



Enbridge Pipelines (North Dakota) LLC

Bakken Pipeline Project US

TREE & SHRUB RESTORATION PLAN

North Dakota Public Service Commission

Case No. PU-10-612

Prepared by:



February 2013

Enbridge Pipelines (North Dakota) LLC

Bakken Pipeline Project US

Tree & Shrub Restoration Plan

INTRODUCTION

On November 5, 2010 Enbridge Pipelines (North Dakota) LLC (Enbridge) filed an Application for Certificate of Corridor Compatibility and a Route Permit with the North Dakota Public Service Commission (Commission) to authorize replacement of approximately 11 miles of existing 12-inch-diameter pipeline, and to install two new, greenfield pumping stations (Bakken Pipeline Project US or BPP US). The 11-mile pipeline segment and the new Lignite Pumping Station are located in Burke County. The new Kenaston Pumping Station is located in Ward County. On May 5, 2011, the Commission issued its Findings of Fact, Conclusion of Law and Order (Order) regarding the case (Case No. PU-10-612).

The majority of construction activities on the pipeline and facilities were completed in 2011. Restoration activities continued into 2012 and are expected to be complete in 2013.

In accordance with the Tree and Shrub Mitigation Specifications identified in the Commission's Order (see Exhibit A), Enbridge is required to inventory and replace trees and shrubs that were removed during the Project. Cleared trees and shrubs are to be replaced on a two to one basis using the same or similar species. Invasive species will be replaced by a suitable native variety. Landowners were given the option to either have replacement trees and shrubs planted off right-of-way on their property or waiving that requirement and allowing replanting to take place at an alternate location. Following replanting, inspection of the replaced trees and shrubs will be conducted annually for three years to document the condition and survival rate. Enbridge will submit annual reports to the Commission following these inspections. Enbridge understands that if the survival rate is less than 75% after three years from the planting, the Commission may order additional plantings.

Enbridge is hereby submitting the results of its preconstruction tree and shrub inventories, information regarding landowner discussions, planting procedures, and a timeline for replanting. Enbridge requests that the Commission review this plan for adequacy and approval.

TREE AND SHRUB INVENTORY

A preconstruction inventory of the construction right-of-way and Kenaston and Lignite Stations was conducted by Carlson McCain, Inc. (Carlson McCain) in 2011, and is included as Exhibit B. Inventory was taken of planted and naturally growing trees greater than 1 inch in diameter at breast height (DBH), as well as trees and shrubs, regardless of size, located in windbreaks, shelterbelts, other planted areas, and natural growth areas within the construction right-of-way. Colony-forming shrubs, such as sandbar willow, located in native growth areas were sampled using the Commission-approved Shrub Sampling Method. Ten tree and shrub species were identified along the project corridor.

The tree inventory performed by Carlson McCain included a wider survey corridor than was used during construction. In addition, Enbridge reduced impacts within the construction corridor by restricting the construction right-of-way to 50 feet in wooded areas, and avoided other trees/shrubs located within the workspace, where feasible. As such, not all inventoried trees/shrubs were impacted. Actual trees and shrubs removed during construction were field-verified and recorded for

mitigation purposes (refer to Table 3 in Exhibit C).

RESULTS OF PRELIMINARY LANDOWNER DISCUSSIONS

The Commission’s Order states that trees and shrubs are to be replaced at a 2:1 ratio. In accordance with Condition 13 of the Commission’s Tree and Shrub Mitigation Specifications (see Exhibit A), Enbridge consulted with affected landowners to determine if they would like the replacement trees/shrubs planted off the right-of-way on the landowner’s property. Of the three affected landowners, one provided a waiver allowing Enbridge to plant replacement trees/shrubs at an alternate location. The remaining two landowners were contacted on multiple occasions to determine their intent, but have not responded to date. Due to the lack of response, Enbridge is proposing to mitigate their tree and/or shrub loss at an alternate location. Additionally, two trees were removed at Enbridge’s new Kenaston Station; Enbridge has elected to mitigate for these trees at an alternate location. Waivers and contact records for these landowners have been included as Exhibit D.

REPLANTING PROCEDURES TO BE IMPLEMENTED

A total of 12 trees and 36 shrubs were removed during construction of the Project. As such Enbridge is responsible for planting 24 trees and 72 shrubs. Table 1 below summarizes the total mitigation effort accounting for the landowner discussions described above. A more detailed summary of the location, type, and quantity of trees and shrubs removed during construction is provided in Table 3 (Exhibit C).

Project/Segment	Trees to Be Planted on Landowner’s Property	Shrubs to be Planted on Landowner’s Property	Trees to be Planted on Alt Location	Shrubs to be Planted on Alt Location	Total Trees	Total Shrubs
BPP US¹	0	0	24	74	24	72

¹ Includes two trees removed at Kenaston Station

Enbridge has been in recent contact with the North Dakota Forest Service (NDFS), who has indicated an interest in partnering with Enbridge on the tree mitigation effort for this and other active Enbridge projects requiring mitigation. In a January 15, 2013 conference call, NDFS State Forester Larry Kotchman provided details regarding the state’s “Trees for North Dakota” program¹, and stated that NDFS has successfully partnered with other utility companies in North Dakota on similar projects requiring tree mitigation.

In addition to BPP US, Enbridge has several other ongoing projects in the state which require tree/shrub mitigation per Orders from the Commission. As a result of the Enbridge Project Case No. PU-10-612, PU-10-613, PU-11-232, and PU-11-606, the NDFS is proposing to plant 1,353 trees and shrubs to satisfy the mitigation requirements for these projects (See Table 2).

¹ North Dakota Code 4-21.2

Table 2 Bakken Program Mitigation Overview			
PSC Order	Project/Segment	Total Trees	Total Shrubs
Case No. PU-10-612	Bakken Pipeline Project US	24	72
Case No. PU-10-613	Beaver Lodge Loop Project (BLLP) East	66	10
	BLLP West	774	372
	BLLP - Stanley Station	24	10
Case No. PU-11-232	Berthold Station Expansion Project	26	0
Case No. PU-11-606	Little Muddy Station Connection Project	0	12
Total Mitigation Requirement		914	476
<i>Total to be Mitigated by BLLP Landowner Directly</i>		160	
<i>Total to be Mitigated by the NDFS</i>		754	476
Combined Total to be Mitigated by the NDFS		1,230	
Additional NDFS-Recommended Planting to Offset mortality		123	
Total to be Planted by NDFS		1,353	

Enbridge is planning to work in partnership with NDFS to complete the tree and shrub replantings and monitoring for the active projects listed in Table 2. The NDFS will coordinate with local Soil Conservation Districts (SCDs) to plant/replace trees and shrubs on impacted landowner's property, where requested. Trees and shrubs targeted for planting at alternative locations will also be administered through NDFS. A copy of the cover letter that summarizes the partnership is included as Exhibit E.

Willing landowners, with appropriate conservation tree plantings, will be encouraged to participate by working directly with SCD employees. Site-specific planting plans will be developed by a resource professional, based on soils, topography, land-form, and the landowner's goals using Natural Resources Conservation Service (NRCS) practice specifications.

Highlights of the partnership include:

- As none of the replanting efforts will occur on affected landowner's property, the program's tree/shrub planting opportunities will target the entire state of North Dakota. Public and private parties will be encouraged to participate.
- The *Trees for North Dakota Trust Fund*² will be used as a vehicle to orchestrate tree and shrub replantings on private property owners, as well as to make tree planting grants available to public and private landowners. Legislative oversight provides security and assurances that the funds are used for intended tree planting purposes. The program will include funds for site preparation, tree stock, tree planting services, and weed control. Funding for the program will be provided by Enbridge, based on a cost estimate to be provided by the NDFS.

² established by North Dakota Code 4-21.2-02

- NDFS staff and/or local SCDs will conduct annual monitoring of the replanted trees/shrubs, and will prepare an annual report detailing the replanting effort and survival rates. Using this data, Enbridge will submit annual reports to the Commission per Tree and Shrub Mitigation Specification #15.

TIMELINE FOR REPLANTINGS

Mechanical planting will generally be utilized where a large number of plantings are required and hand planting will be employed where there are fewer plantings. Per discussions with NDFS staff, plantings generally occur between late April and June 1. It is anticipated that some areas will require site preparation prior the plantings. While some planting may occur in 2013, it is assumed that the majority/all of the plantings will occur in Spring 2014.

REPLACEMENT MONITORING

On Enbridge's behalf, NDFS and/or local SCDs will inspect tree and shrub replacements once a year for three years, on the anniversary of the plantings, and complete a report documenting the status and condition of plantings on or shortly before October 1 of each year. This report will be submitted to the Commission. Survival success rates will be determined by monitoring replacement plantings only and on a species-by-species basis. Enbridge understands the Commission may order additional plantings if survival rates are less than 75%. Based on discussions with NDFS, more trees/shrubs than required are typically planted to account for some anticipated mortality.

EXHIBIT A

**North Dakota Public Service Commission's
Tree and Shrub Mitigation Specifications**

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

**Enbridge Pipelines (North Dakota) LLC
Bakken Pipeline Project US – Ward & Burke Counties
Siting Application**

Case No. PU-10-612

Tree and Shrub Mitigation Specifications

Inventory

1. Trees and shrubs anticipated to be cleared, including those that are considered invasive species or noxious weeds (e.g., *Caragana arborescens*, *Elaeagnus angustifolia*, *Rhamnus cathartica*, *Tamarix chinensis*, *T. parviflora*, *T. ramosissima*, *Ulmus pumila*), shall be inventoried before cutting. The inventory shall record the location, number, and species of trees and shrubs.
2. In windbreaks, shelterbelts, and other planted areas, trees or shrubs anticipated to be cleared, regardless of size, shall be inventoried for replacement.
3. In native growth areas, trees anticipated to be cleared that are 1-inch diameter at breast height (dbh) or greater shall be inventoried for replacement.
4. In native growth areas, shrubs anticipated to be cleared in the permanent right-of-way shall be inventoried for replacement.
5. In native growth areas outside the permanent right-of-way, shrubs shall be cut flush with the surface of the ground, taking care to leave the naturally occurring seed bank and root stock intact. If soil disturbance is necessary, the native topsoil shall be preserved and replaced after construction. Shrubs shall be allowed to regenerate naturally where native topsoil is preserved and replaced. Where native topsoil is not preserved and replaced, shrubs anticipated to be cleared shall be inventoried for replacement.
6. In native growth areas, trees and shrubs may be inventoried by actual count or by sampling method that will properly represent the woody vegetation population. A sampling plan developed by the company, filed with the North Dakota Public Service Commission (Commission), and approved prior to the start of construction shall define the sampling method to be used for trees, for tall shrubs and for low shrubs. The data from the sample plots shall be extrapolated to the total acreage of the wooded area to be cleared to determine the species and quantity of trees and shrubs to be replaced.

Clearing for Construction

7. Trees and shrubs shall be selectively cleared, leaving mature trees and shrubs intact where practical.
8. The width of clear cuts through windbreaks, shelterbelts and all other wooded areas shall be limited to 50 feet or less unless otherwise approved by the Commission.
9. If the area of trees or shrubs actually cleared differs from the area inventoried, the difference in number of trees and shrubs to be replaced shall be noted on the inventory.

Replacement

10. Prior to replacement, documentation identifying the number and variety of trees removed as well as the mitigation plan for the proposed number, variety, type, location and date of replacement plantings shall be filed with the Commission for approval.
11. Tree replacement shall be on a 2 to 1 basis with 2-year-old saplings. Shrub replacement shall be on a 2 to 1 basis with stem cuttings.
12. Trees and shrubs shall be replaced by the same species or similar species, except in the case of invasive species or noxious weeds, suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service.
13. Landowners shall be given the option of having replacement trees or shrubs planted off the right-of-way on the landowner's property or waiving that requirement in writing and allowing those replacement trees or shrubs to be planted at alternative locations.
14. At the conclusion of the project, documentation identifying the actual number, variety, type, location, and date of the replacement plantings shall be filed with the Commission.
15. Tree and shrub replacements shall be inspected once a year for three years, on or about the anniversary of the plantings, and, on or shortly before October 1 of each year, a report shall be submitted to the Commission documenting the condition of replacement planting and any woodlands work completed. If after three years from the anniversary of the plantings the survival rate is less than 75%, the Commission may order additional planting(s).

EXHIBIT B

Tree and Shrub Inventory Report (Carlson McCain)



August 16, 2011

Ms. Angela Ronayne, PE
Merjent
615 First Avenue NE
Minneapolis, MN 55413

Re: **Bakken Pipeline Expansion Project and Kenaston Station Tree Inventory Report**

Dear Ms. Ronayne,

Carlson McCain, Inc. is pleased to submit the "Tree Inventory Report of the Bakken Pipeline Expansion Project and Kenaston Station" for your review. The field evaluation was conducted on July 20, 2011 by Greg Meyer and Chad Tucker, Biologists of Carlson McCain, Inc.

Please call me at 701-255-1475 if you have any questions or need additional informational.

Sincerely,

A handwritten signature in black ink that reads "Greg W. Meyer". The signature is written in a cursive, flowing style.

Greg Meyer, MS
Ecologist

TREE INVENTORY REPORT

Bakken Pipeline Expansion Project
and
Kenaston Station

Project #3421

Prepared for:

Merjent
615 First Avenue
Minneapolis, MN 55413

August 16, 2011



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- Appendix C Tree and Shrub Count Forms

1.0 SCOPE OF WORK

Carlson McCain, Inc. (Carlson McCain) inventoried trees and shrubs along the proposed Bakken Pipeline Expansion Project (BPEP) and Kenaston Station for Enbridge Pipelines (North Dakota) LLC (Enbridge). The proposed BPEP is oriented northwest to southeast, approximately 11 miles in length and located in Burke County, North Dakota. Lignite, North Dakota, is located near to the proposed BPEP. Kenaston Station is located in Section 7, T159N, R88W, in Burke County, North Dakota.

Trees and shrubs were inventoried in accordance with the North Dakota Public Service Commission (Commission) Tree and Shrub Mitigation Specifications (Specifications) for the BPEP and Kenaston Station. The inventory was conducted across an approximately 150-foot wide corridor. Carlson McCain biologists, Greg Meyer and Chad Tucker, conducted the tree and shrub inventory during July 2010.

2.0 PROCEDURES

Carlson McCain utilized the Commission approved “Tree and Shrub Inventory Plan Enbridge Pipelines (North Dakota) LLC, Bakken Pipeline Expansion Project, Beaver Lodge Loop Project” (Inventory Plan) while conducting the tree and shrub inventory. Standard data forms were completed for each inventoried tree/shrub site. Each site was assigned a unique identification that consisted of the site’s section, township, range, and identification number, i.e. 08162091-01. Data collected at each site included, observer, date, site id, woodland type, tree/shrub species, invasive species, tally, and total number. An example can be found in the Inventory Plan (Appendix B).

Trees and shrubs located in windbreaks, shelterbelts, other planted areas, and natural growth areas in the BPEP corridor and Kenaston Station were counted by direct stem count. Planted and natural growing trees that were ≥ 1 inch diameter breast height (DBH) were inventoried for mitigation replacement.

Sandbar willow, a colony forming shrub, located in native growth areas were delineated with a GPS unit or on aerial photography and sampled with the Commission approved Shrub Sampling Method. Sandbar willow is a common colony-forming shrub growing along the BPEP. The Shrub Sampling Method is described in detail in the Inventory Plan (Appendix B).

3.0 RESULTS

Native and planted trees and shrubs were inventoried at approximately 14 individual sites along the proposed BPEP and Kenaston Station. Ten tree and shrub species were identified along the proposed BPEP (Table 1). Natural growth tree areas are located near wetland areas while planted areas are located near former farmsteads. A planted tree row is located within the proposed Kenaston Station. Two Siberian elm (*Ulmus pumila*) are located in the tree row.

Green ash and cottonwood are the most common tree species found along the BPEP. Sandbar willow are prevalent around numerous wetland areas in the BPEP corridor. Siberian peashrub is a common invasive species and are planted near two former farmsteads in Sections 24 and 25, T162N, R91W along the proposed BPEP. Tree and Shrub Count Forms are included in Appendix C.

Table 1. Summary of Tree and Shrub Inventory

Species	Common Name	Growth Form	Reproduction	Invasive or Nonnative	Natural Growth	Planted	Overall Total
					≥1"	≥1"	
<i>Caragana arborescens</i>	Peashrub (Siberian)	shrub	seed	Yes	0	212	212
<i>Crotonaster integerrimus</i>	European Crotonaster	shrub	seed	Yes	0	1	1
<i>Elaeagnus angustifolia</i>	Russian Olive	tree	seed	Yes	5	0	5
<i>Fraxinus pennsylvanica</i>	Ash (Green)	tree	seed	No	0	58	58
<i>Populus deltoides</i>	Cottonwood	tree	seed/suckering	No	47	2	49
<i>Populus tremuloides</i>	Quaking Aspen	tree	seed/suckering	No	0	6	6
<i>Salix amygdaloides</i>	Willow (Peachleaf)	tree	seed	No	1	0	1
<i>Salix exigua</i>	Willow (Sandbar)	tree/shrub	suckering	No	1526	0	1526
<i>Syringa vulgaris</i>	Lilac (Common)	shrub	rhizomatous, colony forming	Yes	0	3	3
<i>Ulmus pumila</i>	Elm (Siberian)	tree	seed	Yes	1	2	3
Totals					1580	284	1864

4.0 RECOMMENDATIONS

Carlson McCain makes the following recommendations regarding mitigation:

- **Invasive Species.** Invasive species should be replaced with non-invasive native tree/shrub of similar height and canopy suitable for the mitigation area.
- **Colony-forming Species.** Colony-forming and/or suckering species as described in Section 3 should be cut flush with the ground level where necessary to accommodate construction. These areas should then be allowed to regenerate naturally. Where complete removal is necessary, replacement should be made on a 1:4 basis with stem cuttings. A planting ratio of 1:2 is accurate in areas where moisture is not a limiting growth factor.

Enbridge will develop a tree/shrub mitigation plan for Commission's approval.

5.0 REFERENCES

Enbridge Pipelines (North Dakota) LLC. Tree and Shrub Inventory Plan. Enbridge Pipelines (North Dakota) LLC, Bakken Pipeline Project, Beaver Lodge Loop Project. Case No. PU-10-612 and PU-10-613. July 2011.

North Dakota Tree Handbook. North Dakota Tree Information Center. North Dakota State University. ND Forest Service. <http://www.ag.ndsu.edu/trees/handbook/ndhand-1.htm>
Accessed September 2010.

North Dakota Public Service Commission. Exhibit C1 North Dakota Public Service Commission Findings of Fact, Conclusion of Law and Order. Tree and Shrub Mitigation Specifications. 3p.

APPENDIX A

Tree and Shrub Mitigation Specifications

Case No. PU-10-612 / PU-10-613

Tree and Shrub Mitigation Specifications

Inventory

1. Trees and shrubs anticipated to be cleared, including those that are considered invasive species or noxious weeds (*e.g.*, *Caragana arborescens*, *Elaeagnus angustifolia*, *Rhamnus cathartica*, *Tamarix chinensis*, *T. parviflora*, *T. ramosissima*, *Ulmus pumila*), shall be inventoried before cutting. The inventory shall record the location, number, and species of trees and shrubs.
2. In windbreaks, shelterbelts and other planted areas, trees or shrubs anticipated to be cleared, regardless of size, shall be inventoried for replacement.
3. In native growth areas, trees anticipated to be cleared that are 1-inch diameter at breast height ("dbh") or greater shall be inventoried for replacement.
4. In native growth areas, shrubs anticipated to be cleared in the permanent right-of-way shall be inventoried for replacement.
5. In native growth areas outside the permanent right-of-way, shrubs shall be cut flush with the surface of the ground, taking care to leave the naturally occurring seed bank and root stock intact. If soil disturbance is necessary, the native topsoil shall be preserved and replaced after construction. Shrubs shall be allowed to regenerate naturally where native topsoil is preserved and replaced. Where native topsoil is not preserved and replaced, shrubs anticipated to be cleared shall be inventoried for replacement.
6. In native growth areas, trees and shrubs may be inventoried by actual count or by sampling method that will properly represent the woody vegetation population. A sampling plan developed by the company, filed with the North Dakota Public Service Commission (Commission) and approved prior to the start of construction shall define the sampling method to be used for trees, for tall shrubs and for low shrubs. The data from the sample plots shall be extrapolated to the total acreage of the wooded area to be cleared to determine the species and quantity of trees and shrubs to be replaced.

Clearing for Construction

7. Trees and shrubs shall be selectively cleared, leaving mature trees and shrubs intact where practical.
8. The width of clear cuts through windbreaks, shelterbelts and all other wooded areas shall be limited to 50 feet or less unless otherwise approved by the NDPSC.
9. If the area of trees or shrubs actually cleared differs from the area inventoried, the difference in number of trees and shrubs to be replaced shall be noted on the inventory.

Replacement

10. Prior to tree/shrub replacement, documentation identifying the number and variety of trees removed as well as the mitigation plan for the proposed number, variety, type, location and date of replacement plantings shall be filed with the NSPSC for approval.
11. Tree replacement shall be on a 2 to 1 basis with 2-year-old saplings. Shrub replacement shall be on a 2 to 1 basis with stem cuttings.
12. Trees and shrubs shall be replaced by the same species or similar species suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service.
13. Landowners shall be given the option of having replacement trees/shrubs planted off the right-of-way on the landowner's property or waiving that requirement in writing and allowing those replacement trees/shrubs to be planted at alternative locations.
14. At the conclusion of the project, documentation identifying the actual number, variety, type, location, and date of the replacement plantings shall be filed with the NDPSC.
15. Tree/shrub replacements shall be inspected once a year for three years, on about the anniversary of the plantings, and, on or shortly before October 1 of each year, a report shall be submitted to the NDPSC documenting the condition of replacement planting and any woodlands work completed. If after three years from the anniversary of the plantings the survival rate is less than 75%, the NDPSC may order additional planting(s).

APPENDIX B

Tree and Shrub Inventory Plan

Tree and Shrub Inventory Plan

Enbridge Pipelines (North Dakota) LLC Bakken Pipeline Project Beaver Lodge Loop Project

**Case No. PU-10-612
PU-10-613**

Prepared for:

Enbridge Pipelines (North Dakota) LLC

July 2011

Introduction

Enbridge Pipelines (North Dakota) LLC proposes to construct, own, and operate an approximate XXX-mile-long pipeline from XXXX, North Dakota to XXXX, North Dakota. The projects are called the Bakken Pipeline Project US – Ward & Burke Counties (case number PU-10-612) and Beaver Lodge Loop Project – Williams, Mountrail, & Ward Counties (case number PU-10-613). Enbridge Pipelines (North Dakota) LLC will comply with the tree and shrub mitigation specifications as outlined in Exhibit XX of the North Dakota Public Service Commission (Commission) Findings of Fact, Conclusion of Law and Order. Enbridge Pipelines (North Dakota) LLC proposes to contract McCain and Associates for the tree and shrub inventory. The tree and shrub mitigation specifications are found in Appendix A of this Tree and Shrub Inventory Plan. Specifically, this Plan outlines the process for completing the tree and shrub inventory.

Inventory Methods

Enbridge Pipelines (North Dakota) LLC will inventory trees and shrubs, including those considered invasive species, to be cleared within the 150-foot-wide right-of-way (ROW) easement. Inventories will be documented on standard forms and will include the inventory location, species present, and number of trees and shrubs in the location. An example form is found in Appendix B.

Windbreaks, Shelterbelts, and Other Planted Areas

In windbreaks, shelterbelts, and other planted areas, trees and shrubs anticipated to be cleared regardless of size will be counted by direct stem count. Trees that are one-inch or greater diameter at breast height (DBH) will be inventoried for replacement.

In windbreaks, shelterbelts, and other planted areas, shrubs that form colonies (such as buffalo currant, chokecherry, dogwood, plum, pussy willow, sandbar willow, western snowberry, and Woods rose) and that are cut flush with the ground surface and not cleared, so as to leave the naturally occurring seed bank and root stock intact will not be direct stem counted. Instead, the area will be delineated on an aerial photo and indicated on construction drawings to not be cleared or have the ground disturbed. If ground disturbance occurs, Enbridge Pipelines (North Dakota) LLC will conduct a direct stem count of the disturbance area or estimate the number of stems cleared using a Commission approved sampling estimate method (see Shrub Sampling Method, Appendix C).

Native Growth Areas

In native growth areas, trees that are one-inch or greater diameter at breast height (DBH) will be inventoried for replacement.

In high-density woodland areas, a Commission approved sampling method may be used in place of individual counting (see Tree Sampling Method, Appendix D).

In native growth areas, shrubs that form colonies (such as buffalo currant, chokecherry, dogwood, plum, pussy willow, sandbar willow, western snowberry, and Woods rose) and that are cut flush with the ground surface and not cleared, so as to leave the naturally occurring seed bank and root stock intact will not be direct stem counted. Instead, the area will be delineated on an aerial photo and indicated on construction drawings to not be cleared or have the ground disturbed. If ground disturbance occurs, Enbridge Pipelines (North Dakota) LLC will

conduct a direct stem count of the disturbance area or estimate the number of stems cleared using a Commission approved sampling estimate method (see Shrub Sampling Method, Appendix C).

Tree Sampling Method

Per the Commission's Tree and Shrub Inventory Specifications (Inventory Specification No. 6 in Appendix A), in high-density woodland areas, Enbridge Pipelines (North Dakota) LLC proposes the following sampling method for the tree inventory. The dimensions of the entire woodland stand within the ROW will be delineated to determine the area of the woodland. Tree and shrub counts will be made in representative sample site areas within the woodland. Transects will be developed and the circular sample sites placed along the transect. The number of sample sites within a woodland stand will be dependent on woodland size and uniformity. A smaller, more uniform woodland stand would require fewer sample sites than a larger, less uniform woodland stand.

The sample sites will be 0.10 acres (37.42-foot radius circles). A rope 37.42 feet in length will be attached to a central stake and rotated in a circle (Appendix D). Trees and shrubs within the circle will be counted. Tree and shrub density for the entire woodland area within the ROW will be calculated based on the average density from all of the sample locations within the woodland, weighted against the woodland size.

Shrub Sampling Method

Per the Commission's Tree and Shrub Inventory Specifications (Inventory Specification No. 6 in Appendix A), in high-density woodland areas, Enbridge Pipelines (North Dakota) LLC proposes the following sampling method for the shrub inventory. The dimensions of the entire woodland stand within the ROW will be delineated to determine the area of the woodland. Shrub counts will be made in representative sample site areas within the woodland. Transects will be developed and the circular sample sites placed along the transect. The number of sample sites within a woodland stand will be dependent on woodland size and uniformity. A smaller, more uniform woodland stand would require fewer sample sites than a larger, less uniform woodland stand.

The sample sites will be 0.01 acres (3.72-foot radius circles). A rope 3.72 feet in length will be attached to a central stake and rotated in a circle (Appendix C). Shrubs within the circle will be counted. Tree and shrub density for the entire woodland area within the ROW will be calculated based on the average density from all of the sample locations within the woodland, weighted against the woodland size.

Appendix A

Tree and Shrub Mitigation Specifications

Inventory

1. Trees and shrubs anticipated to be cleared, including those that are considered invasive species or noxious weeds (*e.g.*, *Caragana arborescens*, *Elaeagnus angustifolia*, *Rhamnus cathartica*, *Tamarix chinensis*, *T. parviflora*, *T. ramosissima*, *Ulmus pumila*), shall be inventoried before cutting. The inventory shall record the location, number, and species of trees and shrubs.
2. In windbreaks, shelterbelts and other planted areas, trees or shrubs anticipated to be cleared, regardless of size, shall be inventoried for replacement.
3. In native growth areas, trees anticipated to be cleared that are 1-inch diameter at breast height ("dbh") or greater shall be inventoried for replacement.
4. In native growth areas, shrubs anticipated to be cleared in the permanent right-of-way shall be inventoried for replacement.
5. In native growth areas outside the permanent right-of-way, shrubs shall be cut flush with the surface of the ground, taking care to leave the naturally occurring seed bank and root stock intact. If soil disturbance is necessary, the native topsoil shall be preserved and replaced after construction. Shrubs shall be allowed to regenerate naturally where native topsoil is preserved and replaced. Where native topsoil is not preserved and replaced, shrubs anticipated to be cleared shall be inventoried for replacement.
6. In native growth areas, trees and shrubs may be inventoried by actual count or by sampling method that will properly represent the woody vegetation population. A sampling plan developed by the company, filed with the North Dakota Public Service Commission (Commission) and approved prior to the start of construction shall define the sampling method to be used for trees, for tall shrubs and for low shrubs. The data from the sample plots shall be extrapolated to the total acreage of the wooded area to be cleared to determine the species and quantity of trees and shrubs to be replaced.

Clearing for Construction

7. Trees and shrubs shall be selectively cleared, leaving mature trees and shrubs intact where practical.
8. The width of clear cuts through windbreaks, shelterbelts and all other wooded areas shall be limited to 50 feet or less unless otherwise approved by the NDPSC.
9. If the area of trees or shrubs actually cleared differs from the area inventoried, the difference in number of trees and shrubs to be replaced shall be noted on the inventory.

Replacement

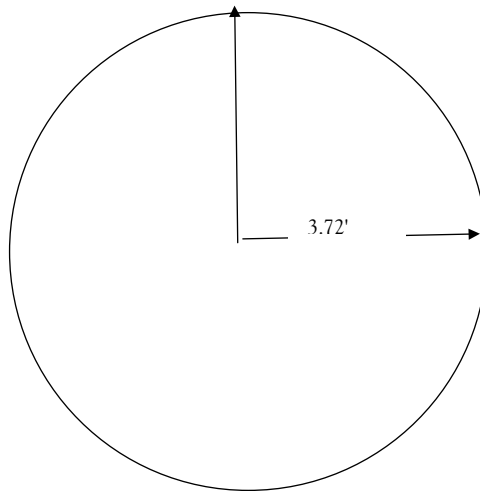
10. Prior to tree/shrub replacement, documentation identifying the number and variety of trees removed as well as the mitigation plan for the proposed number, variety, type, location and date of replacement plantings shall be filed with the NSPSC for approval.
11. Tree replacement shall be on a 2 to 1 basis with 2-year-old saplings. Shrub replacement shall be on a 2 to 1 basis with stem cuttings.
12. Trees and shrubs shall be replaced by the same species or similar species suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service.
13. Landowners shall be given the option of having replacement trees/shrubs planted off the right-of-way on the landowner's property or waiving that requirement in writing and allowing those replacement trees/shrubs to be planted at alternative locations.
14. At the conclusion of the project, documentation identifying the actual number, variety, type, location, and date of the replacement plantings shall be filed with the NDPSC.
15. Tree/shrub replacements shall be inspected once a year for three years, on about the anniversary of the plantings, and, on or shortly before October 1 of each year, a report shall be submitted to the NDPSC documenting the condition of replacement planting and any woodlands work completed. If after three years from the anniversary of the plantings the survival rate is less than 75%, the NDPSC may order additional planting(s).

Appendix C

Shrub Sampling Method

Sample Plot

- Circular sample plots with a radius of 3.72 feet, or area equivalent to 0.01 acres created with a central stake and rope.
- The rope, 3.72 feet in length, anchored to the central stake and rotated in a circle



Shrub Counts

- Direct stem counts from each plot
- Talled on work sheet by species

Woodland size

- GPS points taken in the field around boundary
- GIS used to calculate acreage

Calculations

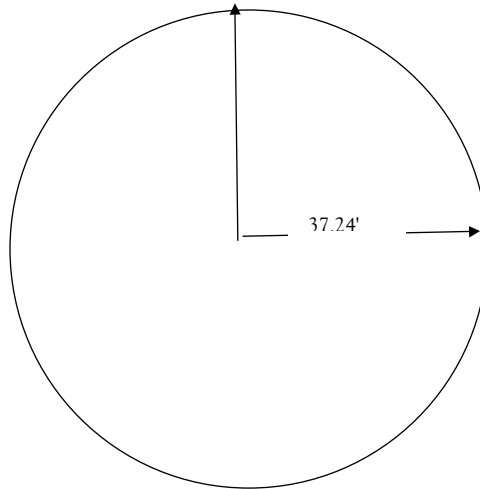
- Average determined from all plots sampled in a woodland area or area is equivalent to stems/0.01 acre
- Converted to a per acre basis (average times 100)
- Total number per woodland determined by multiplying average number per acre with woodland size

Appendix D

Tree Sampling Method

Sample Plot

- Circular sample plots with a radius of 37.24 feet, or area equivalent to 0.10 acres created with a central stake and rope.
- The rope, 37.24 feet in length, anchored to the central stake and rotated in a circle



Tree Counts

- Direct stem counts from each sample site
- Talled on work sheet by species

Woodland size

- GPS points taken in the field around boundary
- GIS used to calculate acreage

Calculations

- Average determined from all plots sampled in a woodland area or area is equivalent to stems/0.10 acre
- Converted to a per acre basis (average times 10)
- Total number per woodland determined by multiplying average number per acre with woodland size

APPENDIX C

Tree and Shrub Count Forms

EXHIBIT C

Landowner Approval and Tree/Shrub Mitigation Plans

**Table 3
Landowner Approval and Tree/Shrub Mitigation Plans**

Tract	Trees/Shrubs Removed¹	Invasive Species	Mitigation Requirement²	Trees/Shrubs Mitigation Plan Planting Requirements³	Location (Tract or Alt. Location)⁴
Kenaston Station	2 Siberian Elm	No	2:1 Replacement	4 Siberian Elm	Alt
BL-26-193-1	1 Siberian Elm	No	2:1 Replacement	2 Siberian Elm	Alt ⁵
BL-26-187-1	8 Green Ash	No	2:1 Replacement	16 Green Ash	Alt ⁵
	34 Siberian Peashrub	Yes	2:1 Replacement	68 native shrubs	
	1 European Cotoneaster	Yes	2:1 Replacement	2 native shrubs	
	1 Common Lilac	Yes	2:1 Replacement	2 native shrubs	
BL-26-185-1	1 Peachleaf Willow	No	2:1 Replacement	2 Peachleaf Willow	Alt ⁵

¹ Does not include shrubs that will regenerate naturally (i.e., Native Topsoil Preserved and Replaced (see item no. 5 in ND PSC Tree and Shrub Mitigation Specifications, Case No. PU-10-613)).

² Tree replacement shall be on a 2 to 1 basis with 2-year-old saplings. Shrub replacement shall be on a 2 to 1 basis with stem cuttings (see item no. 11 in ND PSC Tree and Shrub Mitigation Specifications, Case No. PU-10-613).

³ Replacement species should be non-invasive native tree/shrub of similar height and canopy (or as approved by the NDFS) suitable for the mitigation area (see Section 4.0 of Tree and Shrub Inventory Reports included as Exhibit B).

⁴ Landowners shall be given the option of having replacement trees/shrubs planted off the right-of-way on the landowner's property or waiving that requirement in writing and allowing those replacement trees/shrubs to be planted at alternative locations (see item no. 13 in ND PSC Tree and Shrub Mitigation Specifications, Case No. PU-10-613).

⁵ These landowners were contacted on multiple occasions to determine their intent, but have not responded to date. Based on the lack of response, it is assumed that these landowners would not have issue with conducting the required tree mitigation at an alternate location.

EXHIBIT D
Landowner Waiver and Contact Records

RW NEGOTIATION/CONTACT REPORT

RW NO. BL-26-186-1 &BL-26-193-1

County: Burke

DATE OF CONTACT: 12/1/2011 IN PERSON _____ TELEPHONE _____ OTHER Mail

OWNER NAME: Mark Rykken

PRIMARY PHONE: 701-596-3519 OTHER: _____

MAILING ADDRESS: 9742 80th Avenue NW City/State/Zip: Flaxton, ND 58737-9668

TENANT NAME: _____

HOME PHONE: _____ OFFICE PHONE: _____ OTHER _____

MAILING ADDRESS: _____

LOCATION OF CONTACT: Mail

PERSON(S) CONTACTED: Mark Rykken

PURPOSE OF CONTACT: Tree Mitigation Waiver

Date: _____

12/1/2011 Carl Nelson sent a letter to Mr. Rykken with enclosed Tree Mitigation Waiver. The letter explained how Enbridge has to replace any tree two for one, cut down that is over two inches in diameter. It was also explained that the landowner has a choice to have trees planted on their property or let Enbridge plant the trees elsewhere. Mr. Rykken has not returned Tree Mitigation Waiver at any time.

3/30/12 Trevor Seely sent Mr. Rykken a second Tree Mitigation Waiver in the mail with instructions to pick an option and a return envelope.

4/9/12 I have not received a tree waiver from Mr. Rykken.

Trevor Seely
Agent Signature

RW NEGOTIATION/CONTACT REPORT

RW NO. BL-26-185-2
BL-26-187-1
County: Burke

DATE OF CONTACT: 1-27-12 IN PERSON _____ TELEPHONE X OTHER _____
OWNERNAME: Schneider Family Partnership
PRIMARYPHONE: 907-562-0614 OTHER: _____
MAILING ADDRESS: 1120 Huffman, Suite 24-592 City/State/Zip: Anchorage, AK 99515
MAILING ADDRESS: _____
LOCATION OF CONTACT: _____
PERSON(S) CONTACTED: David Schneider's Son
PURPOSE OF CONTACT: Tree Mitigation

Date: 1-27-2012 I called and spoke with David Schneider's son. I left very detailed info with him. He promised his father would call me next Monday. Son said David is on vacation.

1-31-2012 I did not here from David Schneider, I called and left message.

2-1-2012 Called left message

2-8-2012 Called left message

2-10-2012 Called left message.

2-15-2012 Called left message.

2-27-2012 Called left message.

3-1-2012 Called left message.

3-5-2012 Called left message.

3-8-2012 Called left message

3-13-2012 Called left message.

3-26-2012 called left message.

Patrick A. Cumnock

Agent Signature

**Enbridge Pipelines (North Dakota) LLC ("Enbridge")
Bakken Pipeline Project US (BPP US)
Tree Mitigation Waiver (Case No. PU-10-612)**

Date DECEMBER 5 2011

Landowner Name JOHN AUFFORTH BPP US Tract No. BL-26-185-1

Description of tree/shrub mitigation activities PLANTING OF 2
WILLOW PEACHLEAF TREES

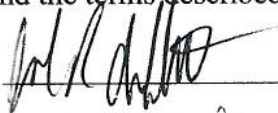
Under the North Dakota Public Service Commission (Case No. PU-10-612) Tree and Shrub Mitigation Specifications, landowners have the option of:

- Planting replacement trees/shrubs off the right-of-way on the landowner's property; or
- Planting replacement trees/shrubs at alternate locations at Enbridge's discretion

Please indicate your selection by marking the appropriate box above.

I, JOHN AUFFORTH, am the landowner of BPP US Tract No. BL-26-185-1 I hereby waive the requirement of planting replacement trees/shrubs off the right-of-way on my property.

I understand the terms described herein. I voluntarily sign this document.

Signature  Date 12-5-11

Printed Name John Aufforth Phone 701 377-2870

Street Address 6647 95th St NW Zip 58721

**Enbridge Pipelines (North Dakota) LLC ("Enbridge")
Bakken Pipeline Project US (BPP US)
Tree Mitigation Waiver (Case No. PU-10-612)**

Date 1-9-12

Landowner Name Enbridge BPP US Tract No. BL-26-104

Description of tree/shrub mitigation activities _____

Under the North Dakota Public Service Commission (Case No. PU-10-612) Tree and Shrub Mitigation Specifications, landowners have the option of:

- Planting replacement trees/shrubs off the right-of-way on the landowner's property; or
- Planting replacement trees/shrubs at alternate locations at Enbridge's discretion

Please indicate your selection by marking the appropriate box above.

I, _____, am the landowner of BPP US Tract No. _____. I hereby waive the requirement of planting replacement trees/shrubs off the right-of-way on my property.

I understand the terms described herein. I voluntarily sign this document.

Signature  Date 1/9/12

Printed Name TREVOR SEELEY - R.O.W Agent Phone _____

Street Address _____ Zip _____

EXHIBIT E

Letter from the North Dakota Forest Service - February 1, 2013



NORTH DAKOTA FOREST SERVICE

"To care for, protect and improve forest and natural resources to enhance the quality of life for present and future generations."

February 1, 2013

Angela Ronayne, PE
Merjent, Tractor Works Building
800 Washington Avenue North
Suite 315
Minneapolis, MN 55401

Dear Ms. Ronayne,

Attached for your consideration is a draft program concept outline for the North Dakota Mitigation Tree Planting Partnership Program between the North Dakota Forest Service and Enbridge. The January 29, 2013, document outlines a proposed program to replace trees and shrubs to comply with the North Dakota Public Service Commission mitigation requirements. This three-year program would be financed through an award from Enbridge to the North Dakota Forest Service. The project ending date is anticipated to be December 31, 2015. The estimated number of trees/shrubs to be planted is 1,529 including all the anticipated plantings, as well as additional stock to offset mortality.

The award to finance this program would be deposited in the Trees for North Dakota Trust Fund, a special fund in the state treasury. The award would be designated for this Mitigation Tree Planting Partnership Program and managed by the North Dakota Forest Service. The proposed program cost per tree/shrub is \$9.00. The program would be initiated by the North Dakota Forest Service and its natural resource partners and private vendors upon the receipt of the tree planting mitigation payment.

Thank you for the opportunity to assist Enbridge with its mitigation tree planting obligations set forth by the North Dakota Public Service Commission. We look forward to discussing the draft program concept outline with you, your staff and environmental consultants. Please do not hesitate to contact our office if you need further assistance or information. Thank you again for considering our services.

Sincerely,

A handwritten signature in black ink, appearing to read "Larry A. Kotchman".

Larry A. Kotchman
State Forester

Enclosure