

September 25, 2017

Mr. Darrell Nitschke  
North Dakota Public Service Commission  
600 East Boulevard, Department 408  
Bismarck, North Dakota 58505

**RE: Tree and Shrub Survival Report for ND PSC Case No. PU-10-630 (Plains All American Pipeline, L.P. Bakken North Pipeline)**

Dear Mr. Nitschke:

On behalf of Plains All American Pipeline, L.P., SWCA Environmental Consultants was contracted to inventory tree and shrub survival for the Bakken North Pipeline Project, Case No. PU-10-630, according to the mitigation requirements of the North Dakota Public Service Commission (ND PSC).

Annual monitoring was completed on September 8, 2017. Replacement trees/shrubs were observed at the locations outlined in *Submission and Request for Approval of Tree/Shrub Replacement Plan for ND PSC Case No. PU-10-630* (December 31, 2014).

Please add this report to your case files. An electronic copy of the report was submitted to [ndpsc@nd.gov](mailto:ndpsc@nd.gov) today as well.

Please contact me if you have any questions, comments, or concerns regarding this submittal.

Sincerely,



Amanda Nicodemus  
Project Manager  
SWCA Environmental Consultants  
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C. 307.247.2992

Attachment: 1



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ENVIRONMENTAL CONSULTANTS

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## **Tree and Shrub Survival Report for the Bakken North Pipeline Project, Williams County, North Dakota**

Prepared for

**Plains All American Pipeline, L.P.**

**ND PSC Case No. PU-10-630**

Prepared by

**SWCA Environmental Consultants**

September 2017





**Tree and Shrub Survival Report  
for the Bakken North Pipeline Project,  
Williams County, North Dakota**

Prepared for

**Plains All American Pipeline, L.P.**  
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Houston, Texas 77002

**ND PSC Case No. PU-10-630**

Prepared by

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**September 2017**



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## **1.0 INTRODUCTION**

### **1.1 BACKGROUND**

Plains All American Pipeline, L.P. (Plains) completed construction of the Bakken North Pipeline (BNP or Project) in 2014. The BNP is a new 79-mile-long, 12.75-inch-outside-diameter crude oil pipeline that originates near Plains' Trenton Station near Trenton, North Dakota, and terminates at a pipeline interconnection in Sheridan County, Montana, near the town of Outlook. The North Dakota portion of the Project is located entirely within Williams County and totals approximately 31.8 miles in length. Its construction required the removal of trees and shrubs within the Project right-of-way. The Project is under the jurisdiction of the North Dakota Public Service Commission (ND PSC).

A tree/shrub replacement plan was submitted in 2014 which discussed the approach that Plains took and the ND PSC approved to mitigate tree and shrub removal. The plan was approved in 2015 and implemented in the fall of 2014 and spring of 2015. This survival report documents the number of trees and shrubs surviving in the summer/fall of 2017. This is the third and final year of 3 years of required survival monitoring.

## **2.0 SURVIVAL SURVEY**

### **2.1 SURVIVAL REQUIREMENTS**

Many of the trees and shrubs identified by SWCA Environmental Consultants (SWCA) during the pre-construction inventory were avoided, due to the several bores and neck downs along the pipeline route. Approximately 196 trees and shrubs were removed during construction; therefore, the total number to be replaced was a minimum of 392 trees based on the 2:1 replacement requirement. Survival requirements will be based on the 392 required replacements.

At the end of 3 years of monitoring (2017), 75% of the trees, or 294, are required to have survived to meet the obligations set by the ND PSC.

### **2.2 PLANTING**

Three landowners within the Project area had trees impacted during construction. Trees were replanted at six different locations on the subsequent owner's properties. In total, 1,031 trees were replanted which more than fulfilled the 2:1 mitigation requirement (Appendix A).

### **2.3 ANNUAL PRECIPITATION**

According to National Weather Service preliminary climatological data for Williston, North Dakota (approximately 10 miles east of the Project Area), 9.29 inches of precipitation were recorded from January 1 through August 31, 2017 (Table 1). This amount is 1.84 inches below average for this time period, suggesting that weather conditions were slightly dry for tree growth.

**Table 1. Monthly Recorded Rainfall at National Weather Service Station in Williston,  
North Dakota**

<b>Month (2017)</b>	<b>Recorded Precipitation (inches)</b>	<b>Normal Precipitation (inches)</b>	<b>Difference (inches)</b>
January	0.44	0.59	-0.15
February	0.70	0.39	0.31
March	0.85	0.71	0.14
April	0.50	1.00	-0.50
May	0.98	1.92	-0.94
June	1.29	2.52	-1.23
July	0.79	2.54	-1.75
August	3.73	1.45	2.28
<b>Total*</b>	<b>9.29</b>	<b>11.12</b>	<b>-1.84</b>

Source: National Oceanic and Atmospheric Administration (2017).<sup>1</sup>

\* Totals may not equal column summation due to rounding.

## **2.4 2017 SURVEY RESULTS**

The plantings for each landowner were revisited on September 8, 2017 (Figures 1 and 2). Replanted trees were in fair condition overall; however, the fabric weed barrier was often damaged or overgrown with vegetation, making it difficult to observe some of the smaller tree and shrub plants. The chokecherry replants located in SW Section 10, Township 154 North, Range 102 West were not found; however, because no indication of the presence of these replants was observed it was not assumed that the saplings had died. Overall conifer and shrub species fared better than large deciduous species; and several shrub species had higher numbers of individuals than last year. New sapling growth or surveyor error (i.e., surrounding vegetation caused plants to be missed; plants were counted previously as dead; etc.) are possible reasons for the increase in shrubs from year 2 to year 3. Trees or shrubs which had any portion of living plant material were considered alive. Of the 1,031 trees that were replanted in the fall of 2014 and spring of 2015, 391 were alive during the September 2017 survey (Appendix A). Since the number of trees originally planted greatly exceeded the 2:1 planting requirement, the current survival rate is above the required 75% (294 trees) at 99.7%.

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<sup>1</sup> National Oceanic and Atmospheric Administration. 2017. Williston, North Dakota, Preliminary Monthly Climate Data Reports. Available at: <http://www.weather.gov/climate/index.php?wfo=bis>. Accessed September 15, 2017.



**Figure 1. Ponderosa pine row located on Bradley and Marilyn Olson property, facing north (photo taken September 8, 2017).**



**Figure 2. Green ash row located on Bradley and Marilyn Olson property, facing west (photo taken September 8, 2017).**

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**APPENDIX A**  
**Tree Mitigation Plan**

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*Tree and Shrub Survival Report for the Bakken North Pipeline Project,  
Williams County, North Dakota*

**Plains All American Pipeline, L.P., Bakken North Pipeline Tree Mitigation Plan  
ND PSC Case No. PU-10-630**

Landowner	Location Removed	Species Removed	Number Removed	Species Replanted	Number Replanted	Location Replanted	1st Year Survival	2nd Year Survival	3rd Year Survival
Bradley and Marilyn Olson (NRA WV14 and NRA WV15)	SW SE Section 22, Township (T) 154 North (N), Range (R) 102 West (W)	Silver buffaloberry ( <i>Sheperdia argentia</i> )	100	Ponderosa pine ( <i>Pinus ponderosa</i> )	90	Owner's Property, Sections 8, 10, 17, T154N, R102W, and Section 30, T155N, R102W	81	35	33
		Chokecherry ( <i>Prunus virginiana</i> )		Chokecherry	250		225	92	92
				Siberian peashrub ( <i>Caragana arborescens</i> )	14		12	8	0
				Colorado blue spruce ( <i>Picea pungens</i> )	11		10	8	0
		Juneberry ( <i>Amelanchier alnifolia</i> )		Silver buffaloberry	350		332	116	157
Herbert Mischke (NRD WV6)	SE NW Section 9, T156N, R102W	Downy hawthorne ( <i>Crateagus mollis</i> )	3	Chokecherry	6	Owner's Property, SW Section 10, T154N, R102W	6	6	CNL
Calvin Storseth (NRD WV11 and NRD WV13)	NE Section 24, T157N, R103W	Siberian elm ( <i>Ulmus pumila</i> )	3	Siberian peashrub	3	Sections 8, 10, 17, T154N, R102W, and Section 30, T155N, R102W	0*	0	0
				Green ash ( <i>Fraxinus pennsylvanica</i> )	3		5*	0	0
				Black Hills spruce ( <i>Picea glauca</i> var. <i>densata</i> )	2		2	2	2

*Tree and Shrub Survival Report for the Bakken North Pipeline Project,  
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<b>Landowner</b>	<b>Location Removed</b>	<b>Species Removed</b>	<b>Number Removed</b>	<b>Species Replanted</b>	<b>Number Replanted</b>	<b>Location Replanted</b>	<b>1st Year Survival</b>	<b>2nd Year Survival</b>	<b>3rd Year Survival</b>
				Colorado blue spruce	2		2	2	2
Bradley and Marilyn Olson (NRA WV10)	SE SE Section 26, T154N, R102W	Cottonwood ( <i>Populus deltoides</i> )	90	Green ash	100	Owner's Property, Sections 8, 10, 17, T154N, R102W, and Section 30, T155N, R102W	95	0	0
				American plum ( <i>Prunus americana</i> )	200		180	60	105
<b>Total</b>			<b>196</b>		<b>1,031</b>		<b>950</b>	<b>329</b>	<b>391</b>

\* Siberian peashrub not observed at same location as green ash and spruce tree location. Additional green ash noted.

CNL – could not locate