

# Cedar Hills South Unit Lateral Carbon Dioxide Pipeline Project Tree and Shrub Mitigation Plan, Slope and Bowman Counties, North Dakota

JANUARY 2026

PREPARED FOR

**Denbury Green Pipeline – North  
Dakota, LLC**

PREPARED BY

**SWCA Environmental Consultants**

**CEDAR HILLS SOUTH UNIT LATERAL CARBON DIOXIDE  
PIPELINE PROJECT TREE AND SHRUB MITIGATION PLAN,  
SLOPE AND BOWMAN COUNTIES, NORTH DAKOTA**

Prepared for

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SWCA Project No. 28464.032

January 2026

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## 1 INTRODUCTION

The North Dakota Public Service Commission (PSC) issued a Certificate of Site Compatibility (No. 215) and Route Permit (No. 225) on April 1, 2020, for the Cedar Hills South Unit Lateral Carbon Dioxide Pipeline Project (Project) in Slope and Bowman Counties, North Dakota. To meet the requirements of the Certification Relating to Order Provisions – Transmission Facility Siting, SWCA Environmental Consultants, on behalf of Denbury Green Pipeline – North Dakota, LLC (Denbury), prepared and submitted a Tree and Shrub Mitigation Plan (Plan) to the North Dakota PSC, which has since been approved and implemented (Appendix A). The Plan intended to create sustainable plantings appropriate for the local soil and growing conditions, which will provide long-term benefits to landowners, farmers and ranchers, the community, wildlife, and the environment.

In line with the Plan and in accordance with the North Dakota PSC *Tree and Shrub Mitigation Specifications* (Appendix B), Denbury committed to financially support mitigation to replace trees and shrubs removed as a result of Project construction. The purpose of this report is to summarize the results of mitigation outlined in the Plan, including planting details, success of planting, and long-term benefits.

## 2 TREE AND SHRUB SURVEYS

Denbury committed to replace trees and shrubs (woody stems) off-site at a ratio of two-to-one using the same or similar species, except in the cases of invasive species and noxious weeds. The woody stems removed during construction of the Project were inventoried in 2018 and 2020.

### 2.1 Initial Survey Methods

Tree and shrub inventory surveys were conducted within the 75-foot-wide Project corridor. The Project corridor consists of 1) the 50-foot-wide permanent right-of-way (ROW) and 2) a 25-foot-wide temporary ROW that is adjacent to the permanent ROW, including additional temporary workspace areas interspersed along the pipeline corridor. Field surveys of the Project corridor were conducted on October 11 and 12, 2018, to confirm the presence or absence of woody vegetation. Eighteen tree and shrubland areas were delineated within the Project corridor, and tree and shrub enumeration surveys were conducted from February 17 through 28, 2020.

The surveys were conducted in accordance with the following guidance provided by the North Dakota PSC for two types of data collection:

- All trees 1 inch in diameter at breast height or greater must be inventoried to record the location, number, and species.
- All shrubs and coniferous trees of any diameter must be inventoried to record the location, number, and species.

### 2.2 Initial Survey Results

The surveys identified four trees greater than 1 inch in diameter at breast height at two locations. One American elm (*Ulmus americana*) and one green ash (*Fraxinus pennsylvanica*) were identified in the permanent ROW. Two more green ash were identified in the temporary ROW. A map showing the locations of these trees and their replanting locations are provided in Appendix C.

Surveyors also inventoried 7,748 individual shrubs in the permanent ROW and 5,847 shrubs in the temporary ROW. The most common shrub species were silver sagebrush (*Artemisia cana*), big sagebrush (*A. tridentata*), and western snowberry (*Symphoricarpos occidentalis*). No coniferous trees were observed in either the permanent ROW or temporary workspace areas. No noxious weeds or other invasive woody species were removed or planted. Table 1 summarizes these survey results and displays the number of replacement stems representing the two-to-one requirement.

**Table 1. Disturbed Shrubs and Trees within the Permanent ROW and Temporary Workspace of the Project**

Common Name	Scientific Name	Count Disturbed	Two-to-One Mitigation
Silver sagebrush	<i>Artemisia cana</i>	6,433	12,866
Big sagebrush	<i>Artemisia tridentata</i>	2,473	4,946
Green ash	<i>Fraxinus pennsylvanica</i>	3	6
Creeping juniper	<i>Juniperus horizontalis</i>	199	398
Chokecherry	<i>Prunus virginiana</i>	250	500
Skunkbush sumac	<i>Rhus trilobata</i>	16	32
Canadian gooseberry	<i>Ribes</i> sp.	4	8
Woods rose	<i>Rosa woodsii</i>	367	734
Coyote willow	<i>Salix exigua</i>	4	8
Silver buffaloberry	<i>Shepherdia argentea</i>	103	206
Western snowberry	<i>Symphoricarpos occidentalis</i>	3,397	6,794
American elm	<i>Ulmus americana</i>	1	2
Soapweed yucca	<i>Yucca glauca</i>	349	698
<b>Total</b>		<b>13,599</b>	<b>27,198</b>

### 3 TREE AND SHRUB MITIGATION

Denbury entered into an agreement with the North Dakota Petroleum Foundation (NDPF) to sponsor the Plantings for the Future (PFTF) program to replace the 13,599 woody stems that were removed during the construction of the Project. Denbury compensated the NDPF for the cost of the mitigation projects described below. The NDPF PFTF program is a habitat and conservation program that provides woody stems for large-scale planting projects. The goal of the PFTF program is to work with industry, wildlife groups, and private landowners to create large-scale plantings on private land that will serve as habitat for future generations. The NDPF provides woody stems at no cost to landowners who are approved for the program to achieve the goals of the program.

Coordination with the NDPF resulted in eight planting projects, which were conducted in Dickey, Kidder, Grant, Mountrail, Morton, Stutsman Counties. The NDPF began planting in May of 2021 and concluded in May of 2024. The NDPF used two methods (knifing and scalping) in their planting methods. Woody stem replacement plantings were inspected and inventoried for 2 years.

#### 3.1 Surplus Mitigation

The eight NDPF PFTF projects sponsored by Denbury resulted in planting approximately 39,374 woody stems over the course of 2 years (2021 plantings and 2022 plantings). These projects represent additional

plantings of approximately 12,176 woody stems—a 45% surplus over the required mitigation. The additional surplus of woody stem is to further ensure the success of the mitigation projects to meet and/or exceed the mitigation requirements (i.e., a three-to-one replacement ratio). The additional woody stem plantings were meant to account for the uncertainty of these types of restoration projects (e.g., drought, herbivory, etc.), providing both additionality and durability of the selected projects and their success.

## 3.2 Landowner and Off-Site Mitigation

In accordance with the North Dakota PSC *Tree and Shrub Mitigation Specifications* (see Appendix B), landowners within the ROW easement where impacts occurred were provided the option of mitigation on their property. In these cases, landowners would have woody stems replaced on their property, near the site of initial removal. Denbury coordinated with affected landowners and provided this opportunity. Several landowners affected by Project construction opted for off-site mitigation instead.

## 4 REPLANTING RESULTS

Including surplus mitigation plantings, survival rates were generally high for replaced woody stems. Three of the eight projects had survival rates greater than 90%. In contrast, only two project survival rates were below 70%. Overall, survival for all 39,374 woody stems was approximately 71%. Replanting efforts conducted by the NDPF have resulted in approximately 27,900 surviving woody stems. These surviving stems overshoot the goal of 27,198 trees by approximately 700 woody stems. These results are summarized in Table 2.

**Table 2. Off-Site Tree and Shrub Mitigation Projects in Partnership with the NDPF**

Project ID	County	Planting Method*	Project Initiation	Project Conclusion	Total Trees Planted	Total Shrubs Planted	Percent Survival
406	Dickey	Knifing	May 2021	May 2023	1,500	300	95%
408	Kidder	Scalping	May 2021	May 2023	3,100	250	64%
409	Kidder	Scalping	May 2021	May 2023	3,300	1,550	75%
501	Grant	Knifing	May 2022	May 2024	2,000	–	98%
503	Mountrail	Knifing	May 2022	May 2024	1,384	1,380	79%
510	Morton	Knifing	May 2022	May 2024	3,250	125	95%
514	Stutsman	Knifing	May 2022	May 2024	9,548	8,287	60%
517	Mountrail	Knifing	May 2022	May 2024	3,400	–	70%
<b>Total</b>					<b>27,482</b>	<b>11,892</b>	<b>71%</b>

\* Knifing is used to procure stem cuttings and plant them directly into a cut in the soil. Scalping is used to provide a suitable planting site by removing the top layer of sod, usually 1 foot or more wide, that may hinder proper woody stem planting and survival due to competition and beetle attacks (i.e., white grubs).

### 4.1 Factors Affecting Success

Replanting has been largely successful for the Project, with the average across all plantings being over 70%. Some level of mortality is expected and can be caused by several factors. Extreme weather patterns, including harsh drought conditions, which occurred in North Dakota from 2020 to 2022, likely played a role in the reduced success at some locations. Other factors that may have affected success are livestock

and wildlife browsing pressure, competition with other plants, including weeds, or herbicide drift from neighboring properties.

## 4.2 Long-Term Benefits

The woody stems that have survived will bring long-term benefits to landowners, the community, and wildlife, fulfilling the goals of the Plan and PSC's *Tree and Shrub Mitigation Specifications*. Trees and shrubs offer a range of benefits that impact the environment, economy, and quality of life of North Dakota.

Woody stems help improve air quality in multiple ways. Like most plants, trees and shrubs absorb carbon dioxide and release oxygen through photosynthesis. Other airborne pollutants, including particulate matter, nitrogen oxides, sulfur dioxide, carbon monoxide, and ground-level ozone, are directly removed from the air by trees as these pollutants are deposited onto their leaves (U.S. Environmental Protection Agency [EPA] 2025a). In fact, tall and dense vegetation, such as shrubs along roadsides, can reduce downwind pollution by approximately 30% (EPA 2025a).

Woody stems can help reduce soil erosion in multiple ways as well. One is by reducing wind speeds across soils, especially where soils are exposed, such as on crop fields. Because of the reduction of wind speeds, topsoil can be conserved, which can lead to other benefits, such as better crop yields, reduced fertilizer inputs, and decreased sedimentation to off-site resources, such as streams or wetlands. Woody stems also reduce erosion by intercepting rain drops with their leaves, thereby reducing direct impact force onto soils. Additionally, woody stems reduce erosion by creating deep root systems that foster infiltration of rain into the soil rather than running off (EPA 2025b).

Woody stems also provide important shade and wind cover for livestock and wildlife. These resources can be important to reduce animal mortality by reducing heat or cold stress. Providing shade for cattle has been shown to improve weight gain and condition in cattle (Higgins et al. 2024). Additionally, trees and shrubs generally provide critical habitat for a wide variety of wildlife by increasing nesting habitat, food resources, and shelter from the elements.

## 5 LITERATURE CITED

Higgins, Stephen F., Carmen T. Agouridis, and Sarah J. Wightman. 2024. *Shade Options for Grazing Cattle*. University of Kentucky Cooperative Extension. Available at: <https://publications.mgcafe.uky.edu/sites/publications.ca.uky.edu/files/aen99.pdf>. Accessed December 2025.

U.S. Environmental Protection Agency (EPA). 2025a. Benefits of Trees and Vegetation. Available at: <https://www.epa.gov/heatislands/benefits-trees-and-vegetation>. Accessed December 2025.

———. 2025b. Soak Up the Rain: Trees Help Reduce Runoff. Available at: <https://www.epa.gov/soakuptherain/soak-rain-trees-help-reduce-runoff>. Accessed December 2025.

## **APPENDIX A**

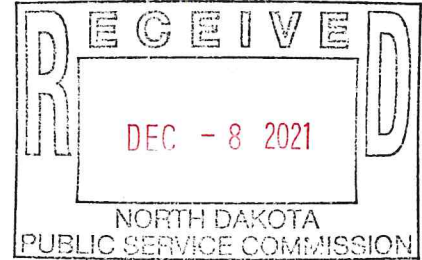
### **Tree and Shrub Mitigation Plan**

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December 8, 2021

*Via Electronic Mail & Hand Delivery*

Mr. Steve Kahl  
Executive Director  
North Dakota Public Service Commission  
600 E. Boulevard, Dept. 408  
Bismarck, ND 58505-0480  
[ndpsc@nd.gov](mailto:ndpsc@nd.gov)



In re: Denbury Green Pipeline-North Dakota, LLC  
12-Inch Cedar Hills Pipeline Project  
Slope and Bowman Counties  
Case No. PU-19-294  
Our File No. 025331-000058

Dear Mr. Kahl:

Please find enclosed for filing in the above-captioned matter eleven copies of the Tree and Shrub Mitigation Plan.

If you have any questions, please feel free to contact me. Thank you.

Sincerely,


Wade C. Mann

WCM/lh  
Enc.

cc: Rusty Shaw (via email w/enc.)  
Forrest Hudson (via email w/enc.)

97 **PU-19-294** Filed: 12/8/2021 Pages: 36  
**Tree and Shrub Mitigation Plan**

Denbury Green Pipeline - North Dakota, LLC  
Wade Mann, Crowley Fleck PLLP

The logo for SWCA (Soil Water Conservation Agency) is displayed vertically on the left side of the page. It consists of the letters 'S', 'W', 'C', and 'A' in a large, light blue, serif font, stacked from bottom to top.

# Cedar Hills South Unit Lateral Carbon Dioxide Pipeline Project Tree and Shrub Mitigation Plan, Slope and Bowman Counties, North Dakota

DECEMBER 2021

PREPARED FOR

**Denbury Green Pipeline – North  
Dakota, LLC**

PREPARED BY

**SWCA Environmental Consultants**



**CEDAR HILLS SOUTH UNIT LATERAL CARBON DIOXIDE  
PIPELINE PROJECT  
TREE AND SHRUB MITIGATION PLAN,  
SLOPE AND BOWMAN COUNTIES, NORTH DAKOTA**

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SWCA Project No. 28464.032

December 2021



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## 1 INTRODUCTION

The North Dakota Public Service Commission (PSC) issued Certificate of Site Compatibility No. 215 and Route Permit No. 225, dated April 1, 2020, for the Cedar Hills South Unit Lateral Carbon Dioxide Pipeline Project (Project) in Slope and Bowman Counties, North Dakota. As required by the Certification Relating to Order Provisions – Transmission Facility Siting, SWCA Environmental Consultants (SWCA), on behalf of Denbury Green Pipeline – North Dakota, LLC (Denbury), has prepared and is submitting this Tree and Shrub Mitigation Plan (Plan) to the North Dakota PSC.

The purpose of this Plan is to detail the mitigation approach to be supported financially by Denbury in accordance with the North Dakota PSC *Tree and Shrub Mitigation Specifications*, a copy of which is attached as Appendix A. The trees and shrubs (i.e., woody stems) removed during construction of the Project were inventoried in 2018 and 2020 (see Section 2, Tree and Shrub Inventory) and Denbury has committed to replace woody species off-site at a mitigation ratio of two-to-one using trees and shrubs of the same or similar species, except in the case of invasive species and noxious weeds (e.g., buckthorn [*Rhamnus cathartica*], Russian olive [*Elaeagnus angustifolia*], Siberian elm [*Ulmus pumila*], saltcedar [*Tamarix ramosissima*]).

Denbury has coordinated with affected landowners and has provided an opportunity for landowners to waive options to have replacement plantings on their property and allow for mitigation and replanting at an alternate location than the site of disturbance and/or the landowner's property. Agreements to perform off-site mitigation are currently in place with all affected landowners (see Section 3.1, Landowner Agreement). Shrub and tree replacement plantings will be inventoried and documented, and annual inspections of the replacement plantings will be conducted for 2 years. Documentation of the initial inventory and the results of each annual inspection will be filed with the North Dakota PSC. Specifications regarding the tree and shrub inventory, mitigation practices, monitoring, and reporting are discussed in the sections below.

## 2 TREE AND SHRUB INVENTORY

Field surveys of the 75-foot-wide pipeline corridor were conducted on October 11 and 12, 2018, to confirm the presence or absence of woody vegetation. Eighteen tree and shrubland areas were geographically referenced within the survey corridor, and tree and shrub enumeration surveys were conducted from February 17 through 28, 2020. The surveys followed guidance provided by the North Dakota PSC for two types of data collection.

- All trees 1 inch in diameter at breast height (DBH) or greater must be inventoried to record the location, number, and species.
- All shrubs and coniferous trees of any diameter must be inventoried to record the location, number, and species.

The tree and shrub inventory surveys were conducted in two separate survey areas of the 75-foot-wide pipeline corridor: 1) one survey area includes the 50-foot-wide permanent right-of-way (ROW); and 2) the other survey area includes the 25-foot-wide temporary workspace area that is adjacent to the permanent ROW, as well as the additional temporary workspace areas interspersed along the pipeline corridor. Four trees over 1 inch DBH were identified at two locations during the surveys (Table 1). One American elm tree (*Ulmus americana*) and one green ash tree (*Fraxinus pennsylvanica*) were identified in the 50-foot-wide permanent ROW and two green ash trees were identified in the 25-foot-wide temporary

workspace area adjacent to the permanent ROW. Shrubs and coniferous trees were also inventoried and approximately 7,748 individual shrubs were recorded in the permanent ROW survey area and approximately 5,847 individual shrubs were recorded in the temporary workspace survey area (see Table 1).<sup>1</sup>

**Table 1. Disturbed Shrubs and Trees within the Permanent ROW and Temporary Workspace of the Project**

Common Name	Scientific Name	Count Disturbed	Two-to-One Mitigation Count
Silver sagebrush	<i>Artemisia cana</i>	6,433	12,866
Big sagebrush	<i>Artemisia tridentata</i>	2,473	4,946
Green ash	<i>Fraxinus pennsylvanica</i>	3	6
Creeping juniper	<i>Juniperus horizontalis</i>	199	398
Chokecherry	<i>Prunus virginiana</i>	250	500
Skunkbush sumac	<i>Rhus trilobata</i>	16	32
Canadian gooseberry	<i>Ribes</i> sp.	4	8
Woods rose	<i>Rosa woodsii</i>	367	734
Coyote willow	<i>Salix exigua</i>	4	8
Silver buffaloberry	<i>Shepherdia argentea</i>	103	206
Western snowberry	<i>Symphoricarpos occidentalis</i>	3,397	6,794
American elm	<i>Ulmus americana</i>	1	2
Soapweed yucca	<i>Yucca glauca</i>	349	698
<b>Total</b>		<b>13,599</b>	<b>27,198</b>

No coniferous trees were observed in either survey area. No noxious weeds or other invasive species with woody stems were removed. The North Dakota PSC requires two-to-one mitigation for all shrubs and all trees that are 1 inch DBH or greater that will be removed during Project construction and thus approximately 27,198 trees and/or shrubs will be replaced (see Table 1).

### 3 TREE AND SHRUB MITIGATION PLAN

This Plan has been developed to meet and/or exceed the specifications and mitigation criteria provided by the North Dakota PSC in the *Tree and Shrub Mitigation Specifications* (see Appendix A). The overall goal and objectives of the Plan are to offset impacts to woody vegetation from the Project and to replace woody stems removed from construction at a replacement ratio of two-to-one, resulting in the required replacement of approximately 27,198 woody stems. The purpose of the Plan is to create sustainable plantings, appropriate for the local soil and growing conditions, that will provide long-term benefits to landowners, farmers and ranchers, the community, wildlife, and the environment. The following sections demonstrate how Denbury meets and/or exceeds each specification for replacement in the North Dakota PSC *Tree and Shrub Mitigation Specifications* and further details selected projects and approaches for woody stem replacement and mitigation.

<sup>1</sup> In each survey area, a delineated polygon for each contiguous population of shrubs was recorded and the species of shrubs were identified, except for one currant (*Ribes* sp.) species that was not identifiable. Where shrub populations were extensive, both direct and extrapolated counts of the trees and shrubs were completed for each mapped shrub polygon.

### **3.1 Landowner Agreement**

In accordance with the North Dakota PSC *Tree and Shrub Mitigation Specifications* (see Appendix A), landowners within the ROW easement where impacts occurred must be provided the option of mitigation on their property. Denbury has coordinated with affected landowners for off-site mitigation options and agreements are in place that waive options to have replacement plantings on landowners' properties and allow for mitigation and replanting at alternate locations to the site of Project disturbance and/or the landowner's property (Appendix B).

### **3.2 Woody Stem Replacement**

In accordance with the North Dakota PSC *Tree and Shrub Mitigation Specifications* (see Appendix A), woody stems will be replaced at a minimum ratio of two-to-one. Considering that affected landowners have opted for off-site mitigation, Denbury will conduct mitigation at alternate locations to the site of Project disturbance. Upon approval of this Plan by the North Dakota PSC, Denbury will enter into an agreement with the North Dakota Petroleum Foundation (NDPF) to sponsor the Plantings for the Future (PFTF) program to replace the 13,599 woody stems that were removed during the construction of the Project at a two-to-one ratio, resulting in 27,198 plantings.

The NDPF PFTF program is a habitat and conservation program that provides trees and shrubs for large-scale planting projects.<sup>2</sup> The goal of the PFTF program is to work with industry, wildlife groups, and private landowners to create large-scale tree and shrub plantings on private land that will serve as habitat for future generations; this aligns with the purpose of this Plan, which is to create sustainable plantings that will provide long-term benefit to landowners, farmers and ranchers, the community, wildlife, and the environment. This is achieved by the NDPF providing trees at no cost to landowners who are approved for the program. In turn, participating landowners provide in-kind assistance with site preparation, equipment usage, planting, and care and maintenance of plants. Denbury will compensate the NDPF for the cost of the sponsored off-site mitigation projects described below.

#### **3.2.1 Off-Site Mitigation Projects**

The off-site mitigation effort will include eight different NDPF PFTF projects that plant approximately 39,374 woody stems (Table 2). These projects will plant a diversity of woody stems, and species planted vary by project. The list of species planted across the eight projects is provided in Appendix C.

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<sup>2</sup> North Dakota Petroleum Foundation. 2021. Planting for the Future. Available at: <https://ndpetroleumfoundation.org/programs/plantingforthefuture/>. Accessed November 2021.

**Table 2. Off-Site Tree and Shrub Mitigation Projects in Partnership with the North Dakota Petroleum Foundation**

Project ID	County	Planting Method*	Project Initiation	Project Conclusion	Total Trees Planted	Total Shrubs Planted
406	Dickey	Knifing	May 2021	May 2023	1,500	300
408	Kidder	Scalping	May 2021	May 2023	3,100	250
409	Kidder	Scalping	May 2021	May 2023	3,300	1,550
501	Grant	Knifing	May 2022	May 2024	2,000	-
503	Mountrail	Knifing	May 2022	May 2024	1,384	1,380
510	Morton	Knifing	May 2022	May 2024	3,250	125
514	Stutsman	Knifing	May 2022	May 2024	9,548	8,287
517	Mountrail	Knifing	May 2022	May 2024	3,400	-
<b>Total</b>					<b>27,482</b>	<b>11,892</b>

\* Knifing is used to procure stem cuttings and plant them directly into a cut in the soil. Scalping is used to provide a suitable planting site by removing the top layer of sod usually 1 foot or more wide that may hinder proper woody stem planting and survival due to competition and beetle attacks (i.e., white grubs).

### 3.2.2 Mitigation Surplus

As part of mitigation of Project impacts to woody stems (i.e., removal of trees and shrubs during construction), Denbury is required to replace 27,198 woody stems which represents a two-to-one replacement ratio of the woody stems that were removed during the construction of the Project. Denbury has secured eight different NDPF PFTF projects that will support the planting of approximately 39,374 woody stems over the course of 2 years (2021 plantings and 2022 plantings) (see Table 2). These projects will result in an additional planting of approximately 12,176 woody stems, a 45% surplus of the required mitigation. The additional surplus of woody stem plantings is to further ensure the success of the mitigation projects to meet and/or exceed the mitigation requirements by planting approximately 45% more woody stems than the mitigation effort (i.e., a three-to-one replacement ratio). The additional woody stem plantings, or surplus, further accounts for the uncertainty of these types of restoration projects (e.g., drought, herbivory, husbandry, etc.), providing both additionality and durability of the selected projects and their success.

### 3.3 Monitoring Plan and Reporting

In accordance with the North Dakota PSC *Tree and Shrub Mitigation Specifications* (see Appendix A), monitoring and reporting will occur annually for 2 years at the locations/projects where the woody stems were planted to assess the survival of the plantings. As part of the agreement, the NDPF is responsible for procuring contractors to annually assess survivorship for 2 years past project plantings on behalf of participating landowners. Once the NDPF performs monitoring activities and provides the results of survivorship, Denbury will submit summary reports by October of each year to the North Dakota PSC that document the findings of the site inspections. These reports will be submitted annually for 2 years for a total of two summary reports. Summary reports will include date and time of survey, documentation of survivorship, and any challenges to survivability as assessed by landowners.

## **APPENDIX B**

### **North Dakota Public Service Commission Tree and Shrub Mitigation Specifications**

**STATE OF NORTH DAKOTA  
PUBLIC SERVICE COMMISSION**

**Denbury Green Pipeline – North Dakota, LLC  
12-inch Cedar Hills Pipeline pjct – Slope & Bowman  
Siting Application**

**Case No. PU-19-294**

**Tree and Shrub Mitigation Specifications**

**Inventory**

Prior to cutting or clearing trees or shrubs for construction:

- All trees one-inch or greater in diameter at breast height must be inventoried to record the location, number, and species.
- All shrubs and all coniferous trees of any diameter must be inventoried to record the location, number, and species.

**Clearing**

The maximum width of tree and shrub removal is 50 feet, unless otherwise approved by the Commission.

**Replacement**

1. Landowners must be given the option to have trees and shrubs that are removed from their property replaced on their property. The landowner may waive this option in writing. If the landowner waives this option, the company shall plant replacement trees and shrubs in an alternate location in the same region, if practical.
2. Trees and shrubs must be replaced on a minimum two-to-one basis. The company shall develop a Tree and Shrub Mitigation Plan (Plan) in consultation with landowners who are seeking replacement trees and shrubs and in accordance with USDA-NRCS-North Dakota Field Office Technical Guide: Windbreak and Woodland Tree Care and Management. The guidelines outlined in the Technical Guide shall be followed until filing of the Plan summary outlined in number 5 below.
3. The purpose of the company's Tree and Shrub Mitigation Plan is to create sustainable plantings, appropriate for the local soil and growing conditions that will provide long-term benefit to landowners, farmers and ranchers, the community, wildlife and the environment.
4. The Plan, including the proposed number, variety, type, location, and approximate date for plantings, shall be filed with and approved by the Commission.
5. Two years after completion of the plan, the company must file a summary documenting how the plan achieved the purpose outlined in number 3 above. The summary must also report the number of surviving replacement trees and shrubs.
6. The Commission will consider, on a limited basis as conditions warrant, mitigation plans that provide long-term wildlife habitat and conservation benefits but do not involve the replanting of trees and shrubs.

## **APPENDIX C**

### **Tree and Shrub Mitigation Mapbook**



**Legend**

- - - Project Centerline
- Limit of Disturbance
- Designated Corridor
- County Boundary
- State Boundary
- Township Boundary (PLSS)
- Section Boundary (PLSS)

**Surface Ownership**

- Forest Service
- Private Property

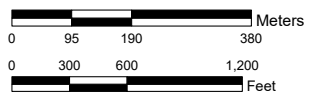


**Cedar Hills South Unit Lateral Project**

**Limit of Disturbance Map**

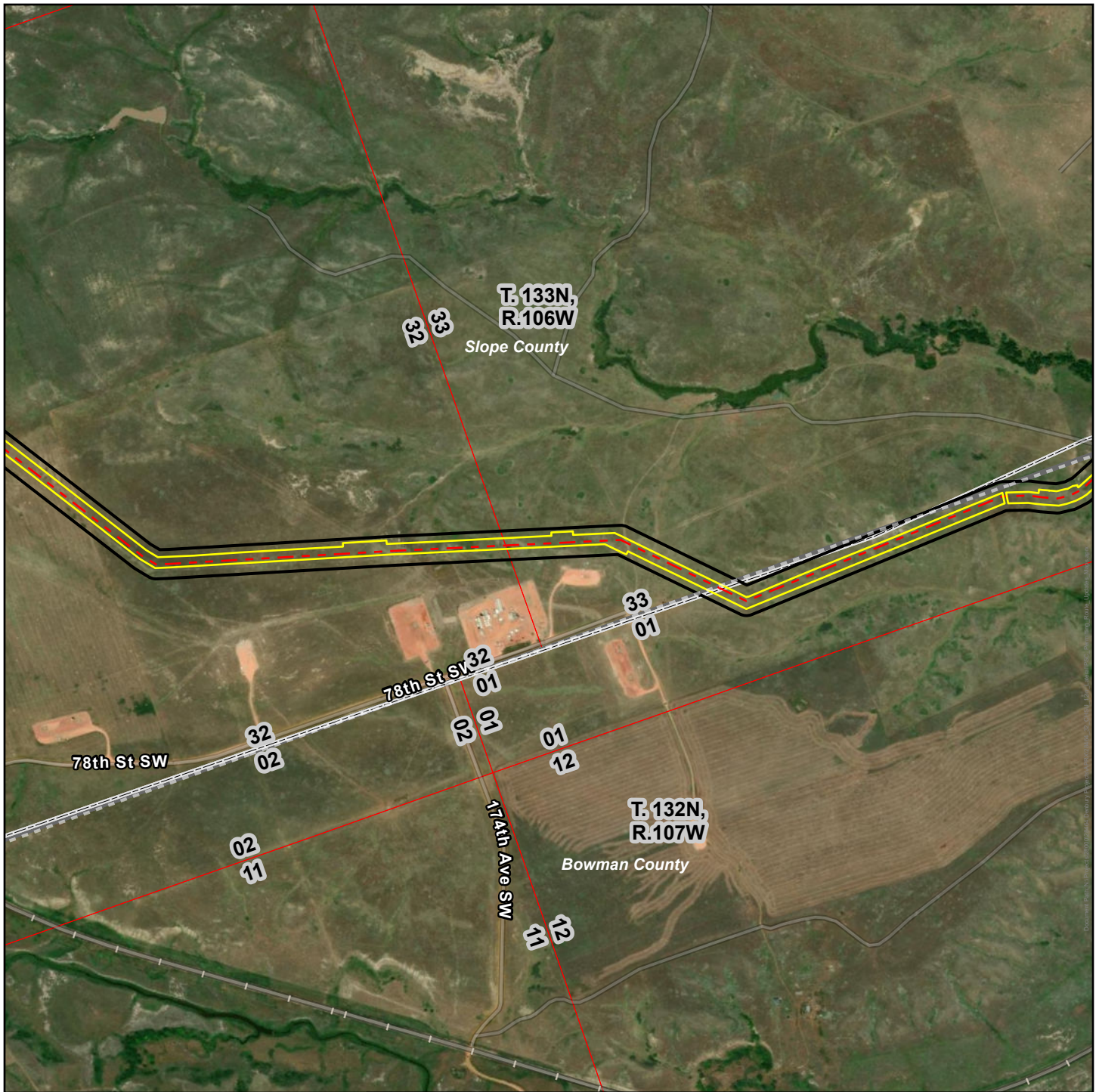
Page 1 of 7

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 Page units: Foot US  
 Imagery Source: USA NAIP (USDA)



1:12,000

Date: 12/7/2021



**Legend**

- - - Project Centerline
- Limit of Disturbance
- Designated Corridor
- County Boundary
- State Boundary
- Township Boundary (PLSS)
- Section Boundary (PLSS)

**Surface Ownership**

- Private Property



**Cedar Hills South Unit Lateral Project**

**Limit of Disturbance Map**

Page 2 of 7

Coordinate System:  
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 Datum: North American 1983  
 Projection: Transverse Mercator  
 Page units: Foot US  
 Imagery Source: USA NAIP (USDA)



0 95 190 380 Meters

1:12,000

0 300 600 1,200 Feet

Date: 12/7/2021



**Legend**

- Project Centerline
- Limit of Disturbance
- Designated Corridor
- County Boundary
- State Boundary
- Township Boundary (PLSS)
- Section Boundary (PLSS)

**Surface Ownership**

- Private Property

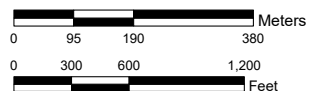


**Cedar Hills South Unit Lateral Project**

**Limit of Disturbance Map**

Page 3 of 7

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 Page units: Foot US  
 Imagery Source: USA NAIP (USDA)



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Date: 12/7/2021



**Legend**

- Project Centerline
- Limit of Disturbance
- Designated Corridor
- County Boundary
- State Boundary
- Township Boundary (PLSS)
- Section Boundary (PLSS)

**Surface Ownership**

- Private Property



**Cedar Hills South Unit Lateral Project**

**Limit of Disturbance Map**

Page 4 of 7

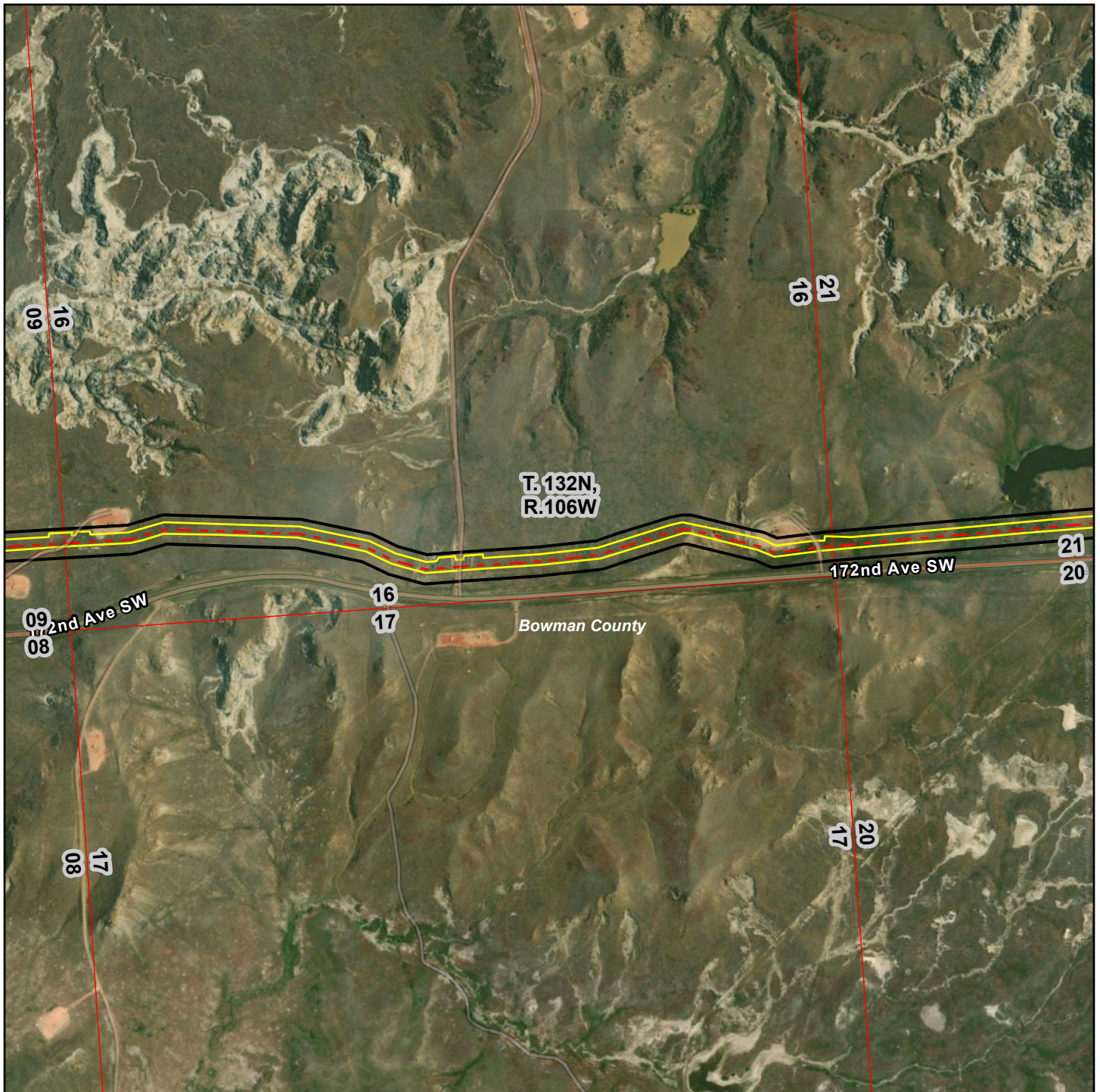
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Meters

Feet

1:12,000

Date: 12/7/2021

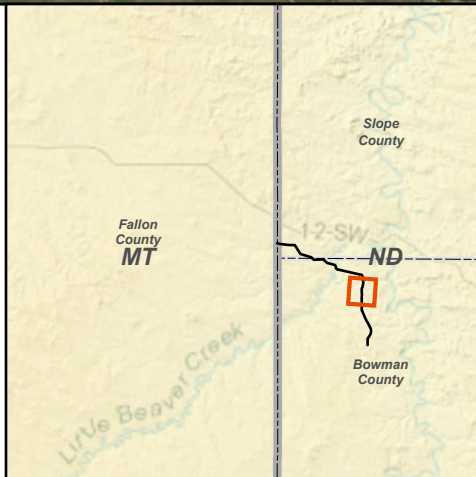


**Legend**

- - - Project Centerline
- Limit of Disturbance
- Designated Corridor
- County Boundary
- State Boundary
- Township Boundary (PLSS)
- Section Boundary (PLSS)

**Surface Ownership**

- Private Property



**Cedar Hills South Unit Lateral Project**

**Limit of Disturbance Map**

Page 5 of 7

Coordinate System:  
 Name: UTM83-13F  
 Datum: North American 1983  
 Projection: Transverse Mercator  
 Page units: Foot US  
 Imagery Source: USA NAIP (USDA)



0 95 190 380 Meters

1:12,000

0 300 600 1,200 Feet

Date: 12/7/2021



**Legend**

- - - Project Centerline
- Limit of Disturbance
- Designated Corridor
- County Boundary
- State Boundary
- Township Boundary (PLSS)
- Section Boundary (PLSS)

**Surface Ownership**

- Bureau of Land Management
- Private Property



**Cedar Hills South Unit Lateral Project**

**Limit of Disturbance Map**

Page 6 of 7

Coordinate System:  
 Name: UTM83-13F  
 Datum: North American 1983  
 Projection: Transverse Mercator  
 Page units: Foot US  
 Imagery Source: USA NAIP (USDA)



0 95 190 380 Meters

1:12,000

0 300 600 1,200 Feet

Date: 12/7/2021



**Legend**

- · - · Project Centerline
- Limit of Disturbance
- Designated Corridor
- County Boundary
- State Boundary
- Township Boundary (PLSS)
- Section Boundary (PLSS)

**Surface Ownership**

- Bureau of Land Management
- Private Property

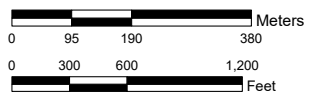


**Cedar Hills South Unit Lateral Project**

**Limit of Disturbance Map**

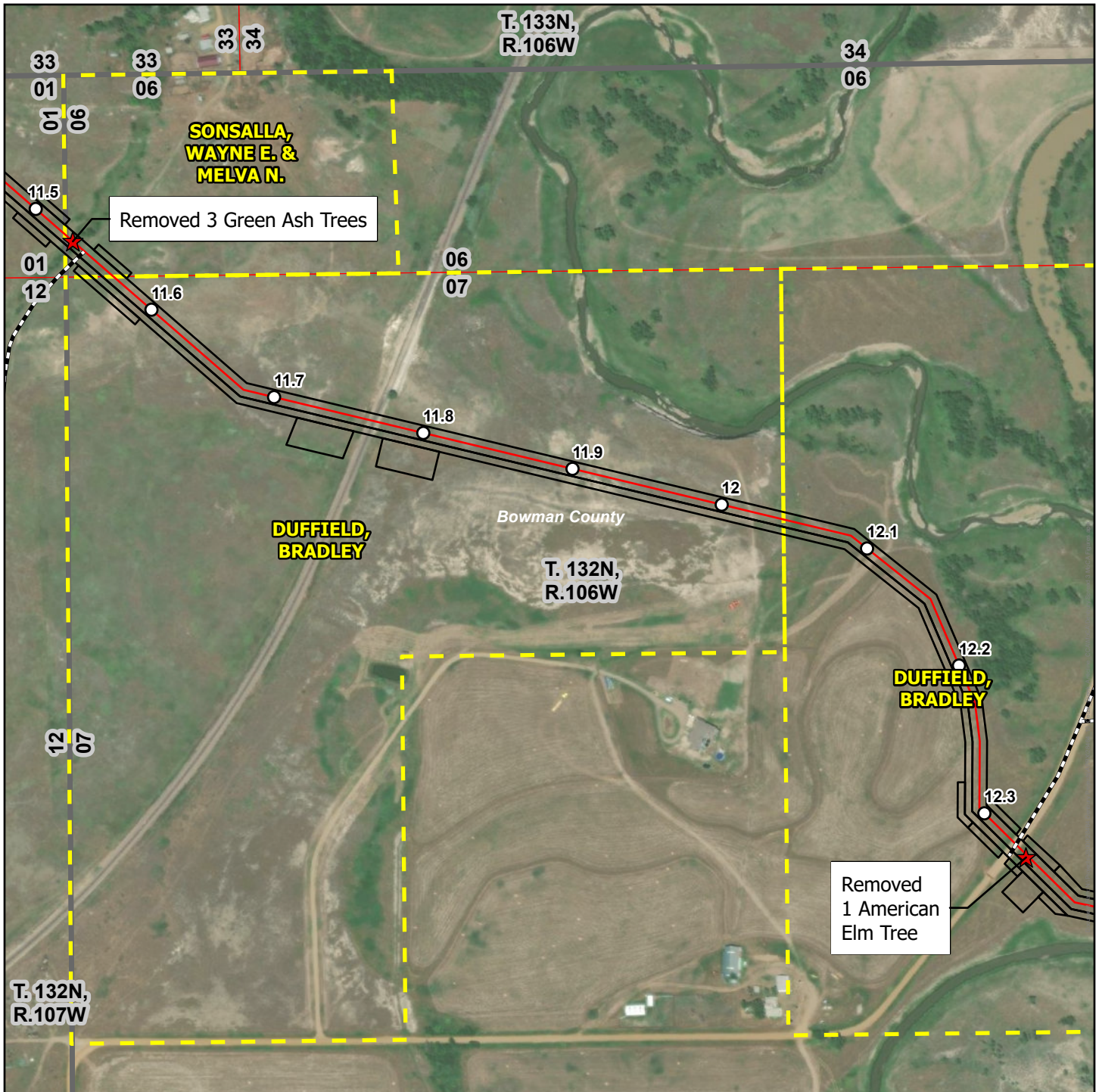
Page 7 of 7

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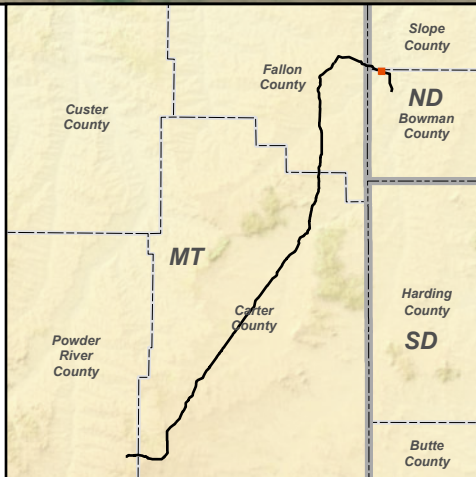
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### Legend

- ★ Tree Removal Location
- Tract Boundary
- Centerline
- Mile Posts
- Construction ROW
- Access Road
- County Boundary
- Township Boundary (PLSS)
- Section Boundary (PLSS)



### Cedar Hills South Unit Lateral Project

Tree Removal Locations for North Dakota  
Public Service Commission  
Figure 1

Coordinate System:  
Name: UTM83-13F  
Datum: North American 1983  
Projection: Transverse Mercator  
Page units: Foot US  
Imagery Source: USA NAIP (USDA)

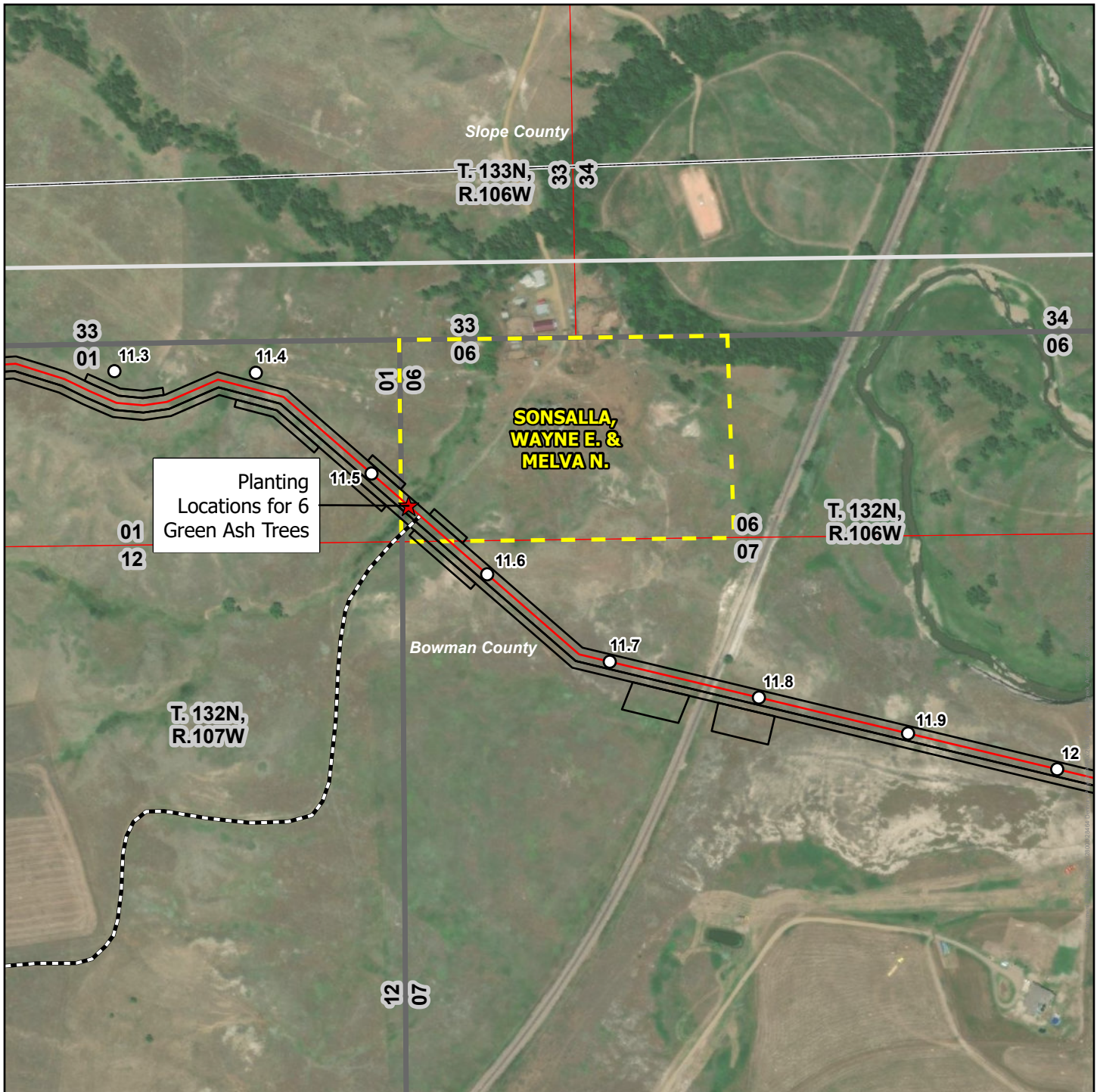


0 45 90 180 Meters

0 150 300 600 Feet

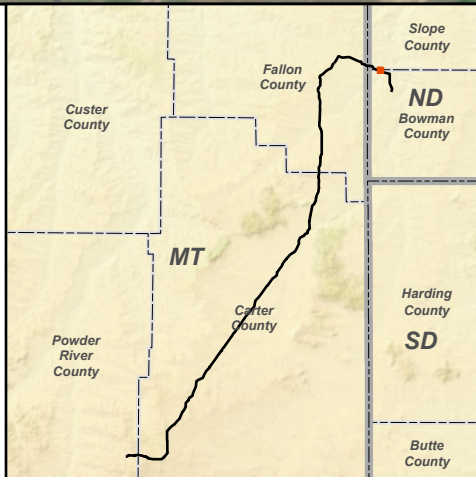
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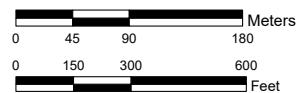
### Legend

- ★ Tree Planting Location
- Tract Boundary
- Centerline
- Mile Posts
- Construction ROW
- Access Road
- County Boundary
- Township Boundary (PLSS)
- Section Boundary (PLSS)



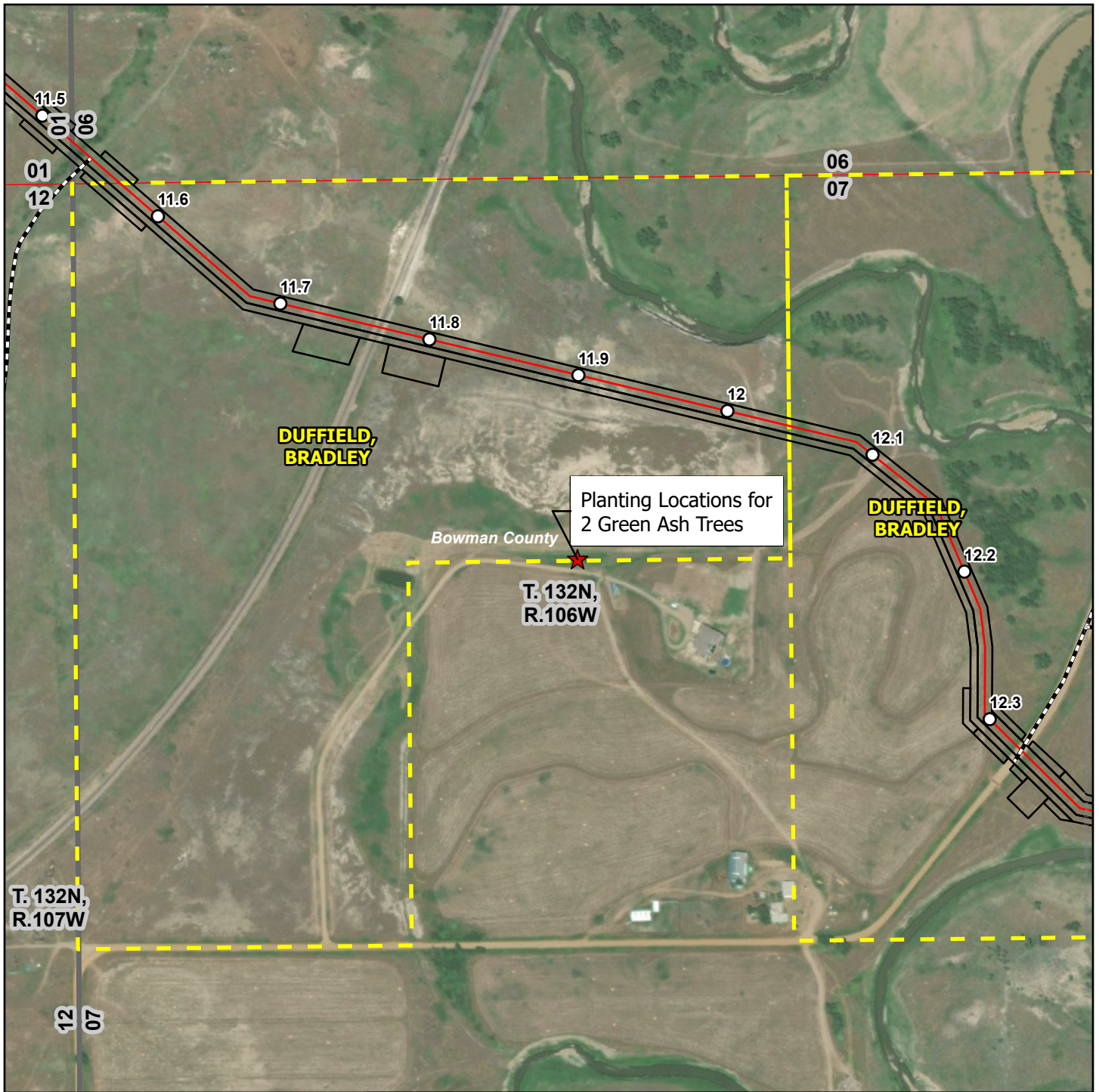
### Cedar Hills South Unit Lateral Project Tree Planting Locations for North Dakota Public Service Commission Figure 2

Coordinate System:  
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Page units: Foot US  
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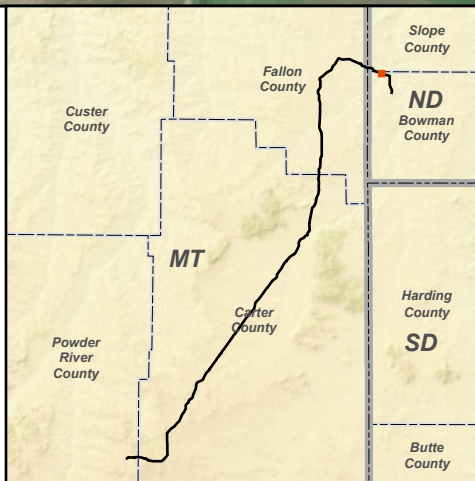
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Date: 8/26/2021



### Legend

- ★ Tree Planting Location
- Tract Boundary
- Centerline
- Mile Posts
- ▭ Construction ROW
- Access Road
- County Boundary
- ▭ Township Boundary (PLSS)
- ▭ Section Boundary (PLSS)



**Cedar Hills South Unit Lateral Project**  
**Tree Planting Locations for North Dakota**  
**Public Service Commission**  
 Figure 3

Coordinate System:  
 Name: UTM83-13F  
 Datum: North American 1983  
 Projection: Transverse Mercator  
 Page units: Foot US  
 Imagery Source: USA NAIP (USDA)



0 45 90 180 Meters

0 150 300 600 Feet

1:6,000

Date: 8/26/2021