

Varna Wind, Inc.  
Bluewater Wind Energy Centre

# **Natural Heritage Assessment and Environmental Impact Study Report Second Amendment**

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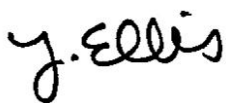
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## Glossary of Terms

- Area of Investigation ..... Area encompasses by 120 m setback from Project Location boundary
- CA ..... Conservation Authority
- EIS ..... Environmental Impact Study
- MOE.....Ministry of Environment
- MNR ..... Ministry of Natural Resources
- NHA..... Natural Heritage Assessment
- O. Reg. 359/09..... Ontario Regulation 359/09
- POI..... Point of Interconnect
- Project Location ..... The area encompassing all construction activities and project components
- Project Study Area ..... Wind Energy Centre Study Area and Transmission Line Study Area
- REA..... Renewable Energy Approval

# 1. Introduction

Varna Wind, Inc., a wholly owned subsidiary of NextEra Energy Canada, ULC (NextEra) is proposing to construct a wind energy centre project in the Municipalities of Bluewater and Huron East in Huron County, Ontario. AECOM Canada Ltd. (AECOM) was retained by NextEra to prepare a Natural Heritage Assessment (NHA) and Environmental Impact Study (EIS) for the proposed Bluewater Wind Energy Centre (the Project), in accordance with the requirements of the Renewable Energy Approval (REA) process and O. Reg. 359/09.

The Ontario Ministry of Natural Resources (MNR) issued a confirmation letter (**Appendix A**) for the Bluewater Wind Energy Centre Natural Heritage Assessment and Environmental Impact Study Report (AECOM, 2012) on March 28, 2012. AECOM later prepared a Natural Heritage Assessment and Environmental Impact Study Report Amendment (AECOM, 2013) in order to fulfill the requirements of the Renewable Energy Approval (REA) process and O. Reg. 359/09 with respect to modifications to the Project Location proposed after the original submission of the NHA and EIS to MNR. The MNR issued a confirmation letter (**Appendix A**) for the Bluewater Wind Energy Centre Natural Heritage Assessment and Environmental Impact Study Report Amendment (AECOM, 2013) on January 11, 2013. The Ministry of Environment (MOE) issued a Renewable Energy Approval (No. 7483-94DPRF) for the Project on April 22, 2013. The Natural Heritage Assessment and Environmental Impact Study Report and the first Amendment are hereafter collectively referred to as the approved NHA and EIS.

This NHA Amendment has been prepared as a modification to the approved NHA and EIS in accordance with the requirements of the REA process and O. Reg. 359/09, with respect to modifications to the Project Location proposed after MNR confirmation of the NHA and EIS, and after MOE issued the REA (**Figure 1**).

## 1.1 Overview of Project Changes

All of the proposed Project Location modifications are summarized in **Table 1**. For each proposed modification, a map showing the revised Project Location and associated 120 m Area of Investigation (dated August 2013), referenced against the Project Location and associated 120 m Area of Investigation in the approved NHA and EIS (dated January 2013) is included in this NHA Amendment (refer to **Table 1** for corresponding Figure numbers). Features (*i.e.*, woodlands, wetlands, significant wildlife habitat and/or Areas of Natural and Scientific Interest) identified in the approved NHA and EIS are provided in the table below for each Natural Area potentially affected by the proposed modifications. Changes in the minimum distance from Features within 120 m of each modification to the Project Location are also provided in the table below.

**Table 1. Modifications to the Bluewater Wind Energy Centre Project Location**

Proposed Modification	Rationale for Proposed Modification	Features in Proximity to Proposed Modification	Map
<b>A1:</b> Addition of road to Turbine 7 to travel north towards Crystal Springs Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	<p>Access road remains within 120 m of Natural Area 544. Features within 120 m of this modification include:</p> <ul style="list-style-type: none"> <li>• Woodland Feature T (reduced to 5 m)</li> <li>• Candidate Significant Wildlife Habitat: <ul style="list-style-type: none"> <li>▪ Bat Maternity Colony BMC-03 (reduced to 5 m)</li> </ul> </li> <li>• Generalized Candidate Significant Wildlife Habitat: Species of Conservation Concern Habitat (reduced to 5 m)</li> </ul> <p>Access road remains within 120 m of Natural Area 541. Features within 120 m of this modification include:</p> <ul style="list-style-type: none"> <li>• Woodland Feature Q (no change)</li> <li>• Wetland Feature 1 (no change)</li> <li>• Candidate Significant Wildlife Habitat: <ul style="list-style-type: none"> <li>▪ Bat Maternity Colony BMC-04 (no change)</li> </ul> </li> <li>• Generalized Candidate Significant Wildlife Habitat: Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1A</b>

**Table 1. Modifications to the Bluewater Wind Energy Centre Project Location**

Proposed Modification	Rationale for Proposed Modification	Features in Proximity to Proposed Modification	Map
<b>A2:</b> Removal of construction disturbance area to the southeast of Turbine 10.	Construction disturbance area modified to reduce or eliminate impacts to CA regulation limit	Turbine construction disturbance area remains with 120 m of Natural Area 518. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature N (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Woodland Raptor Nesting Habitat and Species of Conservation Concern Habitat (no change)</li> </ul> Turbine construction disturbance area remains within 120 m of Natural Area 525. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature O (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1A</b>
<b>B1:</b> Addition of construction disturbance area to the north of Turbine 32.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Turbine construction disturbance area remains within 120 m of Natural Area 534. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Wetland Feature 7 (no change)</li> <li>• Woodland Feature AK (no change)</li> <li>• Candidate Significant Wildlife Habitat:                             <ul style="list-style-type: none"> <li>▪ Amphibian Woodland Breeding Habitat AWO-10 (no change)</li> <li>▪ Bat Maternity Colony BMC-14 (no change)</li> </ul> </li> <li>• Generalized Candidate Significant Wildlife Habitat: Amphibian Woodland Breeding Habitat, Seeps and Springs, and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1B</b>
<b>B2:</b> Addition of construction disturbance area to the east of Turbine 41.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Turbine construction disturbance area remains within 120 m of Natural Area 514. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Wetland Feature 6 (no change)</li> <li>• Woodland Feature AJ (no change)</li> <li>• Candidate Significant Wildlife Habitat:                             <ul style="list-style-type: none"> <li>▪ Bat Maternity Colony BMC-15 (no change)</li> </ul> </li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1B</b>
<b>C1:</b> Addition of construction disturbance area to the west of Turbine 2.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1C</b>
<b>C2:</b> Addition of construction disturbance area to the south and east of Turbine 14.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1C</b>
<b>D1:</b> Removal of construction disturbance area to the southwest of Turbine 3.	Construction disturbance area modified to reduce or eliminate impacts to CA regulation limit	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1D</b>
<b>D2:</b> Addition of construction disturbance area to the south of Turbine 17.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Turbine construction disturbance area remains within 120 m of Natural Area 463. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature F (no change)</li> <li>• Candidate Significant Wildlife Habitat:                             <ul style="list-style-type: none"> <li>▪ Amphibian Woodland Breeding Habitat AWO-01 (no change)</li> <li>▪ Bat Maternity Colony BMC-07 (no change)</li> </ul> </li> <li>• Generalized Candidate Significant Wildlife Habitat: Amphibian Woodland Breeding Habitat and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1D</b>
<b>D3:</b> Addition of construction disturbance area to the east of Turbine 4.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1D</b>

**Table 1. Modifications to the Bluewater Wind Energy Centre Project Location**

Proposed Modification	Rationale for Proposed Modification	Features in Proximity to Proposed Modification	Map
<b>E1:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line construction disturbance area remains within 120 m of Natural Area 510. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Wetland Feature 5 (no change)</li> <li>• Woodland Feature Y (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Mature Forest Stand, Amphibian Woodland Breeding Habitat, Seeps and Springs, and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1E</b>
<b>E2:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line construction disturbance area remains within 120 m of Natural Area 488. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Wetland Feature 6 (no change)</li> <li>• Woodland Feature AJ (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony (no change)</li> </ul> Transmission line construction disturbance area is within 120 m of Natural Area 514. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Wetland Feature 6 (no change)</li> <li>• Woodland Feature AJ (no change)</li> <li>• Candidate Significant Wildlife Habitat:                             <ul style="list-style-type: none"> <li>▪ Bat Maternity Colony BMC-15 (no change)</li> </ul> </li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony, Mature Forest Stand and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1E</b>
<b>E3:</b> Addition of construction disturbance area to the north of Turbine 36.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1E</b>
<b>E4:</b> Addition of construction disturbance area for the transmission line on private property to the north of Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line construction disturbance area remains within 120 m of Natural Area. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature AL (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1E</b>
<b>E5:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line construction disturbance area remains within 120 m of Natural Area 520. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature AL (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul> Transmission line construction disturbance area remains within 120 m of Natural Area 494. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Wetland Feature 7 (no change)</li> <li>• Woodland Feature AL (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Amphibian Wetland Breeding Habitat, Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul> Transmission line construction disturbance area remains within 120 m of Natural Area 512. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature AL (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1E</b>
<b>F1:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line construction disturbance area remains within 120 m of Natural Area 494. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Wetland Feature 7 (no change)</li> <li>• Woodland Feature AL (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Amphibian Wetland Breeding Habitat, Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul> Transmission line construction disturbance area remains within 120 m of Natural Area 512. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature AL (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1F</b>

**Table 1. Modifications to the Bluewater Wind Energy Centre Project Location**

Proposed Modification	Rationale for Proposed Modification	Features in Proximity to Proposed Modification	Map
<b>F2:</b> Addition of construction disturbance area for the transmission line on private property to the north of Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1F</b>
<b>F3:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line construction disturbance area remains within 120 m of Natural Area 551. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature AO (no change)</li> <li>• Candidate Significant Wildlife Habitat:                             <ul style="list-style-type: none"> <li>▪ Bird Species of Conservation Concern (Red-headed Woodpecker) Habitat SCB-02 (no change)</li> </ul> </li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul> Transmission line construction disturbance area remains within 120 m of Natural Area 552. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature AO (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1F</b>
<b>G1:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line construction disturbance area remains within 120 m of Natural Area 552. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature AO (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul> Transmission line construction disturbance area is within 120 m of Natural Area 553. No significant features are within Natural Area 553.	<b>Figure 1G</b>
<b>G2:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line construction disturbance area remains within 120 m of Natural Area 556. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature AP (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul> Transmission line construction disturbance area remains within 120 m of Natural Area 555. Features within 120 m of this modification include: <ul style="list-style-type: none"> <li>• Woodland Feature AP (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony and Species of Conservation Concern Habitat (no change)</li> </ul>	<b>Figure 1G</b>
<b>G3:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1G</b>
<b>G4:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1G</b>
<b>H1:</b> Addition of construction disturbance area for the transmission line on private property to the north of Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1H</b>
<b>H2:</b> Addition of construction disturbance area for the transmission line on private properties to the north of Centennial Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None (no Natural Areas are within 120 m of this modification).	<b>Figure 1H</b>



**Table 1. Modifications to the Bluewater Wind Energy Centre Project Location**

Proposed Modification	Rationale for Proposed Modification	Features in Proximity to Proposed Modification	Map
<p><b>H3:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Hensell Road.</p>	<p>New infrastructure or construction disturbance area added or changed to optimize project design/ constructability</p>	<p>Transmission line construction disturbance area remains within 120 m of Natural Area 562. Features within 120 m of this modification include:</p> <ul style="list-style-type: none"> <li>• Wetland Feature 12 (no change)</li> <li>• Woodland Feature AR (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Species of Conservation Concern Habitat (no change)</li> </ul> <p>Transmission line construction disturbance area remains within 120 m of Natural Area 563. No significant features are within Natural Area 563.</p> <p>Transmission line construction disturbance area remains within 120 m of Natural Area 564. Features within 120 m of this modification include:</p> <ul style="list-style-type: none"> <li>• Wetland Feature 12 (no change)</li> <li>• Woodland Feature AS (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Amphibian Wetland Breeding Habitat (no change)</li> </ul> <p>Transmission line construction disturbance area remains within 120 m of Natural Area 565. Features within 120 m of this modification include:</p> <ul style="list-style-type: none"> <li>• Wetland Feature 12 (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Amphibian Wetland Breeding Habitat (no change)</li> </ul>	<p><b>Figure 1H</b></p>
<p><b>H4:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Hensell Road.</p>	<p>New infrastructure or construction disturbance area added or changed to optimize project design/ constructability</p>	<p>Transmission line construction disturbance area remains within 120 m of Natural Area 564. Features within 120 m of this modification include:</p> <ul style="list-style-type: none"> <li>• Wetland Feature 12 (no change)</li> <li>• Woodland Feature AS (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Amphibian Wetland Breeding Habitat (no change)</li> </ul> <p>Transmission line construction disturbance area remains within 120 m of Natural Area 565. Features within 120 m of this modification include:</p> <ul style="list-style-type: none"> <li>• Wetland Feature 12 (no change)</li> <li>• Generalized Candidate Significant Wildlife Habitat: Amphibian Wetland Breeding Habitat (no change)</li> </ul>	<p><b>Figure 1H</b></p>
<p><b>I1:</b> Addition of construction disturbance area for the transmission line POI to the north of the existing disturbance area.</p>	<p>New infrastructure or construction disturbance area added or changed to optimize project design/ constructability</p>	<p>None (no Natural Areas are within 120 m of this modification).</p>	<p><b>Figure 1I</b></p>
<p><b>I2:</b> Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Hensell Road.</p>	<p>New infrastructure or construction disturbance area added or changed to optimize project design/ constructability</p>	<p>None (no Natural Areas are within 120 m of this modification).</p>	<p><b>Figure 1I</b></p>

**1.2 Summary of NHA and EIS Amendment**

Changes required to the approved NHA and EIS in order to address the proposed Project Location modifications are summarized in **Table 2** below. The relevant sections of this amendment pertaining to these changes are also provided in the table below.

**Table 2. Summary of Changes to Approved NHA and EIS**

NHA and EIS Report Section	Change	Refer to Amendment Section(s)
<b>2. Records Review</b>	<b>Methods:</b> No changes. <b>Results:</b> No changes.	<b>Section 2</b>
<b>3. Site Investigation</b>	<b>Methods:</b> Site investigations were conducted in 2013 for Natural Area 544, to determine whether Project modifications resulted in changes to the designations of candidate Significant Wildlife Habitat and Generalized Candidate Significant Wildlife Habitat. This Natural Area was assessed to determine whether it contained wetlands, woodlands, or candidate Significant Wildlife habitat. The site investigations were conducted following the survey methods described in the approved NHA and EIS. Survey dates, time, weather conditions, field notes and the qualification of field personnel are included in this amendment.	<b>Section 3.1</b>
	<b>Results:</b> Woodland T was carried forward to the Evaluation of Significance.	<b>Section 3.2</b>
<b>4. Evaluation of Significance</b>	<b>Methods:</b> Woodland T was re-evaluated based on field data collected during the site investigation conducted in support of this NHA Amendment, following the methods described in the approved NHA and EIS.	<b>Section 4.1</b>
	<b>Results:</b> Woodland T was confirmed to be significant and carried forward to the EIS.	<b>Section 4.2</b>
<b>5. EIS</b>	No additional potential effects and mitigation measures are required for Woodland T.	<b>Section 5</b>

## 2. Amendments to the Records Review

The Records Review in the approved NHA and EIS was conducted for the entire Project Study Area, rather than encompassing only the Project Location and an additional 120 m surrounding the Project Location as required by O.Reg. 359/09. This was done in order to accommodate any potential changes to the Project layout that may occur later in the project planning process. Consequently, there are no changes to the Records Review as a result of the proposed Project Location modifications.

## 3. Amendments to the Site Investigation

### 3.1 Methods

A site investigation was conducted in 2013 within Natural Area 544 for the purpose of this NHA Amendment, following the methods described in the approved NHA and EIS. This site investigation was conducted to accommodate Modification A1, which extended the 120 m Area of Investigation for the proposed Project Location modifications to include a new portion of Natural Area 544 (refer to **Figure 1A**). The results of this site investigation were examined for the presence of woodlands, wetlands, candidate Significant Wildlife Habitat and Generalized Candidate Significant Wildlife Habitat as described in the approved NHA and EIS.

### 3.2 Results

#### 3.2.1 Vegetation Community

The vegetation community identified through the site investigation conducted for this NHA Amendment is described in **Table 3** (refer to **Figure A1** for ELC mapping). The initial site investigation for Natural Area 544 was completed in 2012 and is described in the approved NHA and EIS. The dates and start and end times of the site investigation are provided in **Table 3**. Detailed field notes are provided in **Appendix B**. The qualifications of field personnel are provided in Appendix C of the approved NHA and EIS.

The vegetation community composition of Natural Area 544 (FOD5-1) did not change from the approved NHA and EIS. Twenty-seven plant species were identified during the site investigation in Natural Area 544 (refer to **Appendix C**). All of these species are ranked as S5 (Secure) with the exception of Black Walnut (*Juglans nigra*), which is ranked as S4 (Apparently Secure). No plant Species of Conservation Concern were observed. Incidental wildlife observations recorded during the site investigation are included in **Table 3**.

**Table 3. Ecological Land Classification (ELC) Vegetation Communities**

Natural Area	Date, Time and Weather Conditions	ELC Vegetation Community	Area (ha)	Vegetation Composition	Incidental Wildlife Observations
544	April 24, 2013 08:30-09:45 Temperature: 2°C Cloud cover: Overcast	FOD5-1: Dry-Fresh Sugar Maple Deciduous Forest Type	3.9	The canopy layer within this mid-aged forest is dominated by Sugar Maple with lesser amounts of American Basswood and White Ash. The sub-canopy is dominated by Sugar Maple with lesser amounts of American Basswood, White Ash and Ironwood. The shrub layer is dominated by a Cherry species with lesser amounts of White Ash. The ground cover is dominated with Yellow Trout Lily with lesser amounts of Running-strawberry Bush.	<b>Birds:</b> Song Sparrow, Brown Thrasher, American Robin, Red-bellied Woodpecker, Blue Jay, Horned Lark, Red-winged Blackbird, Red-tailed Hawk and American Crow.

### 3.2.2 Wetlands

No Wetland Features are located within Natural Area 544 and none of the proposed Project Location modifications resulted in changes to the minimum distances from the Project Location to Wetland Features previously described in the approved NHA and EIS. As a result, Wetland Features are not discussed further in this NHA Amendment.

### 3.2.3 Woodlands

The site investigation conducted in support of this NHA Amendment includes a previously identified Woodland Feature (Woodland T); therefore the attributes, composition and function of this Feature were revised based on the results of the site investigation (**Table 5**). There were no changes with respect to the boundaries of Woodland T, as previously reported in the approved NHA and EIS. Woodland T was carried forward to the Evaluation of Significance section of this NHA Amendment.

**Table 4. Revisions to Woodland Features Identified Through the Site Investigation**

Woodland ID	Natural Area	Minimum Distance from Project Location (m)	Attributes			Composition	Functions
			Size (ha)	Forest Community Type	Woodland Age		
T	544	5 (access road)	3.9	Deciduous Forest	Mid-age	Vegetation community composition within the 120 m Area of Investigation are as follows: • Dry-Fresh Sugar Maple Deciduous Forest Type (FOD5-1). Refer to <b>Table 2</b> for species composition.	Provides habitat for plant and wildlife species, including birds such as Song Sparrow, Brown Thrasher, American Robin, Red-bellied Woodpecker, Blue Jay, Horned Lark, Red-winged Blackbird, Red-tailed Hawk and American Crow.

### 3.2.4 Wildlife Habitat

The site investigation conducted in Natural Area 544 resulted in no changes to the ELC community delineations as reported in the approved NHA and EIS. Thus the Significant Wildlife Habitat assessment completed in the approved NHA and EIS remains unchanged and is not repeated here.

During the site investigation in Natural Area 544, a Red-tailed Hawk was observed in an active nest in a Sugar Maple tree at a height of approximately 20 m (refer to **Appendix B** for approximate location). The observation took place in Woodland T, which consists of a FOD5-1 vegetation community. In accordance with the Ecoregion 7E Criterion Schedule Addendum to the Significant Wildlife Habitat Technical Guide (MNR, 2012), Red-tailed Hawk is not a target species for any of the Significant Wildlife Habitats in Ecoregion 7E. Therefore, this observation of a nesting Red-tailed Hawk does not qualify Woodland T as Significant Wildlife Habitat. There will be no vegetation removal within Natural Area 544 and the distance from Turbine 7 to this Feature remains unchanged from the approved NHA and EIS.

No changes to the designation of candidate Significant Wildlife Habitat and Generalized Candidate Significant Wildlife Habitats described in the approved NHA and EIS were required where distances from Project infrastructure to wildlife habitat Features changed as a result of the proposed Project Location modifications. Bat Maternity Colony BMC-03 and Generalized Candidate Significant Wildlife Habitat for Species of Conservation Concern were identified in Natural Area 544 in the approved NHA and EIS. These Features were carried forward to the EIS of this NHA Amendment to ensure that any potential effects of the modifications are addressed through the application of appropriate mitigation measures, if required.

### 3.2.5 Minimum Distances from Natural Features to Project Location

Modification A1 resulted in changes to the minimum distance to the Project Location for the Features listed in **Table 5**. Minimum distances from the Project Location to all other Features are the same as reported in the approved NHA and EIS.

**Table 5. Updated Minimum Distances Between the Project Components and Natural Features**

Feature ID	Feature Type	Natural Area(s)	Minimum Distance from Project Location (m)	
			Distance Reported in Approved NHA and EIS (m)	Distance Corresponding to Proposed Modifications (m)
<b>Woodland T</b>	Woodland	544	20 (access road)	5 (access road)
<b>BMC-03</b>	Bat Maternity Colony	544	24 (access road)	5 (access road)
<b>Generalized Candidate SWH</b>	Species of Conservation Concern Habitat	544	20 (access road)	5 (access road)

## 4. Amendments to the Evaluation of Significance

### 4.1 Methods

#### 4.1.1 Woodlands

Woodland T was determined to be Significant in the approved NHA and EIS; however, criteria 2b (Proximity to Other Significant Woodlands/Habitats) and 2c (Linkages) were submitted as to be determined (TBD). The complete Evaluation of Significance for Woodland T is therefore presented in this NHA Amendment. Woodland T was evaluated based on the field data collected during the site investigation conducted in support of this NHA Amendment. Woodland T is located within the Municipality of Bluewater; therefore, this Feature was evaluated based on 16.5% woodland cover within the Municipality of Bluewater.

### 4.2 Results

#### 4.2.1 Woodlands

Woodland T was evaluated as part of this amendment and determined to be significant (**Table 6**). The woodlands status did not change from the status reported in the approved NHA and EIS; however, AECOM committed to completing the EOS of Woodland T in the approved NHA and EIS. Woodland T is therefore carried forward to the EIS.

**Table 6. Determination of Significance for Woodlands**

Woodland Feature ID Natural Area #		Evaluation Criteria and Standards (Based on 16.5% woodland cover within the Municipality of Bluewater)											# of Criteria Met	Determination of Significance			
		1. Woodland Size		2a. Woodland Interior		2b. Proximity to Other Significant Woodlands/Habitats		2c. Linkages		2d. Water Protection		2e. Woodland Diversity Representation (composition)			3. Uncommon Characteristics		
		Must be at least <b>20 ha</b> in size		Must have woodland interior at least <b>2 ha</b> in size		Must be within 30 m of a significant natural feature or fish habitat <sup>2</sup> and be at least <b>4 ha</b> in size		Must be located between 2 other significant features each of which are 120 m apart and be at least <b>4 ha</b> in size		Must be located within 50 m of a sensitive groundwater discharge <sup>3</sup> , recharge, watercourse or fish habitat and be at least <b>2 ha</b> in size		Must be dominated singly or in combination by native naturally occurring Ms, Mb, Msi, Mr, By, H, Ba, Ab, Wb, Ta, Sp, Pi, Oa, Ba, He, and be at least <b>4 ha</b> in size			Must have rare vegetation community (S1, S2, S3) and be more than 0.5 ha in size OR Habitat of a rare, uncommon, or restricted woodland plant species with 10 individual stems or 100 m of leaf coverage and be more than 0.5 ha in size OR Characteristics of older woodlands with larger tree size structure in native species and be more than <b>2 ha</b> in size		
		Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met			Criteria Met		
Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description				
T	544	N	3.9 ha in size	N	No interior forest	N	Does not meet size requirement	N	Does not meet size requirement	Y	Within groundwater recharge area	N	Does not meet size requirement	N	Does not meet specified requirements	1	Significant

## 5. Amendments to the Environmental Impact Study

### 5.1 Significant Woodlands

The minimum distance from Woodland Feature T to the nearest Project infrastructure (access road) decreased from 20 m to 5 m as a result of Modification A1. No changes are required to the mitigation measures, monitoring and contingency measures described in Section 5.4.2 of the approved NHA and EIS to accommodate this modification (refer to mitigation measures for Significant Woodlands within 120 m of access roads in Table 5.2 of the approved NHA and EIS).

### 5.2 Significant Wildlife Habitat

Bat Maternity Colony Feature BMC-03 in Natural Area 544 was previously evaluated and determined not to be significant (NRSI, 2013); therefore, the mitigation measures, monitoring, and contingency measures described in the approved NHA and EIS will not be applied to this Feature.

No changes to the mitigation measures described in the approved NHA and EIS are required for the Generalized Candidate Significant Wildlife Habitat for Species of Conservation Concern in Natural Area 544.

## 6. Summary and Conclusions

With respect to the proposed Project Location modifications, the significance of anticipated residual effects is predicted to be low provided that the recommended mitigation measures are properly implemented and proactively managed throughout the duration of construction and post-construction activities. The proposed Project Locations modifications resulted in a reduction in the minimum distance from the Project Location to Significant Woodland T and Generalized Candidate Significant Wildlife Habitat for Species of Conservation Concern in Natural Area 544. No changes are required to the mitigation measures, monitoring and contingency measures previously described for these Features in the approved NHA and EIS.

## 7. References

AECOM, 2012:

Bluewater Wind Energy Centre Natural Heritage Assessment and Environmental Impact Study Report. Prepared for NextEra Energy Canada, ULC. March 2012.

AECOM, 2013:

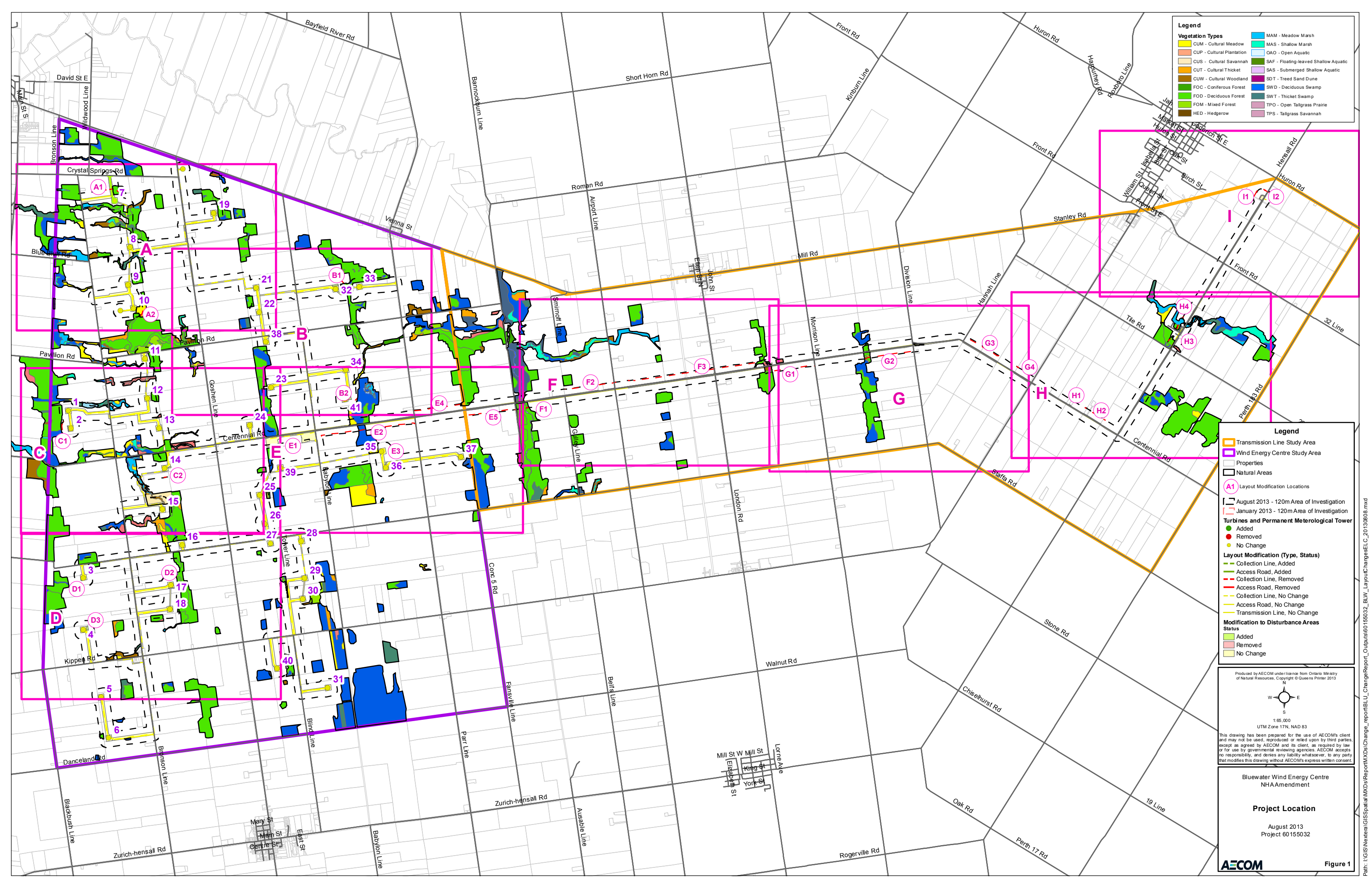
Bluewater Wind Energy Centre Natural Heritage Assessment and Environmental Impact Study Report Amendment. Prepared for NextEra Energy Canada, ULC. January 2013.

Natural Resource Solutions Inc. (NRSI), 2013:

Bluewater Wind Energy Centre Bat Maternity Colony Exit Survey Results Memo. February 14, 2013.

Ontario Ministry of Natural Resources, 2012:

Significant Wildlife Habitat Ecoregion 7E Criteria Schedule. Working Draft, January 2012. 37 pp.



**Legend**

**Vegetation Types**

- CUM - Cultural Meadow
- CUP - Cultural Plantation
- CUS - Cultural Savannah
- CUT - Cultural Thicket
- CUW - Cultural Woodland
- FOC - Coniferous Forest
- FOD - Deciduous Forest
- FOM - Mixed Forest
- HED - Hedgerow
- MAM - Meadow Marsh
- MAS - Shallow Marsh
- OAO - Open Aquatic
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWD - Deciduous Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- Natural Areas
- A1 Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation
- Turbines and Permanent Meteorological Tower
- Added
- Removed
- No Change
- Layout Modification (Type, Status)
- Collection Line, Added
- Access Road, Added
- Collection Line, Removed
- Access Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change
- Modification to Disturbance Areas
- Added
- Removed
- No Change

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Bluewater Wind Energy Centre  
NHA Amendment

**Project Location**

August 2013  
Project 60155032

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**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- Natural Areas
- A1 Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation
- Turbines and Permanent Meteorological Tower**
  - Added
  - Removed
  - No Change
- Layout Modification (Type, Status)**
  - Collection Line, Added
  - Access Road, Added
  - Collection Line, Removed
  - Access Road, Removed
  - Collection Line, No Change
  - Access Road, No Change
  - Transmission Line, No Change
- Modification to Disturbance Areas Status**
  - Added
  - Removed
  - No Change

**Legend**

**Vegetation Types**

CUM - Cultural Meadow	MAM - Meadow Marsh
CUP - Cultural Plantation	MAS - Shallow Marsh
CUS - Cultural Savannah	OAO - Open Aquatic
CUT - Cultural Thicket	SAF - Floating-leaved Shallow Aquatic
CUW - Cultural Woodland	SAS - Submerged Shallow Aquatic
FOD - Coniferous Forest	SDT - Treed Sand Dune
FOD - Deciduous Forest	SWD - Deciduous Swamp
FOM - Mixed Forest	SWT - Thicket Swamp
HED - Hedgerow	TPO - Open Tallgrass Prairie
	TPS - Tallgrass Savannah

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Bluewater Wind Energy Centre  
NHA Amendment

**Project Location**

August 2013  
Project 60155032

**AECOM**

Figure 1A



**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- Natural Areas
- A1 Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

**Turbines and Permanent Meteorological Tower**

- Added
- Removed
- No Change

**Layout Modification (Type, Status)**

- Collection Line, Added
- Access Road, Added
- Collection Line, Removed
- Access Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change

**Modification to Disturbance Areas Status**

- Added
- Removed
- No Change

**Legend**

**Vegetation Types**

CUM - Cultural Meadow	MAM - Meadow Marsh
CUP - Cultural Plantation	MAS - Shallow Marsh
CUS - Cultural Savannah	OAO - Open Aquatic
CUT - Cultural Thicket	SAF - Floating-leaved Shallow Aquatic
CUW - Cultural Woodland	SAS - Submerged Shallow Aquatic
FOC - Coniferous Forest	SDT - Treed Sand Dune
FOD - Deciduous Forest	SWD - Deciduous Swamp
FOM - Mixed Forest	SWT - Thicket Swamp
HED - Hedgerow	TPO - Open Tallgrass Prairie
	TPS - Tallgrass Savannah



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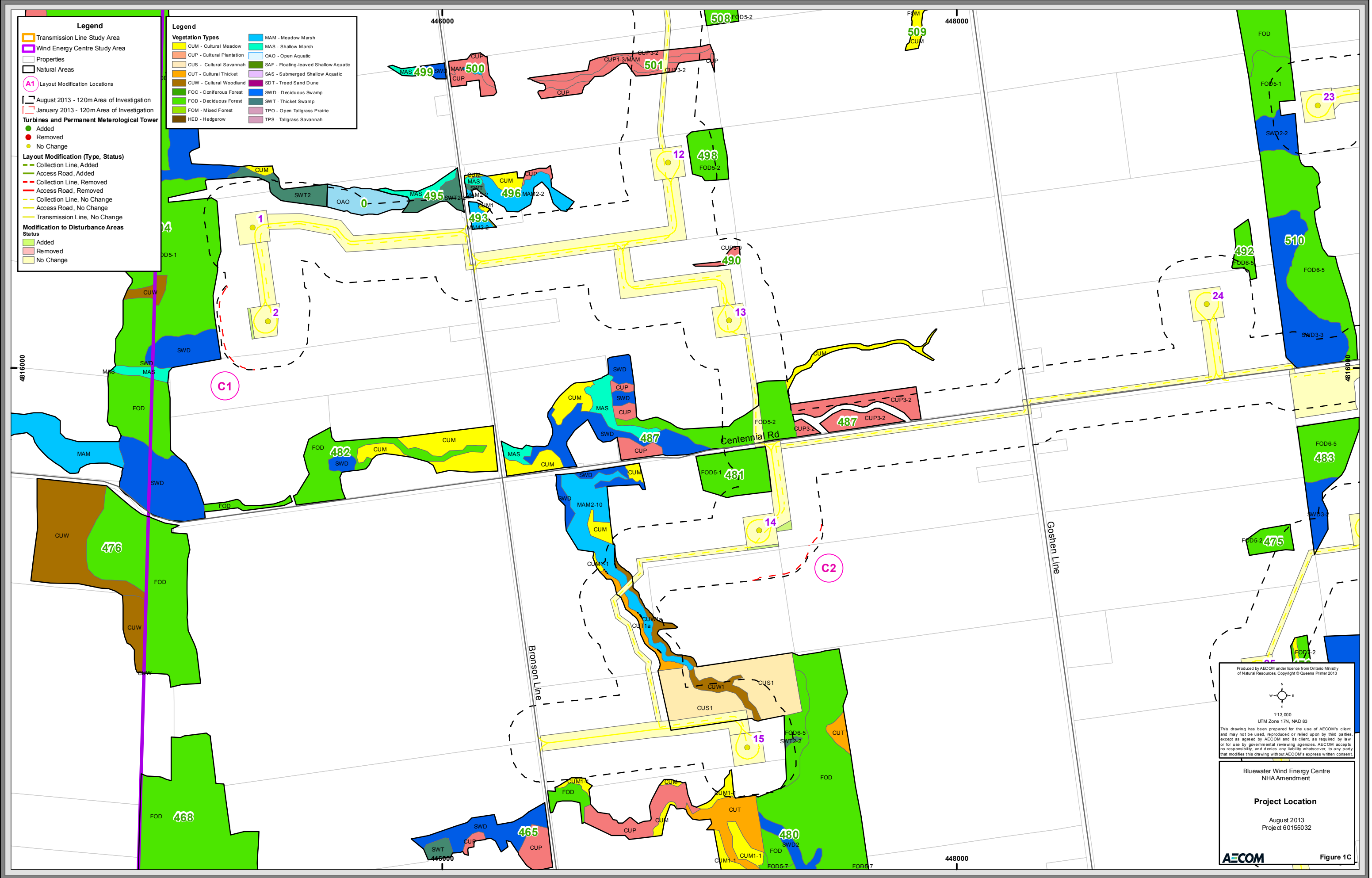
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Bluewater Wind Energy Centre  
NHA Amendment

**Project Location**

August 2013  
Project 60155032

**AECOM** **Figure 1B**



- Legend**
- Transmission Line Study Area
  - Wind Energy Centre Study Area
  - Properties
  - Natural Areas
  - A1 Layout Modification Locations
  - August 2013 - 120m Area of Investigation
  - January 2013 - 120m Area of Investigation
- Turbines and Permanent Meteorological Tower**
- Added
  - Removed
  - No Change
- Layout Modification (Type, Status)**
- Collection Line, Added
  - Access Road, Added
  - Collection Line, Removed
  - Access Road, Removed
  - Collection Line, No Change
  - Access Road, No Change
  - Transmission Line, No Change
- Modification to Disturbance Areas Status**
- Added
  - Removed
  - No Change

- Legend**
- |                           |                                       |
|---------------------------|---------------------------------------|
| CUM - Cultural Meadow     | MAM - Meadow Marsh                    |
| CUP - Cultural Plantation | MAS - Shallow Marsh                   |
| CUS - Cultural Savannah   | OAO - Open Aquatic                    |
| CUT - Cultural Thicket    | SAF - Floating-leaved Shallow Aquatic |
| CUW - Cultural Woodland   | SAS - Submerged Shallow Aquatic       |
| FOC - Coniferous Forest   | SDT - Tree Sand Dune                  |
| FOD - Deciduous Forest    | SWD - Deciduous Swamp                 |
| FOM - Mixed Forest        | SWT - Thicket Swamp                   |
| HED - Hedgerow            | TPO - Open Tallgrass Prairie          |
|                           | TPS - Tallgrass Savannah              |

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Bluewater Wind Energy Centre  
NHA Amendment

**Project Location**

August 2013  
Project 60155032

**AECOM** **Figure 1C**



**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- Natural Areas
- (A1) Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

**Turbines and Permanent Meteorological Tower**

- Added
- Removed
- No Change

**Layout Modification (Type, Status)**

- Collection Line, Added
- Access Road, Added
- Collection Line, Removed
- Access Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change

**Modification to Disturbance Areas Status**

- Added
- Removed
- No Change

**Legend**

CUM - Cultural Meadow	MAM - Meadow Marsh
CUP - Cultural Plantation	MAS - Shallow Marsh
CUS - Cultural Savannah	OAO - Open Aquatic
CUT - Cultural Thicket	SAF - Floating-leaved Shallow Aquatic
CUW - Cultural Woodland	SAS - Submerged Shallow Aquatic
FOC - Coniferous Forest	SDT - Treed Sand Dune
FOD - Deciduous Forest	SWD - Deciduous Swamp
FOM - Mixed Forest	SWT - Thicket Swamp
HED - Hedgerow	TPO - Open Tallgrass Prairie
	TPS - Tallgrass Savannah

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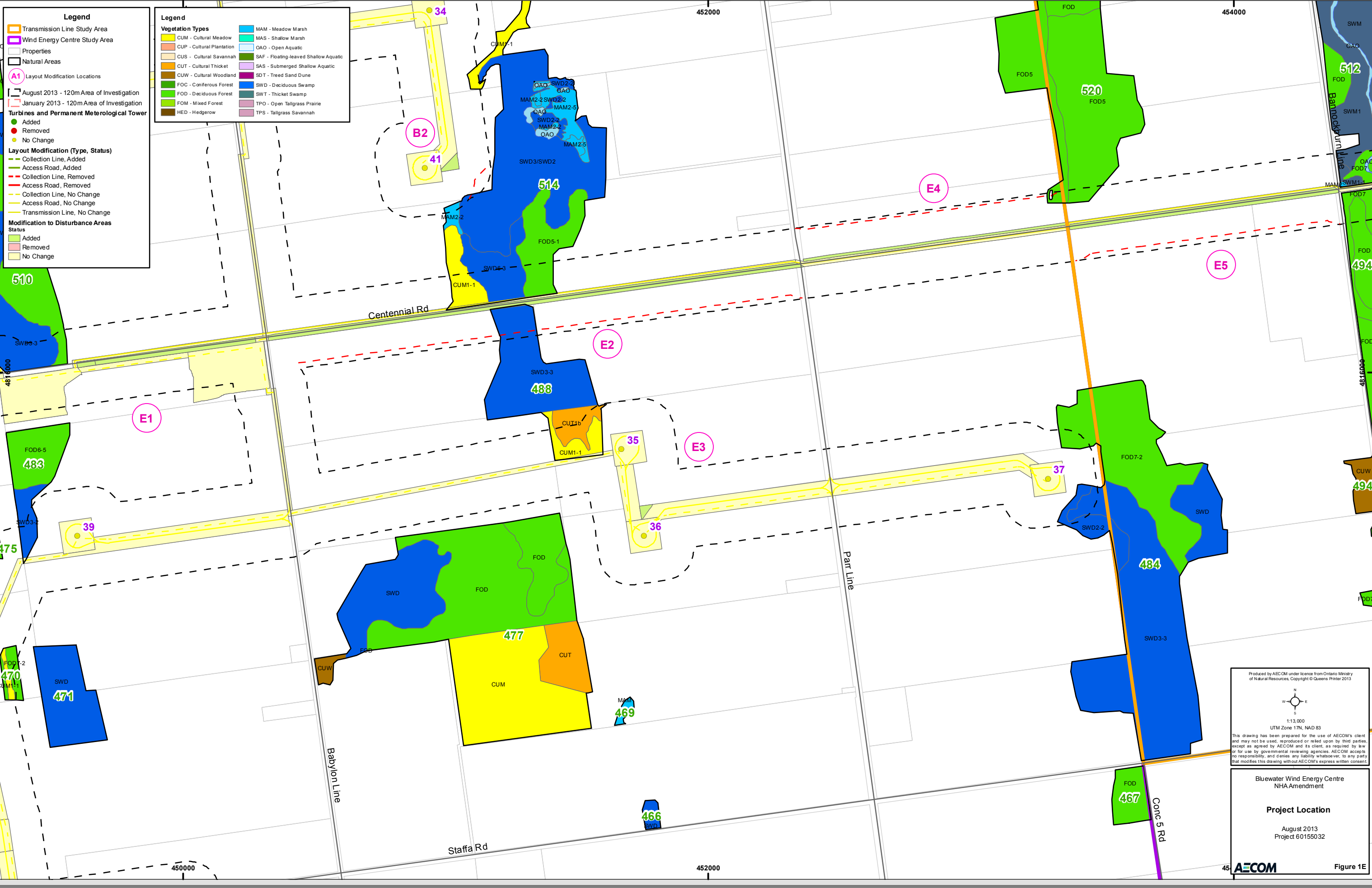
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Bluewater Wind Energy Centre  
NHA Amendment

**Project Location**

August 2013  
Project 60155032

**AECOM** Figure 1D



**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- Natural Areas
- (A1) Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

**Turbines and Permanent Meteorological Tower**

- Added
- Removed
- No Change

**Layout Modification (Type, Status)**

- Collection Line, Added
- Access Road, Added
- Collection Line, Removed
- Access Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change

**Modification to Disturbance Areas Status**

- Added
- Removed
- No Change

**Legend**

**Vegetation Types**

- CUM - Cultural Meadow
- CUP - Cultural Plantation
- CUS - Cultural Savannah
- CUT - Cultural Thicket
- CUW - Cultural Woodland
- FOC - Coniferous Forest
- FOD - Deciduous Forest
- FOM - Mixed Forest
- HED - Hedgerow
- MAM - Meadow Marsh
- MAS - Shallow Marsh
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWD - Deciduous Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

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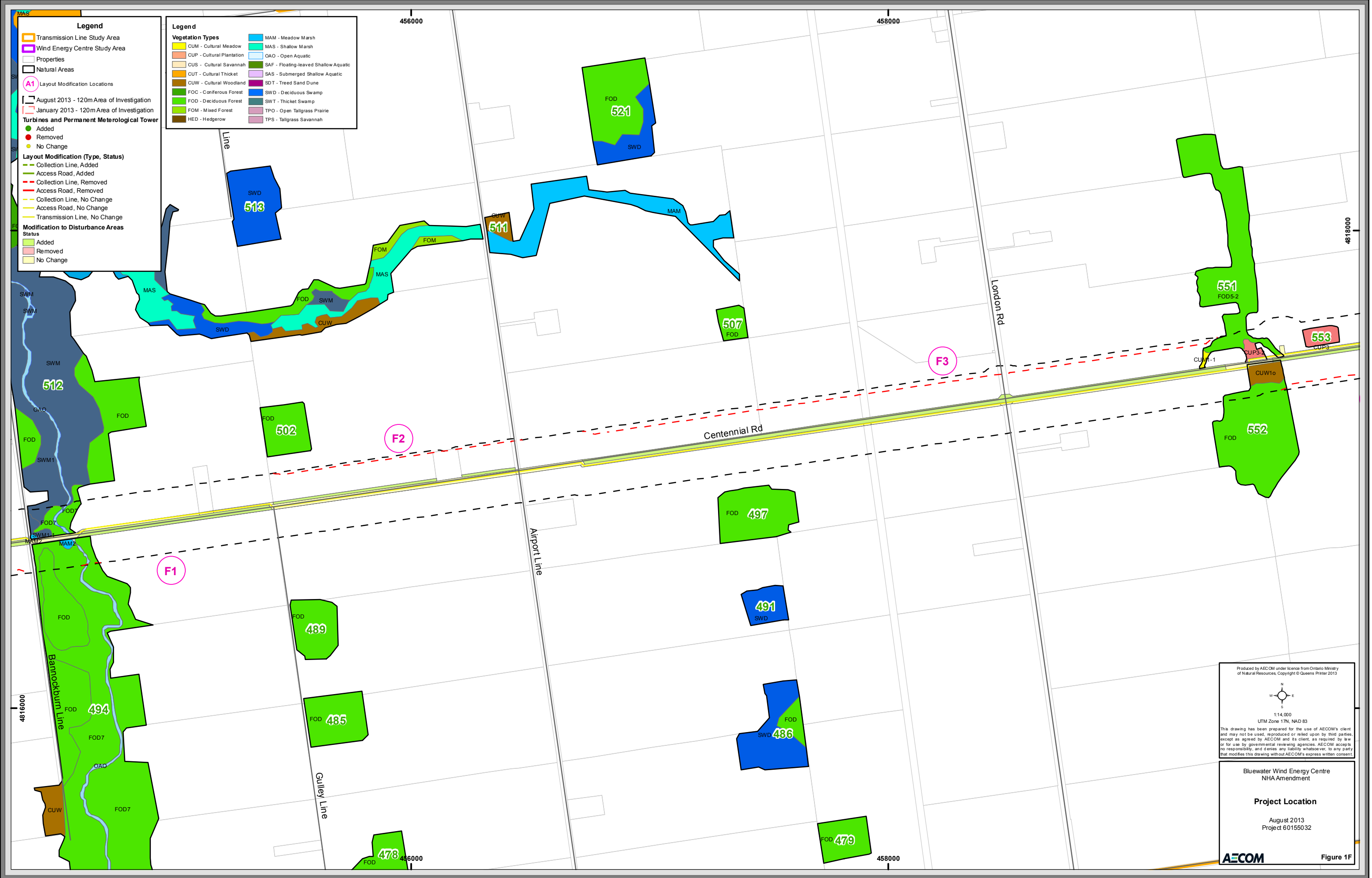
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Bluewater Wind Energy Centre  
NHA Amendment

**Project Location**

August 2013  
Project 60155032

**AECOM** Figure 1E



**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- Natural Areas
- (A1) Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

**Turbines and Permanent Meteorological Tower**

- Added
- Removed
- No Change

**Layout Modification (Type, Status)**

- Collection Line, Added
- Access Road, Added
- Collection Line, Removed
- Access Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change

**Modification to Disturbance Areas Status**

- Added
- Removed
- No Change

**Legend**

**Vegetation Types**

CUM - Cultural Meadow	MAM - Meadow Marsh
CUP - Cultural Plantation	MAS - Shallow Marsh
CUS - Cultural Savannah	OAO - Open Aquatic
CUT - Cultural Thicket	SAF - Floating-leaved Shallow Aquatic
CUW - Cultural Woodland	SAS - Submerged Shallow Aquatic
FOC - Coniferous Forest	SDT - Treed Sand Dune
FOD - Deciduous Forest	SWD - Deciduous Swamp
FOM - Mixed Forest	SWT - Thicket Swamp
HED - Hedgerow	TPO - Open Tallgrass Prairie
	TPS - Tallgrass Savannah

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NHA Amendment

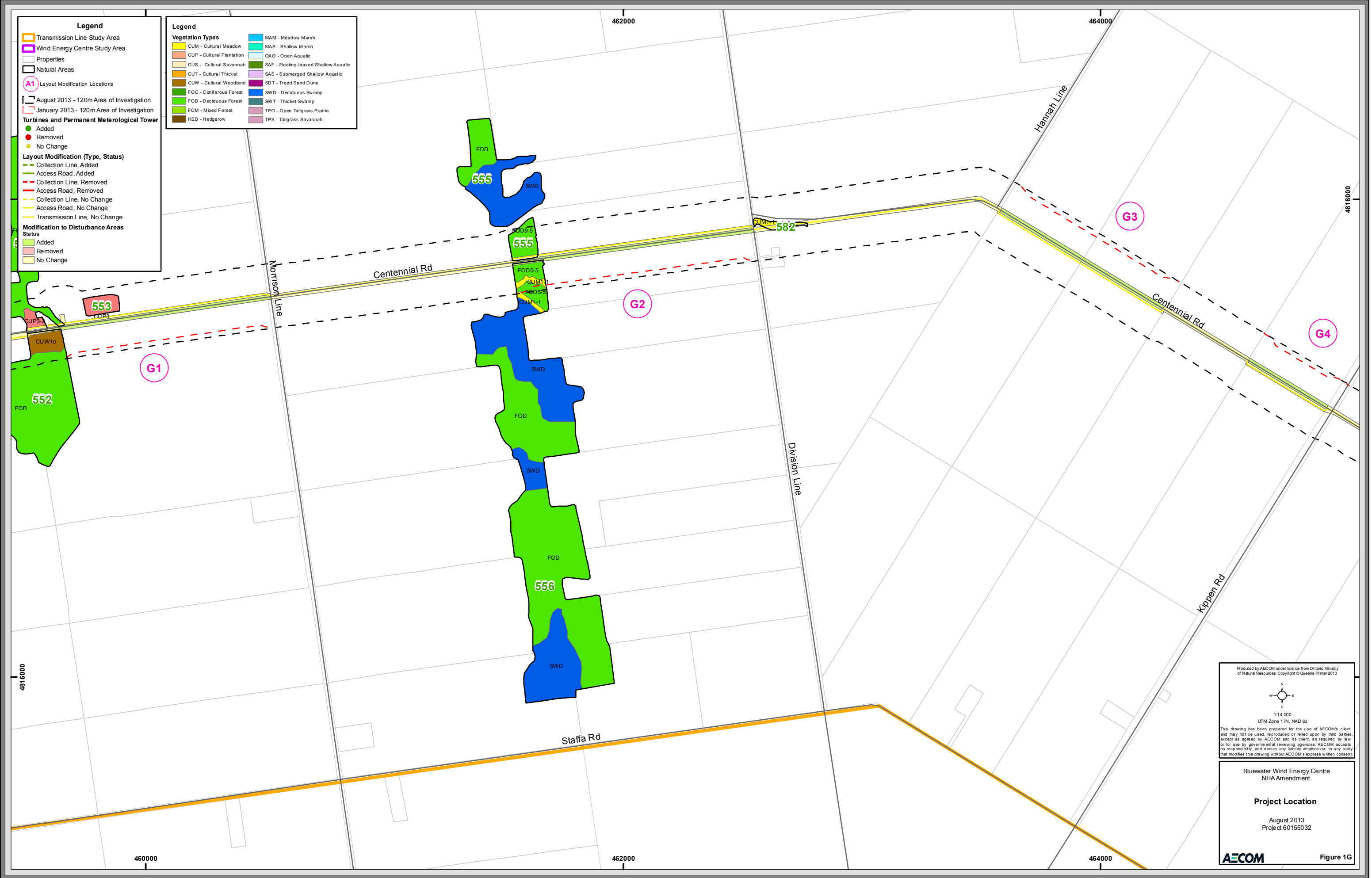
**Project Location**

August 2013  
Project 60155032

**AECOM** Figure 1F

- Legend**
- Transmission Line Study Area
  - Wind Energy Centre Study Area
  - Properties
  - Natural Areas
  - A1 Layout Modification Locations
  - August 2013 - 120m Area of Investigation
  - January 2013 - 120m Area of Investigation
  - Turbines and Permanent Meteorological Tower**
  - Added
  - Removed
  - No Change
  - Layout Modification (Type, Status)**
  - Collection Line, Added
  - Access Road, Added
  - Collection Line, Removed
  - Access Road, Removed
  - Collection Line, No Change
  - Access Road, No Change
  - Transmission Line, No Change
  - Modification to Disturbance Areas Status**
  - Added
  - Removed
  - No Change

- Vegetation Types**
- |                           |                                       |
|---------------------------|---------------------------------------|
| CUM - Cultural Meadow     | MAM - Meadow Marsh                    |
| CUP - Cultural Plantation | MAS - Shallow Marsh                   |
| CUS - Cultural Savannah   | QAO - Open Aquatic                    |
| CUT - Cultural Thicket    | SAF - Floating-leaved Shallow Aquatic |
| CUW - Cultural Woodland   | SAS - Submerged Shallow Aquatic       |
| FOC - Coniferous Forest   | SDT - Treed Sand Dune                 |
| FOD - Deciduous Forest    | SWD - Deciduous Swamp                 |
| FOM - Mixed Forest        | SWT - Thicket Swamp                   |
| HED - Hedgerow            | TPO - Open Tallgrass Prairie          |
|                           | TPS - Tallgrass Savannah              |



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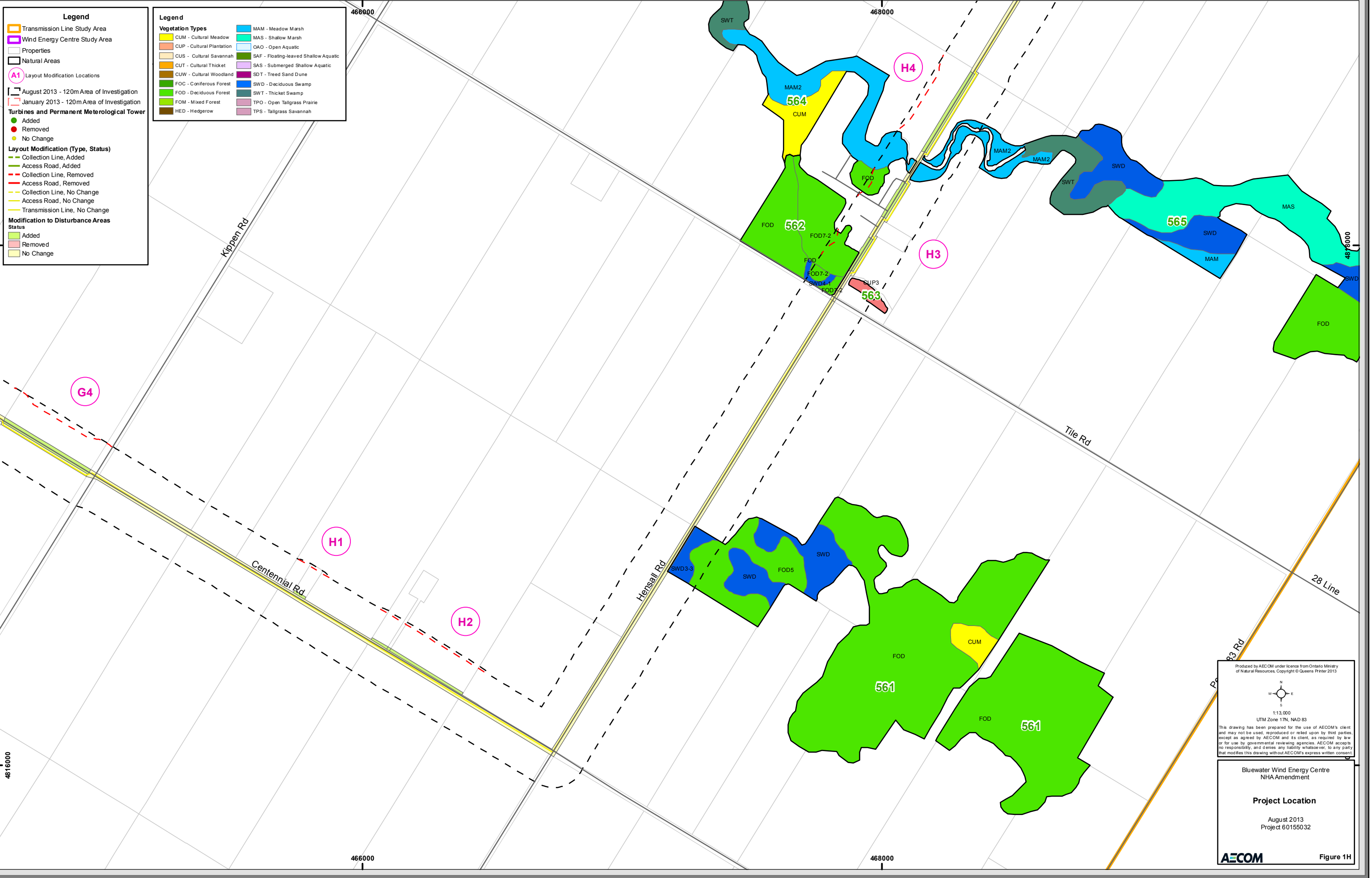
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Bluewater Wind Energy Centre  
NHA Amendment

**Project Location**

August 2013  
Project 60155032

**AECOM** Figure 1G



**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- Natural Areas
- (A1) Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

**Turbines and Permanent Meteorological Tower**

- Added
- Removed
- No Change

**Layout Modification (Type, Status)**

- Collection Line, Added
- Access Road, Added
- Collection Line, Removed
- Access Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change

**Modification to Disturbance Areas Status**

- Added
- Removed
- No Change

**Legend**

**Vegetation Types**

CUM - Cultural Meadow	MAM - Meadow Marsh
CUP - Cultural Plantation	MAS - Shallow Marsh
CUS - Cultural Savannah	QAO - Open Aquatic
CUT - Cultural Thicket	SAF - Floating-leaved Shallow Aquatic
CUW - Cultural Woodland	SAS - Submerged Shallow Aquatic
FOC - Coniferous Forest	SDT - Treed Sand Dune
FOD - Deciduous Forest	SWD - Deciduous Swamp
FOM - Mixed Forest	SWT - Thicket Swamp
HED - Hedgerow	TPO - Open Tallgrass Prairie
	TPS - Tallgrass Savannah

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Bluewater Wind Energy Centre  
NHA Amendment

**Project Location**

August 2013  
Project 60155032

**AECOM** **Figure 1H**

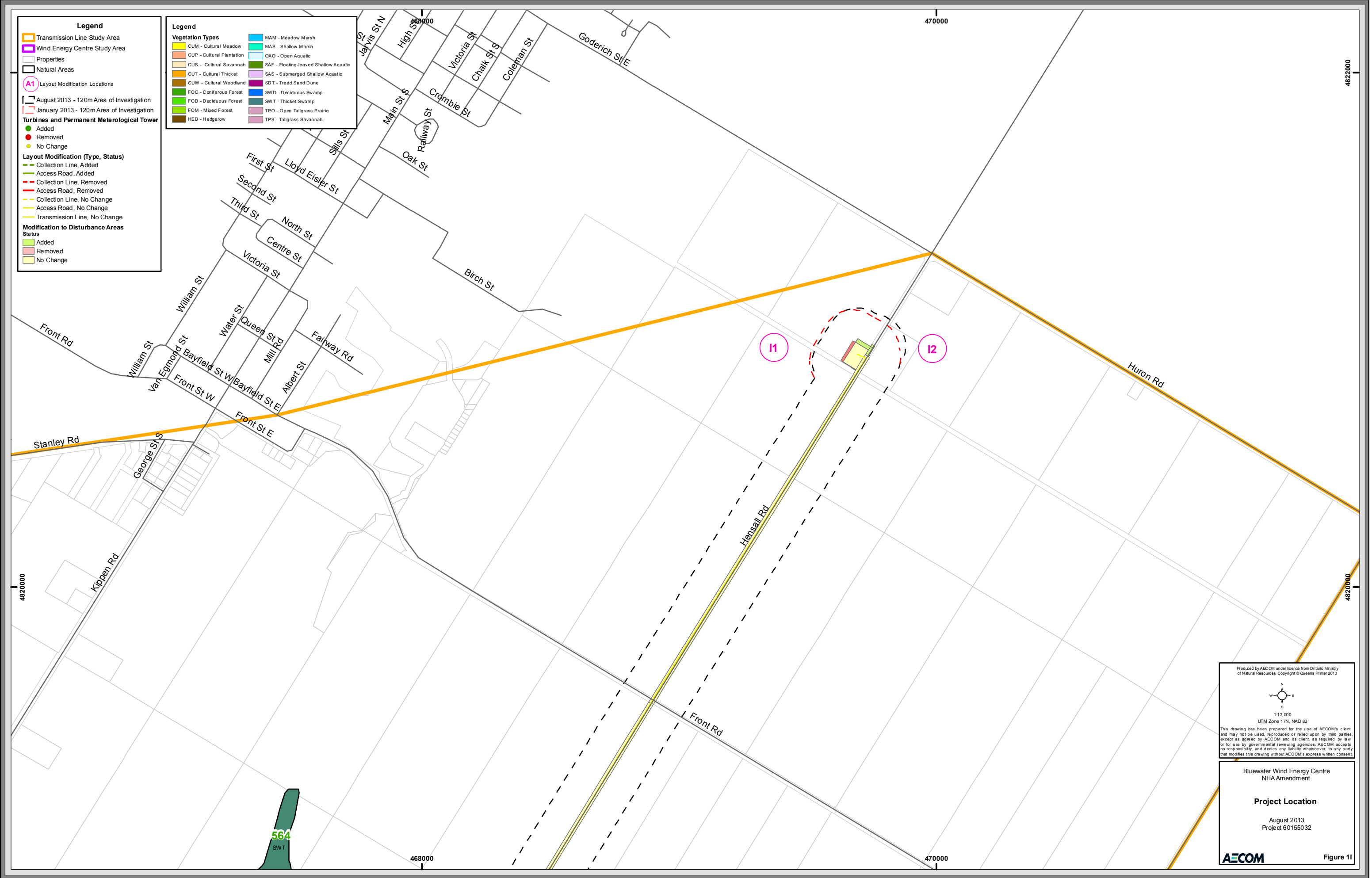
**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- Natural Areas
- A1 Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation
- Turbines and Permanent Meteorological Tower**
  - Added
  - Removed
  - No Change
- Layout Modification (Type, Status)**
  - Collection Line, Added
  - Access Road, Added
  - Collection Line, Removed
  - Access Road, Removed
  - Collection Line, No Change
  - Access Road, No Change
  - Transmission Line, No Change
- Modification to Disturbance Areas Status**
  - Added
  - Removed
  - No Change

**Legend**

**Vegetation Types**

CUM - Cultural Meadow	MAM - Meadow Marsh
CUP - Cultural Plantation	MAS - Shallow Marsh
CUS - Cultural Savannah	OAO - Open Aquatic
CUT - Cultural Thicket	SAF - Floating-leaved Shallow Aquatic
CUW - Cultural Woodland	SAS - Submerged Shallow Aquatic
FOC - Coniferous Forest	SDT - Treed Sand Dune
FOD - Deciduous Forest	SWD - Deciduous Swamp
FOM - Mixed Forest	SWT - Thicket Swamp
HED - Hedgerow	TPO - Open Tallgrass Prairie
	TPS - Tallgrass Savannah



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Bluewater Wind Energy Centre  
NHA Amendment

**Project Location**

August 2013  
Project 60155032

**AECOM** Figure 11



# Appendix A

## MNR Confirmation and Re-confirmation Letters

Renewable Energy Operations Team  
P.O. Box 7000  
300 Water Street  
4<sup>th</sup> Floor, South Tower  
Peterborough, ON K9J 8M5

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March 28, 2012

NextEra Energy Canada  
5500 Service Road, Suite 205  
Burlington, ON L7L 6W6

**RE: NHA Confirmation for Bluewater Wind Energy Centre**

Dear Tom Bird:

In accordance with the Ministry of the Environment's (MOE's) Renewable Energy Approvals (REA) Regulation (O.Reg.359/09), the Ministry of Natural Resources (MNR) has reviewed the natural heritage assessment and environmental impact study for the Bluewater Wind Energy Centre located in Huron County submitted by Nextera Energy Canada on March 26, 2012.

In accordance with Section 28(2) and 38(2)(b) of the REA regulation, MNR provides the following confirmations following review of the natural heritage assessment:

1. The MNR confirms that the determination of the existence of natural features and the boundaries of natural features was made using applicable evaluation criteria or procedures established or accepted by MNR.
2. The MNR confirms that the site investigation and records review were conducted using applicable evaluation criteria or procedures established or accepted by MNR, if no natural features were identified.
3. The MNR confirms that the evaluation of the significance or provincial significance of the natural features was conducted using applicable evaluation criteria or procedures established or accepted by MNR (if required).
4. The MNR confirms that the project location is not in a provincial park or conservation reserve.
5. The MNR confirms that the environmental impact assessment report has been prepared in accordance with procedures established by the MNR.

In accordance with Appendix D of MNR's Natural Heritage Assessment Guide, a commitment has been made to complete pre-construction assessments of habitat use for candidate significant wildlife habitats. MNR has reviewed and confirmed the assessment methods and the range of mitigation options. Pending completion of the pre-construction assessments and determination of significance, the appropriate

mitigation is expected to be implemented, as committed to in the environmental impact study for the following candidate significant wildlife habitats:

- Reptile Hibernaculum (features RH-01, RH-02)
- Bat Maternity Colony (features BMC-02, BMC-03, BMC-10, BMC-12, BMC-14)
- Amphibian Woodland Breeding (features AWO-03, AWO-04, AWO-05, AWO-06, AWO-08, AWO-11)
- Amphibian Wetland Breeding (feature AWE-01)

In addition to the NHA, Environmental Effects Monitoring Plans that address post-construction monitoring and mitigation for birds and bats must be prepared and implemented. It is recommended that post-construction monitoring plans be prepared in accordance with MNR Guidelines and be reviewed by MNR in advance of submitting a REA application to MOE in order to minimize potential delays in determining if the application is complete.

This confirmation letter is valid for the project as proposed in the natural heritage assessment and environmental impact study, including those sections describing the Environmental Effects Monitoring Plan and Construction Plan Report. Should any changes be made to the proposed project that would alter the NHA, MNR may need to undertake additional review of the NHA.

Where specific commitments have been made by the applicant in the NHA with respect to project design, construction, rehabilitation, operation, mitigation, or monitoring, MNR expects that these commitments will be considered in MOE's Renewable Energy Approval decision and, if approved, be implemented by the applicant.

In accordance with S.12 (1) of the Renewable Energy Approvals Regulation, this letter must be included as part of your application submitted to the MOE for a Renewable Energy Approval.

Please be aware that your project may be subject to additional legislative approvals as outlined in the Ministry of Natural Resources' *Approvals and Permitting Requirements Document*. These approvals are required prior to the construction of your renewable energy facility.

If you wish to discuss any part of this confirmation or additional comments provided, please contact me at [jim.beal@ontario.ca](mailto:jim.beal@ontario.ca) or 705-755-3203.

Sincerely,



Jim Beal  
Renewable Energy Provincial Field Program Coordinator  
Regional Operations Division  
Ministry of Natural Resources

- cc. Ian Hagman, District Manager, MNR Guelph District
- cc. Amy Cameron, A/Renewable Energy Field Advisor, MNR REOT
- cc. Erin Cotnam, A/Renewable Energy Coordinator, MNR Southern Region

cc. Narren Santos, Environmental Assessment and Approvals Branch, MOE  
cc. Sandra Guido, Environmental Assessment and Approvals Branch, MOE  
cc. Jessica MacKay Ward, Ecologist, AECOM

**Ministry of  
Natural Resources**  
Renewable Energy Operations Team  
300 Water Street  
4<sup>th</sup> Floor, South Tower  
Peterborough, Ontario K9J 8M5

**Ministère des  
Richesses naturelles**



January 11<sup>th</sup>, 2013

NextEra Energy Canada  
5500 Service Road, Suite 205  
Burlington, ON L7L 6W6

**RE: Modifications to Bluewater Wind Energy Centre project location**

Dear Tom Bird,

The Ministry of Natural Resources (MNR) has received the document dated December 20<sup>th</sup>, 2012 which describes modifications to the Bluewater Wind Energy Centre project location made subsequent to MNR's letter confirming the Natural Heritage Assessment in respect of the project.

In accordance with Appendix D of MNR's Natural Heritage Assessment Guide, a commitment has been made to complete pre-construction assessments of habitat use for candidate significant wildlife habitats. This is in addition to pre-construction assessments detailed in the March 28<sup>th</sup>, 2012 confirmation letter. MNR has reviewed and confirmed the assessment methods and the range of mitigation options. Pending completion of the pre-construction assessments and determination of significance, the appropriate mitigation is expected to be implemented, as committed to in the environmental impact study for the following candidate significant wildlife habitats:

- Bat Maternity Colony (features BMC-015)
- Amphibian Woodland Breeding Habitat (features AWO-013)

Upon review of the modifications, MNR is satisfied that the Natural Heritage Assessment requirements of Ontario Regulation 359/09 have been met. Please add this letter as an addendum to the confirmation letter issued March 28<sup>th</sup>, 2012 for the Bluewater Wind Energy Centre project.

If you wish to discuss any part of this confirmation or additional comments provided, please contact Jim Beal at [jim.beal@ontario.ca](mailto:jim.beal@ontario.ca) or 705-755-3203.

Sincerely,

A handwritten signature in blue ink that reads "Kazia Milian".

Kazia Milian  
Regional Planning Coordinator  
Ministry of Natural Resources  
Southern Region Planning Unit

cc Ian Hagman, District Manager, Guelph District, MNR  
Narren Santos, Environmental Approvals Access & Service Integration Branch, MOE  
Zeljko Romic, Environmental Approvals Access & Service Integration Branch, MOE

# Appendix B

## Field Notes



**Legend**

	Wind Energy Centre Study Area		Project Location
	Transmission Line Study Area		GE Turbine
	120m Area of Investigation		MET Tower
	Roads		Collection Lines
	Railway		Access Roads
	Natural Feature		Transmission Line
	Watercourse (ABCA, SCRA)		Disturbance Areas
	ELC Boundary		Substation
	Properties		

These outpoint coordinates point locations are of a property or area which may be subject to change and will be confirmed at the time of field surveys (e.g. depending on site conditions and/or boundaries).

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UTM Zone 17N, NAD 83 1:2000

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**Buwater Wind Energy Centre  
Significant Wildlife Habitat  
AWO EOS Survey  
544\_Buwater1510**

April 2013  
Project 60155032

**AECOM**

**ELC**  
Community Description and Classification

Map #: 544 BLWIS10 Polygon: F0DS-1  
 Surveyor(s): TS, RA Date: April 24, 2013  
 Time start: 8:30am finish: 9:45am  
 UTMZ: UTMZ: UTMN:

### Polygon Description

System	Substrate	Topographic Feature	Plant Form	Community
<input checked="" type="checkbox"/> Terrestrial <input type="checkbox"/> Wetland <input type="checkbox"/> Aquatic	<input type="checkbox"/> Organic <input checked="" type="checkbox"/> Mineral Soil <input type="checkbox"/> Parent Min. <input type="checkbox"/> Acidic Bedrk <input type="checkbox"/> Basic Bedrk <input type="checkbox"/> Carb. Bedrk	<input type="checkbox"/> Lacustrine <input type="checkbox"/> Riverine <input type="checkbox"/> Bottomland <input type="checkbox"/> Terrace <input type="checkbox"/> Valley Slope <input checked="" type="checkbox"/> Tableland <input type="checkbox"/> Roll. Upland <input type="checkbox"/> Cliff <input type="checkbox"/> Talus <input type="checkbox"/> Crevice/Cave <input type="checkbox"/> Alvar <input type="checkbox"/> Rockland <input type="checkbox"/> Beach / Bar <input type="checkbox"/> Sand Dune <input type="checkbox"/> Bluff	<input type="checkbox"/> Plankton <input type="checkbox"/> Submerged <input type="checkbox"/> Floating-LVD. <input type="checkbox"/> Graminoid <input type="checkbox"/> Forb <input type="checkbox"/> Lichen <input type="checkbox"/> Bryophyte <input checked="" type="checkbox"/> Deciduous <input type="checkbox"/> Coniferous <input type="checkbox"/> Mixed	<input type="checkbox"/> Lake <input type="checkbox"/> Pond <input type="checkbox"/> River <input type="checkbox"/> Stream <input type="checkbox"/> Marsh <input type="checkbox"/> Swamp <input type="checkbox"/> Fen <input type="checkbox"/> Bog <input type="checkbox"/> Barren <input type="checkbox"/> Meadow <input type="checkbox"/> Prairie <input type="checkbox"/> Thicket <input type="checkbox"/> Savannah <input type="checkbox"/> Woodland <input checked="" type="checkbox"/> Forest <input type="checkbox"/> Plantation

### Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	2	4	<u>ACESACC &gt; TILAMER - FRAAMER</u>
2	2	3	<u>ACESACC &gt; TILAMER = FRAAMER &gt; OSTVIAG</u>
3	4	2	<u>PRUVIAC &gt; FRAAMER - ...</u>
4	7	2	<u>ERYAMER &gt; EUGOROV</u>

HT Codes: 7 < 0.2m 6 > 0.2-0.5m 5 > 0.5-1m 4 > 1-2m 3 > 2-8m 2 > 8-25m 1 > 25m  
 CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

Stand Composition:	Size Class Analysis:	<u>O</u> <10 <u>A</u> 10-24 <u>O</u> 25-50 <u>N</u> >50
	Standing Snags:	<u>R</u> <10 <u>R</u> 10-24 <u>R</u> 25-50 <u>N</u> >50
BA:	Deadfall / Logs:	<u>R</u> <10 <u>R</u> 10-24 <u>R</u> 25-50 <u>N</u> >50

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

Com. Age:  Pioneer  Young  Mid-Age  Mature  Old Growth

Ecosite:	<u>Dry-Fresh Sugar Maple Deciduous Forest</u>	Code:	<u>F0DS</u>
Vegetation Type:	<u>Dry-Fresh Sugar Maple Deciduous Forest</u>	Code:	<u>F005-1</u>
Inclusion:	<u>-</u>	Code:	<u>-</u>
Complex:	<u>-</u>	Code:	<u>-</u>

### Community Profile Diagram/Comments

Small channel of overland flow through SW corner of woodlot.

Notes:

### Tree Tally by Species

Prism Factor 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
<b>Total</b>						
<b>Basal Area (BA)</b>						
<b>Dead</b>						

### Soils Ontario and ELC Soils Description

Site Metrics		Pit/Auger #	Moisture Regime				Drainage				Effective Texture (Indicate below)			
UTM	Zone													
	Easting													
Slope	Northing													
	Position													
Slope	Aspect													
	Percent													
	Slope													
	Length													
Depth to...	Mottles													
	Gley													
	Water Table													
	Carbonates													
Soil Horizon Description	Bedrock													
	1	Depth from zero		% CF		% CF		% CF		% CF		% CF		
		Texture												
	2	Depth from zero		% CF		% CF		% CF		% CF		% CF		
Texture														
3	Depth from zero		% CF		% CF		% CF		% CF		% CF			
	Texture													
4	Depth from zero		% CF		% CF		% CF		% CF		% CF			
	Texture													
		% Surface Stone/Rock												
		Moisture Regime												
		Drainage												



Map #: 544 BLW1510 Polygon: Deciduous Hedgerow  
 Surveyor(s): TS, RA Date: April 24, 2013 Time start: 8:30am finish: 9:45am  
 UTMZ: UTMZ: UTMN:

**Polygon Description**

System	Substrate	Topographic Features	Plant Form	Community
<input type="checkbox"/> Terrestrial <input type="checkbox"/> Wetland <input type="checkbox"/> Aquatic <b>Site</b> <input type="checkbox"/> Open Water <input type="checkbox"/> Shallow Water <input type="checkbox"/> Surficial Dep. <input type="checkbox"/> Bedrock <b>History</b> <input type="checkbox"/> Natural <input checked="" type="checkbox"/> Cultural <b>Cover</b> <input type="checkbox"/> Open <input type="checkbox"/> Shrub <input checked="" type="checkbox"/> Treed	<input type="checkbox"/> Organic <input checked="" type="checkbox"/> Mineral Soil <input type="checkbox"/> Parent Min. <input type="checkbox"/> Acidic Bedrk <input type="checkbox"/> Basic Bedrk <input type="checkbox"/> Carb. Bedrk	<input type="checkbox"/> Lacustrine <input type="checkbox"/> Riverine <input type="checkbox"/> Bottomland <input type="checkbox"/> Terrace <input type="checkbox"/> Valley Slope <input type="checkbox"/> Tableland <input type="checkbox"/> Roll. Upland <input type="checkbox"/> Cliff <input type="checkbox"/> Talus <input type="checkbox"/> Crevice/Cave <input type="checkbox"/> Alvar <input type="checkbox"/> Rockland <input type="checkbox"/> Beach / Bar <input type="checkbox"/> Sand Dune <input type="checkbox"/> Bluff	<input type="checkbox"/> Plankton <input type="checkbox"/> Submerged <input type="checkbox"/> Floating-LVD. <input type="checkbox"/> Graminoid <input type="checkbox"/> Forb <input type="checkbox"/> Lichen <input checked="" type="checkbox"/> Bryophyte <input checked="" type="checkbox"/> Deciduous <input type="checkbox"/> Coniferous <input type="checkbox"/> Mixed	<input type="checkbox"/> Lake <input type="checkbox"/> Pond <input type="checkbox"/> River <input type="checkbox"/> Stream <input type="checkbox"/> Marsh <input type="checkbox"/> Swamp <input type="checkbox"/> Fen <input type="checkbox"/> Bog N/A <input type="checkbox"/> Barren <input type="checkbox"/> Meadow <input type="checkbox"/> Prairie <input type="checkbox"/> Thicket <input type="checkbox"/> Savannah <input type="checkbox"/> Woodland <input type="checkbox"/> Forest <input type="checkbox"/> Plantation

**Stand Description**

Layer	HT	OVR	Species in Order of Decreasing Dominance (up to 4 sp) (-> Much Greater Than > Greater Than = About Equal To)
1	-	0	-
2	2	3	MALPUMH = PRUNUS SP.
3	4	3	RHACATHI>CRAT SP.
4	7	2	FRYAMERI

HT Codes: 7 < 0.2m 6 > 0.2-0.5m 5 > 0.5-1m 4 > 1-2m 3 > 2-6m 2 > 8-25m 1 > 25m  
 CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

<b>Stand Composition:</b>	<b>Size Class Analysis:</b>	A < 10	O 10-24	N 25-50	N > 50
	<b>Standing Snags:</b>	R < 10	N 10-24	N 25-50	N > 50
BA:	<b>Deadfall / Logs:</b>	N < 10	N 10-24	N 25-50	N > 50

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

**Com. Age:**  Pioneer  Young  Mid-Age  Mature  Old Growth

<b>Ecobite:</b>	Deciduous Hedgerow	<b>Code:</b>	
<b>Vegetation Type:</b>		<b>Code:</b>	
<b>Inclusion:</b>		<b>Code:</b>	
<b>Complex:</b>		<b>Code:</b>	

**Community Profile Diagram/Comments**


Notes:

**Tree Tally by Species**

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
<b>Total</b>					100	
<b>Base Area (BA)</b>						
<b>Base</b>						

**Soils Ontario and ELC Soils Description**

Site Metrics	Plt/Auger #	UTM	Summary			
			Zone	Moisture Regime		
Slope	Position	Eastings	Drainage			
		Northings				
		Aspect				
		Percent Slope Length				
Depth to...	Mottles	Effective Texture (Indicate below)				
	Gley					
	Water Table					
	Carbonates					
Soil Horizon Description	1	Bedrock				
		Depth from zero	% CF	% CF	% CF	% CF
	2	Texture				
		Depth from zero	% CF	% CF	% CF	% CF
	3	Texture				
		Depth from zero	% CF	% CF	% CF	% CF
	4	Texture				
		Depth from zero	% CF	% CF	% CF	% CF
	% Surface Stone/Rock					
	Moisture Regime					
	Drainage					





# Significant Wildlife Habitat Form

AZCOM

Study Area: BLW JER GSH Map #: 544 BLW 1510  
 Date: 2013-04-24 Time Started: 8:30 a.m.  
 Field Staff: Tom Stoney, Rob Aitken Time Finished: 9:45 a.m.  
 Weather Conditions: Overcast, Rain, 15km/h

**Colonial Nesting Tree/Shrub Birds, Osprey Breeding/Feeding, Bald Eagle Breeding/Nesting Habitat**  
 (FET1, FOC, FOM, FOD, SWC, SWM, SWD)

Nest bowls present:  No  Yes (if yes, photograph and complete the following)  
 UTMs: See map for location Number of nests: 1  
 Description of nests (location, e.g. in tree/on built structure; material; evidence of recent use; birds present):  
medium sized stick nest in Acer sacc → approx. 20m high in canopy  
Flushed Female Red-Tailed Hawk from Nest  
 Description of habitat (note riparian areas if present, evidence of disturbance): Sugar maple Hardwood  
deciduous forest.

**Waterfowls Stopover/Nesting, Amphibian Breeding, Turtle Nesting/Over-wintering, Marsh Breeding Birds**  
 (CUM1, CUT1, MAM, MAS, SAS1, SAM1, SAF1, SWD, SWT1, SWT2) (FOC, FOM, FOD, SWC, SWM, SWD, BOO1, FEO1)

Standing water present:  No  Yes (if yes, photograph and complete the following)  
 UTMs: \_\_\_\_\_ Area of standing water delineated on field map \_\_\_\_\_  
 Water depth (m): \_\_\_\_\_ % open water: \_\_\_\_\_ % emergent vegetation: \_\_\_\_\_  
 Potential to hold water until at least July in most years: Yes / No  
 Description of standing water (permanent pool, evidence of annual spring flooding, etc): \_\_\_\_\_  
 Area and soil/substrate of shoreline habitat: \_\_\_\_\_  
 Type and abundance of cover in open water habitat: \_\_\_\_\_  
 Type and abundance of cover in surrounding habitat: \_\_\_\_\_  
 Evidence of disturbance (e.g. cattle grazing): \_\_\_\_\_  
 Evidence of use by waterfowl, amphibians, turtles (e.g. broken eggs), marsh breeding birds: \_\_\_\_\_

**\*\*\*Complete Vernal Pool Habitat Description Form\*\*\***

**Snake Hibernacula**

Fissured rock/foundation or rock/debris pile present:  No  Yes (if yes, photograph and complete the following)  
 UTMs: \_\_\_\_\_ Likelihood to extend below frost line: \_\_\_\_\_  
 % canopy cover: \_\_\_\_\_ % slope: \_\_\_\_\_ Distance to open canopy (m): \_\_\_\_\_  
 Description of fissure or stone pile (composition/material, dimensions, etc): \_\_\_\_\_  
 Description of surrounding habitat (type & abundance of cover, evidence of disturbance, etc): \_\_\_\_\_

**Seeps and Springs**  
 (FOC, FOM, FOD, SWC, SWM, SWD)

Evidence of seep or spring:  No  Yes (if yes, photograph and complete the following)  
 UTMs: \_\_\_\_\_ Description (indicator species, etc): \_\_\_\_\_

Active

# NHA Site Investigation - Significant Wildlife Habitat Form

AECOM

**Colonial Nesting Bird Breeding Habitat (Bank and Cliff Swallows)**  
 (CUM1, CUT1, CUS, BLO1, BLS1, BLT1, CLO1, CLS1, CLT1)

Eroding bank, sandy hill, pits, steep slope or rock face present:

No  Yes (if yes, photograph and complete the following)

UTMs: \_\_\_\_\_ Location (e.g. aggregate pit, bridge): \_\_\_\_\_

Evidence of use by bank or cliff swallows (provide number of nests): \_\_\_\_\_

**Colonial Nesting Ground Breeding Birds, Shorebird Migratory Stopover Areas**  
 (BBO1, BBO2, BBS1, BBS2, BBT1, BBT2, SDO1, SDS2, SDT1, MAM1, MAM2, MAM3, MAM4, MAM5)

Shoreline of lake, large river or large wetland present:

No  Yes (if yes, photograph and complete the following)

UTMs: \_\_\_\_\_ Rocky island or peninsula present: \_\_\_\_\_

Mudflat present: \_\_\_\_\_ Evidence of disturbance (e.g. cattle grazing): \_\_\_\_\_

Description of habitat (size of rocky outcrop/mudflat, substrate/soil type, type and abundance of cover):

\_\_\_\_\_

**Raptor Winter Feeding and Roosting, Open Country or Shrub/Early Successional Bird Breeding Habitat**  
 CUT1, CUS1, >30ha, CUM1 >30ha, FOC, FOD, FOM with a CUM, CUT, CUS, CUW > 20ha, or a CUM, CUS, CUT, CUW > 15ha

Large meadow, old field or generally open habitat (e.g. CUM, CUS, CUT, CUW) present:

Large open habitat present:  No  Yes (if yes, photograph and complete the following)

UTMs: \_\_\_\_\_ Evidence of disturbance (e.g. cattle grazing): \_\_\_\_\_

Description of habitat (abundance of food plants for rodents, abundance of perches, height of vegetation):

\_\_\_\_\_

**Old-growth or Mature Forests, Interior Forest Breeding Birds**  
 (FOD, FOC, FOM, SWC, SWM, SWD. Mature forest (>60 years) present)

Mature forest present:  No  Yes (if yes, photograph and complete the following)

UTMs: \_\_\_\_\_ Age of oldest trees: \_\_\_\_\_

Evidence of disturbance (e.g. selective cutting): \_\_\_\_\_

Description of habitat (structural complexity, abundance of snags and/or downed woody debris, etc):

\_\_\_\_\_

Photo #	Location or Subject	Photo #	Location or Subject
Pic 8	Stick nest		

# Species of Conservation Concern Habitat and Incidental Wildlife – Bluewater



Map No: 544-Blw 1510

Field Staff: Tom Shofsey  
Bob Aitken

Date (yyyy-mm-dd): 2013-04-24

Time Started: 8:30 am  
Time Finished: 9:45 am

## Observed Species List

Species Code	UTM	EV	Notes	Species Code	UTM	EV	Notes
Song Sparrow		VO					
Proven Thrasher		VO					
Am. C. Wren		OB					
Red-Bellied Woodpecker		VO					
Blue Jay		VO					
Horned Lark		VO					
Red-winged Blackbird		VO					
Red-tailed Hawk		OB					
Am. Crow		VO					

**Note: Evidence Codes (EV)** Breeding Bird (Possible) SH=Suitable Habitat, SM=Singing Male;  
Breeding Bird (Probable) T-Territory, D=Display, P=Pair, N=Nest Building, V= Visiting Nest; A=Anxiety Behavior;  
Breeding Bird (Confirmed) DD=Distraction, NU=Used Nest, FY=Fledged Young, NE=Eggs, NY=Young, FS=Faeces/Faecal sack, AE=Nest Entry  
**Other Wildlife Evidence:** OB=observed, VO=Vocalization, CA=Carcass, DP=Distinctive Parts, HO=House/Den, FY=Eggs/Young, TK=tracks, FE=Feeding evidence, SC= Scat, SI=Other signs (specify)

ELC	Species	Habitat Description	Habitat Present (Y/N; UTM; description of habitat if present)
FOD7	American Gromwell (Lithospermum latifolium) - S3 <u>Bloom Time - Spring</u>	Shaded river banks, wooded floodplains. River floodplains, woods and edges of woods.	Y (N) UTM:
FOM1, FOM2, CUP3	Autumn Coral-root (Corallorhiza odontorhiza) - S2 <u>Bloom Time - summer to fall</u>	Oak-pine woods or occasionally in open, red pine or white pine plantations. Dry, sandy woods.	Y (N) UTM:
-	Bald Eagle (Haliaeetus leucocephalus) - SC	Assessed as SWH. Record species if found.	not required.
FEO, FES, FET	Beaked Spike-Rush (Eleocharis rostellata) - S3 <u>Bloom Time - May to October</u>	Found among fens, calcareous shores and meadows.	Y (N) UTM:
SWC1, SWC3, SWC4, SWM1, SWM2, SWM4, SWM5, SWM6	Chinese Hemlock Parsley (Conioselinum chinense) - S2 <u>Bloom Time - summer to fall</u>	Swampy places with deciduous trees, white cedars, tamarack; springy river banks, creek borders, wet borders of streams and rivers. Also found among calcareous seepage slopes.	Y (N) UTM:
CUW, SDO, RBO, TPS	Common Nighthawk (Chordeiles minor) - SC	Hunts insects over a wide variety of habitats, in particular <u>open or semi-open areas</u> . Nests on ground in a wide range of <u>open, sparse or vegetation-free habitats</u> .	Y (N) UTM:
SWC, SWM, SWD, SWT, MAM, MAS	Crowned Beggerticks (Bidens trichosperma) -S2 <u>Bloom Time - late summer</u>	Found in openings in swamps, marshes, along shores & wet fields within the Carolinian zone and southeastern Georgian bay. Bogs, fens, tamarack swamps.	Y (N) UTM:
ALT1, FOD7	Eastern Green-violet (Hybanthus concolor) - S2 <u>Bloom Time -mid March to August</u>	Occurs in rich, wet-mesic floodplain forests as well as mesic forests over limestone. Includes floodplains and river banks.	Y (N) UTM:
-	Eastern Ribbonsnake (Thamnophis sauritus) - SC	Assessed as SWH. Record species if found.	not required.
FOD6, FOD7, FOD8	Green Dragon (Arisaema dracontium) - SC/S3 <u>Bloom Time - May and June</u>	Species found in damp deciduous forest and along river streams. Particularly Maple forest and forest dominated by Red Ash and White Elm.	Y (N) UTM:

# Species of Conservation Concern Habitat and Incidental Wildlife – Bluewater

ELC	Species	Habitat Description	Habitat Present (Y/N; UTM; description of habitat if present)
FEO1, FES1, FET1, SWC, SWM, SWD, SWT, TPO, TPS, TPW	Hairy Valerian ( <i>Valeriana edulis</i> ) - S1 <u>Bloom Time – June to August</u>	Inhabits swampy river flats and meadows, wet prairies, and wooded, rocky riverbanks and fens.	Y <input checked="" type="radio"/> UTM:
FOD6, FOD7, FOD8, FOD9	Harbinger-of-spring ( <i>Eriogonum bulbosum</i> ) - S3 <u>Bloom Time – early to late April</u>	Occurs in rich, moist deciduous woods, especially on floodplains.	Y <input checked="" type="radio"/> UTM:
SAS1, SAM1, SAF1	Hill's Pond Weed ( <i>Potamogeton hillii</i> ) - SC/S2 <u>Bloom Time – summer</u>	Aquatic plant found in highly alkaline waters of ditches, ponds, beaver ponds, and slow-moving cold waters.	Y <input checked="" type="radio"/> UTM:
FOM6, FOM7, FOM8	Large Round-leaved Orchid ( <i>Platanthera macrophylla</i> ) - S2 <u>Bloom Time – June to August</u>	Species inhabits moist mixed woods. Found in fairly mature, upland sugar maple-beech-eastern hemlock woodlands.	Y <input checked="" type="radio"/> UTM:
MAM2, MAM3, MAS2, MAS3, SWD	Lizard's Tail ( <i>Scirpus cernuus</i> ) - S3 <u>Bloom Time – June – September</u>	Species inhabits shores and streambanks along shallow water. As well as swamps, floodplains, shallow water and mudflats at the borders of streams and ponds.	Y <input checked="" type="radio"/> UTM:
FOD, FOM	Louisiana Waterthrush ( <i>Seiurus motacilla</i> ) - SC	Inhabits <u>mature forests</u> along steeply sloped ravines adjacent to running water. Trees, bushes, exposed roots, cliffs, banks and mossy logs are favoured nesting spots. <u>Riparian woodlands</u> are preferred stopover sites during migration	Y <input checked="" type="radio"/> UTM:
-	Milksnake ( <i>Lampropeltis triangulum</i> ) - SC	Assessed as SWH. Record species if found.	not required.
CUM1, CUT1, CUW1	Monarch Butterfly ( <i>Danaus plexippus</i> ) - SC	Their larvae only feed on <u>milkweeds</u> ( <i>Asclepius</i> spp.). Habitat includes abandoned farmland, along roadsides, open spaces where these plants grow	Y <input checked="" type="radio"/> UTM:
CUW1, ALO, FET1, SWC	Ram's-head Lady's-slipper ( <i>Cypripedium arietinum</i> ) - S3 <u>Bloom Time – mid May to mid June</u>	Found in cedar woodlands, limestone plains and wooded fens, moist coniferous swamps, dry-sandy woods, and limestone barren.	Y <input checked="" type="radio"/> UTM:
FOD1, FOD2, FOD3, FOD4, FOD5, FOC1, FOM1, FOM5	Rattlesnake Hawkweed ( <i>Hieracium venosum</i> ) - S2 <u>Bloom Time – April – September</u>	Species inhabits open, dry sandy woods. Jack pine, oak, and aspen woodlands.	Y <input checked="" type="radio"/> UTM:
FOD, CUW, CUT	Red-headed Woodpecker ( <i>Melanerpes erythrocephalus</i> ) - SC	Species inhabits open woodland/ edges (oak savannahs and riparian forest), open, deciduous forest with little understory; fields or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees; requires cavity trees with at least <u>40 cm dbh</u> ; requires about <u>4 ha</u> for a territory.	Y <input checked="" type="radio"/> UTM:
FOD6, FOD7, FOD8, FOD9, SWT2, SWT3	Scarlet Beebalm ( <i>Monarda didyma</i> ) - S3 <u>Bloom Time – May to October</u>	Found in moist, rich woods, thicket swamps, banks and floodplains.	Y <input checked="" type="radio"/> UTM:
-	Short Eared Owl ( <i>Aelo flammeus</i> ) - SC	Assessed as SWH. Record species if found.	not required.
TPS, TPW	Sleepy Duskywing ( <i>Erynnis brizo</i> ) - S1	Occurs in oak/oak-pine scrub, chaparral, barrens, well-drained sandy or shaly soils. Species regularly seen at flowers in oak woods, on the ground, and at mud puddles	Y <input checked="" type="radio"/> UTM:
SDO1, SDS1, SDT1	Slender Vulpia ( <i>Vulpia octoflora</i> ) - S2	Species inhabits dry, sandy habitats, including rocky woods meadows, dry forests, and stabilized dunes	Y <input checked="" type="radio"/> UTM:
SDT1, FOD5, FOD9	Slim-flowered Muhty ( <i>Muhlenbergia tenuiflora</i> ) - S2	Found in rich deciduous forest, often on rocky or sandy soils, wooded dunes, hillsides, and riverbanks whether in oak or beech-maple woods	Y <input checked="" type="radio"/> UTM:
-	Snapping Turtle ( <i>Chelydra serpentina</i> ) - SC	Assessed as SWH. Record species if found.	not required.
BLO1, BLS1, BLT1, TPO2, TPS2, TPW2, MAM2, FOD7	Stiff Gentian ( <i>Gentiana quinquefolia</i> ) - S2 <u>Bloom Time – late summer to mid fall</u>	Found in moist soils of streambanks, edges of woods, wet prairies, marshy meadows, bluffs and wooded hillsides.	Y <input checked="" type="radio"/> UTM:
TPS1, TPW1, CUW1, RBO, SBO	Sundial Lupine ( <i>Lupinus perennis</i> ) - S3 <u>Bloom Time – mid-March to mid-June</u>	Inhabits dry, sandy oak savannahs, prairies, open barrens or clearings in woodlands of oak, jack pine, and/or aspen.	Y <input checked="" type="radio"/> UTM:
FEO, FES, FET, MAM2, MAM3	Tuberous Indian Plantain ( <i>Arnoglossum plantagineum</i> ) - S3 <u>Bloom Time – mid-March to mid-June</u>	Occurs mainly in flat, sandy areas of the Bruce Peninsula. Fens, wet meadows, and calcareous river flats.	Y <input checked="" type="radio"/> UTM:
FOD5	West Virginia White ( <i>Pieris virginiana</i> ) - SC	This species is restricted to <u>rich, moist, deciduous woods</u> , where its <u>foodplant Toothwort</u> occur	Y <input checked="" type="radio"/> UTM: Not observed
FOC1, FOC2, FOC3, FOC4	Woodland Pinedrops ( <i>Pterospora andromedea</i> ) - S2 <u>Bloom Time – summer</u>	Found in conifer woods, under pines, but also hemlock, spruce, fir, and white cedar. In dry or rocky soil, often with common juniper and sometimes aspen or birch.	Y <input checked="" type="radio"/> UTM:
CUM1, CUT1, CUW1, RBO1, SBO1	Yellow Ladies'-tresses ( <i>Spiranthes ochroleuca</i> ) - S2 <u>Bloom Time – August to November</u>	Dry, open sites, usually on acidic sandy soil, dry to mesic open woodland, thickets, meadows, barrens, ledges, outcrops, banks and roadsides, old fields.	Y <input checked="" type="radio"/> UTM:
	Yellow-breasted Chat ( <i>Icteria virens</i> ) - SC	Inhabits thickets, tall tangles of shrubby beside streams, ponds; overgrown bushy clearings with deciduous thickets; nests above ground in bush, vines	Y <input checked="" type="radio"/> UTM:

# Appendix C

## Vascular Plant Species List



BOTANICAL NAME	COMMON NAME	Coefficient of Conservatism	Weediness Index	Provincial Status	OAHNS Status	COSEWIC Status	Global Status	Local Status Lambton County	Local Status Huron County	Date	24-Apr-13
										Natural Area	544
		Odham et al	Odham et al	Odham et al	Newmaster		Newmaster	Tiedje 2004	Odham 1993	ELC Community	FODS-1
<b>DICOTYLED</b>											
<b>DICOTS</b>											
<b>Aceraceae</b>											
<b>Maple Family</b>											
<i>Acer</i>	<i>saccharum</i>		4	3	S5		G5T?		X		D
<i>Acer X</i>	<i>freemanii</i>				SNR		GNA		L4		R
<b>Anacardiaceae</b>											
<b>Sumac or Cashew Family</b>											
<i>Toxicodendron</i>	<i>radicans ssp. negundo</i>		5	-1	S5		G5T		X		R
<i>Toxicodendron</i>	<i>rydbergii</i>		0	0	S5		G5T				R
<b>Asteraceae</b>											
<b>Composite or Aster Family</b>											
<i>Taraxacum</i>	<i>officinale</i>		3	-2	SE5		G5		I		R
<b>Berberidaceae</b>											
<b>Barberry Family</b>											
<i>Caulophyllum</i>	<i>thalictroides</i>		6	5	S5		G		X		U
<b>Betulaceae</b>											
<b>Birch Family</b>											
<i>Ostrya</i>	<i>virginiana</i>		4	4	S5		G5		X		U
<b>Celastraceae</b>											
<b>Starf-tree Family</b>											
<i>Euonymus</i>	<i>obovata</i>		6	5	S5		G5		X		F
<b>Cornaceae</b>											
<b>Dogwood Family</b>											
<i>Cornus</i>	<i>alternifolia</i>		6	5	S5		G5		X		U
<i>Cornus</i>	<i>rugosa</i>		6	5	S5		G5				R
<b>Fagaceae</b>											
<b>Beech Family</b>											
<i>Fagus</i>	<i>grandifolia</i>		6	3	S5		G5		X		U
<b>Hydrophyllaceae</b>											
<b>Water-leaf Family</b>											
<i>Hydrophyllum</i>	<i>virginianum</i>		6	-2	S5		G5	L4	X		R
<b>Juglandaceae</b>											
<b>Walnut Family</b>											
<i>Carya</i>	<i>cordiformis</i>		6	0	S5		G5		X		U
<i>Juglans</i>	<i>nigra</i>		5	3	S4		G5		X		R
<b>Lauraceae</b>											
<b>Laurel Family</b>											
<i>Lindera</i>	<i>benzoin</i>		6	-2	S5		G5		X		R
<b>Oleaceae</b>											
<b>Olive Family</b>											
<i>Fraxinus</i>	<i>americana</i>		4	3	S5		G5		X		F
<b>Papaveraceae</b>											
<b>Poppy Family</b>											
<i>Dicentra</i>	<i>canadensis</i>		7	5	S5		G5				R
<i>Sanguinaria</i>	<i>canadensis</i>		5	4	S5		G5		X		U
<b>Rhamnaceae</b>											
<b>Buckthorn Family</b>											
<i>Rhamnus</i>	<i>cathartica</i>		3	-3	SE5		G?		I		R
<b>Rosaceae</b>											
<b>Rose Family</b>											
<i>Crataegus</i>	<i>species</i>										R
<i>Prunus</i>	<i>species</i>										U
<b>Ulmaceae</b>											
<b>Elm Family</b>											
<i>Ulmus</i>	<i>americana</i>		3	-2	S5		G5?		X		R
<b>Vitaceae</b>											
<b>Grape Family</b>											
<i>Vitis</i>	<i>riparia</i>		0	-2	S5		G5		X		R
<b>MONOCOTYLEDONS</b>											
<b>MONOCOTS</b>											
<b>Cyperaceae</b>											
<b>Sedge Family</b>											
<i>Carex</i>	<i>species</i>										U
<b>Liliaceae</b>											
<b>Lily Family</b>											
<i>Allium</i>	<i>triccoccum</i>		7	2	S5		G5	L4	X		F
<i>Erythronium</i>	<i>americanum ssp. americanum</i>		5	5	S5		G5T5		X		D
<i>Trillium</i>	<i>species</i>				S5		G5		X		U

**FLORISTIC SUMMARY & ASSESSMENT**

**Species Diversity**

Total Species:	22	
Native Species:	20	90.91%
Exotic Species	2	9.09%
S1-S3 Species	0	
S4 Species	1	
S5 Species	20	

**Co-efficient of Conservatism and Floral Quality Index**

Co-efficient of Conservatism (CC) (average)	4.85		
CC 0 to 3	lowest sensitivity	3.00	13.64%
CC 4 to 6	moderate sensitivity	15	68.18%
CC 7 to 9	high sensitivity	2	9.09%
CC 9 to 10	highest sensitivity	0	0.00%
Floral Quality Index (FQI)	22		

**Presence of Weedy & Invasive Species**

mean weediness	-2.50		
weediness = -1	low potential invasiveness	0.00	0.00%
weediness = -2	moderate potential invasiveness	1.00	50.00%
weediness = -3	high potential invasiveness	1.00	50.00%

**Presence of Wetland Species**

average wetness value	0.64	
upland	6.00	23.90%
facultative upland	9	21.15%
facultative	3	17.58%
facultative wetland	4	19.51%
obligate wetland	0	13.74%

#### EXPLANATION OF TERMINOLOGY

Botanical and Common Name: From Integrated Taxonomic Information System (IT IS). 2012.

Co-efficient of Conservatism: This value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific habitat integrity.

Wetness Index: This value, ranging from -5 (obligate wetland) to 5 (upland) provides the probability of a species occurring in wetland or upland habitats.

Weediness Index: This value, ranging from -1 (low) to -3 (high) quantifies the potential invasiveness of non-native plants. In combination with the percentage of non-native plants, it can be used as an indicator of disturbance.

Provincial Status: Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These ranks are not legal designations. S4 and S5 species are generally uncommon to common in the province. Species ranked S1-S3 are considered to be rare in Ontario.

Local Status:

VU: native and very uncommon

X: native and not rare or very uncommon

C: native and common

R: native and rare

I: introduced and persisting outside of cultivation.

Ir: introduced and rare

Ih: introduced and known only from historic records

Ivu: introduced and very uncommon

Iu: introduced and uncommon

Ic: introduced and common

Annotations: Provides comments on general distribution and abundance on the subject lands. Definitions of terminology and abbreviations used as follows.

Abundance

Dominant: represented by large numbers; generally forming >10% ground cover or >25% vegetation in any one stratum

Fairly common: generally widespread; represented by fairly large numbers of individual clumps; usually forming >10% ground cover

Uncommon: present as widespread scattered individuals or represented by one or more clumps of many individuals

Rare: represented in the polygon by less than about five individuals or small clumps

#### DETAILED EXPLANATION OF TERMS

##### Floral Quality Index and Coefficient of Conservatism Values

Vegetation species and community sensitivity was assessed through the application of coefficient of conservatism values (CC), assigned to each native species in southern Ontario (Oldham, et. al, 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to specific habitat integrity. The occurrence of species with a CC of 9 or 10 can be good indicators of undisturbed conditions such as mature forests, fens or bogs.

General habitat values associated with the CC values are:

0-3: species found in a wide variety of communities, including disturbed sites

4-6: species associated with a specific community, but tolerate moderate disturbance

7-8: species associated with a community in an advanced successional stage, tolerant of minor disturbances

9-10: species with a high degree of fidelity to a narrow range of synecological parameters

The floristic quality of an area is reflected in the mean value of CC. For example, an old field or grazed woodlot would tend have a low mean CC; these habitats are dominated by opportunistic species that occur in a wide range of site conditions and are tolerant of disturbance. A bog, prairie or intact forest would have a higher value, reflecting the specific habitat requirements of many of the species and a generally undisturbed condition. The following provides an example of interpretation of CC values:

mean CC value / % spp CC >8 / Condition of the Landscape

5 / 27 / intact

3.5 / 19 / slightly degraded

1.3 / 2 / severely degraded

The FQI accounts for the species diversity of the area by equating the number of native species with the mean CC value. The FQI is generally used for comparing natural areas. The CC value and FQI of the study area were calculated for the entire study area.

##### Weediness Index

The sensitivity of natural areas can be assessed through application of the Weediness Index. The Weediness Index quantifies the potential invasiveness of non-native plants, and, in combination with the percentage of non-native plants can be used as an indicator of disturbance.

Values (ranging from 1- to -3) have been assigned to most non-native species based on the potential impact each species can have in natural areas:

-1: little or no impact on natural areas (most non-native plants are in this category)

-2: occasional impacts on natural areas, generally infrequent or localized

-3: major potential impacts on natural areas

##### Wetness Index

All plants in southern Ontario have been assigned a wetland category, based on the designations developed for use by the United States Fish & Wildlife Service. Plants are designated into the following categories:

OBL (Obligate Wetland): occurs almost always in wetlands under natural conditions (estimated >99% probability)

FACW (Facultative Wetland): usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67-99% probability)

FAC (Facultative): equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability)

FACU (Facultative Upland): occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33% probability)

UPL (Upland): occurs almost never in wetlands under natural conditions (estimated <1% probability)

Further refinement of the Facultative categories are denoted by a "+" or "-" to express exaggerated tendencies for those species. The "+" denotes a greater estimated probability occurring in wetlands than species in the general indicator category, but a lesser probability than species occurring in the next higher category. The "-" denotes a lesser estimated probability of occurring in wetlands than species in the general indicator category, but a greater probability than species occurring in the next lower general category.

Each wetland category has been assigned a numerical value to facilitate the quantification of the wetness index. The wetland categories and their corresponding values are as follows:

OBL : -5

FACW+ : -4

FACW : -3

FACW- : -2

FAC+ : -1

FAC : 0

FAC- : 1

FACU+ : 2

FACU: 3  
FACU-: 4  
UPL: 5

#### Provincial Status

Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These rankings are based on the total number of extant Ontario populations and the degree to which they are potentially or actively threatened with destruction. The ranks are:

S1: Critically Imperiled—Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province

S2: Imperiled—Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province

S3: Vulnerable—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation

S4: Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5: Secure—Common, widespread, and abundant in the nation or state/province

SH: Possibly Extirpated (Historical)—Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences

SNR Unranked—Nation or state/province conservation status not yet assessed

SX: Presumed Extirpated—Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered

SNA Not Applicable —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

SU: Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends

Rank ranges, e.g. S2S3, indicate that the rank is either S2 or S3, but that current information is insufficient to differentiate.

S#S# Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

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