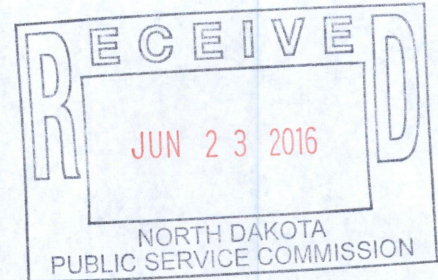




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Bismarck Office  
116 North 4th Street, Suite 200  
Bismarck, North Dakota 58501  
Tel 701.258.6622 Fax 701.258.5957  
www.swca.com



September 23, 2016

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 August 30, 2016. 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,

A handwritten signature in black ink, appearing to read "Jason Bivens".

Jason Bivens  
Project Manager

Attachment: 1

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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 2016



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

Prepared for

**Plains All American Pipeline, L.P.**  
333 Clay Street, Suite 1600  
Houston, Texas 77002

**ND PSC Case Number: PU10-630**

Prepared by

**SWCA Environmental Consultants**  
116 North 4th Street, Suite 200  
Bismarck, North Dakota 58501  
Phone: (701) 258-6622 | Fax: (701) 258-5957  
[www.swca.com](http://www.swca.com)

**September 16, 2016**

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**LIST OF APPENDICES**

<u>Appendix</u>
A Tree Mitigation Plan

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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, 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 2016. This is the second of 3 years of survival monitoring.

## **2.0 SURVIVAL SURVEY**

### **2.1 SURVIVAL REQUIREMENTS**

Many of the trees and shrubs identified during SWCA's 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), 9.75 inches of precipitation were recorded from January 1 through August 31, 2016 (Table 1). This amount is 1.37 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 (2016)</b>	<b>Recorded Precipitation (inches)</b>	<b>Normal Precipitation (inches)</b>	<b>Difference (inches)</b>
January	0.38	0.59	-0.21
February	0.75	0.39	0.36
March	0.18	0.71	-0.53
April	1.95	1.00	0.95
May	1.81	1.92	-0.11
June	1.84	2.52	-0.68
July	2.39	2.54	-0.15
August	0.45	1.45	-1.00
<b>Total</b>	<b>9.75</b>	<b>11.12</b>	<b>-1.37</b>

Source: National Oceanic and Atmospheric Administration (2016).<sup>1</sup>

## 2.4 2016 SURVEY RESULTS

The plantings for each landowner were revisited August 30, 2016. Replanted trees were in fair to poor condition with damage noted from deer and other wildlife. Additionally, the fabric weed barrier was often damaged or overgrown with vegetation making it difficult to observe some of the smaller tree and shrub plants (Figures 1 and 2). Conifer and shrub species fared better than large deciduous species. 100% of the green ash (*Fraxinus pennsylvanica*) trees observed were counted as dead. There was no foliage observed and branches were dry and brittle with peeling bark. Transplant shock or possible herbicide damage are possible contributing factors. 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, 329 were alive during the August 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 84%.

---

<sup>1</sup> National Oceanic and Atmospheric Administration. 2016. Williston, North Dakota, Preliminary Monthly Climate Data Reports. Available at: <http://www.weather.gov/climate/index.php?wfo=bis>. Accessed September 13, 2016.



**Figure 1. Ponderosa pine row located on Bradley and Marilyn Olson property, facing north (photo taken August 30, 2016).**



**Figure 2. Green ash row located on Bradley and Marilyn Olson property, facing west (photo taken August 30, 2016).**

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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>Shepherdia argentea</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	
		Chokecherry ( <i>Prunus virginiana</i> )		250	225		92		
		Juneberry ( <i>Amelanchier alnifolia</i> )		14	12		8		
				11	10		8		
Herbert Mischke (NRD WV6)	SE NW Section 9, T156N, R102W	Downy hawthorne ( <i>Crateagus mollis</i> )	3	Siberian buffaloberry	350	Owner's Property, SW Section 10, T154N, R102W	332	116	
				6	6				
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	
				3	5*		0		
				2	2		2		

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

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 WV10)	SE SE Section 26, T154N, R102W	Cottonwood ( <i>Populus deltoides</i> )	90	Colorado blue spruce	2		2	2	
				Green ash	100	Owner's Property,	95	0	
				American plum ( <i>Prunus americana</i> )	200	Sections 8, 10, 17, T154N, R102W, and Section 30, T155N, R102W	180	60	
<b>Total</b>			<b>196</b>		<b>1,031</b>		<b>950</b>	<b>329</b>	

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