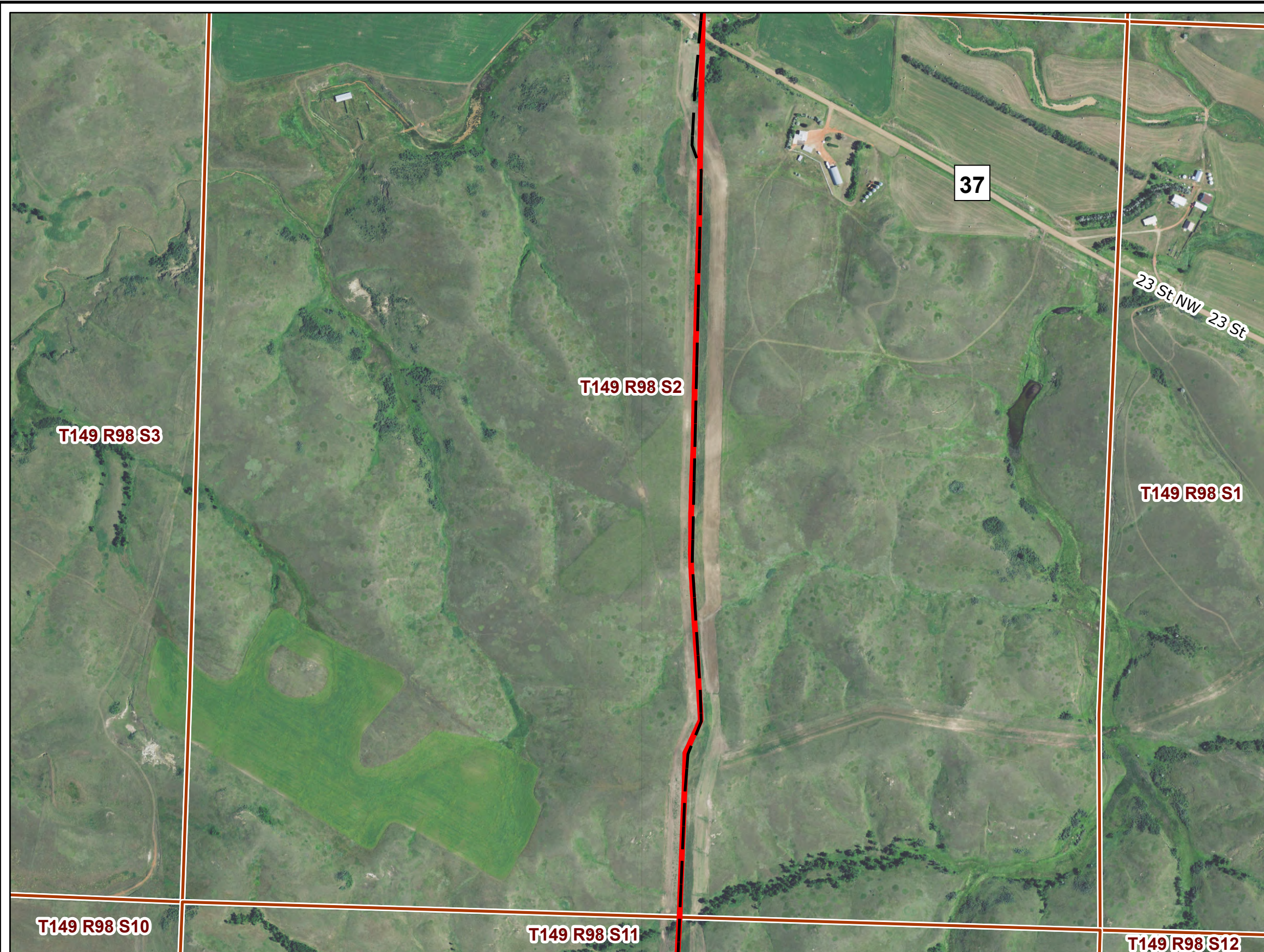
**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

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Date: 9/3/2020 Time: 9:33 AM User: MueKJ0907



PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



Responsive partner. Exceptional outcomes.

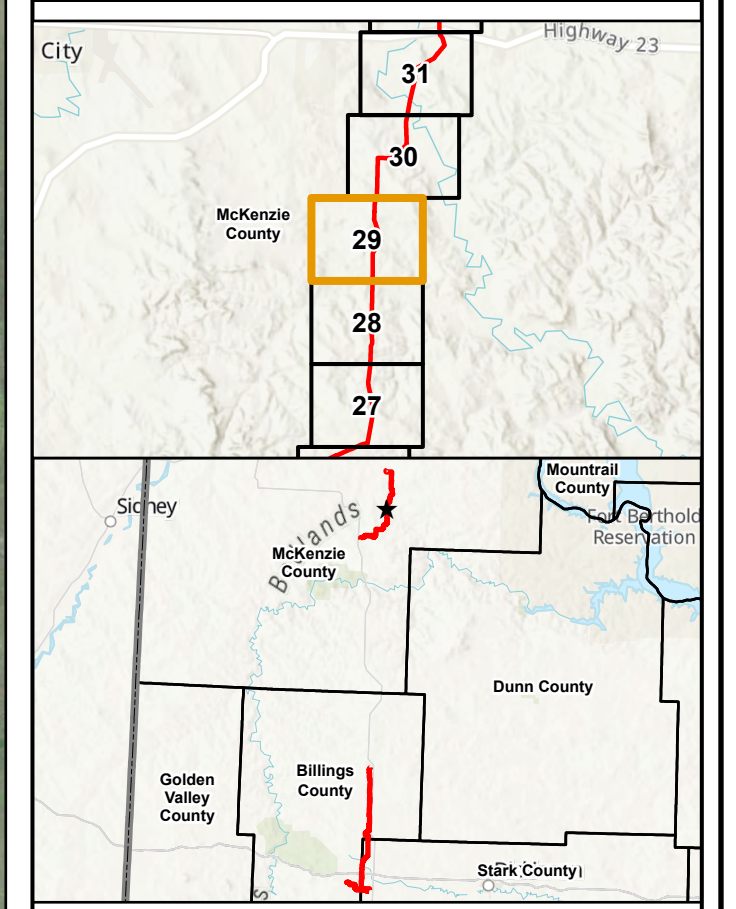
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

- Ⓡ Reclamation Observation Point Location
- — — Andeavor As-built Centerline (2019)
- — — Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)
 Path: U:\GIS\2579\0034\pro\Andeavor_Pipeline\Andeavor_Pipeline.aprx
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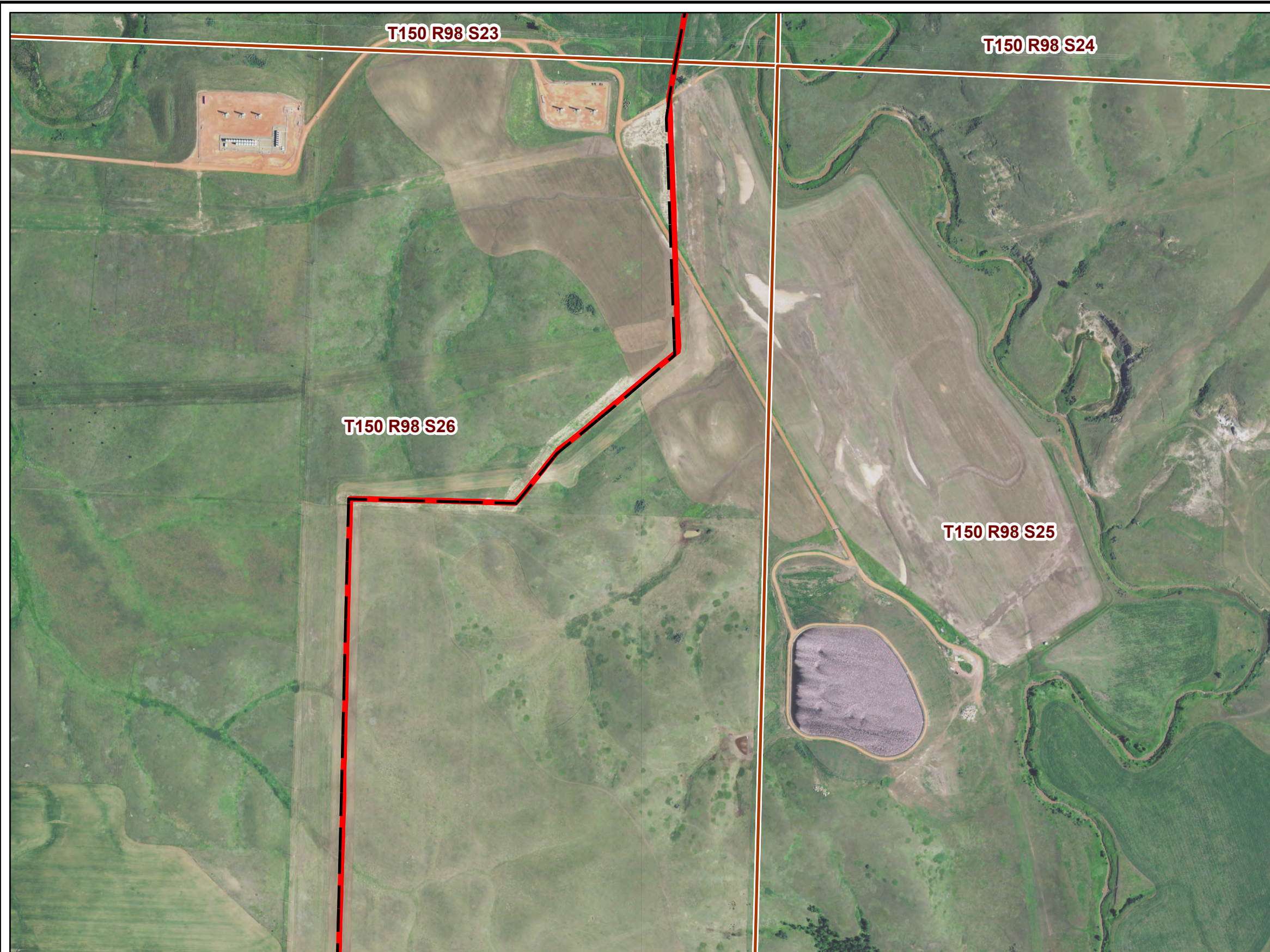
PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



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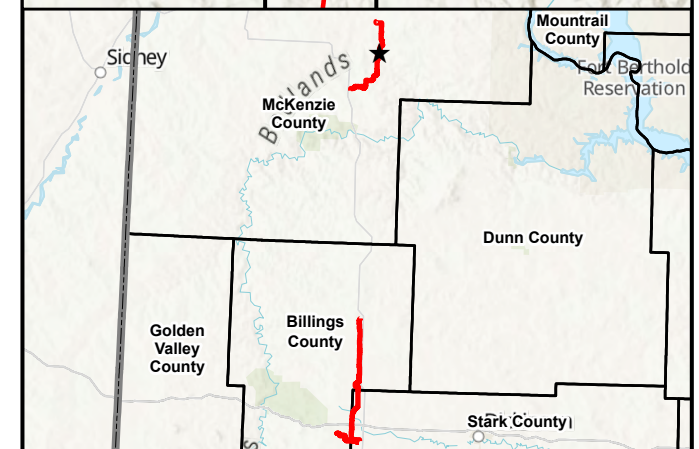
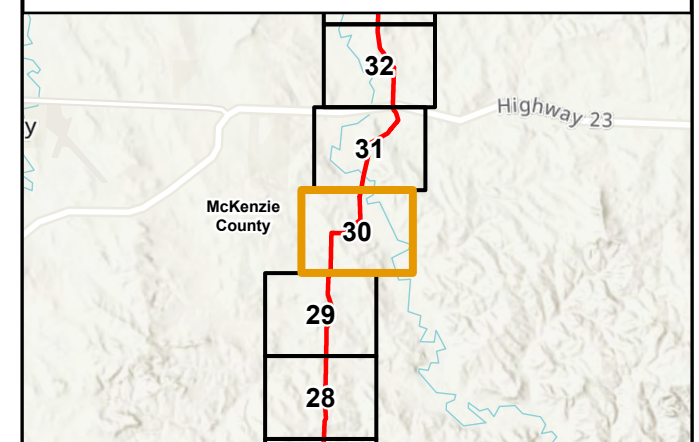
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

- Ⓡ Reclamation Observation Point Location
- — Andeavor As-built Centerline (2019)
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2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

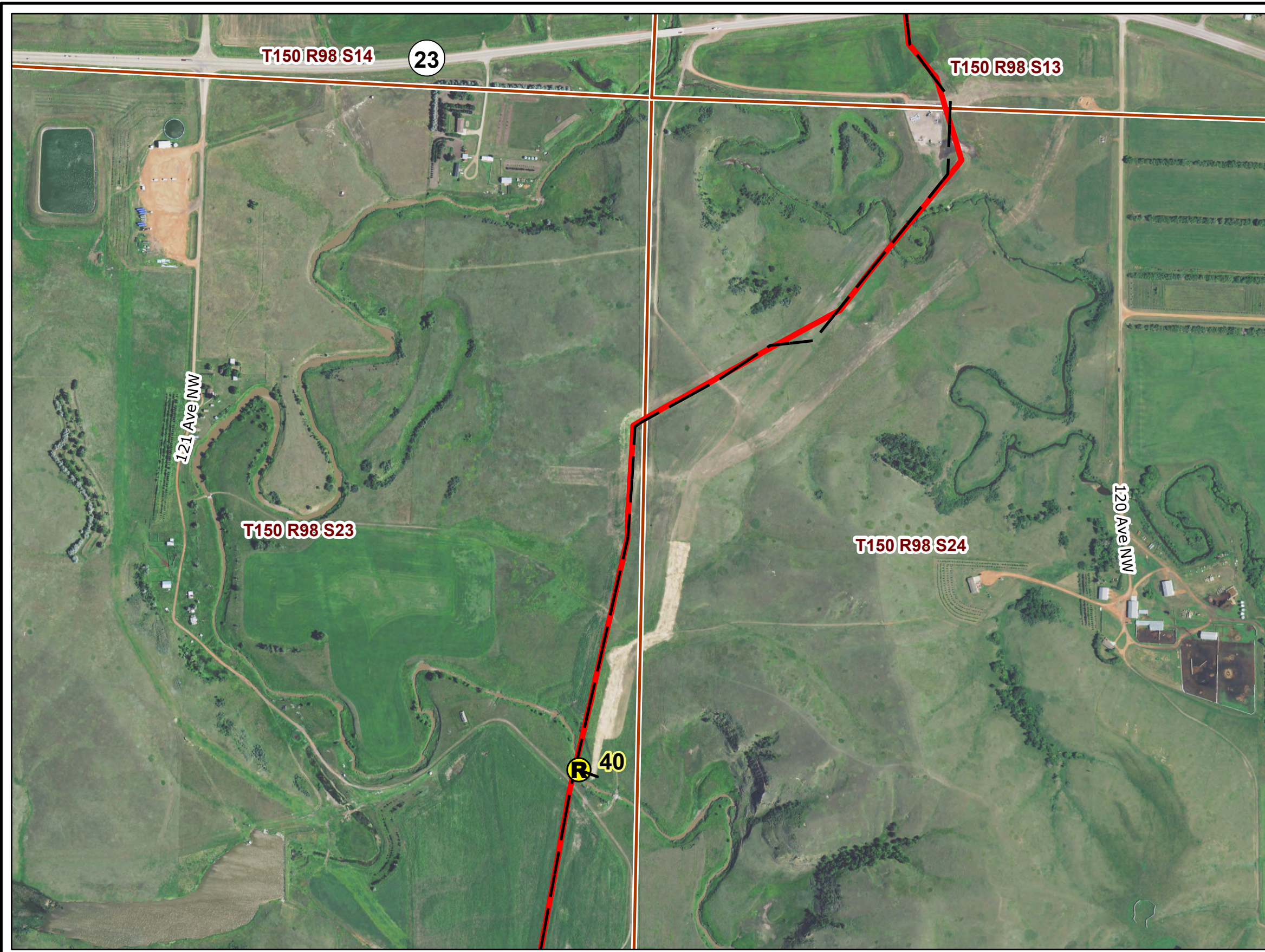
Reclamation Observation Locations



Responsive partner. Exceptional outcomes.

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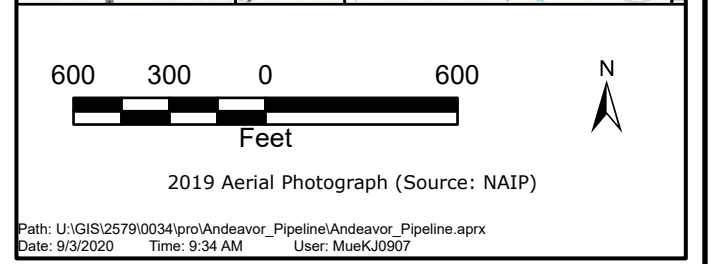
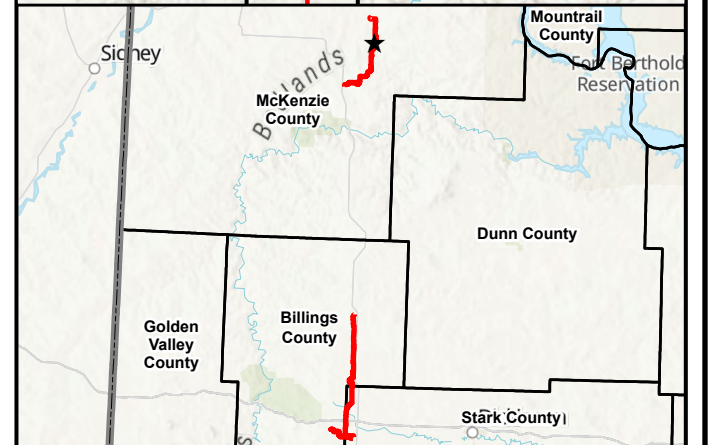
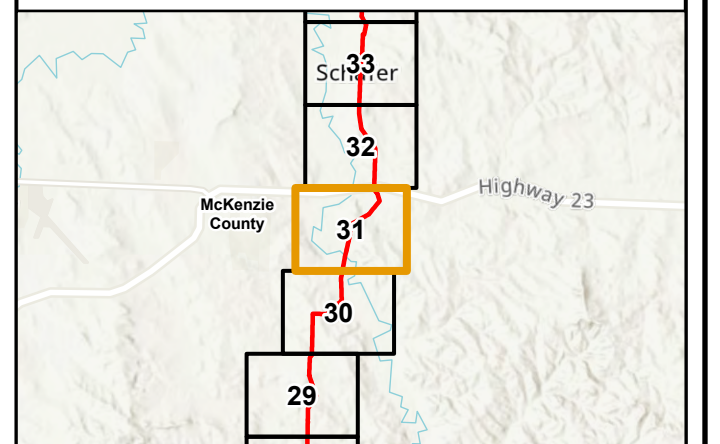
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

- Ⓡ Reclamation Observation Point Location
- — — Andeavor As-built Centerline (2019)
- — — Andeavor As-built Centerline (2020 PSC)



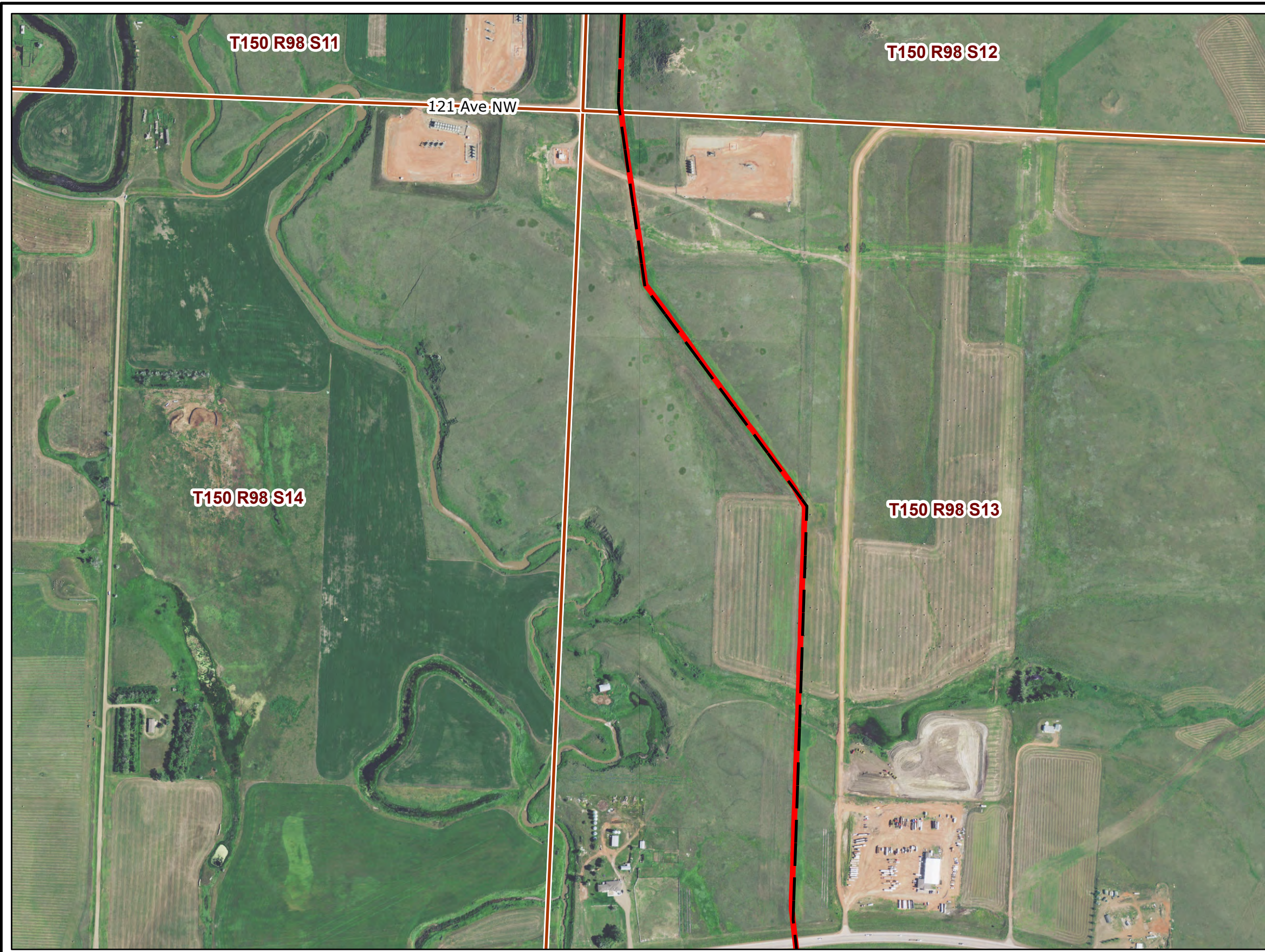
PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



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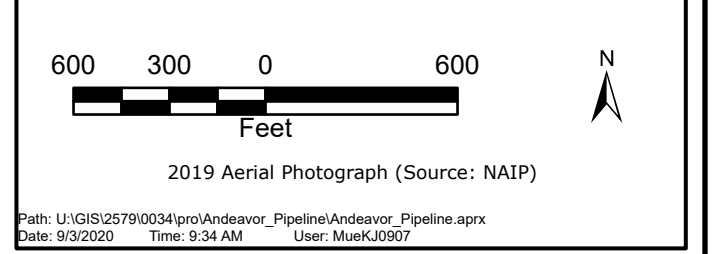
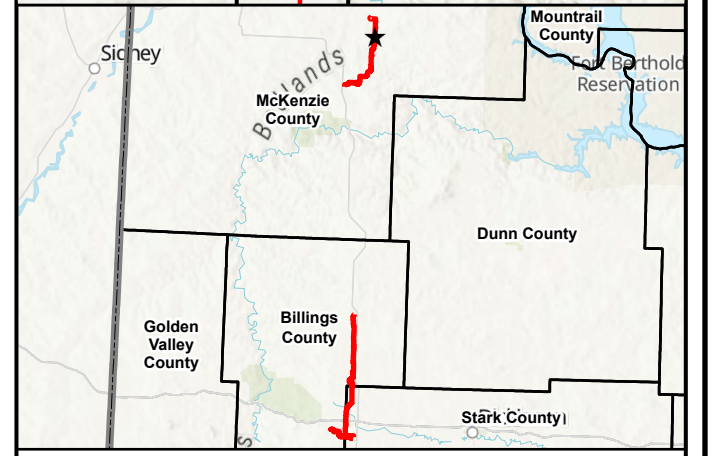
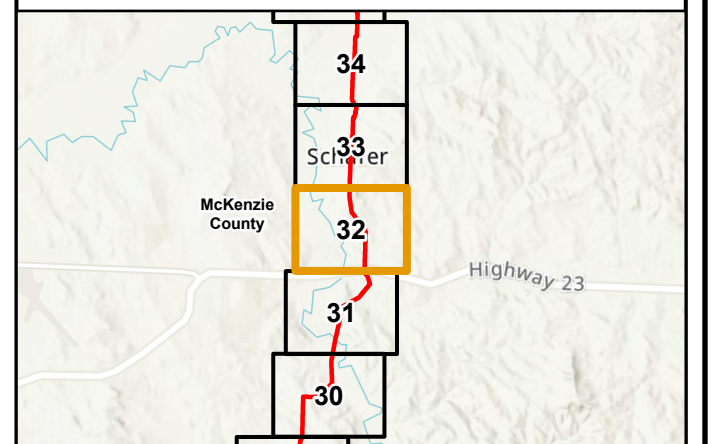
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

- Ⓡ Reclamation Observation Point Location
- — — Andeavor As-built Centerline (2019)
- — — Andeavor As-built Centerline (2020 PSC)



PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION




Reclamation Observation Locations

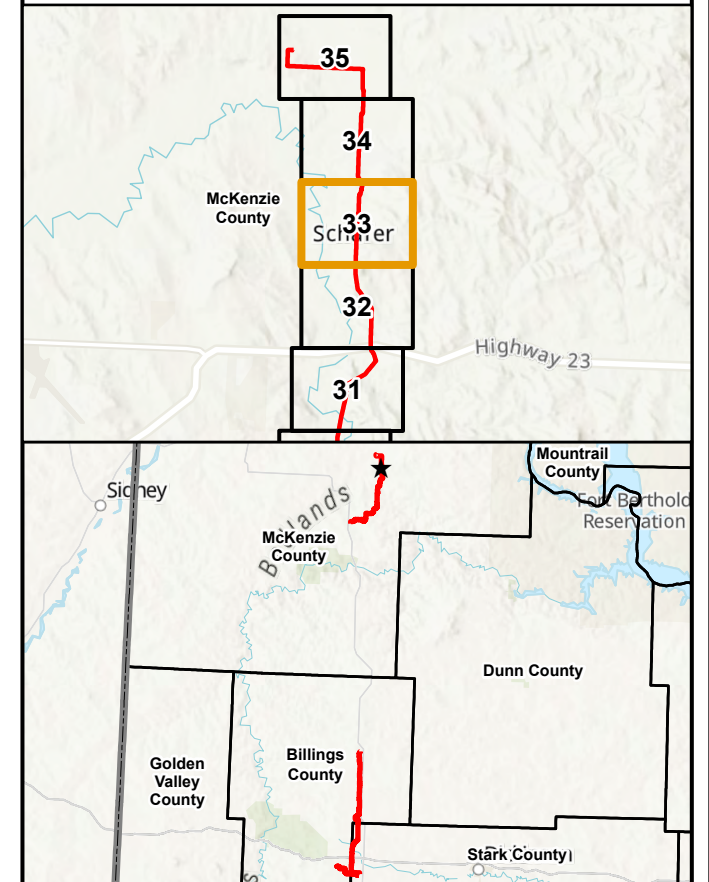


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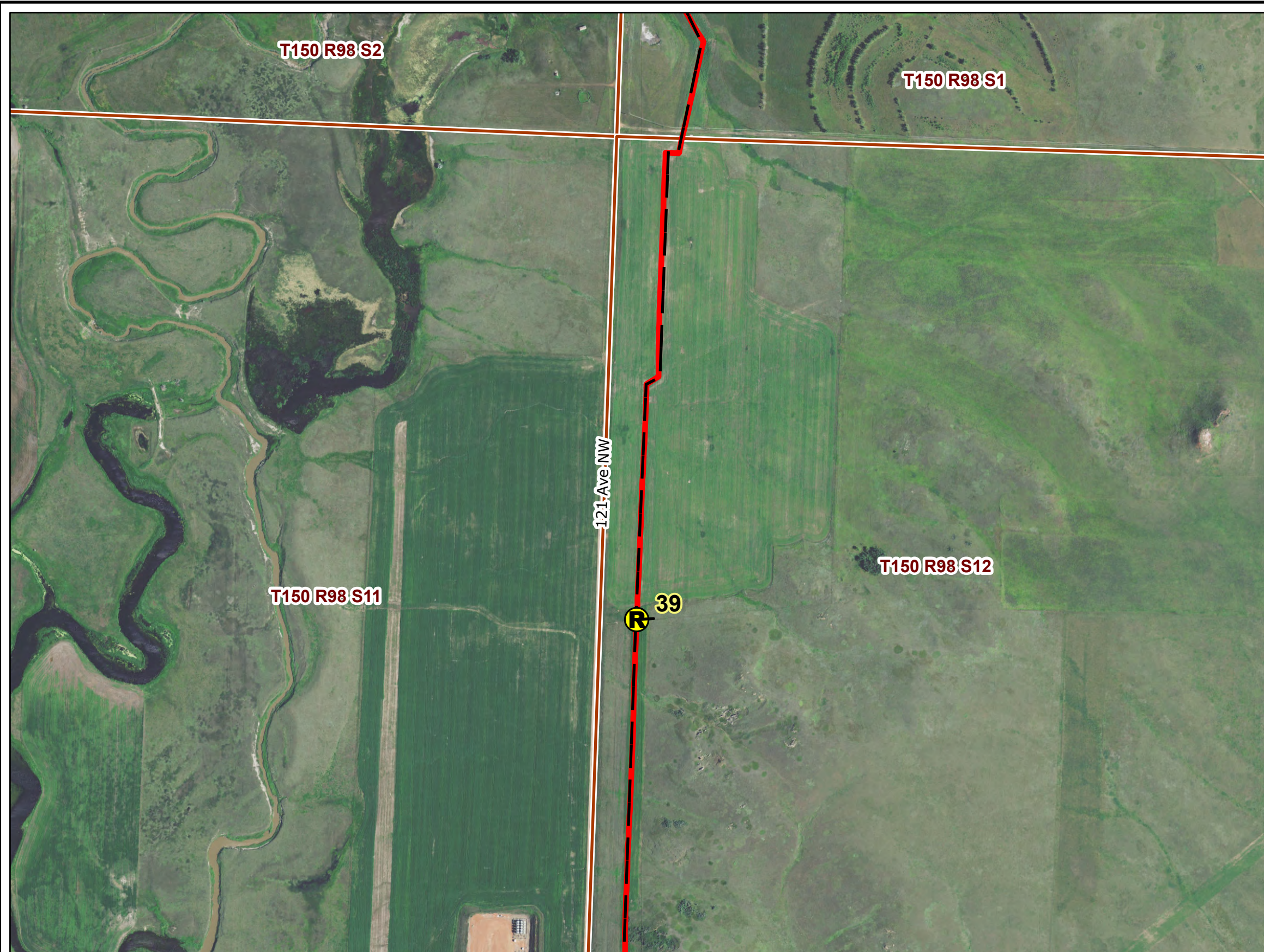
**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
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2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






Responsive partner. Exceptional outcomes.

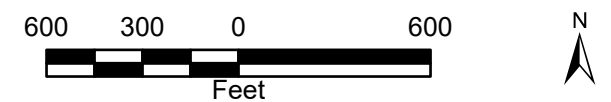
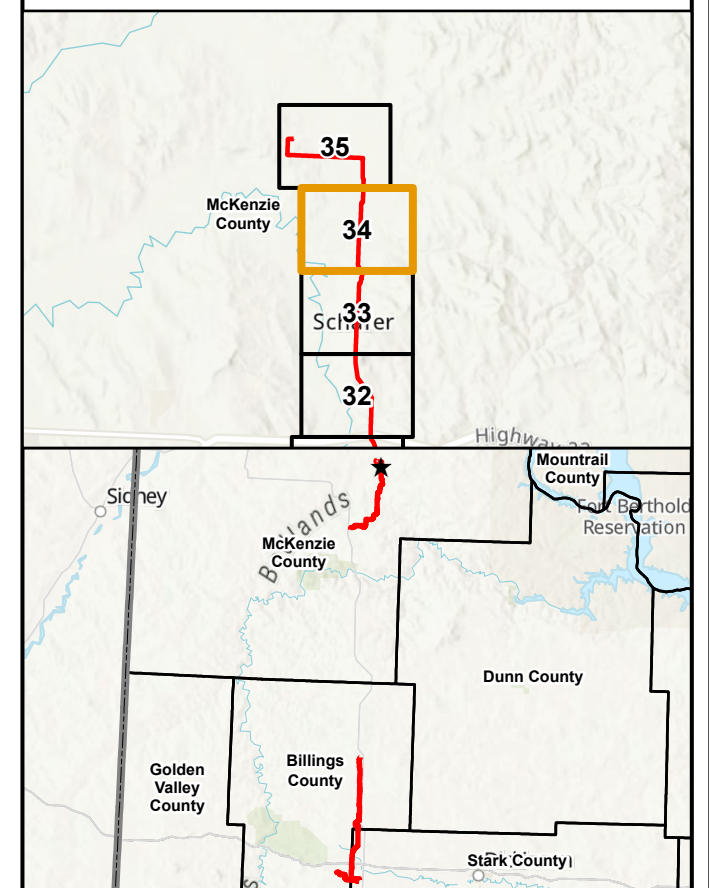
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**North Dakota
Public Service Commission**

**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
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2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations






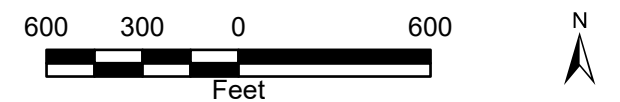
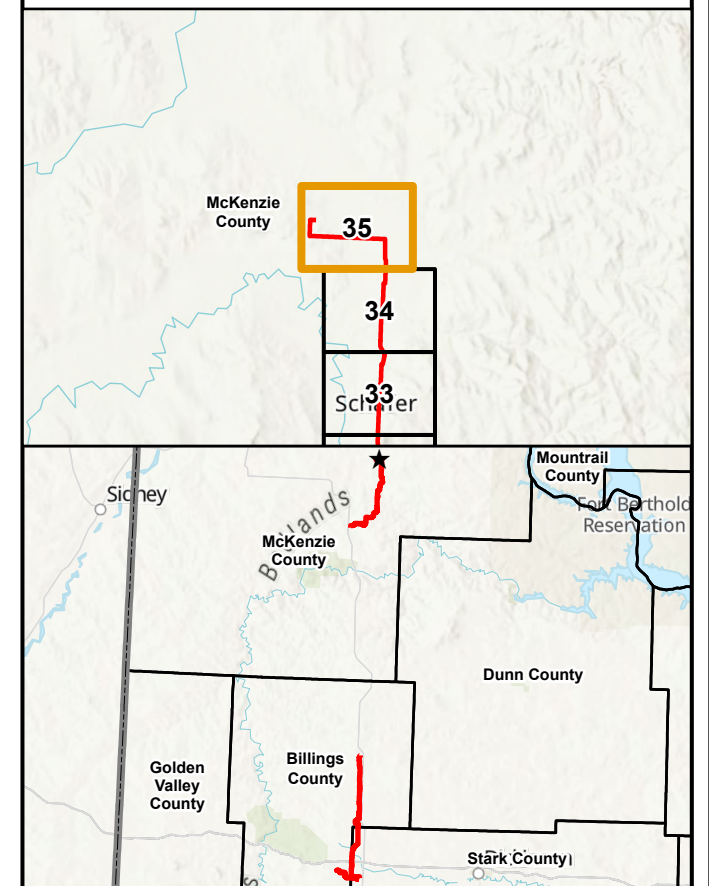
Responsive partner. Exceptional outcomes.

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**Andeavor NGL Pipeline
Figure 1**

-  Reclamation Observation Point Location
-  Andeavor As-built Centerline (2019)
-  Andeavor As-built Centerline (2020 PSC)



2019 Aerial Photograph (Source: NAIP)

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PU-18-72 ANDEAVOR NGL PIPELINE RECLAMATION INSPECTION

Reclamation Observation Locations



Responsive partner. Exceptional outcomes.

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Observation Point Coordinates

Point #	Latitude	Longitude
1	46.86235069	-103.2109615
2	46.8623229	-103.2112135
3	46.85704438	-103.2119336
4	46.86229961	-103.2525391
5	46.87094229	-103.2526155
6	46.86920672	-103.2308172
7	46.8771036	-103.2308125
8	46.90595304	-103.2308423
9	46.90885887	-103.2305064
10	46.94115527	-103.2116082
11	46.95123322	-103.2122136
12	46.96256942	-103.2125662
13	46.96555485	-103.2126509
14	47.02420151	-103.2099445
15	47.05159346	-103.2118275
16	47.05030362	-103.2117667
17	47.04846923	-103.2118968
18	47.04663154	-103.2117699
19	47.04627288	-103.2118953
20	47.06792126	-103.2115923
21	47.12425481	-103.2154038
22	47.69296099	-103.2757085
23	47.70028774	-103.2630599
24	47.69985713	-103.2634588
25	47.70198962	-103.2568968
26	47.70248486	-103.2483248
27	47.70261302	-103.2489237
28	47.70243453	-103.2473521
29	47.70161033	-103.2448739
30	47.70227585	-103.2353915
31	47.72455099	-103.1967667
32	47.72545635	-103.1970264
33	47.72814379	-103.1963218
34	47.72840033	-103.1966953
35	47.73762543	-103.1844129
36	47.73811084	-103.1848496
37	47.85538868	-103.1767114
38	47.83688505	-103.1754359
39	47.82564151	-103.1753197
40	47.79353391	-103.1775379
41	47.7618267	-103.1862591

Photolog

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 1

Date Taken: 08/18/2020 1:50 PM

Direction Photo is Taken: East

Spread: South Segment

Photo Description: Current and adjacent land cover is hay land. Alfalfa, smooth brome and Kentucky blue grass dominate ROW.

Latitude: 46.86235069

Longitude: -103.21096149



Observation Point: 2

Date Taken: 08/18/2020 1:57 PM

Direction Photo is Taken: West

Spread: South Segment

Photo Description: Successful sunflower crop, comparable to undisturbed areas.

Latitude: 46.8623229

Longitude: -103.21121346



Observation Point: 3

Date Taken: 08/18/2020 2:05 PM

Direction Photo is Taken: North

Spread: Transfer Line Segment

Photo Description: Successfully harvested canola field. Increased presence of yellow/green foxtail (setaria) species within ROW.

Latitude: 46.85704438

Longitude: -103.21193356

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 4

Date Taken: 08/18/2020 2:14 PM

Direction Photo is Taken: East

Spread: Transfer Line Segment

Photo Description: Successfully harvested wheat field. Conditions comparable to undisturbed areas.

Latitude: 46.86229961

Longitude: -103.25253911



Observation Point: 5

Date Taken: 08/18/2020 2:20 PM

Direction Photo is Taken: West

Spread: Transfer Line Segment

Photo Description: Successfully harvested wheat field. Conditions comparable to undisturbed areas.

Latitude: 46.87094229

Longitude: -103.2526155



Observation Point: 6

Date Taken: 08/18/2020 2:33 PM

Direction Photo is Taken: North

Spread: South Segment

Photo Description: Land cover usage is hay land. Observation point occurs in drainageway. 40% coverage achieved. Comprised of Western, slender, & bearded wheat grass, foxtail barley, kochia, ragweed, annual sunflower, and cocklebur. Weed management needed.

Latitude: 46.86920672

Longitude: -103.2308172

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 7

Date Taken: 08/18/2020 2:44 PM

Direction Photo is Taken: North

Spread: South Segment

Photo Description: Land cover usage is hay land. 50% cover achieved. ROW dominated by Kochia with Alfalfa at 10%; devoid of grasses found outside of ROW such as, western and slender wheat.

Latitude: 46.8771036

Longitude: -103.23081251



Observation Point: 8

Date Taken: 08/18/2020 3:22 PM

Direction Photo is Taken: North

Spread: South Segment

Photo Description: Land cover usage is hay land. 35% cover achieved; comprised of western & slender wheat grass, foxtail barley, curlycup gumweed, alfalfa, and kochia. Outside of ROW comprised of Kentucky bluegrass, smooth brome, western & slender wheat grass.

Latitude: 46.90595304

Longitude: -103.23084233



Observation Point: 9

Date Taken: 08/18/2020 3:30 PM

Direction Photo is Taken: North

Spread: South Segment

Photo Description: Stream crossing. No desired species present. Dominated by Kochia. Poorly graded to allow for free flow.

Latitude: 46.90885887

Longitude: -103.23050641

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 10
Date Taken: 08/18/2020 3:51 PM
Direction Photo is Taken: Southwest
Spread: South Segment
Photo Description: Land cover usage is hay land. 35% cover achieved, comprised of smooth brome, crested wheat, sweet clover, alfalfa, foxtail barley, and curlycup gumweed. Outside of ROW comprised of western and slender wheat grass, smooth brome, curlycup gumweed, Kentucky bluegrass, quack grass, and crested wheat.
Latitude: 46.94115527
Longitude: -103.2116082



Observation Point: 11
Date Taken: 08/18/2020 4:08 PM
Direction Photo is Taken:
Spread: South Segment
Photo Description: Near reroute within ROW at stream crossing between to cultivated fields. 50% cover achieved, comprised of mostly kochia, inland salt grass and foxtail barley.
Latitude: 46.95123322
Longitude: -103.21221361



Observation Point: 12
Date Taken: 08/18/2020 4:18 PM
Direction Photo is Taken: South
Spread: South Segment
Photo Description: Land usage is hay land. 50% cover achieved. No desirable species present. ROW comprised entirely of weeds; however, comparable to adjacent vegetation outside of ROW. Kochia, yellow/green foxtail, and several other weeds.
Latitude: 46.96256942
Longitude: -103.21256619

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 13

Date Taken: 08/18/2020 4:27 PM

Direction Photo is Taken: North

Spread: South Segment

Photo Description: Land usage is hay land. 35% cover achieved. Dominated by smooth brome, Kentucky bluegrass, and alfalfa; comparable with outside of ROW.

Latitude: 46.96555485

Longitude: -103.21265092



Observation Point: 14

Date Taken: 08/18/2020 4:55 PM

Direction Photo is Taken: North

Spread: South Segment

Photo Description: Land usage is hay land. 40% cover achieved. Dominated by foxtail barley, and kochia.

Latitude: 47.02420151

Longitude: -103.20994454



Observation Point: 15

Date Taken: 08/18/2020 5:13 PM

Direction Photo is Taken: North

Spread: South Segment

Photo Description: Gap in treed wind break. Google earth historical images provide evidence of removal around 2014.

Latitude: 47.05159346

Longitude: -103.21182749

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 16

Date Taken: 08/18/2020 5:17 PM

Direction Photo is Taken: South

Spread: South Segment

Photo Description: Gap in treed wind break. Google earth historical images provide evidence of removal around 2014.

Latitude: 47.05030362

Longitude: -103.21176672



Observation Point: 17

Date Taken: 08/18/2020 5:22 PM

Direction Photo is Taken: Southeast

Spread: South Segment

Photo Description: Gap in treed wind break. Google earth historical images provide evidence of removal around 2014. Pipeline as built centerline right through existing trees but construction was conducted through opening in trees to the east.

Latitude: 47.04846923

Longitude: -103.21189676



Observation Point: 18

Date Taken: 08/18/2020 5:26 PM

Direction Photo is Taken: South

Spread: South Segment

Photo Description: Gap in treed wind break. Google earth historical images provide evidence of removal around 2014.

Latitude: 47.04663154

Longitude: -103.21176994

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 19

Date Taken: 08/18/2020 5:31 PM

Direction Photo is Taken: North

Spread: South Segment

Photo Description: Trees and shrubs exist in line with as built centerline. Photo location visually lined up with pipeline marker to south. Field is entirely kochia and setaria species.

Latitude: 47.04627288

Longitude: -103.21189529



Observation Point: 20

Date Taken: 08/18/2020 5:48 PM

Direction Photo is Taken: Northwest

Spread: South Segment

Photo Description: Land usage is hay land, dominated by alfalfa with some smooth brome. 40% cover achieved. Access point dominated kochia. Remaining ROW filling in well; however, no grasses present.

Latitude: 47.06792126

Longitude: -103.21159226



Observation Point: 21

Date Taken: 08/18/2020 6:18 PM

Direction Photo is Taken: Southeast

Spread: South Segment

Photo Description: Land usage is hay land. Visual evidence of herbicide application. Dominated by dying kochia and setaria species with some alfalfa. Mostly bare.

Latitude: 47.12425481

Longitude: -103.21540377

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 22

Date Taken: 08/19/2020 10:22 AM
Direction Photo is Taken: North
Spread: North Segment

Photo Description: Successful oat crop, comparable to outside of ROW.

Latitude: 47.69296099
Longitude: -103.27570852



Observation Point: 23

Date Taken: 08/19/2020 10:37 AM
Direction Photo is Taken: Northeast
Spread: North Segment

Photo Description: Land usage is hay land, comprised of slender and western wheat and sweet clover. 30% cover achieved, comprised of slender and western wheat, sweet clover, field bind weed, cocklebur, and Horse weed.

Latitude: 47.70028774
Longitude: -103.26305989



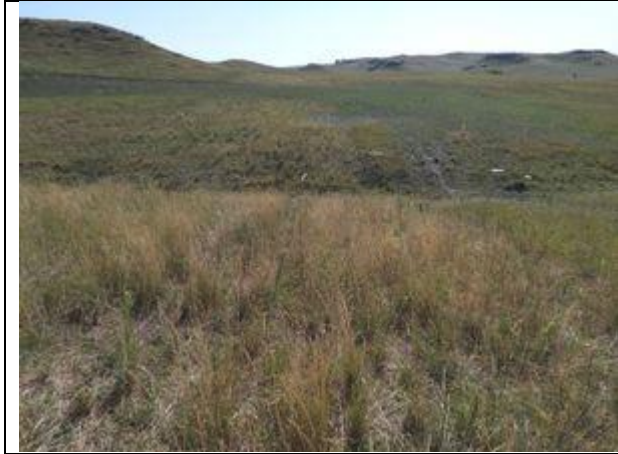
Observation Point: 24

Date Taken: 08/19/2020 10:42 AM
Direction Photo is Taken: Southwest
Spread: North Segment

Photo Description: Land usage is hay land. 20% cover achieved, comprised of setaria species, kochia, slender wheat, and annual weeds. Condition present from observation point to access road.

Latitude: 47.69985713
Longitude: -103.26345877

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 25

Date Taken: 08/19/2020 10:55 AM
Direction Photo is Taken: East
Spread: North Segment

Photo Description: Land usage is rangeland. 40% cover achieved, comprised of slender wheat, horse weed, cocklebur, and annual weeds.

Latitude: 47.70198962
Longitude: -103.25689679



Observation Point: 26

Date Taken: 08/19/2020 11:17 AM
Direction Photo is Taken: East
Spread: North Segment

Photo Description: Land usage is rangeland. 25% cover achieved, comprised of slender wheat, green needle, yellow coneflower, and sweet clover. Hilltop area appears to be deviation from proposed route. Lots of scoria and rocks on surface.

Latitude: 47.70248486
Longitude: -103.24832475



Observation Point: 27

Date Taken: 08/19/2020 11:22 AM
Direction Photo is Taken: East
Spread: North Segment

Photo Description: Deviation from permitted route, as built cut through and over hill. Potentially disturbed stone outcropping, with scattered scoria intermixed at top. Land usage rangeland. 10% cover achieved, comprised of slender wheat. Cut still present at peak.

Latitude: 47.70261302
Longitude: -103.24892366

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 28

Date Taken: 08/19/2020 11:28 AM
Direction Photo is Taken: South
Spread: North Segment

Photo Description: Potential rocks at base of hill from stone outcropping at summit.

Latitude: 47.70243453
Longitude: -103.24735212



Observation Point: 29

Date Taken: 08/19/2020 11:32 AM
Direction Photo is Taken: West
Spread: North Segment

Photo Description: Land usage is rangeland. 10 percent cover achieved, comprised of slender and western wheat, ragweed, and horse weed.

Latitude: 47.70161033
Longitude: -103.24487387



Observation Point: 30

Date Taken: 08/19/2020 11:46 AM
Direction Photo is Taken: Northwest
Spread: North Segment

Photo Description: Near reroute within ROW. Land usage is rangeland. Over 70% cover, comprised of slender and western wheat, sweet clover, and some annual weeds.

Latitude: 47.70227585
Longitude: -103.23539146

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 31
Date Taken: 08/19/2020 12:10 PM
Direction Photo is Taken: South
Spread: North Segment

Photo Description: Land usage is hay land. 30% cover achieved, comprised of alfalfa and kochia. Weed management may be required.

Latitude: 47.72455099
Longitude: -103.1967667



Observation Point: 32
Date Taken: 08/19/2020 12:30 PM
Direction Photo is Taken: North
Spread: North Segment

Photo Description: Land usage is hay land. Location of centerline as built does not match in field conditions. Centerline goes through shrubs, still extant.

Latitude: 47.72545635
Longitude: -103.1970264



Observation Point: 33
Date Taken: 08/19/2020 12:45 PM
Direction Photo is Taken: Southeast
Spread: North Segment
Photo Description: Land usage is hay land. Gap in treed area naturally exists, evidenced by Google earth historical imagery. However, location of centerline as built does not match in field conditions. Centerline goes through trees, still extant. Evidence of cleared woody debris adjacent ROW at east side.
Latitude: 47.72814379
Longitude: -103.19632177

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 34

Date Taken: 08/19/2020 12:48 PM
Direction Photo is Taken: Northwest
Spread: North Segment

Photo Description: Woody debris pile far off row. Google Earth historical imagery suggests it could be associated with the adjacent pipeline through wooded area to west as early as 2013.

Latitude: 47.72840033
Longitude: -103.19669528



Observation Point: 35

Date Taken: 08/19/2020 1:02 PM
Direction Photo is Taken: South
Spread: North Segment

Photo Description: Land usage is hay land. Pipeline construction access road present. Access road appears to be utilized for numerous pipelines in the area.

Latitude: 47.73762543
Longitude: -103.18441292



Observation Point: 36

Date Taken: 08/19/2020 1:09 PM
Direction Photo is Taken: North
Spread: North Segment

Photo Description: Land usage is hay land. 40% cover achieved, comprised of western and slender wheat. Road adjacent to pipe ROW.

Latitude: 47.73811084
Longitude: -103.18484955

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 37

Date Taken: 08/19/2020 2:30 PM
Direction Photo is Taken: West
Spread: North Segment

Photo Description: Land usage is agricultural. 60% cover achieved, comprised of kochia, setaria species, and unharvested old canola.

Latitude: 47.85538868
Longitude: -103.17671141



Observation Point: 38

Date Taken: 08/19/2020 3:53 PM
Direction Photo is Taken: South
Spread: North Segment

Photo Description: Land usage is hay land. Cover is equal to outside of ROW, comprised of sweet clover, green needle grass, crested wheat grass, and slender wheat grass.

Latitude: 47.83688505
Longitude: -103.17543594



Observation Point: 39

Date Taken: 08/19/2020 4:02 PM
Direction Photo is Taken: South
Spread: North Segment

Photo Description: Land usage is rangeland. Entirely comprised of kochia. Weed management may be required.

Latitude: 47.82564151
Longitude: -103.17531965

PU-18-72 (Andeavor Y Grade Hub): Observation Point Photolog



Observation Point: 40

Date Taken: 08/19/2020 5:25 PM
Direction Photo is Taken: Northeast
Spread: North Segment

Photo Description: No disturbance at Cherry Creek.

Latitude: 47.79353391
Longitude: -103.17753787



Observation Point: 41

Date Taken: 08/19/2020 6:09 PM
Direction Photo is Taken: South
Spread: North Segment

Photo Description: Land usage is rangeland. Erosion present at Sevenmile Creek. 30% cover achieved, comprised of crested wheat grass and curlycup gumweed.

Latitude: 47.7618267
Longitude: -103.18625905



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