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September 29, 2016

Mr. Darrell Nitschke
NORTH DAKOTA PUBLIC
SERVICE COMMISSION
600 E. Boulevard Avenue, Dept. 408
Bismarck, ND 58505-0480



Dear Mr. Nitschke:

In re: In the matter of the Application of
Vantage Pipeline US, LP
West Spur Lateral Pipeline
Williams and Divide Counties, North Dakota
Case No. PU-15-142
Our File No. 74-563-001

Enclosed for filing are 11 copies of the Vantage West Spur Lateral Pipeline First Annual Tree and Shrub Reclamation Monitoring Report, with attached Memorandum from KC Harvey Environmental.

Please call should you have any questions.

Very truly yours,

Brian Bjella

bw
Enc.
cc: (w/o enc.)
Julie Prescott
Irfana Qureshi
Monica Pokorny

MEMORANDUM

KC HARVEY
ENVIRONMENTAL, LLC



TO: Brian Bjella and Casey Furey, Crowley Fleck Attorneys PLLP

CC: Irfana Qureshi, Pembina Pipeline Corporation

FROM: Monica Pokorny, KC Harvey Environmental LLC *MP*

DATE: September 26, 2016

SUBJECT: Vantage West Spur Lateral and Vantage Mainline, Tree and Shrub Reclamation Monitoring for PSC

Enclosed are 11 copies of the Vantage West Spur Lateral Pipeline First Annual Tree and Shrub Reclamation Monitoring Report (PU-15-142), and 11 copies of the Vantage Pipeline Third Annual Tree and Shrub Reclamation Monitoring Report (PU-11-109) for the PSC. The documents are also saved electronically on CD for the PSC.

Please let me know if you have any questions or concerns.



September 26, 2016

North Dakota Public Service Commission
Patrick Fahn
600 E. Boulevard, Dept 408
Bismarck, ND 58505-0480

RE: Tree and Shrub Planting Survival – First Year Annual Report Vantage West Spur Lateral Pipeline Case No. PU-15-142

Dear Mr. Fahn,

In accordance with the North Dakota Public Service Commission (NDPSC) Tree and Shrub Mitigation Specifications, KC Harvey is submitting documentation of the reclamation planting survival monitoring for the first year after reclamation for the Vantage West Spur Lateral Pipeline Case Number PU-15-142.

The Tree and Shrub Reclamation Plan provided the following information as requested by the NDPSC Mitigation Specifications:

- The number and variety of trees and shrubs removed
- Reclamation plan for replacing these species at a 2:1 ratio
- The variety, location, and date of replacement plantings

A letter to the NDPSC dated May 9, 2016 and titled Tree and Shrub Reclamation Plan for Vantage West Spur Lateral Pipeline Case No. PU-15-142 documented the tree and shrubs planted as part of the reclamation efforts. Tree and shrub stock was obtained from the Divide County Conservation District and was planted in May 2016.

The tree and shrub survival monitoring occurred in September 2016. The results are documented in the attached annual report.

Please contact us if you require any additional information.

Sincerely,

David P. Cameron, P.E.
Principal Engineer
KC Harvey Environmental, LLC

Monica Pokorny
Senior Ecologist
KC Harvey Environmental, LLC

FIRST ANNUAL MONITORING REPORT OF TREE AND SHRUB RECLAMATION PLANTING SURVIVAL

Prepared for:

State of North Dakota Public Service Commission
Vantage West Spur Lateral Pipeline
Case No: PU-15-142

September 26, 2016

KC HARVEY
ENVIRONMENTAL, LLC

PEMBINA

Introduction

This document is a report of the first annual Vantage West Spur Lateral Pipeline monitoring for tree and shrub reclamation planting survival. Vantage Pipeline US LP (Pembina Pipeline Corp.) replanted trees and shrubs removed during construction using the methods outlined in the State of North Dakota Public Service Commission (NDPSC) approved Tree and Shrub Reclamation Plan submitted June 2015. The 47.8 mile pipeline alignment extends from a natural gas processing plant near Williston, North Dakota to an existing pipeline system near Stady, North Dakota within Divide and Williams Counties. The construction right-of-way (ROW) is planned to be 100 feet wide, which is made up of 30 feet of permanent right-of-way (PROW) and 70 feet of temporary work space. The PROW will be maintained for the lifetime of the pipeline. Vantage/Pembina Pipeline agrees to comply with all stipulations in the NDPSC's Tree and Shrub Mitigation Specifications, including completing annual inspections for three years following reclamation.

Tree and Shrub Reclamation Plantings

An inventory of planted tree and shrub species was documented in a letter to the NDPSC dated May 9, 2016 titled Tree and Shrub Reclamation Plan for Vantage West Spur Pipeline Case No. PU-15-142. Trees and shrubs were planted as part of the pipeline reclamation in May 2016 (Table 1). Vantage worked with landowners along the pipeline ROW to identify desired species and locations for plantings (Table 1). The 705 replacement tree and shrubs were planted outside of the Vantage West Spur ROW, as requested by the landowners (Figure 1). Most plantings were added to home sites, shelterbelts, and windbreaks. Two planting sites were near wetlands for wildlife habitat improvement. Trees and shrubs planted were one and two-year-old saplings and were purchased from Divide County Conservation District. In addition, some shrub species (snowberry, rose, silverberry) are expected to naturally regenerate from root where the species were present pre-pipeline construction. Trees and shrubs disturbed by the pipeline construction were replaced at a rate of 2:1. The goal is for $\geq 75\%$ survival three years after planting.

Tree and Shrub Reclamation Planting Survival Monitoring

Tree and shrub reclamation plantings were monitored for survival and natural regeneration on September 22 and 23, 2016 by counting the number of live stems per species. The field monitoring also noted areas where shrub species in the ROW were not disturbed during construction. For example, borings used to avoid cultural sites also avoided impacts to shrub species. Table 1 documents the number of surviving and regenerating reclamation plantings as well as undisturbed species in the ROW.

A total of 280 trees and shrubs were removed during construction (Table 1). There were 705 individual plants of seven species planted on the Vantage West Spur Pipeline in 2016 as part of the reclamation effort. Species included chokecherry, caragana, ponderosa pine, Colorado blue spruce, Russian olive, poplar and cottonwood. September 2016 monitoring found 318 surviving and 246 regenerating trees and shrubs for a total of 564 reclamation plantings (Table 1). There is currently 2:1 survival of reclamation trees and shrubs one year after planting. It is expected that additional shrubs will regenerate on the reclaimed ROW in the next two years, adding to the overall total. Vantage worked with landowners to plant requested species at desired planting locations at home sites, shelterbelts, and windbreaks. Unfortunately, many of the landowners did not water the plantings that were provided and the survival rate was low. Where landowners did water trees, the survival was high (see Russian olive in Table 1). In

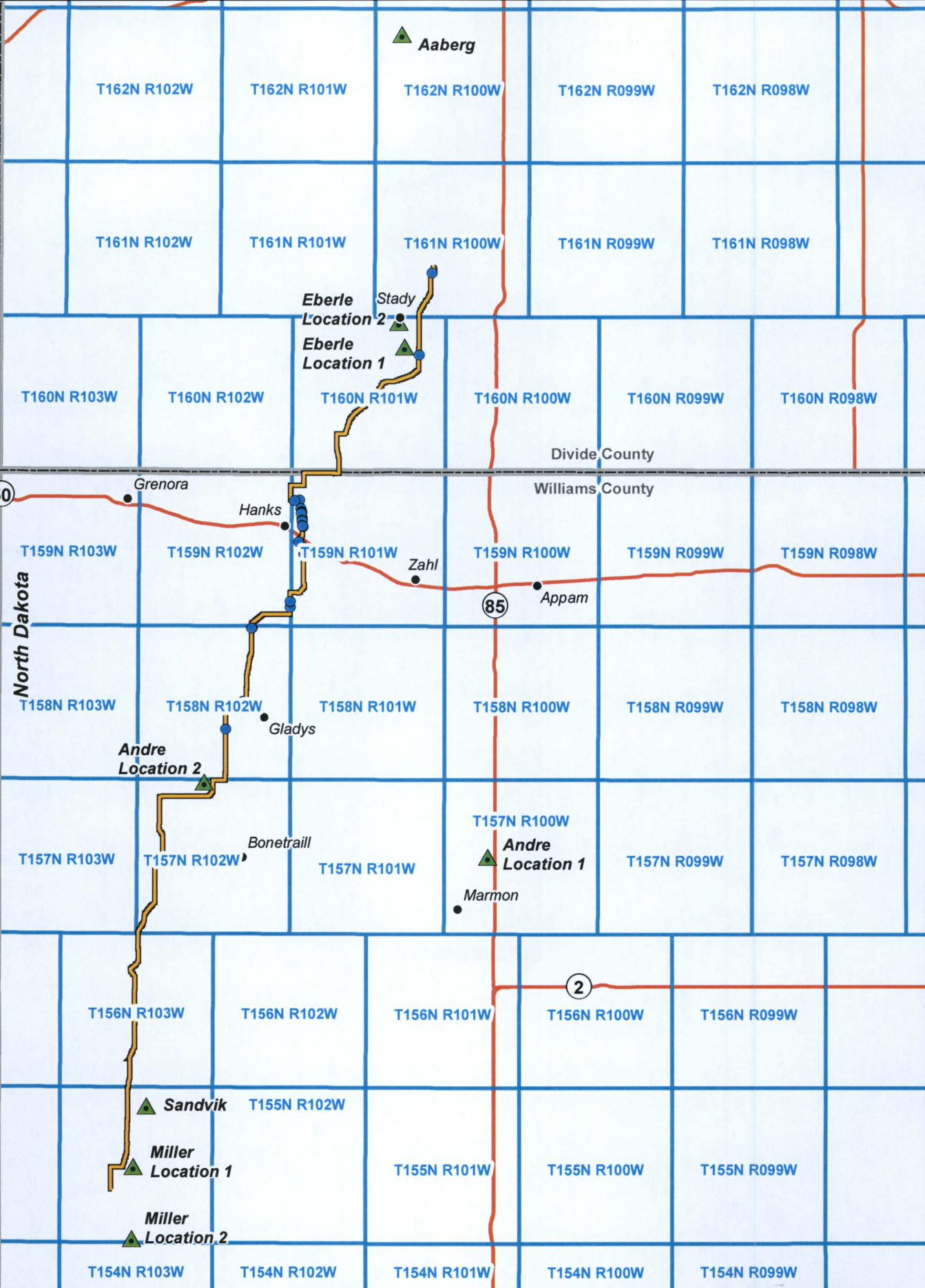
order to meet NDPSC requirements of >75% surviving three years post-construction, it is recommended Vantage / Pembina plant additional trees and shrubs in spring 2017.

Table 1. Tree and shrub species present on the Vantage West Spur Lateral Pipeline ROW.

Species	Number Inventoried	Actual Number Removed	Number Planted	Monitored Inventory	NOTES
Cottonwood	11	2	n/a	9	
Chokecherry	10	2	n/a	8	
Caragana	31	16	n/a	15	
Green Ash	30	8	n/a	22	
Chokecherry	1	1	n/a	0	
Western Snowberry	2	2	n/a	2	
Prairie Rose	2	2	n/a	10	
Horizontal Juniper	2	2	n/a	0	
Western Snowberry	9	9	n/a	20	
Horizontal Juniper	4	4	n/a	0	
Western Snowberry	4	4	n/a	15	
Silverberry	22	22	n/a	25	
Western Snowberry	4	0	n/a	n/a	not disturbed; bore during construction
Sage	80	0	n/a	n/a	not disturbed during construction
Western Snowberry	80	80	n/a	40	
Horizontal Juniper	25	25	n/a	0	
Western Snowberry	24	24	n/a	20	
Western Snowberry	1	1	n/a	0	
Western Snowberry	1	1	n/a	10	
Western Snowberry	1	1	n/a	10	
Silver Buffaloberry	1		n/a	n/a	not disturbed; bore during construction
Chokecherry	2	2	n/a	0	
Horizontal Juniper	2	2	n/a	0	
Silverberry	8	0	n/a	n/a	not disturbed; bore during construction
Horizontal Juniper	4	0	n/a	n/a	not disturbed; bore during construction
Western Snowberry	40	40	n/a	20	
Sage	14	14	n/a	0	
Prairie Rose	16	16	n/a	20	
Colorado Blue Spruce	n/a	n/a	40	6	
Colorado Blue Spruce	n/a	n/a	160	11	
Chokecherry, Caragana	n/a	n/a	100	55	
Colorado Blue Spruce, Ponderosa Pine	n/a	n/a	100	21	
Poplar	n/a	n/a	10	0	
Russian Olive	n/a	n/a	50	47	
Russian Olive	n/a	n/a	50	49	
Cottonwood, Ponderosa Pine	n/a	n/a	195	129	
TOTALS	431	280	705	564	

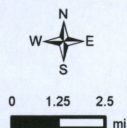
Montana

North Dakota

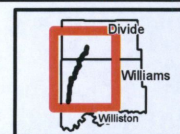


KC HARVEY

376 Gallatin Park Drive
Bozeman, MT 59715
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- Asbuilt Route
- Highway
- Planting Location
- Plant Regeneration
- Township



Vantage Pipeline US LP

Vantage West Spur Pipeline:
Tree & Shrub Planting Locations
Plant Regeneration Locations

Date: 9/26/2016 Version: 2016-2