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July 1, 2014

**VIA HAND DELIVERY**

Mr. Darrell Nitschke  
Executive Secretary  
North Dakota Public Service Commission  
600 E. Boulevard, Dept. 408  
Bismarck, ND 58505-0480

RE: North Dakota Pipeline Company LLC,  
Sandpiper Project – Siting Application  
Case No. PU-13-848

Dear Mr. Nitschke:

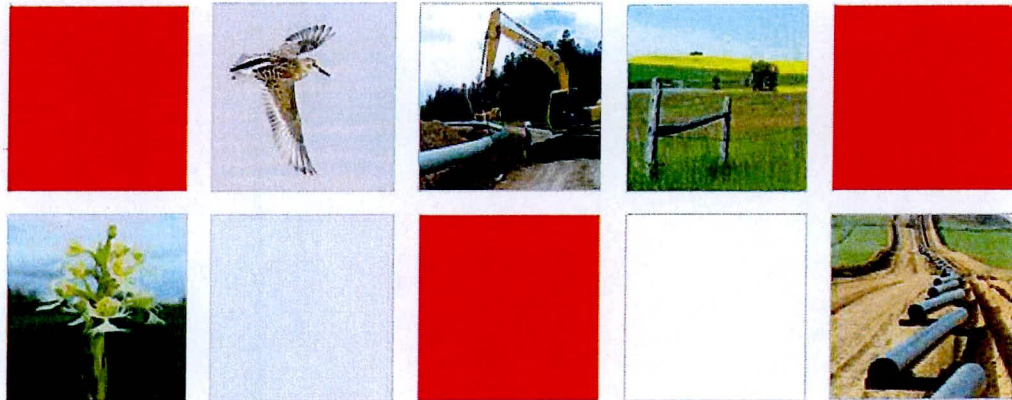
Enclosed for filing please find eleven copies of North Dakota Pipeline Company LLC's Tree and Shrub Inventory Plan for the above captioned project.

Please call should you have any questions.

Very truly yours,

  
Brian R. Bjella

bw  
Enc.  
cc: Julie Prescott



## North Dakota Pipeline Company LLC (NDPL)

### Tree and Shrub Inventory Plan - North Dakota (Rev 0)

PRESENTED BY MERJENT, INC.  
July 1, 2014



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## **1.0 INTRODUCTION AND PROJECT DESCRIPTION**

The North Dakota Public Service Commission (NDPSC) case number for the Project is PU-13-848. NDPL will comply with the tree and shrub mitigation specifications as outlined in the Certification Relating to Order Provisions Transmission Facility Siting. Prior to construction, a tree and shrub inventory will be conducted within the construction right-of-way (to include the permanent easement, temporary workspace, additional temporary workspace and other extra workspaces identified by Construction Management). The NDPSC Tree and Shrub Mitigation Specifications are found in Appendix A of this Tree and Shrub Inventory Plan (Plan). Specifically, this Plan outlines the process for completing the tree and shrub inventory.

For the purpose of this Plan, clearing is defined as any removal/cutting of trees, and ground disturbance that fully removes the naturally occurring seed bank and root stock for trees and shrubs. Per the Tree and Shrub Mitigation Specification 5 (Appendix A), in native growth areas, shrubs must 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 must be inventoried for replacement.

## **2.0 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 (Appendix B). Trees that are 1 inch or greater in diameter at breast height (DBH) will be inventoried for replacement.

Shrubs that form colonies (such as buffalo currant, chokecherry, dogwood, plum, pussy willow, sandbar willow, western snowberry, and Woods rose) and that are not cleared will not be counted by direct stem count. 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, a direct stem count of the disturbance area or estimate the number of stems cleared using an NDPSC-approved sampling estimate method (see Shrub Sampling Method, Appendix C) will be completed.

## **3.0 NATIVE GROWTH AREAS**

In native growth areas, trees that have 1 inch or greater DBH will be inventoried for replacement. In high-density woodland areas, an NDPSC-approved sampling method may be used in place of individual counting (see Tree Sampling Method, Appendix D).

Shrubs that form colonies (such as buffalo currant, chokecherry, dogwood, plum, pussy willow, sandbar willow, western snowberry, and Woods rose) and that are not cleared will not be counted by direct stem count. 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, a direct stem count of the disturbance area or estimate the number of stems cleared using an NDPSC-approved sampling estimate method (see Shrub Sampling Method, Appendix C) will be completed.

#### **4.0 TREE SAMPLING METHOD**

Per the NDPSC's Tree and Shrub Mitigation Specifications (Inventory Specification No. 6 in Appendix A), in high-density woodland areas the following sampling method will be utilized for the tree inventory. The dimensions of the entire woodland stand within the construction right-of-way 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 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 acre (37.42-foot-radius circle). 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 construction right-of-way will be calculated based on the average density from all sample locations within the woodland, weighted against the woodland size.

#### **5.0 SHRUB SAMPLING METHOD**

Per the NDPSC's Tree and Shrub Inventory Specifications (Inventory Specification No. 6 in Appendix A), in high-density woodland areas the following sampling method will be utilized for the shrub inventory. The dimensions of the entire woodland stand within the construction right-of-way 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 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 acre (3.72-foot-radius circle). 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 construction right-of-way will be calculated based on the average density from all of the sample locations within the woodland, weighted against the woodland size.

**Appendix A**  
**NDPSC Tree and Shrub Mitigation Specifications**

**STATE OF NORTH DAKOTA**  
**PUBLIC SERVICE COMMISSION**

**Enbridge Pipelines (North Dakota) LLC  
24-Inch Crude Oil Pipeline – Sandpiper Project  
Siting Application**

**Case No. PU-13-848**

**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*), must be inventoried before cutting. The inventory must 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, must 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 must be inventoried for replacement.
4. In native growth areas, shrubs anticipated to be cleared in the permanent right-of-way must be inventoried for replacement.
5. In native growth areas outside the permanent right-of-way, shrubs must 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 must be preserved and replaced after construction. Shrubs must 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 must be inventoried for replacement.
6. In native growth areas, trees and shrubs may be inventoried by actual count or by a 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 must define the sampling method to be used for trees, for tall shrubs and for low shrubs. The data from the sample plots must 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 must be selectively cleared, leaving mature trees and shrubs intact where practical.
8. The maximum width of clear cuts through windbreaks, shelterbelts and all other wooded areas is 50 feet, 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 must be noted on the inventory.

### **Replacement**

10. Prior to tree and shrub replacement, documentation identifying the number and variety of trees and shrubs removed, as well as the mitigation plan for the proposed number, variety, type, location and date of replacement plantings, must be filed with the Commission for approval.
11. Two 2-year-old saplings must be planted for every one tree removed. Two shrubs (stem cuttings) must be planted for every one shrub removed.
12. Except in the case of invasive or noxious species, trees and shrubs must be replaced by the same species or similar species, suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service. Invasive or noxious species must be replaced by similar non-invasive or non-

noxious species suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service.

13. Tree and shrub replacement must not be conducted within a 20 to 30 foot wide path over the pipeline to facilitate visual inspections of the right-of-way in accordance with U.S. Department of Transportation safety regulations.
14. Landowners must be given the option of having replacement trees and shrubs planted on the landowner's property, either on or off the right-of-way. The landowner must also be given the opportunity to waive those options in writing in order to have replacement trees and shrubs planted off the landowner's property.
15. At the conclusion of the project, documentation identifying the actual number, variety, type, location and date of the replacement plantings must be filed with the Commission.
16. Tree and shrub replacements must be inspected annually, in September, for three years. The first annual inspection must be at least one year from the anniversary date of the original plantings. A report of each annual inspection must be submitted to the Commission by October 1 of each year, documenting the condition of plantings and any woodlands work completed as of September of each year. If after the third annual report the survival rate is less than 75%, the Commission may order additional planting(s).

**Appendix B**  
**Tree and Shrub Count Form**

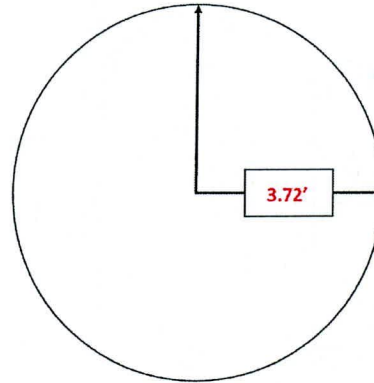


**Appendix C**  
**Shrub Sampling Method**

## 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

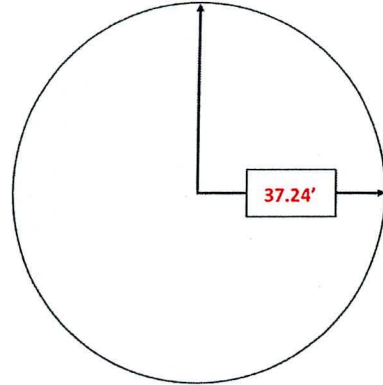
- Average determined from all plots sampled in a woodland area or area is equivalent to stems/0.01 acre
- Converted to a per acre basis (average times 100)
- Total number per woodland determined by multiplying average number per acre with woodland size

**Appendix D**  
**Tree Sampling Method**

## 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
- Tallied on worksheet 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 x 10)
- Total number per woodland determined by multiplying average number per acre with woodland size