



## TREE & SHRUB SURVIVAL REPORT 2020

*NEW TOWN TO STANLEY Mountrail County, North Dakota*

### **Targa Badlands LLC**

811 Louisiana Street  
Houston, TX 77002

Submitted by:

**Golder Associates Inc.**

+1 361 573-6442

August 24, 2020

## Table of Contents

<b>1.0 INTRODUCTION .....</b>	<b>3</b>
<b>2.0 BACKGROUND .....</b>	<b>3</b>
<b>3.0 2020 TREE AND SHRUB MONITORING.....</b>	<b>4</b>
<b>4.0 SUMMARY AND CONCLUSIONS .....</b>	<b>5</b>

### **TABLES**

Table 1: Tree and Shrub Survival Count

### **FIGURES**

Figure 1: Replacement Tree and Shrub Map

### **ATTACHMENTS**

Attachment 1: Representative Photo Log

## 1.0 INTRODUCTION

The New Town to Stanley Pipeline Project (Project), filed under North Dakota Public Service Commission (NDPSC) Case Number PU-14-625, was completed in 2014 in Mountrail County, North Dakota, within portions of the Township 152N, Range 92W; Township 153N, Range 91W; Township 154N, Range 91W; Township 155N, Range 91W; and Township 156N, Range 91W. The Project is operated by Targa Badlands LLC (Targa) and includes two terminals with storage tanks and a 31.7-mile underground pipeline for the transport and storage of crude oil.

Construction of the Project required the removal and replacement of trees and shrubs within the Project right-of-way. Targa has requested Golder Associates Inc. (Golder) to assist with tree and shrub survivorship monitoring associated with the Project. This annual report documents the survival of the trees and shrubs for this Project in June of 2020.

## 2.0 BACKGROUND

Seventy-five trees and shrubs were removed during the course of the Project. The NDPSC requires tree and shrub replacement at a 2:1 ratio, and a 75% survivorship at the end of a three-year monitoring period. Targa mitigated this removal by planting 163 replacement trees and shrubs, exceeding the required 150 and slightly increasing the ratio to 2.2:1. Using this information, Golder understands that 113 of Targa's replacement trees and shrubs will be required to have survived for the Project to meet NDPSC requirements.

Eight of the 11 landowners in the Project area requested replacement of trees on their property. The remaining three landowners waived replacement of trees and shrubs on their property and instead donated the trees and shrubs. These were donated to:

- Stanley City Cemetery/Dog Park grounds; an urban housing project in the city of New Town; and
- Van Hook Wildlife Management Area property southeast of New Town.

General planting locations of the replacement trees are shown in Figure 1.

Initial tree and shrub planting data collection was conducted in 2015 by Lowham Walsh LLC (Lowham Walsh) and documented in a report titled "*Targa Badlands New Town and Stanley Pipeline: Tree and Shrub Planting Report 2015.*" This report included landowner identification, global positioning system (GPS) coordinates for replacement tree and shrubs, replacement species identification, and replacement tree and shrub height data.

Golder completed a tree and shrub survival survey titled "*Targa Badlands LLC New Town to Stanley Pipeline: Tree and Shrub Survival Report 2017*" on September 20, 2017 and it was observed that 123 of the 163 trees and shrubs originally planted remained alive. For the 2020 survey Golder relied on both Lowham Walsh's records and the 2017 survey report completed by Golder.

### 3.0 2020 TREE AND SHRUB MONITORING

This section summarizes Golder's efforts to assess survivorship of mitigation trees and shrubs. On June 22, 2020, Golder conducted survivorship surveys at each of the planting locations and attempted to locate each of the 163 trees and shrubs originally planted to make an independent survivorship determination. In 2017 only 123 of the original 163 were located. Golder utilized sub-meter Global Navigation Satellite System instruments, electronic tablets, and digital cameras (>10 megapixel) to locate individual trees and shrubs and record field data. Golder recorded whether or not each tree and shrub was deemed to be alive or dead. If the tree or shrub was determined to be dead, a probable cause of death was established (e.g. stepped or grazed on by cattle, damaged by snow removal operations, natural causes, etc.).

Trees or shrubs that had any portion of living plant material were considered alive. Of the 82 trees and 81 shrubs planted, only 53 trees and 46 shrubs were observed as alive as of June 22, 2020. Twenty Canada red chokecherry (*Prunus virginiana*), and five green ash (*Fraxinus pennsylvanica*) trees were deemed dead at the time of survey due to natural causes. Golder staff was unable to locate 39 plants, which were classified as "unknown status". As these plants were not physically located based on GPS coordinates, these are considered to be dead for the purposes of this assessment. Overall survival rate is calculated to be approximately 60% based on the 99 currently alive out of the 163 trees and shrubs that were planted during the initial planting effort. Since Targa exceeded the NDPSC ratio requirements the actual survival rate is 66%. A summary of replacement tree and shrub planting and survivorship is provided in Table 1. Representative photographs and description from Golder's June 2020 assessment are provided in Attachment 1.

Golder staff was unable to locate 39 trees and shrubs during the survey. These consisted of 35 silver buffaloberry (*Shepherdia argentea*), two green ash (*Fraxinus pennsylvanica*), and two Canada red chokecherry (*Prunus virginiana*). Mortality of the 35 silver buffaloberry shrubs assessed for this survey is assumed to be due grazing or trampling by cattle and other ungulate wildlife. All of the downy hawthorn (*Crataegus mollis*) planted were alive at time of survey.

Golder was unable to locate two green ash and two Canada red chokecherry trees at the Nathan Lahtinen property. The two remaining green ash at the Lahtinen property have white corrugated tree guard covering at the base of the trees.

The twenty Canada red chokecherry trees observed to be dead at the Ardell and Mavis Moe property had white corrugated tree guards and were easily located. Mortality of these is attributed to natural causes. All remaining healthy plants also had tree guards.

Five green ash trees at the City of New Town property were recorded as dead at the City of New Town location and attributed to natural causes or snow removal efforts as previously noted in the 2019 report.

## 4.0 SUMMARY AND CONCLUSIONS

Each replacement tree and shrub planting location related to the Project was visited by Golder staff on June 22, 2020 to assess mitigation plant survivorship. Trees or shrubs that have any amount of foliage or living plant materials at the time of Golder's assessment were recorded as alive. A total of 99 replacement trees and shrubs were identified as alive providing a survival rate of 66%. Based on the NDPS Commission standards or 75% survival after three years of annual monitoring, replacement maybe be needed to meet that standard.

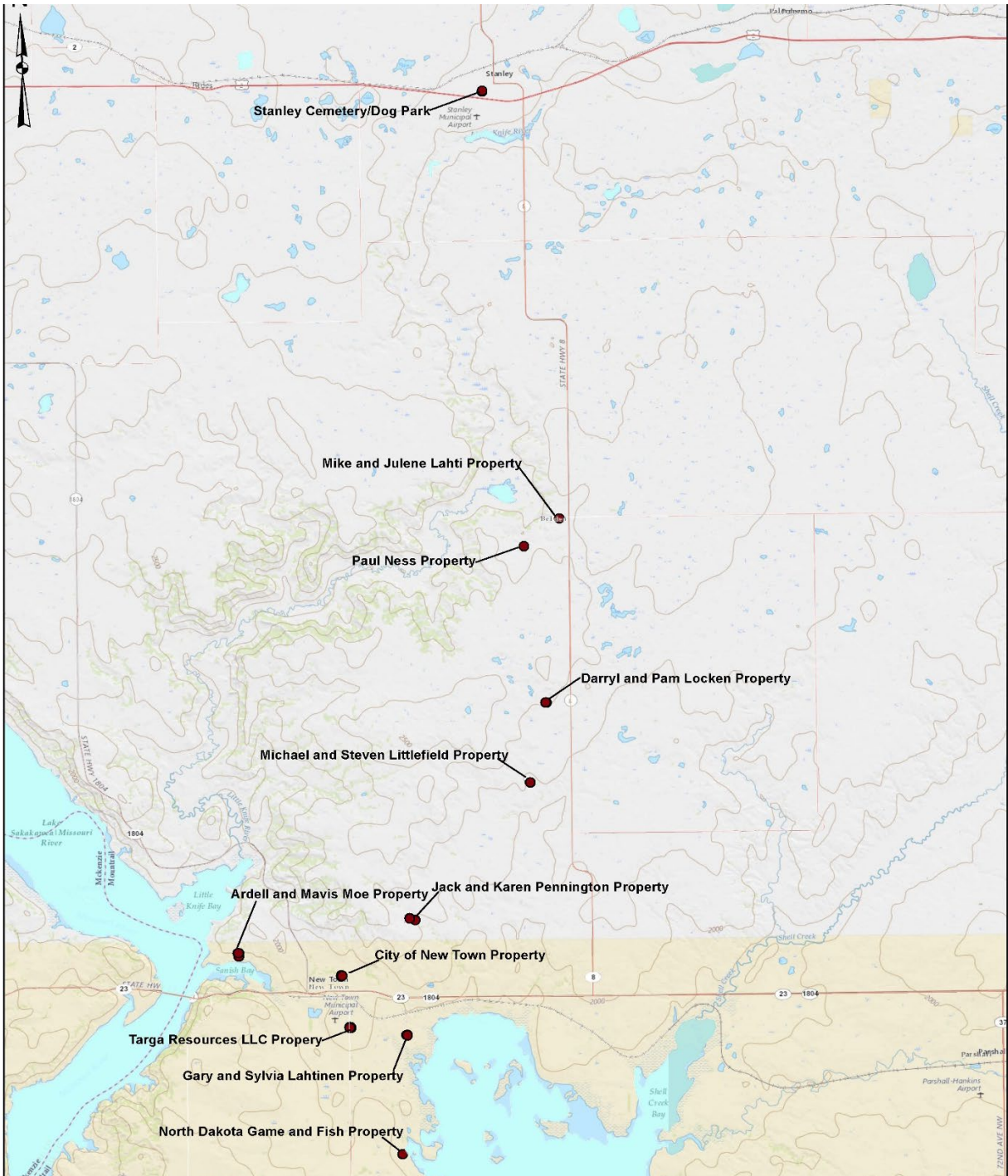
**TABLE 1: TREE & SHRUB SURVIVAL COUNT**

Recipient	Tree/Shrub Species Planted	Replacements Originally Planted	2020 Count	Average Total Height - Ft.	Survival Rate <sup>2</sup>	Mortality Assessment
Stanley Cemetery/Dog Park	Downy Hawthorn	7	7 Alive	2.75 ft	100%	N/A
Mike and Julene Lahti	Silver Buffaloberry	4	4 Unknown	N/A	0%	Not Located
Paul Ness	Silver Buffaloberry	15	15 Dead	N/A	0%	Not Located
Darryl and Pam Locken	Green Ash	26	26 Alive	5.25 ft	100%	N/A
Michael and Steven Littlefield	Silver Buffaloberry	9	3 Alive 6 Dead	2 ft	33%	Likely Grazed
Steve Pennington	Silver Buffaloberry	7	7 Dead	N/A	0%	Not Located
Nathan Lahtinen	Green Ash	4	2 Alive 2 Dead	3.25 ft	50%	Natural Causes
Nathan Lahtinen	Canada Red Chokecherry	2	2 Unknown <sup>1</sup>	N/A	0%	Not Located
North Dakota Game and Fish	Silver Buffaloberry	4	1 Alive 3 Dead	2.25 ft	25%	Likely Grazed
Ardell and Mavis Moe	Canada Red Chokecherry	37	17 Alive 20 Dead	5.25 ft	46%	Natural Causes
Targa Badlands LLC	Downy Hawthorn	35	35 Alive	3 ft	100%	N/A
City of New Town	Green Ash	13	8 Alive 5 Dead	4.5 ft	62%	Natural Causes
--	--	163	99 Alive	--	66%	--

1. Unknown status indicates Golder employees were unable to locate the trees/shrubs

2. The survival rate was calculated using NDPSC mitigation requirements for tree replacement, or 150 trees for this project. Therefore, the overall survivorship was calculated by using  $(99/150) \times 100 = 66\%$

**FIGURE 1: TREE AND SHRUB PLANTING LOCATION MAP**



## ATTACHMENT 1: REPRESENTATIVE PHOTO LOG

June 25, 2020

### Stanley Cemetery/Dog Park

View facing north looking at row of 7 downy hawthorn. Survival rate is 100% with an average height of 2.64 feet.



### Lahti Property

View facing east looking at planting area given through GPS coordinates (48.152957, -102.356633). Survival rate is 0% as silver buffaloberry plants were not located.



## Ness Property

View facing west looking at planting area given through GPS coordinates (48.142805, -102.377313). Survival rate is 0% as silver buffaloberry were not located.



## Locken Property

View facing north east looking at 26 green ash trees. Survival rate is 100% with an average height of 6.75 feet.



### Littlefield Property

View facing south east looking at the 3-remaining silver buffaloberry. Survival rate is 33% with an average height of 2.75 feet.



### Lahtina Property

View facing south looking at the 2 remaining green ash. Survival rate is 50% with an average height of 3.75 feet.



## North Dakota Game & Fish

View facing east looking at the 1 remaining silver buffaloberry. Survival rate is 25% with a height of 1.75 feet.



## Moe Property – photo 1

View facing North looking at one row of Canada red chokecherry planted along back fence line. Survival rate is 46% with an average height of 4.75 feet. Of those that have survived, current growth is very healthy.



### Moe Property – photo 2

View facing east looking at individual Canadian chokecherry tree that is sending up new shoots from base. The tops of several plants are completely dead and sending new growth from the base.



### City of New Town

View facing South East looking at front row of green ash planted between these two houses. Survival rate is 62% with an average height of 5.89 feet.



August 24, 2020

---

**Golder Associates Inc.**



Mia McCraw  
*Biologist*



Jake Trahan  
*Senior Biologist*

Golder and the G logo are trademarks of Golder Associates Corporation



**[golder.com](http://golder.com)**