



ENVIRONMENTAL CONSULTANTS

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TECHNICAL MEMORANDUM

To: Rusty Shaw
Denbury Green Pipeline – North Dakota, LLC
5851 Legacy Circle, Suite 1200
Plano, Texas 75024

From: Chad Barnes, Senior Project Manager

Date: August 30, 2021

Re: **Cedar Hills South Unit Lateral Carbon Dioxide Pipeline Project Tree and Shrub Mitigation Plan / SWCA Project No. 28464.032**

INTRODUCTION

The North Dakota Public Service Commission (NDPSC) issued Certificate of Site Compatibility No. 215 and Route Permit No. 225, dated April 1, 2020, for the Cedar Hills South Unit (CHSU) Lateral Carbon Dioxide (CO₂) Pipeline 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 to the NDPSC.

TREE AND SHRUB ENUMERATION

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 NDPSC 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 surveys were conducted in two separate survey corridors: 1) a survey area that includes the 50-foot-wide permanent right-of-way (ROW); and 2) a survey area that 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 route. In each survey area, SWCA vegetation biologists mapped the trees over 1-inch DBH, all shrubs, and all coniferous species using global positioning system (GPS) units with submeter accuracy. A GPS point for each tree over 1-inch DBH was recorded and the tree species was identified. A GPS polygon of 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.

RESULTS

Four trees over 1-inch DBH were identified at two locations during the surveys. One tree was a single American elm (*Ulmus americana*) near Milepost 12.3, while the three other trees were green ash (*Fraxinus pennsylvanica*) near Milepost 11.5. The American elm and one green ash tree were in the 50-foot-wide permanent ROW and the other two trees were in the 25-foot-wide temporary workspace area adjacent to the permanent ROW.

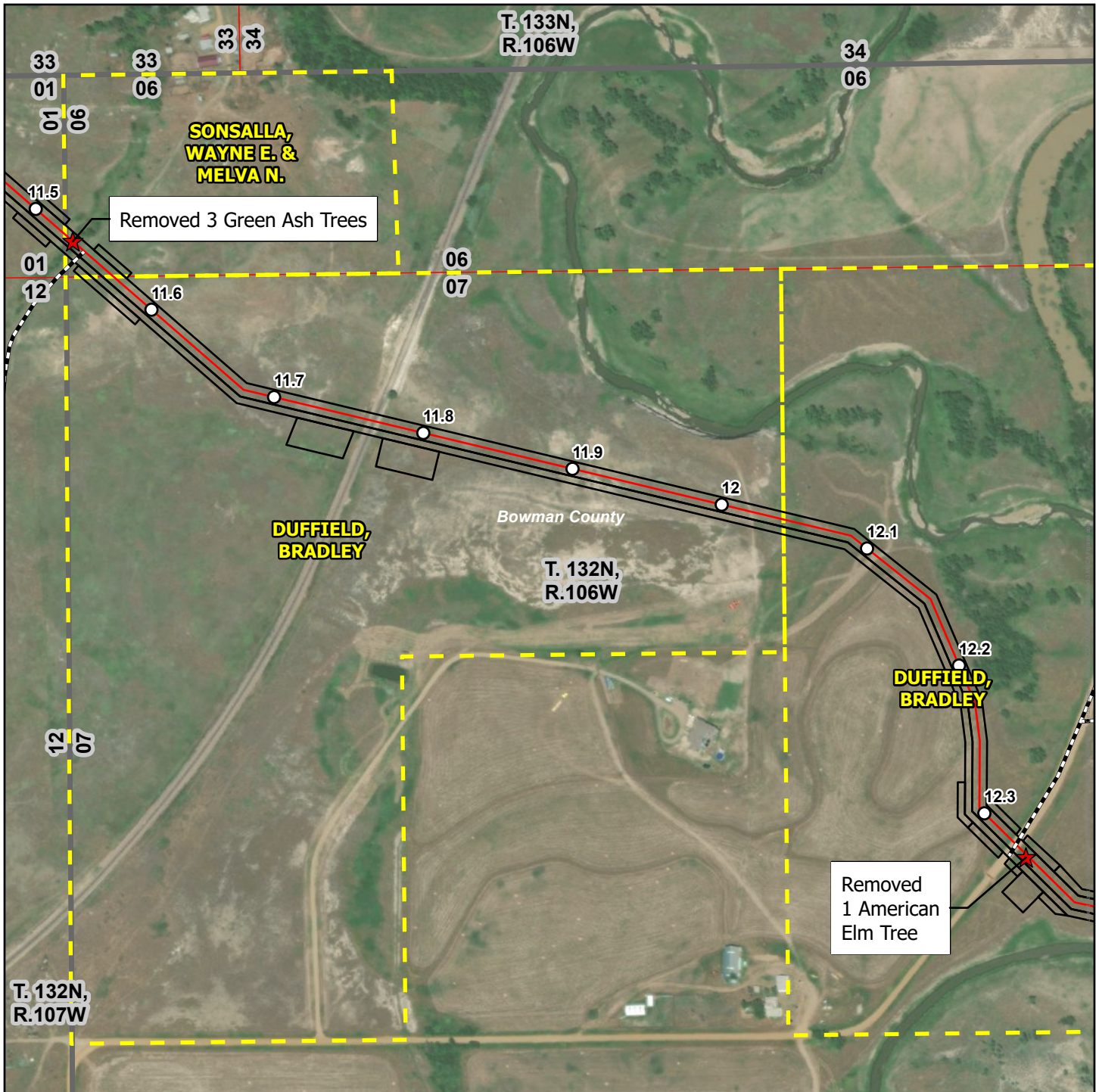
During the field surveys, 121 shrub polygons, totaling 18.69 acres and containing approximately 9,575 individual shrubs, were recorded in the permanent ROW survey area; 134 shrub polygons, totaling 9.72 acres and containing approximately 5,600 individual shrubs, were recorded in the temporary workspace survey area. No coniferous trees were observed in either survey area.

TREE AND SHRUB MITIGATION PLAN

The NDPSC Order, dated April 1, 2020, modified the Tree and Shrub Mitigation Specification dated February 3, 2020, to allow woody vegetation to be cleared up to 75 feet in areas identified on the map set in Late-Filed Hearing Exhibit 8. With this modification, the trees identified in the permanent ROW and the temporary workspace area will have to be replaced. The NDPSC requires 2:1 mitigation for all shrubs and all trees that are 1-inch DBH or greater that will be removed during Project construction and thus, a total of eight trees will be replaced at locations determined by the landowners. The three green ash trees are located on property of one landowner, while the lone American elm is on property of a separate landowner (Figure 1).

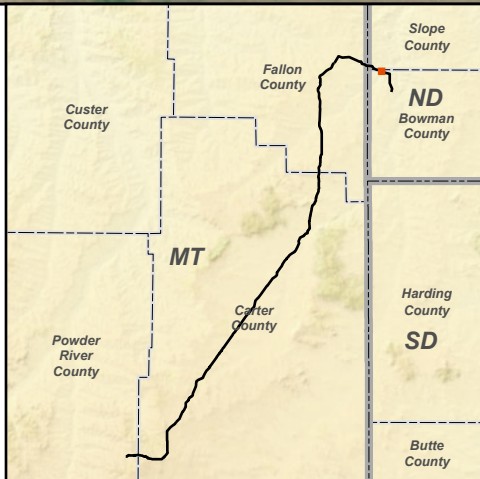
After completion of pipeline construction activities in 2021, eight 2-year-old green ash trees will be planted at the locations specified by the landowners. Therefore, six green ash trees will be planted on the Sonsalla property (Figure 2), and two green ash trees will be planted on the Duffield property (Figure 3).

Two years after planting the trees (August/September 2023), the locations where the trees were planted will be inspected to assess the survival of the trees and to determine the benefits of the plantings to the landowner, wildlife, and the environment. Denbury will submit a report to the NDPSC that documents the findings of the site inspection.



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)

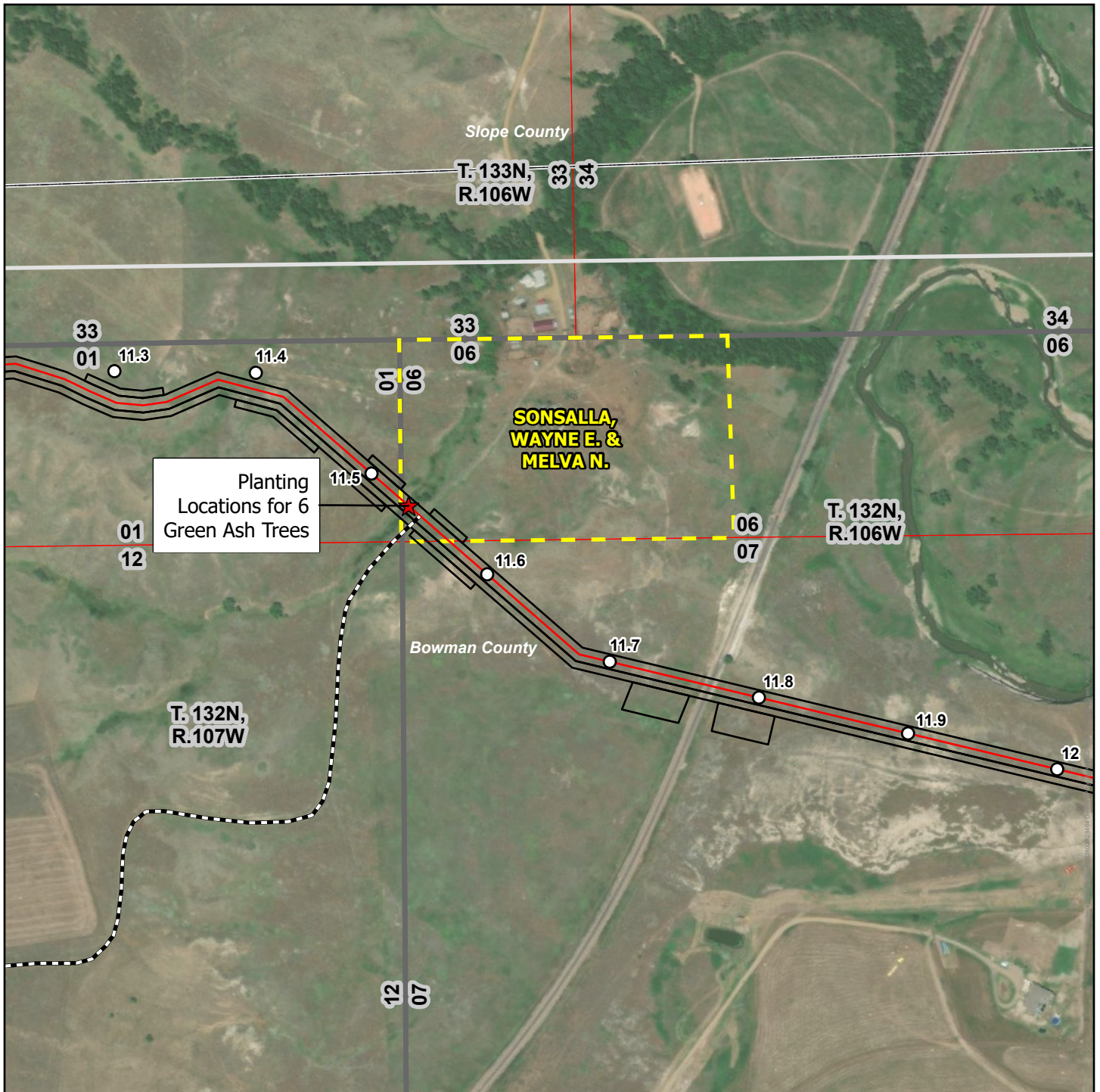


0 45 90 180 Meters

0 150 300 600 Feet

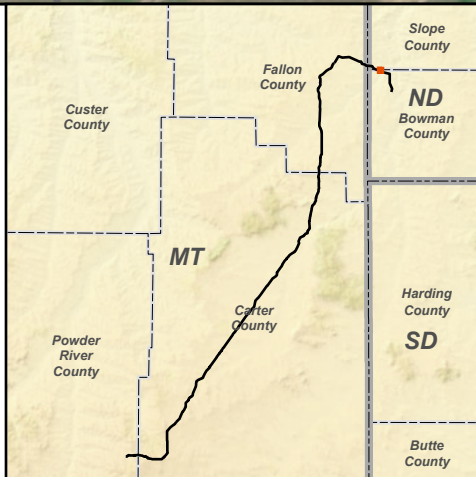
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Date: 8/26/2021



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 2

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



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0 150 300 600 Feet

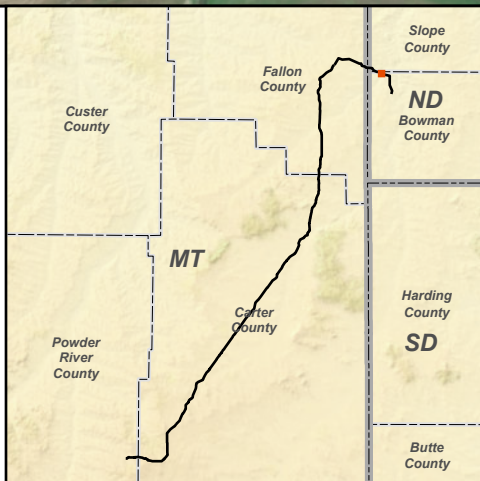
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Date: 8/26/2021



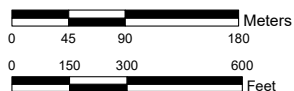
Legend

- ★ 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:
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 Datum: North American 1983
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Date: 8/26/2021