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June 9, 2014

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

RE: Minnesota Power's Application for a Corridor Certificate and Route Permit
Cass County 250 kV Direct Current Line Re-route
Case No. PU-14-121

Dear Mr. Nitschke:

Enclosed are an original and 10 copies of supplemental information to Minnesota Power's Certificate of Corridor Compatibility and Route Permit Application for the proposed Cass County 250 kV Direct Current Line Re-route Project. The documents are labeled as follows.

Appendix A- Plan and Profile

Appendix B- Tree and Shrub Survey Report

Please do not hesitate to contact me at the number below should you have any questions.

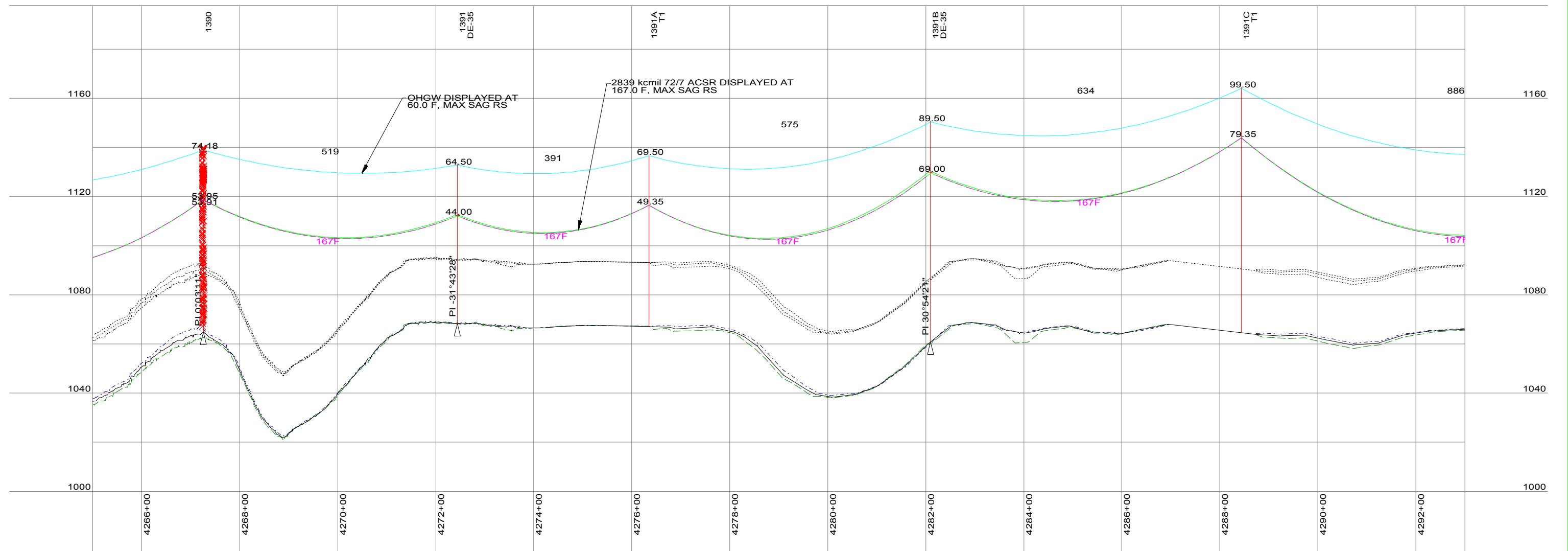
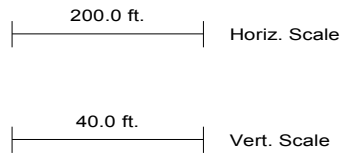
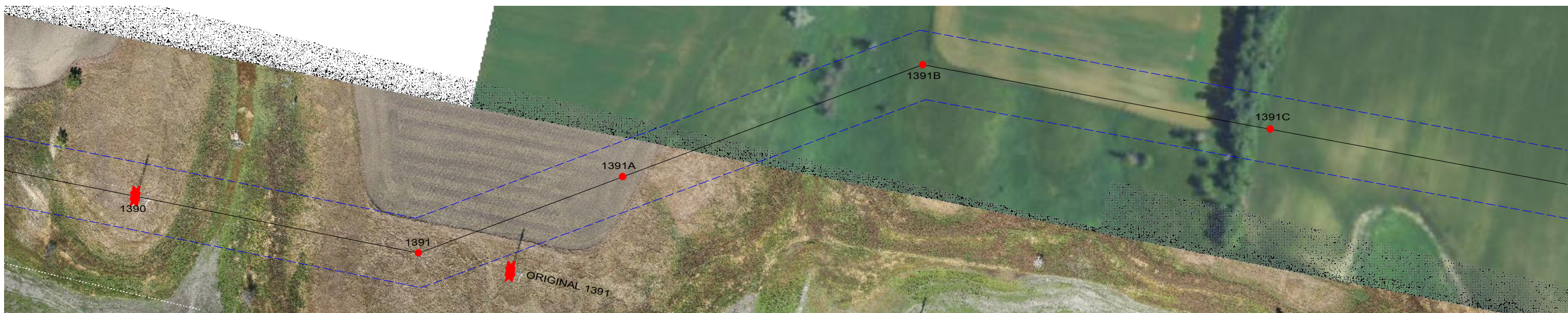
Sincerely,

David Moeller

DRM:sr

Cc: Dan McCourtney, Minnesota Power
Craig Kvale, Minnesota Power

Appendix A
Plan and Profile



THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT, TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT. REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWER'S CLIENT IS GRANTED.

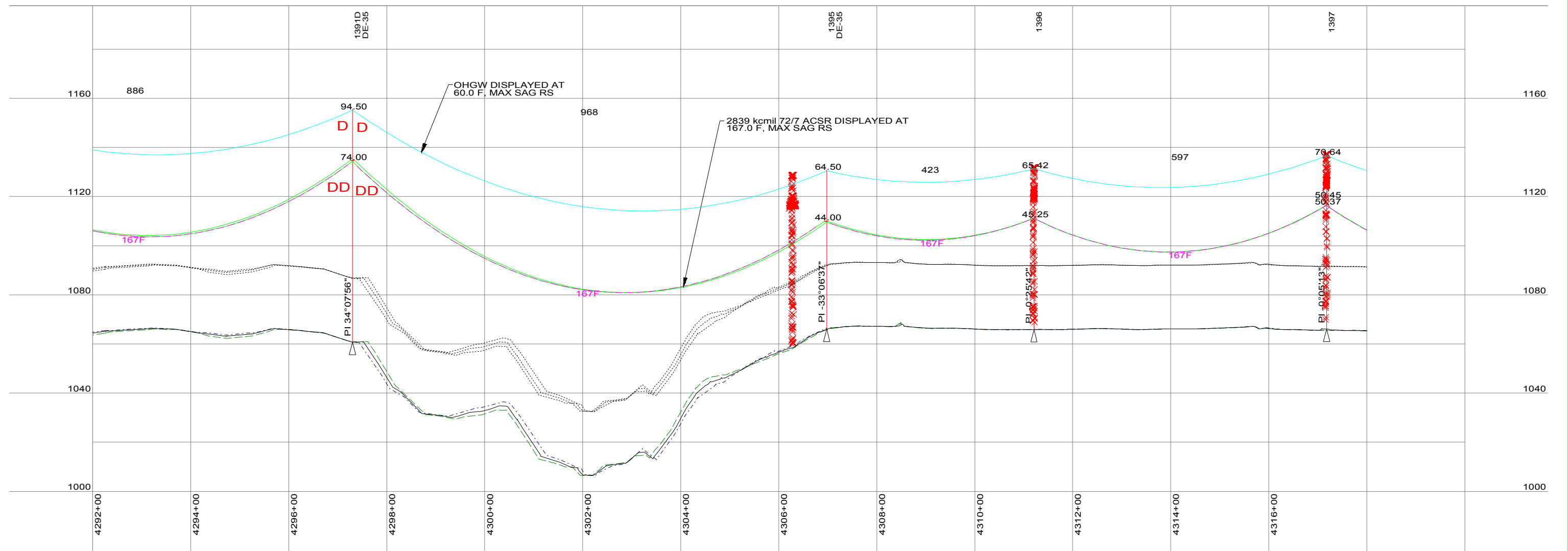
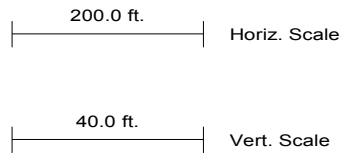
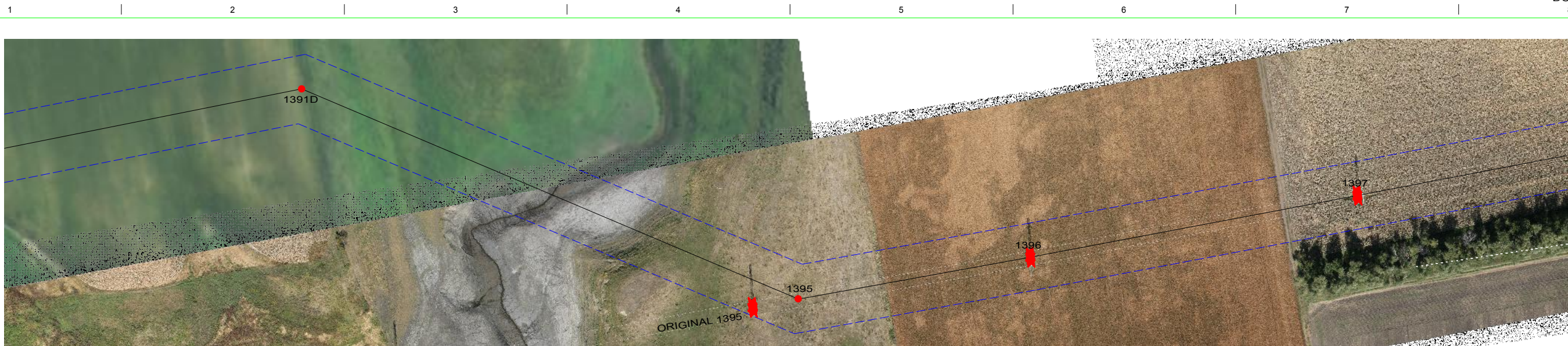
**GROUND CLEARANCE DISPLAYED @ 29FT
D = DENOTES DAMPER LOCATION**

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD	REFERENCE DRAWINGS
A	ISSUED FOR REVIEW	5/14/14	MM	MM	-	-	

DSGN	
DRN	
CKD	
SCALE:	
FOR 11x17 DWG ONLY	



MINNESOTA POWER		JOB NUMBER	REV
250kV DC LINE		128327	A
PLAN AND PROFILE		DRAWING NUMBER	
		1391-1395	



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DSGN	
DRN	
CKD	
SCALE:	FOR 11x17 DWG ONLY



MINNESOTA POWER		JOB NUMBER	REV
250kV DC LINE		128327	A
PLAN AND PROFILE		DRAWING NUMBER	1391-1395

Appendix B

Tree and Shrub Survey Report



NATURAL RESOURCES ♦ SCIENTIFIC SOLUTIONS

Western EcoSystems Technology, Inc. ♦ 4007 State Street, Suite 109 ♦ Bismarck, ND 58503
Phone: 701.250.1756 ♦ Fax: 701.250.1761 ♦ Website: www.west-inc.com

TECHNICAL MEMORANDUM

DATE: June 6, 2014

TO: John N. Wachtler, Barr Engineering

FROM: Elizabeth Lack and Clayton Derby, WEST.

RE: Minnesota Power Cass County Reroute Tree and Shrub Inventory

Western EcoSystems Technology, Inc. (WEST) was contracted to inventory trees and shrubs for Minnesota Power's proposed 0.6-mile transmission line re-route project in Cass County, ND (Figure 1). The purpose of the inventory is to meet the Public Service Commission's requirements for tree and shrub mitigation, which includes an inventory of trees and shrubs that are anticipated to be cleared during project construction.

Methods

The tree and shrub inventory was conducted by two experienced WEST botanists on May 24, 2014. The inventory was conducted within a 350 foot wide survey area provided by Barr Engineering as a shapefile. The shapefile was loaded onto a Trimble GeoXH sub-meter GPS unit that was used for navigation and for documenting the locations of trees and shrubs. The inventory consisted of walking the survey area and taking a GPS point or polygon at the location of each individual tree or shrub, or groups of trees and/or shrubs; the species, number of plants, and notes were also recorded. In general, plants with a single main trunk were counted as trees, while plants with multiple stems were counted as shrubs; however, a few individuals with multiple stems were counted as trees due to their large size and general tree-like form. Best professional judgment and knowledge of botanical characteristics of observed species was used to determine a single plant with multiple stems from multiple individual plants. For example, western snowberry (*Symphoricarpos occidentalis*), a common shrub, sprouts from rhizomes, forming dense colonies. Each colony was counted as one plant with many stems. Saplings and seedlings were noted and included in the inventory. Saplings and saplings both had a diameter at breast height (dbh) of less than one; saplings were between 1 and 5 feet in height and seedlings less than 1 foot. Only live trees and shrubs were included in the inventory.

Results

A total of 13 locations were recorded in the survey area where individuals or groups of trees and/or shrubs occur; these locations and a list of the species and number of occurrences at each location are presented in the following table (Table 1) and shown on Figure 2. Representative photos of trees and shrubs in the survey area are attached (Attachment 1). A total of 222 individual trees were counted, representing four species: boxelder, Russian olive, Siberian elm, and eastern cottonwood. Of the 222 trees, 110 are saplings, 6 are seedlings, and the rest are mature trees. Boxelder was the most common species encountered (137 individuals), followed by Siberian elm (53), eastern cottonwood (26, all of which are seedlings or saplings), and Russian olive (6). A group of several dead Russian olive trees was found in the western part of the survey area; these were not counted as part of the inventory but boxelder saplings that occur in the understory of the dead trees were included (Location 5, Figure 2). The shelterbelt located near the center of the survey area consists of boxelder and Siberian elm in the overstory and chokecherry in the understory.

A total of 559 shrubs were counted in the survey area. Most of the shrubs in the survey area are western snowberry; over 2,000 stems were estimated to occur in the western half of the survey area, however these were only counted as two plants because this species is rhizomatous and the numerous stems were judged to be associated with two western snowberry plants located on two similar hilltops and their adjacent slopes (Locations 1 and 3, Figure 2). Other shrub species in the survey area include chokecherry (276), white meadowsweet (250), prairie rose (30), and golden current (1).

As a very wide survey corridor was inventoried (350 feet), the count of tree and shrubs does not represent what will be removed or impacted during construction. Once the project footprint and impact areas are identified, the shapefile of tree and shrub locations can be used to determine impacted species and numbers.

Table 1. Trees and Shrubs in the Survey Area

Location	Common Name	Scientific Name	Number of Individuals Or Stems	Notes
0	Chokecherry	<i>Prunus virginiana</i>	30	Shrubs
	Boxelder	<i>Acer negundo</i>	18	Saplings
	Golden current	<i>Ribes aureum</i>	1	Shrub
	Russian olive	<i>Elaeagnus angustifolia</i>	1	Tree
1	Western snowberry	<i>Symphoricarpos occidentalis</i>	1	Shrub; over 1,000 stems located on a hilltop and slopes
2	Boxelder	<i>Acer negundo</i>	3	Trees
3	Western snowberry	<i>Symphoricarpos occidentalis</i>	1	Shrub; over 1,000 stems located on a hilltop and slopes
	Boxelder	<i>Acer negundo</i>	9	Trees

Location	Common Name	Scientific Name	Number of Individuals Or Stems	Notes
4	White meadowsweet	<i>Spiraea alba</i>	250	Shrubs
5	Boxelder	<i>Acer negundo</i>	10	Saplings; occur among standing dead Russian olive
6	Russian olive	<i>Elaeagnus angustifolia</i>	1	Tree
7	Russian olive	<i>Elaeagnus angustifolia</i>	1	Tree
8	Chokecherry	<i>Prunus virginiana</i>	40	Shrubs
9	Siberian elm	<i>Ulmus pumila</i>	3	Trees
	Boxelder	<i>Acer negundo</i>	9	Saplings
10	Chokecherry	<i>Prunus virginiana</i>	206	Shelterbelt; shrubs and trees
	Boxelder	<i>Acer negundo</i>	38	
	Siberian elm	<i>Ulmus pumila</i>	50	
11	Russian olive	<i>Elaeagnus angustifolia</i>	3	Saplings
	Boxelder	<i>Acer negundo</i>	50	
	Eastern cottonwood	<i>Populus deltoides</i>	20	
12	Prairie rose	<i>Rosa arkansana</i>	30	Shrub
13	Eastern cottonwood	<i>Populus deltoides</i>	6	Seedlings

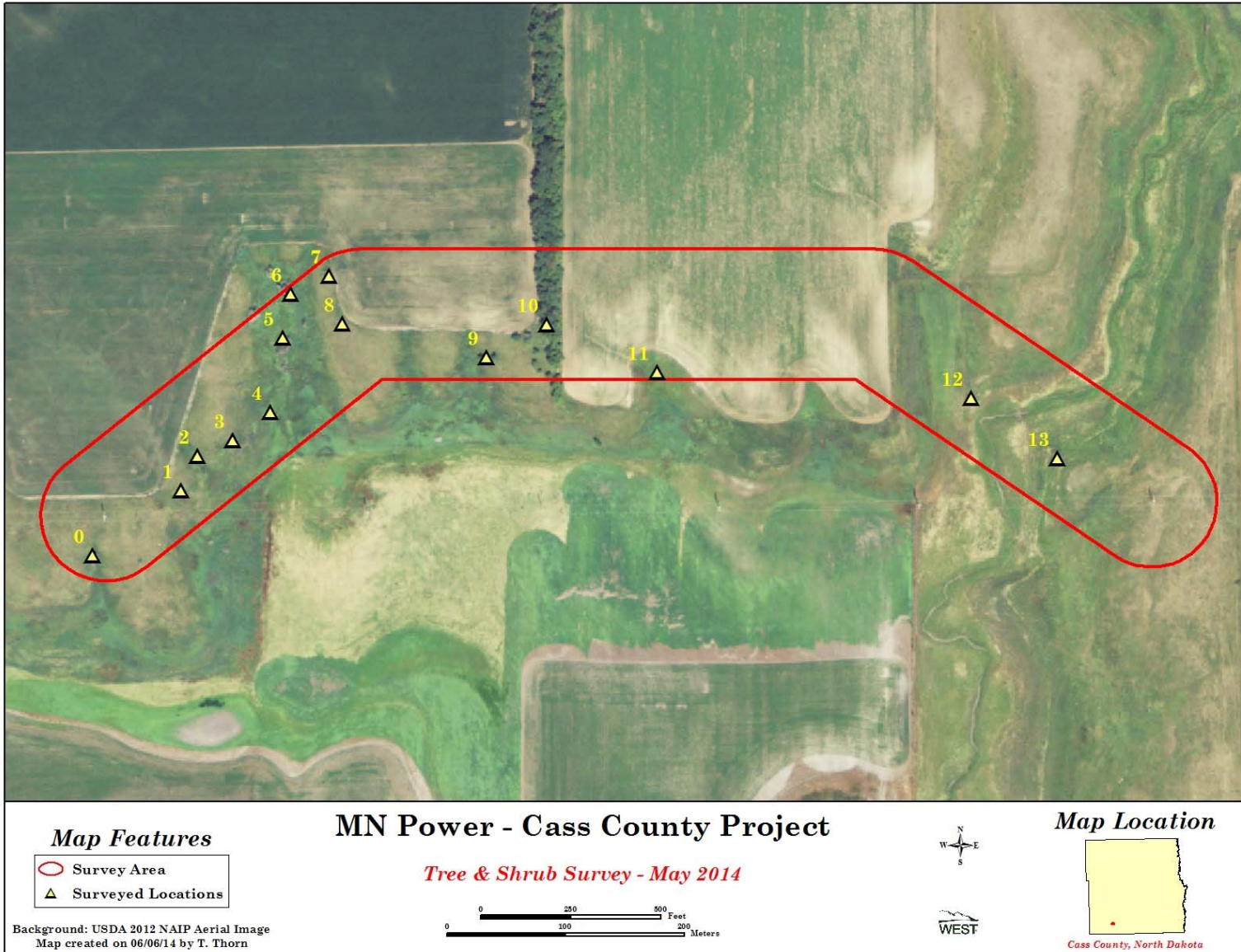


Figure 2. – Tree and Shrub Locations

ATTACHMENT

Tree/Shrub Photographs



Looking west from the shelterbelt



Shelterbelt



Shelterbelt



Looking toward the shelterbelt from the east end of the survey area