Environment

Goshen Wind, Inc.
Goshen Wind Energy Centre

Natural Heritage Assessment and Environmental Impact Study Report Second Addendum

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Project Number:

60301207

Date:

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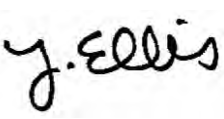

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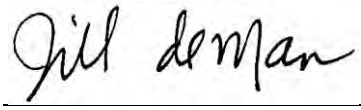

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Glossary of Terms

ANSI ..... Area of Natural and Scientific Interest
Area of Investigation ..... Area encompasses by 120 m setback from Project Location boundary
CA ..... Conservation Authority
EIS ..... Environmental Impact Study
MNR ..... Ministry of Natural Resources
O. Reg. 359/09 ..... Ontario Regulation 359/09
Project Location ..... The area encompassing all construction activities and project components
REA ..... Renewable Energy Approval

1. Introduction

Goshen Wind, Inc., a wholly owned subsidiary of NextEra Energy Canada, ULC (NextEra), is proposing to construct a wind energy project in Bluewater and South Huron, 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 Goshen Wind Energy Centre (the Project), in accordance with the requirements of the Renewable Energy Approval (REA) process and O. Reg. 359/09. The Goshen Wind Energy Centre Natural Heritage Assessment and Environmental Impact Study Report (AECOM, 2013a) was submitted to the Ontario Ministry of Natural Resources (MNR) in January 2013. AECOM later prepared a Natural Heritage Assessment and Environmental Impact Study Report Addendum (AECOM, 2013b) in respect to modifications to the Project Location proposed after the original submission of the NHA and EIS to MNR.

MNR issued confirmation and re-confirmation letters on January 15 and 16, 2013, stating that the Natural Heritage Assessment and Environmental Impact Study Report (AECOM 2013a) and the Natural Heritage Assessment and Environmental Impact Study Report Addendum (AECOM, 2013b), respectively, met all requirements in accordance with the REA regulation for this Project (refer to **Appendix A**). The Natural Heritage Assessment and Environmental Impact Study Report and the Natural Heritage Assessment and Environmental Impact Study Report Addendum are hereafter collectively referred to as the approved NHA and EIS.

This NHA Addendum has been prepared as an amendment 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 approved NHA and EIS (**Figure 1**).

1.1 Overview of Project Changes

Goshen Wind Inc. is proposing the following modifications to the Project Location:

- Construction disturbance area modified to reduce or eliminate impacts to archaeological resources (13 locations);
- Construction disturbance area modified to reduce or eliminate impacts to a Conservation Authority (CA) regulation limit (2 locations);
- New infrastructure or construction disturbance area added or changed to optimize project design/ constructability (26 locations); and
- Turbine removed (2 locations).

All of the proposed modifications to the Project Location 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 Addendum (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. Summary of Proposed Modifications

Modification ID	Type of Modification	Feature(s) Potentially Affected by Proposed Modification (Change in Minimum Distance to Project Location)	Map
A1: Removal of Turbine 7 and associated access road and collection line.	Turbine removed	None (no Natural Areas are within 120 m of this modification).	**Figure 1A**
A2: Removal of a portion of construction disturbance area for Turbine 11.	Construction disturbance area modified to reduce or eliminate impacts to CA regulation limit	Construction disturbance area is within 120 m of Natural Area 369. Features within 120 m of this modification include: • Woodland Feature WOD-306 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Seeps and Springs and Red-headed Woodpecker Habitat (no change)	**Figure 1A**
A3: Relocation of collection line to Turbine 9 to southern property boundary, west of Bronson Line.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	Collection line is within 120 m of Natural Area 346. Features within 120 m of this modification include: • Woodland Feature WOD-286 (increased to 32 m) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Red-headed Woodpecker Habitat and Bat Maternity Colony (increased to 32 m) The following candidate Significant Wildlife Habitat Feature is not associated with any Natural Areas but is within 120 m of this modification: • Waterfowl (Tundra Swan) Stopover and Staging Area (Terrestrial) Feature WSST-15 (no change) Collection line is within 120 m of Natural Area 349. Features within 120 m of this modification include: • Woodland Feature WOD-286 (increased to 32 m) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Red-headed Woodpecker Habitat and Bat Maternity Colony (increased to 108 m)	**Figure 1A**
B1: Relocation of collection line from private property to Babylon Line and Huron Street right-of-way.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	None (no Natural Areas are within 120 m of this modification).	**Figure 1B**
B2: Temporary construction laydown area modified and increased in size.	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).	**Figure 1B**
B3: Relocation of Turbine 71 north within the existing turbine construction disturbance area.	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).	**Figure 1B**
C1: Relocation of access road to Turbine 66 to the west.	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).	**Figure 1C**
C2: Removal of a portion of construction disturbance area, east of Shipka Line, for the access road and collection line to Turbine 21.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	None (no Natural Areas are within 120 m of this modification).	**Figure 1C**
C3: Addition of collection line construction disturbance area in the Black Bush Line right-of-way, east of Turbine 86.	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).	**Figure 1C**
C4: Relocation of collection line from private property to Black Bush Line	Construction disturbance area modified to reduce or eliminate impacts to	None (no Natural Areas are within 120 m of this modification).	**Figure 1C**

Table 1. Summary of Proposed Modifications

Modification ID	Type of Modification	Feature(s) Potentially Affected by Proposed Modification (Change in Minimum Distance to Project Location)	Map
right-of-way in two locations, northeast of Turbine 64.	archaeological resources		
C5: Relocation of collection line from private property to Crediton Road right-of-way, south of Turbine 39.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	None (no Natural Areas are within 120 m of this modification).	**Figure 1C**
C6: Relocation of collection line from private property to Bronson Line right-of-way, southwest of Turbine 81.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	Collection line is within 120 m of Natural Area 250. Features within 120 m of this modification include: • Woodland Feature WOD-070 (no change) • Generalized Candidate Significant Wildlife Habitat: Red-headed Woodpecker Habitat and Bat Maternity Colony (no change); and Plant Species of Conservation Concern Habitat (increased to 52 m)	**Figure 1C**
C7: Relocation of collection line from private property to South Road right-of-way, southeast of Turbine 38.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	None (no Natural Areas are within 120 m of this modification).	**Figure 1C**
C8: Relocation of collection line from private property to South Road right-of-way, southwest of Turbine 41.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	Collection line is within 120 m of Natural Area 209. Features within 120 m of this modification include: • Woodland Feature WOD-028 (no change) • Generalized Candidate Significant Wildlife Habitat: Turtle Nesting Habitat, Waterfowl Nesting Area and Amphibian Woodland Breeding Habitat (no change)	**Figure 1C**
C9: Realignment of collection line from Black Bush Line right-of-way onto private property west of Black Bush Line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Collection line is within 120 m of Natural Area 280. Features within 120 m of this modification include: • Wetland Feature WET-019 (no change) • Woodland Feature WOD-131 (no change) • Generalized Candidate Significant Wildlife Habitat: Seeps and Springs, Amphibian Woodland Breeding Habitat, Plant Species of Conservation Concern Habitat, Louisiana Waterthrush Habitat, Woodland Raptor Nesting Habitat, Woodland Area-sensitive Bird Breeding Habitat (no change) Collection line is within 120 m of Natural Area 266. Features within 120 m of this modification include: • Wetland Feature WET-019 (no change) • Woodland Feature WOD-131 (no change) • Generalized Candidate Significant Wildlife Habitat: Amphibian Woodland Breeding Habitat, Plant Species of Conservation Concern Habitat, Louisiana Waterthrush Habitat, Woodland Raptor Nesting Habitat, Bat Maternity Colony, and Woodland Area-sensitive Bird Breeding Habitat (no change)	**Figure 1C**
C10: Removal of a portion of collection line disturbance area on private property, along Black Bush Line.	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).	**Figure 1C**
D1: Relocation of Turbine 83 and associated construction disturbance area to the east.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Turbine 83 and associated construction disturbance area, access road and collection line are within 120 m of Natural Area 227. Features within 120 m of this modification include: • Wetland Feature WET-014 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat (increased to 116 m) Turbine 83 and associated construction disturbance area, access road and collection line are within 120 m of a portion of Natural Area 227 that was not previously described in the approved NHA and EIS. Features within 120 m of this modification are described in this NHA Addendum.	**Figure 1D**

Table 1. Summary of Proposed Modifications

Modification ID	Type of Modification	Feature(s) Potentially Affected by Proposed Modification (Change in Minimum Distance to Project Location)	Map
		Turbine 83 and associated construction disturbance area, access road and collection line are within 120 m of Natural Area 255. Features within 120 m of this modification include: • Woodland Feature WOD-117 (no change) • Generalized Candidate Significant Wildlife Habitat: Woodland Raptor Nesting Habitat, Plant Species of Conservation Concern Habitat and Amphibian Woodland Breeding Habitat (no change; Feature within 120 m of access road)	
D2: Removal of the southwest portion of Turbine 17 construction disturbance area.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	None (no Natural Areas are within 120 m of this modification).	**Figure 1D**
D3: Relocation of collection line from private property to Grand Bend Line right-of-way, south and west of Turbine 53.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Collection line is within 120 m of Natural Area 216. Features within 120 m of this modification include: • Wetland Feature WET-014 (no change) • Woodland Feature WOD-034 (increased to 61 m) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat and Red-headed Woodpecker Habitat (increased to 61 m); Mature Forest Stands (no change); and Common Nighthawk Habitat (increased to >120 m) Collection line is within 120 m of Natural Area 204. Features within 120 m of this modification include: • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat (reduced to >0.1 m) Collection line is within 120 m of a portion of Natural Area 204 that was not previously described in the approved NHA and EIS. Features within 120 m of this modification are described in this NHA Addendum.	**Figure 1D**
D4: Relocation of collection line from private property to South Road right-of-way, east of Turbine 55.	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).	**Figure 1D**
E1: Relocation of collection line from private property to Mollard Line right-of-way, west of Turbine 56.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	None (no Natural Areas are within 120 m of this modification).	**Figure 1E**

E2: Removal of a portion of Turbine 56 construction disturbance area.	Construction disturbance area modified to reduce or eliminate impacts to CA regulation limit	Turbine 56 construction disturbance area is within 120 m of Natural Area 189. Features within 120 m of this modification include:
		• Wetland Feature WET-014 (no change)
		• Woodland Feature WOD-012 (no change)
		• Confirmed Significant Wildlife Habitat:
		  ○ Plant Species of Conservation Concern Feature SCP-15 (no change)
		  ○ Colonially-nesting Bird Breeding Habitat (Tree/Shrubs) Feature CNB-01 (no change)
		• Candidate Significant Wildlife Habitat:
		  ○ Bat Maternity Colony Feature BMC-189 (no change)
		• Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Mature Forest Stand and Red-headed Woodpecker Habitat (no change)
			Figure 1E

E3: Addition of collection line construction disturbance area on private property, heading west to Turbine 60 from Mollard Line, and removal of collection line heading west to Turbine 58 from Mollard Line.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	None (no Natural Areas are within 120 m of this modification).	**Figure 1E**

Table 1. Summary of Proposed Modifications

Modification ID	Type of Modification	Feature(s) Potentially Affected by Proposed Modification (Change in Minimum Distance to Project Location)	Map
E4: Addition of construction disturbance area for access road and collection line to Turbine 56 from Eagleson Line.	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).	**Figure 1E**
F1: Removal of Turbine 46 and associated access road and collection line, including collection line in the Gordon Line right-of-way and collection line on private property to Turbine 77.	Turbine removed	Collection line is no longer within 120 m of Natural Area 217. Features within 120 m of this modification include: • Wetland Feature WET-009 (increased to >120 m) • Woodland Feature WOD-035 (increased to >120 m) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Bat Maternity Colony and Red-headed Woodpecker Habitat (increased to >120 m) The following Confirmed Significant Wildlife Habitat Feature is not associated with any Natural Area but is within 120 m of this modification: • Waterfowl (Tundra Swan) Stopover and Staging Area (Terrestrial) Feature WSST-36 (increased to 120 m)	**Figure 1F**
F2: Removal of a portion of construction disturbance area for access road and collection line to Turbine 77.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	None (no Natural Areas are within 120 m of this modification).	**Figure 1F**
F3: Addition of collection line in Babylon Line right-of-way, between the access road to Turbine 77 and the access road to Turbine 49.	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).	**Figure 1F**
F4: Addition of transmission line construction disturbance area on private property, west of Parr Line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 611. Features within 120 m of this modification include: • Woodland Feature WOD-113 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern, Bat Maternity Colony and Red-headed Woodpecker Habitat (no change).	**Figure 1F**
F5: Removal of a portion of transmission line construction disturbance area on private property, west of Ausable Line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 609. Features within 120 m of this modification include: • Wetland Feature WET-012 (no change) • Woodland Feature WOD-104 (no change) • Valleyland Feature VAL-02 (no change) • Candidate Significant Wildlife Habitat: ○ Reptile Hibernaculum Feature RH-06 (increased to 14 m) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Seeps and Springs, Bat Maternity Colony and Amphibian Wetland Breeding Habitat (no change); and Turtle Wintering Area (increased to >120 m)	**Figure 1F**
F6: Addition of a spare 170 mVA transformer (XMR) to be stored within the existing footprint of the Goshen substation.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Spare transformer is within 120 m of Natural Area 269. Features within 120 m of this modification include: • Woodland Feature WOD-103 (no change) • Generalized Candidate Significant Wildlife Habitat: Mature Forest Stand, Amphibian Woodland Breeding Habitat, Bat Maternity Colony, Plant Species of Conservation Concern Habitat, Red-headed Woodpecker Habitat (no change) Spare transformer is within 120 m of Natural Area 261. Features within 120 m of this modification include: • Woodland Feature WOD-093 (no change) • Generalized Candidate Significant Wildlife Habitat: Bat Maternity Colony, Plant Species of Conservation Concern Habitat, Red-headed Woodpecker Habitat (no change)	**Figure 1F**

Table 1. Summary of Proposed Modifications

Modification ID	Type of Modification	Feature(s) Potentially Affected by Proposed Modification (Change in Minimum Distance to Project Location)	Map
G1: Addition of transmission line construction disturbance area on private property, west of London Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 648. Features identified within 120 m of this modification: • Candidate Significant Wildlife Habitat: o Plant Species of Conservation Concern Habitat Feature SCP-07 (no change) o Red-headed Woodpecker Habitat Feature SCB-01 (no change)	**Figure 1G**
G2: Addition of transmission line construction disturbance area on private property, west of London Road.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 648. Features within 120 m of this modification include: • Woodland Feature WOD-120 (no change) • Candidate Significant Wildlife Habitat: o Bat Maternity Colony Feature BMC-648 (no change) o Amphibian Woodland Breeding Habitat Feature AWO-35 (no change) o Bird Species of Conservation Concern Habitat Feature SCB-01 (no change) o Plant Species of Conservation Concern Habitat Features SCP-03, SCP-07 and SCP-10 (no change)	**Figure 1G**
G3: Addition of transmission line construction disturbance area in the Crediton Road right-of-way.	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).	**Figure 1G**
G4: Removal of a portion of transmission line construction disturbance area on private property, south of Crediton Road and east of Mctaggart Line.	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).	**Figure 1G**
H1: Addition of transmission line construction disturbance area on private property, east of Hern Line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 702. Features within 120 m of this modification include: • Woodland Feature WOD-145 (reduced to 27 m) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Bat Maternity Colony and Red-headed Woodpecker Habitat (reduced to 27 m) Transmission line is within 120 m of Natural Area 701. Features within 120 m of this modification include: • Wetland Feature WET-038 (no change) • Woodland Feature WOD-130 (no change) Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Bat Maternity Colony and Red-headed Woodpecker Habitat (no change)	**Figure 1H**
H2: Addition of transmission line construction disturbance area on private property, west of Sunshine Line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 701. Features within 120 m of this modification include: • Wetland Feature WET-038 (no change) • Woodland Feature WOD-130 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Bat Maternity Colony and Red-headed Woodpecker Habitat (no change)	**Figure 1H**
H3: Addition of transmission line construction disturbance area on private property, east of Sunshine Line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 723. Features within 120 m of this modification include: • Woodland Feature WOD-154 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Seeps and Springs, Bat Maternity Colony and Red-headed Woodpecker Habitat (no change)	**Figure 1H**
H4: Removal of a portion of transmission line construction disturbance area on private property, east of Sunshine Line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 723. Features within 120 m of this modification include: • Woodland Feature WOD-154 (no change) • Candidate Significant Wildlife Habitat: o Reptile Hibernaculum Feature RH-07 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Seeps and Springs, Bat Maternity Colony and Red-headed Woodpecker Habitat (no change)	**Figure 1H**

Table 1. Summary of Proposed Modifications

Modification ID	Type of Modification	Feature(s) Potentially Affected by Proposed Modification (Change in Minimum Distance to Project Location)	Map
H5: Addition of construction disturbance area on private property for the construction of the transmission line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 723. Features within 120 m of this modification include: • Woodland Feature WOD-154 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat, Seeps and Springs, Bat Maternity Colony and Red-headed Woodpecker Habitat (no change) Transmission line is within 120 m of Natural Area 722. Features within 120 m of this modification include: • Woodland Feature WOD-164 (no change) • Candidate Significant Wildlife Habitat: o Bird Species of Conservation Concern Habitat Feature SCB-05 (no change) Transmission line is within 120 m of Natural Area 721. Features within 120 m of this modification include: • Woodland Feature WOD-180 (no change) • Candidate Significant Wildlife Habitat: o Amphibian Woodland Breeding Habitat Feature AWO-34 (no change) o Plant Species of Conservation Concern Habitat Features SCP-06 and SCP-09 (no change) o Bird Species of Conservation Concern Habitat Feature SCB-04 (no change)	**Figure 1H**
H6: Addition of construction disturbance area on private property for the construction of the transmission line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 721. Features within 120 m of this modification include: • Woodland Feature WOD-180 (no change) • Candidate Significant Wildlife Habitat: o Amphibian Woodland Breeding Habitat Feature AWO-34 (no change) o Plant Species of Conservation Concern Habitat Features SCP-06 and SCP-09 (no change) o Bird Species of Conservation Concern Habitat Feature SCB-04 (no change) Transmission line is within 120 m of Natural Area 720. Features within 120 m of this modification include: • Woodland Feature WOD-200 (no change) • Candidate Significant Wildlife Habitat: o Bat Maternity Colony Feature BMC-720 (no change) o Bird Species of Conservation Concern Habitat Feature SCB-03 (no change) o Amphibian Woodland Breeding Habitat Feature AWO-33 (no change) o Plant Species of Conservation Concern Habitat Features SCP-05, SCP-08 and SCP-11 (no change) • Generalized Candidate Significant Wildlife Habitat: Turtle Wintering Area and Insect Species of Conservation Concern (Azure Bluet) Habitat (no change)	**Figure 1H**
H7: Addition of construction disturbance area on private property for the construction of the transmission line.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 739. Features within 120 m of this modification include: • Wetland Feature WET-053 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat (no change) Transmission line is within 120 m of Natural Area 738. Features within 120 m of this modification include: • Wetland Feature WET-053 (no change) • Woodland Feature WOD-210 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat and Red-headed Woodpecker Habitat (no change)	**Figure 1H**

Table 1. Summary of Proposed Modifications

Modification ID	Type of Modification	Feature(s) Potentially Affected by Proposed Modification (Change in Minimum Distance to Project Location)	Map
H8: Addition of transmission line construction disturbance area on private property, on the north side of Dump Road, west of Union Line and minor adjustment to the shape of the transmission line point of interconnect construction area.	New infrastructure or construction disturbance area added or changed to optimize project design/ constructability	Transmission line is within 120 m of Natural Area 739. Features within 120 m of this modification include: • Wetland Feature WET-053 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat (no change) Transmission line is within 120 m of Natural Area 738. Features within 120 m of this modification include: • Wetland Feature WET-053 (no change) • Woodland Feature WOD-210 (no change) • Generalized Candidate Significant Wildlife Habitat: Plant Species of Conservation Concern Habitat and Red-headed Woodpecker Habitat (no change)	**Figure 1H**
H9: Removal of a portion of transmission line construction disturbance area on private property, north of Crediton Road, and west of Hern Line.	Construction disturbance area modified to reduce or eliminate impacts to archaeological resources	None (no Natural Areas are within 120 m of this modification).	**Figure 1H**

Lake Huron

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
- SWC - Coniferous Swamp
- SWD - Deciduous Swamp
- SWM - Mixed 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
- September 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

Turbines and Permanent Meterological 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

1:105,000
UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Project Location

September 2013
Project 60155032

AECOM

Figure 1

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\Change_report\GSH_NHA_Amend_Report\60155032_GSH_LocationChangesELC_20130808.mxd

Legend

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

Turbines and Permanent Meterological 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
- OAO - Open Aquatic
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWC - Coniferous Swamp
- SWD - Deciduous Swamp
- SWM - Mixed Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

4806000 448000 450000 452000

Rogerville Rd

Pepper Rd

Macdonald Rd

Blackbush Line

Bronson Line

Goshen Line

Babylon Line

4804000

4802000

446000

A1 A2 A3

2 3 4 5 6 8 9 10 11 12 13 14 72

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1:19,000
UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Project Location

September 2013
Project 60155032

AECOM

Figure 1A

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\Change_report\GSH_NHA_Amend_Report\60155032_GSH_LayoutChangesOverviewELCZoom_20130808.mxd

Legend

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

Turbines and Permanent Meterological 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
- OAO - Open Aquatic
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWC - Coniferous Swamp
- SWD - Deciduous Swamp
- SWM - Mixed Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

Huron St
Kirkton Rd
Goshen Line
Babylon Line
Parr Line
Ausable Line

452000 454000 456000 4800000 4798000

1:19,000
UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Project Location

September 2013
Project 60155032

AECOM

Figure 1B

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\Change_report\GSH_NHA_Amend_Report\60155032_GSH_LayoutChangesOverviewELCZoom_20130808.mxd

Legend

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

Turbines and Permanent Meterological 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
- OAO - Open Aquatic
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWC - Coniferous Swamp
- SWD - Deciduous Swamp
- SWM - Mixed Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

446000 448000 450000 4796000 4794000 4792000

Black Bush Line
Bronson Line
Crediton Rd
Shipka Line
South Rd

C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 D2

16 17 20 21 22 36 37 38 39 41 64 66 78 81 85 86

201 203 206 209 224 225 236 241 244 248 249 250 251 258 259 260 266 267 271 278 280

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UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Project Location

September 2013
Project 60155032

AECOM

Figure 1C

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\Change_report\GSH_NHA_Amend_Report\60155032_GSH_LayoutChangesOverviewELCZoom_20130808.mxd

Legend

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

Turbines and Permanent Meterological 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
- OAO - Open Aquatic
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWC - Coniferous Swamp
- SWD - Deciduous Swamp
- SWM - Mixed Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

Kirkton Rd
Grand Bend Line
Corbett Line
Crediton Rd
Mollard Line
South Rd
Shipka Line
440000
442000
444000
4792000
4790000
4794000
438000

D1 D2 D3 D4 C2

16 17 79 83 84

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UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Project Location

September 2013
Project 60155032

AECOM

Figure 1D

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\Change_report\GSH_NHA_Amend_Report\60155032_GSH_LayoutChangesOverviewELCZoom_20130808.mxd

Legend

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

Turbines and Permanent Meterological 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
- OAO - Open Aquatic
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWC - Coniferous Swamp
- SWD - Deciduous Swamp
- SWM - Mixed Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

436000 438000 440000

4790000

4788000

4786000 436000 438000 440000

434000

Lakeshore Rd
Cold Storage Rd
Klondyke Rd
Goosemarsh Line
Museum Rd
Greenway Rd
Mollard Line
South Rd
Eagleson Line
Greenway Dr
Hutchinson Rd
Hagmier Rd

84 57 198 54 58 60 59 61 62 63 55 56 52 247 219 212 211 208 204 210 190 189 182 E1 E2 E3 E4 601 177 178 180

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UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Project Location

September 2013
Project 60155032

AECOM

Figure 1E

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\Change_report\GSH_NHA_Amend_Report\60155032_GSH_LayoutChangesOverviewELCZoom_20130808.mxd

Legend

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

Turbines and Permanent Meterological 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
- OAO - Open Aquatic
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWC - Coniferous Swamp
- SWD - Deciduous Swamp
- SWM - Mixed Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

454000 456000 458000

4792000

Crediton Rd Victoria Ave W Victoria Ave E Crediton Rd

William Dr King St N King St S Parr Line

F1 F2 F3 F4 F5 F6

Goshen Line Babylon Line Parr Line Ausable Line

South Rd

452000 454000 456000 458000

1:19,000
UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Project Location

September 2013
Project 60155032

AECOM

Figure 1F

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\Change_report\GSH_NHA_Amend_Report\60155032_GSH_LayoutChangesOverviewELCZoom_20130808.mxd

Legend

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

Turbines and Permanent Meterological 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
- OAO - Open Aquatic
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWC - Coniferous Swamp
- SWD - Deciduous Swamp
- SWM - Mixed Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

464000 466000 468000

4798000 4796000 4794000

London Rd Crediton Rd Morrison Line Evergreen Line Mctaggart Line Elimville Line Kirkton Rd

G1 G2 G3 G4

658 MAM CUT OAO

659 FOD FOD

650 MAM FOD

660 CUP 0 OAO

677 OAO CUT 0 OAO

676 FOD

673 FOD OAO

672 OAO CUT OAO CUP

674 FOD

691 FOD

692 FOD SWD CUP

649 FOD

670 FOD

671 FOD

669 FOD CUM FOD

693 FOD

694 FOD

661 SAF FOD

662 FOD

668 FOD

667 CUT

695 SWD MAM FOD FOD CUM CUW

648 OUT FOD FOD CUP

647 FOD FOD CUM CUM CUW

646 CUP FOD CUW CUM FOD FOD

645 FOD MAM FOD

642 MAM

644 CUM MAM FOD SWD CUT

663 FOD SWD OAO OAO

666 FOD

664 MAM CUT

665

SWD CUP SWD

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Goshen Wind Energy Centre
Second NHA Amendment

Project Location

September 2013
Project 60155032

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Figure 1G

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Legend

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

Turbines and Permanent Meterological 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
- OAO - Open Aquatic
- SAF - Floating-leaved Shallow Aquatic
- SAS - Submerged Shallow Aquatic
- SDT - Treed Sand Dune
- SWC - Coniferous Swamp
- SWD - Deciduous Swamp
- SWM - Mixed Swamp
- SWT - Thicket Swamp
- TPO - Open Tallgrass Prairie
- TPS - Tallgrass Savannah

472000 474000 476000 4800000 4798000 4796000

Kirkton Rd Dump Rd Crediton Rd Woodham Rd

Plugtown Line Sunshine Line Hern Line Union Line 10 Line

Perth 164 Rd Perth 8 Line 6 Line Kirk Ave Victoria Ave Mary St Davis St

H1 H2 H3 H4 H5 H6 H7 H8 H9

700 701 702 703 704 717 718 719 720 721 722 723 724 725 726 727 728 730 731 732 733 734 735 736 737 738 739 746 747 748 749 750 751 753 760

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UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Project Location

September 2013
Project 60155032

AECOM

Figure 1H

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\Change_report\GSH_NHA_Amend_Report\60155032_GSH_LayoutChangesOverviewELCZoom_20130808.mxd

1.2 Summary of NHA Addendum

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

Table 2. Summary of Changes to Approved NHA and EIS

Approved NHA and EIS Section	Change	Refer to Addendum Section(s)
2. Records Review	**Methods:** No changes.	**Section 2**
	Results: No changes.	
3. Site Investigation	**Methods:** Site investigations were conducted in 2013 where the 120 m Area of Investigation for the proposed modifications (dated August 2013 on **Figure 1**) extended beyond the 120 m Area of Investigation in the approved NHA and EIS (dated January 2013 on **Figure 1**). Two Natural Areas (204 and 227) were surveyed to determine whether they contain wetlands, woodlands, or candidate Significant Wildlife Habitat. These site investigations were conducted following the survey methods described in the approved NHA and EIS. In addition, where minimum distances from Project infrastructure to Natural Areas described in the approved NHA and EIS changed as a result of the proposed modifications (refer to **Table 1**), the Significant Wildlife Habitat Features within those Natural Areas were re-examined to determine whether the modifications resulted in changes to the designation of candidate Significant Wildlife Habitat and Generalized Candidate Significant Wildlife Habitat.	**Section 3.1**
	Results: The following Features were carried forward to the Evaluation of Significance as a result of the proposed modifications: • Woodland Feature WOD-022; • Amphibian Woodland Breeding Habitat Feature AWO-36; and • Numerous Generalized Candidate Significant Wildlife Habitat Features (refer to **Section 3.2.4**).	**Section 3.2**
4. Evaluation of Significance	**Methods:** Woodland Features WOD-022 was evaluated based on field data collected during site investigations conducted in support of this NHA Addendum, following the methods described in the approved NHA and EIS. Evaluation of Significance studies are required for Candidate Amphibian Woodland Breeding Habitat Feature AWO-36 identified in this NHA Addendum. The results of Evaluation of Significance studies completed for Amphibian Woodland Breeding Habitat Feature AWO-36, as well as Candidate Significant Waterfowl (Tundra Swan) Stopover and Staging Areas (Terrestrial) Features WSST-15 and WSST-36, and Candidate Turtle Wintering Area Features TOW-01 and TOW-03, are presented herein.	**Section 4.1**
	Results: The following Features were evaluated and confirmed to be significant, and carried forward to the EIS: • Woodland Feature WOD-022; • Candidate Significant Waterfowl (Tundra Swan) Stopover and Staging Areas (Terrestrial) Feature WSST-36; • Amphibian Woodland Breeding Habitat Feature AWO-36; and • Numerous Generalized Candidate Significant Wildlife Habitat Features (refer to **Section 4.2.3**).	**Section 4.2**
5. EIS	Changes to the potential effects, mitigation measures and monitoring commitments are required (and described herein) for the following Features: • Significant Wetland Feature WET-009; • Significant Woodland Features WOD-022, WOD-034, WOD-145 and WOD-286; • Reptile Hibernaculum Feature RH-06; • Amphibian Woodland Breeding Habitat Feature AWO-36; • Terrestrial Waterfowl (Tundra Swan) Stopover and Staging Area Features WSST-15 and WSST-36; • Turtle Wintering Area Features TOW-01 and TOW-03; and • Numerous Generalized Candidate Significant Wildlife Habitat Features (refer to **Section 5.3**).	**Section 5**

2. Addendum 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 project layout that may occur later in the project planning process. Consequently, no changes to the Records Review are required as a result of the proposed modifications.

3. Addendum to the Site Investigation

3.1 Methods

Site investigations were conducted on April 16, 2013 within two Natural Areas (204 and 227) for the purpose of this NHA Addendum, following the methods described in the approved NHA and EIS. These two Natural Areas were previously identified in the approved NHA and EIS; however, the 120 m Area of Investigation for proposed Modifications D3 and D1 extends beyond the 120 m Area of Investigation in the approved NHA and EIS to include new portions of these Natural Areas.

3.1.1 Wetlands

For the purpose of this NHA Addendum, the two Natural Areas described above (204 and 227) were assessed for the presence of wetland Features following the methods described in the approved NHA and EIS.

3.1.2 Woodlands

For the purpose of this NHA Addendum, the two Natural Areas described above (204 and 227) were assessed for the presence of woodland Features following the methods described in the approved NHA and EIS.

3.1.3 Wildlife Habitat

For the purpose of this NHA Addendum, the two Natural Areas described above (204 and 227) were assessed for the presence of candidate Significant Wildlife Habitat Features following the methods described in the approved NHA and EIS. A summary of these methods for each type of Significant Wildlife Habitat identified through the Records Review and Site Investigation in the approved NHA and EIS is provided in **Section 3.2.4** below.

Where minimum distances from Project infrastructure to Natural Areas described in the approved NHA and EIS changed as a result of the proposed modifications (refer to **Table 1**), the Significant Wildlife Habitat Features within those Natural Areas were re-examined to determine whether the modifications resulted in changes to the designation of candidate Significant Wildlife Habitat and Generalized Candidate Significant Wildlife Habitat as per Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2012a). The results of site investigations within those Natural Areas are presented in the approved NHA and EIS and therefore are not repeated here.

3.2 Results

3.2.1 Vegetation Communities

The vegetation communities identified through site investigations conducted for this NHA Addendum are summarized in **Table 3** (refer to **Figures 1A to 1H** for ELC mapping). Vegetation communities not listed in the table below are the same as reported in the approved NHA and EIS. The dates, start and end times, and weather conditions of field investigations are provided in **Table 3**. Detailed field notes are provided in **Appendix B**, and the qualifications of field personnel are provided in Appendix C of the approved NHA and EIS.

A total of 17 plant species were identified within the two Natural Areas (204 and 227) where site investigations were conducted in support of this NHA Addendum (refer to **Appendix C** for a full list of species observed in each Natural Area). All of the native species are ranked as S5 (Secure) in the province of Ontario. There are no provincially rare species recorded with rarity ranking of S1 (Critically Imperiled) to S3 (Vulnerable).

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
204	April 16, 2013 10:35 – 11:45 Temperature: 11°C Cloud Cover: Overcast	CUW1: Mineral Cultural Woodland Ecosite Inclusion CUP3: Coniferous Plantation Ecosite	0.5 (0.2)	The canopy of this young to mid-aged forest is dominated by Bur Oak with considerably lesser amounts of Hawthorn species, American Basswood and Green Ash. The shrub layer is dominated by Hawthorn species with considerably lesser amounts of Gray Dogwood, Green Ash, and American Basswood. The ground layer is dominated by Grass species with considerably lesser amounts of Rough Bedstraw. The canopy of the mid-aged plantation inclusion is dominated by Eastern White Pine with much lesser amounts of Norway Spruce. Other vegetation layers are not present in this cultural plantation.	**Birds:** American Robin, Song Sparrow, Red-winged Blackbird, Northern Cardinal, Killdeer, Turkey Vulture, American Goldfinch and Northern Flicker.
227	April 16, 2013 11:59 – 13:10 Temperature: 8°C Cloud Cover: Sunny with cloudy periods	CUM1-1: Dry - Moist Old Field Meadow Type	9.4	The sparse canopy of this Dry - Moist Old Field Meadow contains White Elm. The ground layer is dominated by Reed-canary Grass, with equal amounts of Orchard Grass and Goldenrod species.	**Birds:** American Robin, Red-winged Blackbird, Song Sparrow, Flicker species, Dark-eyed Junco, Black-capped Chickadee, Killdeer and Turkey Vulture. **Mammals:** White-tailed Deer

3.2.2 Wetlands

Due to Project Location Modification D1 (refer to **Table 1** and **Figure 1D**), a site investigation was completed in support of this NHA Addendum within one wetland Feature (WET-014) that was originally described in the approved NHA and EIS, where the 120 m Area of Investigation now extends into a new portion of Natural Area 227. Based on the results of this site investigation, a meadow marsh (MAM) that was previously identified through interpretation of orthoimagery in the approved NHA and EIS was determined to be a Dry - Moist Old Field Meadow (CUM1-1). As a result, WET-014 is no longer located within 120 m of Modification D1; however, the minimum distance from this Feature to the Project Location remains the same as reported in the approved NHA and EIS. Therefore, this Feature is not considered further in this NHA Addendum.

Due to Modification F1, WET-009 in Natural Area 217 is no longer within 120 m of the Project Location (refer to **Table 1** and **Figure 1F**). This Feature was carried forward to the EIS of this NHA Addendum to ensure that any potential effects of the modifications are addressed through the application of appropriate mitigation measures, if required.

3.2.3 Woodlands

The site investigations conducted in support of this NHA Addendum included one new woodland Feature (WOD-022) not previously described in the approved NHA and EIS. The attributes, composition and function of this Feature are summarized in **Table 4** (refer to **Table 3** for dominant species in each community) and the location of this Feature is shown on **Figure 2**. Woodland Feature WOD-022 was carried forward to the Evaluation of Significance of this NHA Addendum.

Due to Modification F1, woodland Feature WOD-035 is no longer within the Project Location. In addition, the minimum distances from Project infrastructure to woodland Features WOD-034, WOD-145 and WOD-286 changed as a result of the proposed modifications (refer to **Table 1**), but the attributes, composition and functions of these Features remain the same as described in the approved NHA and EIS (and therefore are not repeated here). These Features did not require re-evaluation as result of the proposed modifications; however, they were carried forward to the EIS of this NHA Addendum to ensure that any potential effects of the modifications are addressed through the application of appropriate mitigation measures, if required.

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

Woodland ID	Natural Area(s)	Minimum Distance from Project Location (m)	Attributes			Composition	Functions
			Size (ha)	Forest Community Type	Woodland Age		
WOD-022	204	13 (collection line)	1.0	Coniferous Plantation, Cultural Woodland	Young to Mid-age	As a result of Modification D3, the following communities are now within the 120 m Area of Investigation in Natural Area 204: • Coniferous Plantation Ecosite (CUP3); and • Mineral Cultural Woodland Ecosite (CUW1)	Provides habitat for woodland plants and animals, carbon storage, and water and soil retention.

Lake Huron

Legend

- Wind Energy Centre Study Area
- Transmission Line Study Area
- Municipal Division
- Railway
- Roads
- Watercourse (MNR)
- Woodland Unit
- Woodland Unit (Within 120m AOI)

Project Location

- Permanent Meterological Tower
- GE Turbine
- Access Road
- Collection Line
- Transmission Line
- Breaker Switch Station
- Transformer Substation
- Disturbance Areas
- Temporary Laydown Yard
- September 2013 - 120m Area of Investigation

Metres

0 400 800 1,600 2,400 3,200

1:45,000

UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Woodland Features

September 2013
Project 60155032

AECOM

Figure 2

Path: F:\GIS\Nexteral\GISSpatial\MXDs\ReportMXDs\NHA_Mapping\Goshen\NHA_Amendment_20130814\60155032_Goshen_ProjectLocationWOOD_MN.mxd

3.2.4 Wildlife Habitat

Natural Areas 204 and 227 were assessed for the presence of candidate Significant Wildlife Habitat Features based on the site investigations conducted in support of this NHA Addendum. The methods and results of these assessments for each type of candidate Significant Wildlife Habitat identified through the Records Review and Site Investigation are provided in **Table 5** below.

The following plant Species of Conservation Concern were not carried forward to the Evaluation of Significance in the approved NHA and EIS due to their high unlikelihood of occurrence in the Project Study Area and, as a result, are also not considered in this NHA Addendum:

- A Moss (Muehlenberg's Astonum Moss) (*Astonum muehlenbergianum*);
- Autumn Coral-root (*Corallorhiza odontorhiza*);
- Carolina Whitlow-grass (*Draba reptans*);
- Crowned Beggarticks (*Bidens trichosperma*);
- Dwarf Chinquapin (*Quercus prinoides*);
- False Tomentose (*Packera paupercula var. pseudotomentosa*);
- Fogg's Goosefoot (*Chenopodium foggii*);
- Giant Ironweed (*Vernonia gigantea*);
- Great Lakes Sand Reed (*Calamovilfa longifolia var. magna*);
- Hill's Pond Weed (*Potamogeton hillii*);
- Large Round-leaved Orchid *(Platanthera macrophylla*);
- Moss Phlox (*Phlox subulata*);
- Narrow-leaved Puccoon (*Lithospermum incisum*);
- Pillose Evening Primrose (*Oenothera pilosella*)
- Prostrate Tick-trefoil (*Desmodium rotundifolium*);
- Rattlesnake Hawkweed (*Hieracium venosum*);
- Scarlet Beebalm (*Monarda didyma*);
- Shore Bluestem (*Schizachyrium littorale*);
- Slender Blazing Star (*Liatris cylindracea*);
- Slender Knotweed (*Polygonum tenue*);
- Slender Vulpia (*Vulpia octoflora*);
- Slim-spikes Three-awned Grass (*Aristida longispica var. longispica*);
- Stiff Gentian (*Gentianella quinquefolia*)
- Sundial Lupine (*Lupinus perennis*);
- Tall Blazing Star (*Liatris aspera*);
- Woodland Pinedrops (*Pterospora andromedea*);
- Yellow Ladies'-tresses (*Spiranthes ochroleuca*); and
- Yellow Stargrass (*Hypoxis hirsute*).

The following insect Species of Conservation Concern were not carried forward to the Evaluation of Significance in the approved NHA and EIS due to their high unlikelihood of occurrence in the Project Study Area and, as a result, are also not considered in this NHA Addendum:

- Dusted Skipper (*Atrytonospsis hianna*);
- Mottled Duskywing (*Erynnis martialis*);
- Sleepy Duskywing (*Erynnis brizo*); and
- Tawny Emperor (*Asterocampa clyton*).

3.2.4.1 New Wildlife Habitat Features Identified Through Site Investigations

New Generalized Candidate Significant Wildlife Habitat Features (*i.e.*, those not previously described in the approved NHA and EIS) were identified in Natural Areas 204 and 227 (refer to **Table 5** and **Figure 3.1**). These Features were carried forward to the Evaluation of Significance of this NHA Addendum:

- Plant Species of Conservation Concern Habitat in Natural Areas 204 and 227;
- Common Nighthawk Habitat in Natural Area 204;
- Red-headed Woodpecker Habitat in Natural Area 204; and
- Woodland Raptor Nesting Habitat in Natural Area 204.

No new candidate Significant Wildlife Habitat Features (*i.e.*, those not previously described in the approved NHA and EIS) were identified in Natural Areas 204 and 227.

3.2.4.2 Designation Changes to Previously Identified Wildlife Habitat Features

The following changes to the designation of candidate Significant Wildlife Habitat and Generalized Candidate Significant Wildlife Habitats described in the approved NHA and EIS were made where distances from Project infrastructure to wildlife habitat Features changed as a result of the proposed modifications (refer to **Table 1**):

- Candidate Significant Reptile Hibernacula Feature RH-06 in Natural Area 609 was changed to Generalized Candidate Significant Wildlife Habitat because the transmission line is no longer in the Feature (a 30 m buffer is included as part of the Feature) as a result of Modification F5 (refer to **Figure 3.3**).
- Candidate Significant Waterfowl (Tundra Swan) Stopover and Staging Area (Terrestrial) Feature WSST-36 was changed to Generalized Candidate Significant Wildlife Habitat because it is no longer within 120 m of a turbine and is no longer overlapped by the Project Location (a 300 m buffer is included as part of the Feature) as a result of Modification F1 but it is still within 120 m of a collection line (refer to **Figure 3.2**).
- Generalized Candidate Significant Amphibian Woodland Breeding Habitat in Natural Area 255 was changed to Candidate Significant Amphibian Woodland Breeding Habitat Feature AWO-36 because it is now within 120 m of an access road as result of Modification D1 (refer to **Figure 3.1**).

These Features were carried forward to the Evaluation of Significance of this NHA Addendum to ensure that any potential effects of the modifications are addressed through the application of appropriate mitigation measures, if required.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Areas (Terrestrial)	• Presence of the following Ecosites[1]: CUM1, CUT1; • Evidence of annual spring flooding from melt water or runoff; and, • Flooded agricultural land with waste grains and evidence of annual spring flooding that are utilized by Tundra Swans during the spring.	• **Natural Area 204:** No suitable habitat (no qualifying ELC communities) present. • **Natural Area 227:** No suitable habitat present. Cultural meadow (CUM1-1) does not have evidence of annual spring flooding.	• Not applicable.
Waterfowl Stopover and Staging Areas (Aquatic)	• Presence of the following Ecosites: MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, SWD1, SWD3; • Where standing water is present including ponds, marshes, lakes, bays, coastal inlets and watercourses during migration; • Significant sites generally have better habitat quality (e.g. optimal vegetation composition, ratio of open water to emergent vegetation; extensive shoreline; abundant food, nocturnal roosting cover); and, • Larger wetlands are more significant (size).	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Shorebird Migratory Stopover Areas (Shorebird Staging)	• Presence of the following Ecosites: BBO1, BBO2, BBS1, BBS2, BBT1, BBT2, SDO1, SDS2, SDT1, MAM1, MAM2, MAM3, MAM4, MAM5; and, • Shorelines of lakes, rivers and wetlands, including beach areas, bars, seasonally flooded shoreline, mudflats, rock groynes, and other forms of armour rock lakeshore.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.

Raptor Wintering Area	• Combination of ELC Community Series; presence of one Community Series from each land class:
	  ▪ Forest: FOC, FOD, FOM;
	  ▪ Upland: CUM, CUT, CUS, CUW;
	• Sites must be at least 20 ha in size, with a combination of forest and upland habitats;
	• Upland communities must be >15 ha in size;
	• Sites that are less disturbed by agricultural activities are more significant; and,
	• Sites with better habitat quality (e.g., abundant prey and perches; a tendency toward less snow accumulation due to exposure to strong prevailing winds) are probably more significant.
		• **Natural Area 204:** No suitable habitat was (no qualifying ELC communities) present.
		• **Natural Area 227:** No suitable habitat present. Cultural meadow (CUM1-1) is less than 15 ha in size.
			• Not applicable.

Bat Hibernacula	• All caves, abandoned mine shafts, underground foundations, karst, or one of the following Ecosites: CCR1, CCR2, CCA1, CCA2 (buildings are not to be considered SWH).	• No suitable habitat was identified (no caves or abandoned mine shafts present) in Natural Areas 204 and 227.	• Not applicable.

1. *Ecosites are defined as "mappable, landscape units integrating a consistent set of environmental factors and vegetation characteristics" (Lee et al., 1998).*

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Bat Maternity Colonies	• Presence of all Ecosites associated with the following ELC Community Series: FOD and FOM; • Forests that have >10/ha cavity trees (snags or cavity trees) which are >25 cm diameter at breast height (dbh); and, • Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). Maternity roosts are not found in caves and mines in Ontario.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Turtle Wintering Areas	• Presence of all Ecosites associated with the following ELC Community Series: FEO, BOO; or the following ELC Community Classes: SW, MA, OA, SA; • Open water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat; • Overwintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate dissolved oxygen; and, • Water has to be deep enough not to freeze and have soft mud substrates.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Reptile Hibernacula	• No ELC Ecosites are directly related to these habitats; and, • Areas of broken and fissured rock, rock piles or slopes, stone fences, crumbling foundations, and old wells that extend below the frost line are candidate SWH.	• No suitable habitat was identified (no rock piles or crumbling foundations present) in Natural Areas 204 and 227.	• Not applicable.
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	• Presence of the following Ecosites: CUM1, CUT1, CUS, BLO1, BLS1, BLT1, CLO1, CLS1, CLT1; • Eroding banks, sandy hills, pits, steep slopes, and rock faces that are undisturbed or naturally eroding for 10 years or more; and, • Significant habitats are not located in licensed aggregate pits.	• **Natural Area 204:** No suitable habitat (no qualifying ELC communities) present. • **Natural Area 227:** No suitable habitat present. No eroding banks or sandy hills were observed in the cultural meadow (CUM1-1).	• Not applicable.
Colonially-Nesting Bird Breeding Habitat (Trees/Shrubs)	• Presence of the following Ecosites: SWM2, SWM3, SWM5, SWM6, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7, FET1; • Significant sites generally have better habitat quality (e.g. optimal vegetation composition, abundant food); and, • Size of habitat and level of disturbance are also important.	• **Natural Area 204:** No suitable habitat present (no qualifying ELC communities present). A single stick nest was observed in a White Oak tree in a cultural woodland (CUW1) located outside the 120 m Area of Investigation. The nest was considered to be a Coopers Hawk or Sharp-Shinned Hawk nest. These are not target species for this SWH type; therefore, this Natural Area is not considered SWH. • **Natural Area 227:** No suitable habitat present.	• Not applicable.
Colonially-Nesting Bird Breeding Habitat (Ground)	• Any (rocky) island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map); • Significant sites generally have better habitat quality (e.g. optimal vegetation composition, abundant food); and, • Size of habitat and level of disturbance are also important.	• No suitable habitat (no rocky islands or peninsulas) was identified in Natural Areas 204 and 227.	• Not applicable.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Deer Winter Congregation Areas	• Presence of all Ecosites associated with the following ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD; • Conifer plantations (CUP) smaller than 50 ha may also be used; • Woodlots > 100 ha in size or if large woodlots are rare in a planning area woodlots >50 ha; and • Woodlots with high densities of deer due to artificial feeding are not significant.	• Deer Winter Congregation Areas are evaluated and mapped by MNR. There is no change from the approved NHA and EIS as a result of the proposed modifications.	• Not applicable
Rare Vegetation Communities			
Cliffs and Talus Slopes	• Presence of any of the following Ecosites: CLO1, CLS1, CLS2, CLT1, CLT2, TAO1, TAO2, TAS1, TAS2, TAT1, TAT2; • Cliffs are greater than 3 m in height of vertical to near-vertical bedrock; and, • A talus slope is rock rubble at the base of a cliff made up of coarse rocky debris.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Sand Barrens	• Presence of any of the following Ecosites: SBO1, SBS1, SBT1; • Typically exposed sand habitats, generally sparsely vegetated and caused by lack of moisture, periodic fires, and erosion. Sand barrens have little or no soil, and the underlying rock protrudes through the surface. Usually located within other types of natural habitat, such as forest or savannah; • Sites must not be dominated by non-indigenous species; and, • Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always $\leq$ 60%.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Alvars	• Presence of any of the following Ecosites: ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2; • Typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil; • Sites must be at least 0.5 ha in size; and, • Sites must not be dominated by non-indigenous species.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Old-growth or Mature Forests	• Presence of all Ecosites associated with the following ELC Community Series: FOD, FOC, FOM; • Typically relatively undisturbed, structurally complex and contain a wide variety of trees and shrubs in various age classes; • Most significant sites will contain numerous trees which are at least 140 years old. Stands containing younger trees (e.g. 100 years or older) are significant where older trees no longer exist; and, • Stands containing predominantly long-lived species are probably more significant than stands consisting primarily of short-lived species (e.g. trembling aspen, birch).	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Savannahs	• Presence of any of the following Ecosites: TPS1, TPS2, TPW1, TPW2, CUS2; • Tallgrass prairie habitat with tree cover between 25% and 60%. Site conditions must be restored or natural (e.g., not railway right-of-ways); and, • Sites must not be dominated by non-indigenous species.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Tall-grass Prairies	• Presence of any of the following Ecosites: TPO1, TPO2; • Sites with ground cover dominated by prairie grasses and less than 25% tree cover; • Site conditions must be restored or natural (e.g., not railway right-of-ways); and, • Sites must not be dominated by non-indigenous species.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Other Rare Vegetation Communities	• Provincially Rare S1, S2 and S3 vegetation communities as listed in Appendix M of the *Significant Wildlife Habitat Technical Guide*; and • Any ELC Ecosite that has a possible ELC vegetation type that is Provincially Rare.	• No suitable habitat was identified (no provincially rare vegetation communities) in Natural Areas 204 and 227.	• Not applicable.
Specialized Habitat for Wildlife			
Waterfowl Nesting Areas	• All upland habitats located adjacent to (within 150 m of) the following Ecosites: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3, SWD4; or upland habitats adjacent to (within 150 m of) Provincially Significant Wetlands; • Upland areas should be at least 120 m wide so that predators have difficulty finding nests; • Larger sites of suitable habitat are more significant; • Significant sites generally have better habitat quality (e.g. optimal vegetation structure, stable water levels, abundant cover); and, • Sites with little disturbance (e.g. from agricultural activities such as hay cultivation or cattle grazing) are more significant.	• **Natural Area 204:** No suitable habitat (no qualifying ELC communities) present. • **Natural Area 227:** No suitable habitat present. The cultural meadow (CUM1-1) is less than 120 m wide along the adjacent deciduous swamp. It is unlikely to provide sufficient protection to nesting waterfowl from predators.	• Not applicable.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	• Presence of all Ecosites associated with the following ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD; • Forest communities directly adjacent to riparian areas of rivers, lakes, ponds, wetlands, and islands; and, • Nests located on man-made objects are not included.	• **Natural Area 204:** A stick nest was observed in a White Oak tree, at the edge of a cultural woodland (CUW1) located outside the 120 m Area of Investigation. The nest is too small to be a Bald Eagle or Osprey nest. It is considered to be a Coopers Hawk or Sharp-Shinned Hawk nest. These are not target species for this SWH type; therefore, this Natural Area is not considered to contain SWH. • **Natural Area 227:** No suitable habitat present.	• Not applicable.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Woodland Raptor Nesting Habitat	• Presence of all Ecosites associated with the following ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD, or the following Ecosite: CUP3; and, • All natural or conifer plantation woodland/forest stands >30 ha with at least 4 ha of interior forest habitat.	• **Natural Area 204:** A stick nest was observed in a White Oak tree, at the edge of a cultural woodland (CUW1) located outside of the 120 m Area of Investigation. The nest is considered to be a Coopers Hawk or Sharp-Shinned Hawk Nest, which are target species for this SWH type. As the site investigation was conducted outside the breeding bird season, it unknown whether the nest is active. As such, a 100 m buffer was applied to the nest location and is considered suitable habitat for this SWH type. No vegetation removal is proposed within the 100 m buffer of the nest; therefore, this feature was carried forward to the Evaluation of Significance as Generalized Candidate Significant Wildlife Habitat. • **Natural Area 227:** No suitable habitat present.	• Not applicable.
Turtle Nesting Areas	• Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following ELC Ecosites: MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, BOO1, FEO1; • Areas of sand and/or gravel that turtles are able to dig in that are located in open, sunny areas, including sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers; and, • Nesting areas on the sides of municipal and provincial road embankments, railway embankments and active aggregate operations are not SWH.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Seeps and Springs	• Seeps and springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats; • Any forested Ecosite within the headwater areas of a stream could have seeps or springs; and, • Seeps were identified using groundwater indicator plants, with reference to McKenny and Peterson (1996), Crow and Hellquist (2000), and Niering and Thieret (2009).	• No suitable habitat was identified (no seeps or springs present) in Natural Areas 204 and 227.	• Not applicable.
Amphibian Breeding Habitat (Woodland)	• Presence of all Ecosites associated with the following ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD; • Woodland with a wetland, lake or pond, including breeding pools that may be permanent, seasonal, ephemeral, and located within or adjacent to (within 120 m of) the woodland; • To be significant, vernal ponds in woodlands should persist until mid-July; and, • Wetlands used for breeding with presence of shrubs and logs around the edges are more significant because of increased structure for calling, foraging, escape and concealment from predators.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Amphibian Breeding Habitat (Wetland)	• Presence of the following Ecosites: MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, SWT1; or presence of the following ELC Community Classes: SW, MA, FE, BO, OA and SA; • Larger sites of suitable habitat are more significant; • Wetlands used for breeding with presence of shrubs and logs around the edges are more significant because of increased structure for calling, foraging, escape and concealment from predators; and, • Wetlands and pools (including vernal pools) >500 m^2 (about 25 m diameter) isolated from woodlands (>120 m) supporting high species diversity are more significant.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)			
Marsh Breeding Bird Habitat	• Presence of the following Ecosites: MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, FEO1, BOO1; • For Green Heron, presence of CUM1 Ecosites and all Ecosite associated with the following Community Classes: SW, MA; • Wetland habitats containing shallow water and emergent aquatic vegetation; and • For Green Heron, habitat is usually at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Woodland Area-Sensitive Bird Breeding Habitat	• Presence of all Ecosites associated with the following ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD; • Large mature (>60 years old) forest (non-plantation) stands or woodlots greater than 30 ha in size; and, • Woodlands with at least 4 ha interior forest habitat (at least 200 m from edge of forest).	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Open Country Bird Breeding Habitat	• Presence of the following Ecosite: CUM1, CUM2 and, • Grassland areas (includes natural and cultural fields and meadows) greater than 30 ha in size, excluding Class 1 and 2 agricultural lands and lands actively used for farming (i.e., no row-cropping in the last 5 years).	• **Natural Area 204:** No suitable habitat (no qualifying ELC communities) present. • **Natural Area 227:** No suitable habitat present. Cultural meadow (CUM1-1) is less than 30 ha in size.	• Not applicable.
Shrub/Early Successional Bird Breeding Habitat	• Presence of the following Ecosites: CUT1, CUT2, CUS1, CUS2, CUW1, CUW2; and • Shrublands or successional fields greater than 10 ha in size, excluding Class 1 or 2 agricultural lands and lands actively used for farming (i.e., no row-cropping in the last 5 years).	• **Natural Area 204:** No suitable habitat present. Cultural woodland (CUW1) is less than 10 ha in size. • **Natural Area 227:** No suitable habitat (no qualifying ELC communities) present.	• Not applicable.
Terrestrial Crayfish	• Presence of all Ecosites associated with the following ELC Community Series: MAM and MAS; and • Entrances of terrestrial crayfish burrows, which are conspicuous tall “chimneys” constructed from pellets of excavated mud.	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Species of Conservation Concern Identified Through Records Review-Special Concern and Rare Wildlife			
American Gromwell (*Lithospermum latifolium*) Species of Conservation Concern Vulnerable – S3	• Preferred habitat Shaded river banks, wooded floodplains [6]. River floodplains, woods and edges of woods. [2] • Corresponding ELC: FOD7	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Burning Bush (*Euonymus atropurpureus*) Species of Conservation Concern Vulnerable – S3	• Preferred habitat Species occurs in dry to moist deciduous thickets and woods.[14, 2] • Corresponding ELC: FOC, FOM, FOD	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Chinese Hemlock Parsley (*Conioselinum chinense*) Species of Conservation Concern Imperiled – S2	• Preferred habitat Swampy places with deciduous trees, cedars, tamarack; river banks, creek borders[6]. Species inhabits calcareous white cedar swamps, wet borders of streams and rivers. Also found among calcareous seepage slopes[2]. • Corresponding ELC: SWC1, SWC3, SWC4, SWM1, SWM2, SWM4, SWM5, SWM6	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Eastern Green-violet (*Hybanthus concolor*) Species of Conservation Concern Imperiled – S2	• Preferred habitat Occurs in rich, wet-mesic floodplain forests as well as mesic forests over limestone [3]. Includes floodplains and river banks [6]. • Corresponding ELC: ALT1, FOD7	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Green Dragon (*Arisaema dracontium*) Species of Conservation Concern Vulnerable – S3; COSEWIC (SC) and MNR Status (SC)	• Preferred habitat Species found in damp deciduous forest and along river streams [8]. It grows in wet forests particularly Maple forest and forest dominated by Red Ash and White Elm[7]. • Corresponding ELC: FOD6, FOD7, FOD9	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Hairy Bedstraw (*Galium pilosum*) Species of Conservation Concern Vulnerable – S3	• Preferred habitat Occurs in dry, sandy woods and thickets; occasionally in dry sandy fields. [2,14] • Corresponding ELC: TPO1, TPS1, TPW1, FOM1, FOM2, FOM3, FOM4, FOD1, FOD2, FOD3, FOD4, FOD5	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Hairy Valerian (*Valeriana edulis*) **Species of Conservation Concern** Critically Imperiled – S1	• Preferred habitat Inhabits swampy river flats and meadows, wet prairies, and wooded, rocky riverbanks [3] and fens [6] • Corresponding ELC: FEO1, FES1, FET1, SWC, SWM, SWD, SWT, TPO, TPS, TPW	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Hairy Wood Mint (*Blephilia hirsuta*) **Species of Conservation Concern** **Critically Imperiled – S1**	• Preferred habitat Rich woods, swamp forests, floodplains [6]. Species found in woodlands, preferably rocky, and especially among rivers. • Corresponding ELC: FOD6, FOD7, SWM, SWD	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Harbinger-of-spring (*Erigenia bulbosa*) **Species of Conservation Concern** Vulnerable – S3? (rank uncertain)	• Preferred habitat Occurs in rich, moist deciduous woods, especially on floodplains [2]. • Corresponding ELC: FOD6, FOD7, FOD8, FOD9	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Lizard's Tail (*Saururus cernuus*) **Species of Conservation Concern** Vulnerable – S3	• Preferred habitat Species inhabits shores and streambanks along shallow water. As well as swamps (usually deciduous but sometimes cedar), floodplains, shallow water and mudflats at the borders of streams and ponds [6]. • Corresponding ELC: MAM2, MAM3, MAS2, MAS3, SWD	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Pawpaw (*Asimina triloba*) **Species of Conservation Concern** Vulnerable – S3	• Preferred habitat Species occurs in moist woods and stream banks. [14] Occurs in moist, deciduous woods. [2] • Corresponding ELC: FOD6, FOD7, FOD9	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Pumpkin Ash (*Fraxinus profunda*) **Species of Conservation Concern** Imperiled – S2? (rank uncertain)	• Preferred habitat Occurs in swamps and floodplains.[2,14] • Corresponding ELC: FOD7, SWD	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Ram's-head Lady's-slipper (*Cypripedium arietinum*) **Species of Conservation Concern** Vulnerable – S3	• Preferred habitat Found in cedar woodlands, limestone plains and wooded fens. As well as, moist coniferous swamps, dry, sandy woods, and limestone barren [2]. • Corresponding ELC: CUW1, ALO, FET1, SWC	• **Natural Area 204:** Suitable habitat in a cultural woodland (CUW1) No vegetation removal is proposed in this vegetation community; therefore, this location was carried forward to the Evaluation of Significance as Generalized Candidate SWH. • **Natural Area 227**: No suitable habitat (no qualifying ELC communities) present.	• Not applicable.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Round-leaved Groundsel (*Packera obovata*) **Species of Conservation Concern** Vulnerable – S3	• Preferred habitat Found in moist woods[14]. • Corresponding ELC: FOD6, FOD7, FOD9	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Round-leaved Hawthorn *(Crataegus lumaria)* **Species of Conservation Concern** Vulnerable – S3? (rank uncertain)	• Preferred habitat Species occurs in old fields, poorly managed pastures, fence lines and roadsides[14]. • Corresponding ELC: CUM1, CUT1, CUS1	• **Natural Area 204:** No suitable habitat (no qualifying ELC communities) present. • **Natural Area 227:** Suitable habitat in a cultural meadow (CUM1-1). No vegetation removal is proposed in this vegetation community; therefore, this location was carried forward to the Evaluation of Significance as Generalized Candidate SWH.	• Not applicable.
Slim-flowered Muhly (*Muhlenbergia tenuiflora*) **Species of Conservation Concern** Imperiled – S2	• Preferred habitat Found in rich deciduous forest, often on rocky or sandy soils [2]. Usually found on wooded dunes, hillsides, and riverbanks whether in oak or beech-maple woods[6]. • Corresponding ELC: SDT1, FOD5, FOD9	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Tuberous Indian Plantain (*Arnoglossum plantagineum*) **Species of Conservation Concern** Vulnerable – S3; COSEWIC (SC) and MNR Status (SC)	• Preferred habitat Largely restricted to coast of Lake Huron. Occurs mainly in flat, sandy areas of the Bruce Peninsula. A localized species of fens, wet meadows, and calcareous river flats[2]. • Corresponding ELC: FEO, FES, FET, MAM2, MAM3	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Bald Eagle (*Haliaeetus leucocephalus*) **Species of Conservation Concern** MNR Status (SC)	• Preferred habitat Nests in very large trees that afford a good view, often near shore. Feeds on fish in large open water bodies[14]. • Corresponding ELC: Any habitat with suitable nesting location.	• Breeding habitat for this species was assessed as Bald Eagle and Osprey Nesting, Foraging and Perching Habitat (see above).	• Not applicable
Common Nighthawk (*Chordeiles minor*) **Species of Conservation Concern** COSEWIC (THR) and MNR Status (SC)	• Preferred habitat Aerial forager that hunts insects over a wide variety of habitats, in particular open or semi-open areas such as farmland, open woodlands, clearcuts, burns, rock outcrops, bogs fens, prairies, gravel pits and urban areas[7]. Nests on ground in a wide range of open, sparse or vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, rock outcrops, rocky barrens, gravel pits and urban rooftops. Sometimes may nest in grasslands, pastures, peat bogs, marshes or lakeshores. • Corresponding ELC: CUW, SDO, RBO, TPS	• **Natural Area 204:** Suitable habitat in cultural woodland (CUW1). There is no vegetation removal proposed in the cultural woodland; therefore, this Feature was carried forward to the Evaluation of Significance as Generalized Candidate SWH. • **Natural Area 227:** No suitable habitat (no qualifying ELC communities) present.	• Not applicable

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Horned Grebe (*Podiceps auritus*) **Species of Conservation Concern** Critically Imperilled - S1B,S4N	• Preferred habitat This species inhabits areas with open water, emergent aquatic vegetation; densely vegetated marshes or shrub-bordered swamps with open water; ponds with emergent shoreline vegetation; marshy inlet and bays of large lakes. Each pair requires at least 1 to 3 ha of breeding territory[14]. • Corresponding ELC: MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, FEO1, BOO1	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable
Louisiana Waterthrush (*Seiurus motacilla*) **Species of Conservation Concern** COSEWIC (SC) and MNR Status (SC)	• Preferred habitat Area sensitive species that inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps. Trees, bushes, exposed roots, cliffs, banks and mossy logs are favoured nesting spots. This species nests on the ground[14.] Riparian woodlands are preferred stopover sites during migration[8]. • Corresponding ELC: FOD, FOM	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable
Red-headed Woodpecker (*Melanerpes erythrocephalus*) **Species of Conservation Concern** COSEWIC (THR) and MNR Status (SC)	• Preferred habitat Species inhabits open woodland and woodland edges, especially in oak savannahs and riparian forest[7], 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; feeds on insects and stores nuts or acorns for winter; requires cavity trees with at least 40 cm dbh; requires about 4 ha for a territory. • Corresponding ELC: FOD, CUW, CUT	• **Natural Area 204**: Suitable habitat present. Natural Area 204 contains a cultural woodland (CUW1). No vegetation removal is proposed in this vegetation community; therefore, this location was carried forward to the Evaluation of Significance as Generalized Candidate SWH. • **Natural Area 227**: No suitable habitat (no qualifying ELC communities) present.	• Not applicable
Short Eared Owl (*Asio flammeus*) **Species of Conservation Concern** COSEWIC (SC) and MNR Status (SC)	• Preferred habitat Species is a ground nester. It requires 75 to 100 ha of contiguous open habitat[14]. The Short-eared Owl makes use of a wide variety of open habitats, including, grasslands, peat bogs, marshes, and old pastures. It also occasionally breeds in agricultural fields. Dense grasslands are preferred nesting sites. The main factor influencing the choice of its local habitat is believed to be the abundance of food, in the form of small rodents[8]. • Corresponding ELC: CUM1, BOO1, MAM2, MAM3	• Seasonal concentration areas were assessed as part of Raptor Wintering Areas and breeding habitat for this species was assessed as part of Open Country Bird Breeding Habitat (see above).	• Not applicable
Yellow-breasted Chat (*Icteria virens*) **Species of Conservation Concern** COSEWIC (END) and MNR Status (SC)	• Preferred habitat Species inhabits thickets, tall tangles of shrubbery beside streams, ponds; overgrown bushy clearings with deciduous thickets; nests above ground in bush, vines, etc.[14] • Corresponding ELC: CUT1, SWT2, SWT3	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Azure Bluet (*Enallagma aspersum*) **Species of Conservation Concern** Vulnerable – S3	• Preferred habitat Species inhabits fishless ponds, lakes and boggy swamps [24]. • Corresponding ELC: OAO, SA, SWM, SWD	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Monarch Butterfly (*Danaus plexippus*) **Species of Conservation Concern** COSEWIC (SC) and MNR Status (SC)	• Preferred Habitat Monarchs typically occur in open field habitat where the adults forage on a wide range of flowers. The adults are very mobile and may be seen moving through almost any kind of habitat. Their larvae only feed on milkweeds (*Asclepius* spp.). Habitat includes abandoned farmland, along roadsides, and other open spaces where these plants grow[8]. Monarchs migrating south in the fall build up in large concentrations along the north shores of Lake Ontario and Lake Erie. • Corresponding ELC: CUM1, CUT1, CUW1	• **Natural Area 204**: Both a cultural woodland (CUW1) and a cultural plantation (CUP3) present; however, no *Asclepius* species present in either vegetation community. Therefore, these are not considered SWH. • **Natural Area 227**: Cultural meadow (CUM1-1) is present; however, no *Asclepius* species present in the vegetation community. Therefore, this location is not considered SWH.	• Not applicable.
West Virginia White (*Pieris virginiensis*) **Species of Conservation Concern** MNR Status (SC)	• Preferred Habitat This species is restricted to rich, moist, deciduous woods, where its foodplant Toothwort occurs[7]. • Corresponding ELC: FOD5	• No suitable habitat was identified (no qualifying ELC communities present) in Natural Areas 204 and 227.	• Not applicable.
Eastern Ribbonsnake (*Thamnophis sauritus*) **Species of Conservation Concern** COSEWIC (SC) and MNR Status (SC)	• Preferred Habitat Occurs in wet meadows, marshes or sphagnum bogs, usually near water such as ponds, or streams. Species hibernates in groups[14]. • Corresponding ELC: MAM2, MAM3, BO	• Seasonal concentration areas for this species were assessed as part of Reptile Hibernacula (see above).	• Not applicable.
Milksnake (*Lampropeltis triangulum*) **Species of Conservation Concern** COSEWIC (SC) and MNR Status (SC)	• Preferred Habitat Species inhabits abandoned farmlands, meadows, thickets and woodlands. Often found hiding under stones, or under boards[14]. • Corresponding ELC: CUM1, CUT1, MAM2, FOM, FOD	• Seasonal concentration areas for this species were assessed as part of Reptile Hibernacula (see above).	• Not applicable.
Snapping Turtle (*Chelydra serpentine*) **Species of Conservation Concern** COSEWIC (SC) and MNR Status (SC)	• Preferred Habitat Requires permanent, semi-permanent fresh water, including marshes, swamps, rivers and streams. Nests in open habitats on south-facing slopes. Hibernates in mud under water[14]. • Corresponding ELC: MAM2, MAM3, MAS2, MAS3, SWD, OAO, SAS, SAM, SAF	• Specialized habitats for this species were assessed as part of Turtle Nesting Habitat and Turtle Over-wintering Habitat (see above).	• Not applicable.

Table 5. Summary of the Criteria and Methods Used to Identify Each Type of Candidate Significant Wildlife Habitat

Type of Candidate Significant Wildlife Habitat	Characteristics of the Significant Wildlife Habitat (SWH) Type *(All characteristics must be met by candidate SWH)*	Assessment	Attributes, Composition and Function of Candidate SWH (if applicable)
Little Brown Bat (*Myotis lucifugus*) Species of Conservation Concern COSEWIC (END)	• Preferred habitat : This species uses caves, quarries, tunnels, hollow trees or buildings for roosting. Often forages near wetlands and forest edges. Overwinters in humid caves. Maternity sites are found in dark warm areas such attics and barns[14]. • Corresponding ELC: CCR1, CCR2, CCA1, CCA2, FOC, FOM, FOD	• This species is now listed as Endangered under the *Endangered Species Act*. An assessment of this species and its habitat has been undertaken separately and will be addressed through a separate consultation and permitting process, if required, with the Ministry of Natural Resources (MNR) Guelph District.	• Not applicable.
Animal Movement Corridor			
Amphibian Corridors	• Corridors may be found in all ecosites associated with water; • Corridors will be determined based on identifying significant amphibian breeding habitat; • Corridors should consist of native vegetation with no gaps such as roads, fields, waterways or waterbodies; and, Corridors should be at least 200 m wide with gaps less than 20 m and if following riparian area with at least 15 m of vegetation on both sides of waterway.	• No suitable habitat was identified (no amphibian breeding habitat) in Natural Areas 204 and 227.	• Not applicable.
Deer Movement Corridors	• Corridors may be found in all forested ecosites; and, • A Deer Winter Congregation Area identified by MNR may have corridors that the deer use during fall migration and spring dispersion.	• No change from approved NHA and EIS.	• Not applicable.

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Legend

- Wind Energy Centre Study Area
- Transmission Line Study Area
- Properties
- A1 Layout Modification Location
- September 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation Modification

Turbines and Permanent Meterological Tower

- Added
- Removed
- No Change

Layout Modifications (Type, Status)

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

Modification to Disturbance Area

- Added
- Removed
- No Change

Significant Wildlife Habitat

Plant Species of Conservation Concern Habitat

- Generalized Candidate Significant Wildlife Habitat
- Candidate Significant Wildlife Habitat

Red-headed Woodpecker Habitat

- Generalized Candidate Significant Wildlife Habitat

Woodland Raptor Nesting Habitat

- Raptor Nest
- Raptor Nesting Habitat 100 m Buffer

Amphibian Woodland Breeding Habitat

- Candidate Significant Wildlife Habitat

Common Nighthawk Habitat

- Generalized Candidate Significant Wildlife Habitat
- Natural Areas

442000 444000 4792000 4790000 4788000

D1 D2 D3 D4

AWO-36

17 53 79 83

292 m

Crediton Rd

Grand Bend Line

Corbett Line

South Rd

237 255 258 227 220 219 211 208 212 218 755 210 204 216 232 197 190 189 193

Refer to Table 7 for changes to minimum distances from natural features to proposed Project Location modifications.

Significant Wildlife Habitat Features identified herein as result of proposed Project Location modifications are in supplement to Significant Wildlife Habitat Features described in the approved Jericho NHA and BS.

Metres

0 85 170 340

1:12,000

UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

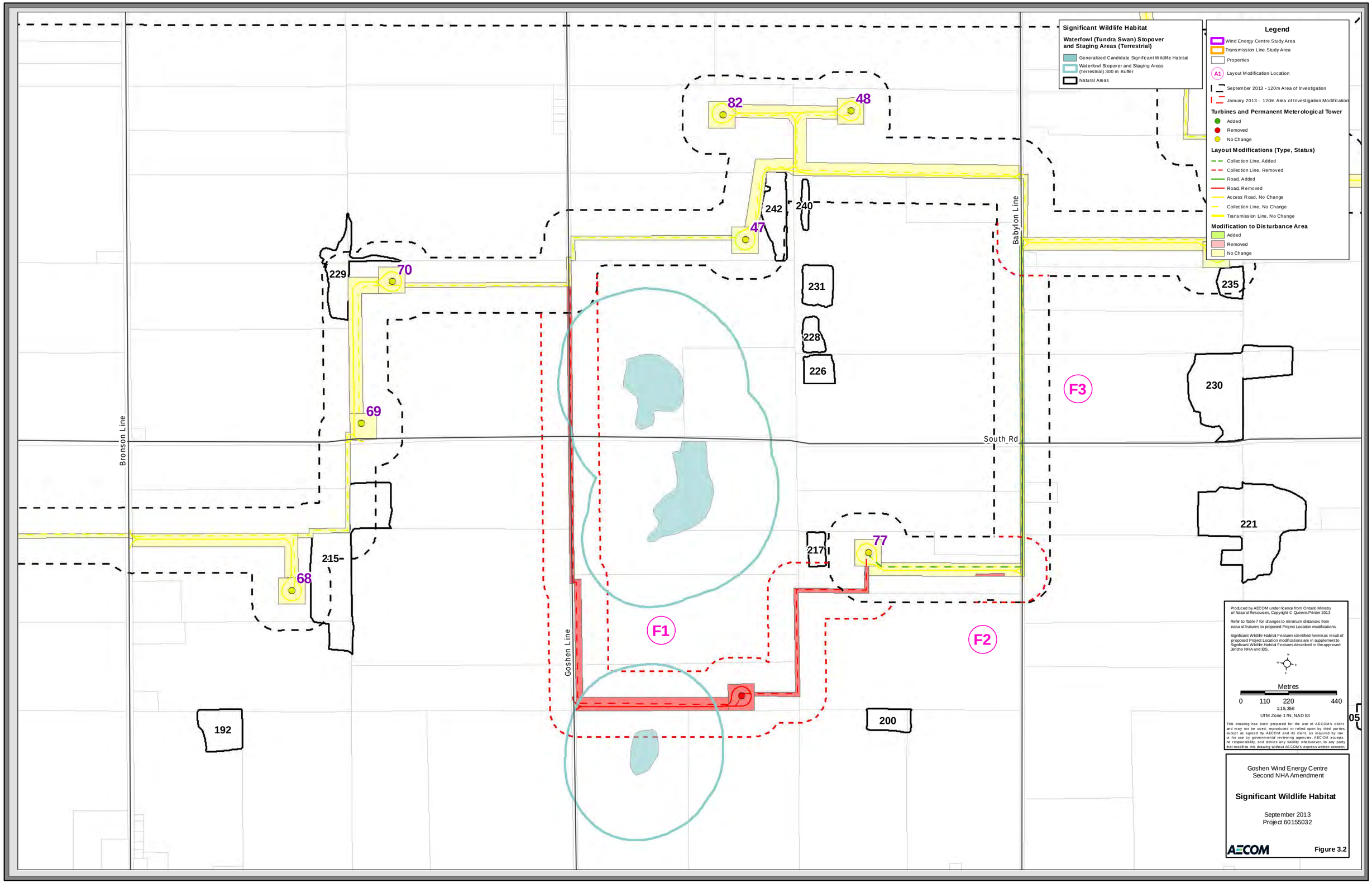
Significant Wildlife Habitat

September 2013
Project 60155032

AECOM

Figure 3.1

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\WHA_Mapping\Goshen\NHA_Amendment_20130814\60155032_Goshen_ProjectLocation_41_MN.mxd



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610

611

609

612

F5

Ausable Line

458000

458000

Significant Wildlife Habitat

Reptile Hibernacula

- Generalized Candidate Significant Wildlife Habitat
- Reptile Hibernacula (30m Buffer)
- Natural Areas

Legend

- Wind Energy Centre Study Area
- Transmission Line Study Area
- Properties
- A1 Layout Modification Location
- September 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation Modification

Turbines and Permanent Meterological Tower

- Added
- Removed
- No Change

Layout Modifications (Type, Status)

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

Modification to Disturbance Area

- Added
- Removed
- No Change

Refer to Table 7 for changes to minimum distances from natural features to proposed Project Location modifications.

Significant Wildlife Habitat Features identified herein as result of proposed Project Location modifications are in supplement to Significant Wildlife Habitat Features described in the approved Jericho NHA and BS.

Metres

0 25 50 100

1:4,000

UTM Zone 17N, NAD 83

Goshen Wind Energy Centre
Second NHA Amendment

Significant Wildlife Habitat

September 2013
Project 60155032

AECOM

Figure 3.3

Path: F:\GIS\Nextera\GISSpatial\MXDs\ReportMXDs\WHA_Mapping\Goshen\NHA_Amendment_20130814\60155032_Goshen_ProjectLocation_42.mxd

Minimum distances from the following Features to the Project Location changed as result of the proposed modifications. However, these changes to minimum distances do not require changes to the designation of candidate Significant Wildlife Habitat and Generalized Candidate Significant Wildlife Habitat Features described in the approved NHA and EIS (refer to **Table 1**):

- Generalized Candidate Significant Plant Species of Conservation Concern Habitat in Natural Area 204, 216, 227, 250, 346, 349 and 702;
- Generalized Candidate Significant Red-headed Woodpecker Habitat in Natural Areas 216, 346, 349 and 702; and
- Generalized Candidate Significant Bat Maternity Colony in Natural Areas 346, 349 and 702.

As a result of the proposed modifications, the following previously identified Features are no longer within 120 m of the Project Location (refer to **Table 1**):

- Generalized Candidate Significant Common Nighthawk Habitat in Natural Area 216 as a result of Modification D3;
- Generalized Candidate Significant Plant Species of Conservation Concern Habitat, Bat Maternity Colony and Red-headed Woodpecker Habitat in Natural Area 217 as a result of Modification F1; and
- Generalized Candidate Significant Turtle Wintering Area Feature in Natural Area 609 as a result of Modification F5.

3.2.5 Minimum Distances from Natural Features to Project Location

The proposed modifications have resulted in changes to the minimum distance to the Project Location for the following Features (**Table 6**). Minimum distances to Features not listed in the table below are the same as reported in the approved NHA and EIS. Where minimum distances from candidate Significant Wildlife Habitat Features to specific Project infrastructure requiring an Evaluation of Significance (as per Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Projects; MNR, 2012a) changed, these distances are also provided in the table below.

Table 6. Updated Minimum Distances Between the Project Location and Natural Features

Modification ID	Feature Type	Feature ID	Natural Area(s)	Minimum Distance from Project Location (m)	
				Distance Reported in Approved NHA and EIS (m)	Distance Corresponding to Proposed Modifications (m)
A3	Woodland	WOD-286	346, 349	16 (collection line)	32 (collection line)
	Plant Species of Conservation Concern Habitat, Red-headed Woodpecker Habitat and Bat Maternity Colony	Generalized Candidate SWH	346	16 (collection line)	32 (collection line)
	Plant Species of Conservation Concern Habitat, Red-headed Woodpecker Habitat and Bat Maternity Colony	Generalized Candidate SWH	349	93 (collection line)	108 (collection line)
C6	Plant Species of Conservation Concern Habitat	Generalized Candidate SWH	250	>0.1 (collection line)	52 m (access road and collection line)
D1	Plant Species of Conservation Concern Habitat	Generalized Candidate SWH	227	103 (turbine construction disturbance area)	116 (turbine construction disturbance area)
	Plant Species of Conservation Concern Habitat	Generalized Candidate SWH	227	>120 (not included in approved NHA and EIS)	52 (turbine construction disturbance area)
	Amphibian Woodland Breeding Habitat	Generalized Candidate SWH	255	41 (collection line)	41 (collection line, access road)
D3	Woodland	WOD-034	216	>0.1 (collection line)	61 (turbine construction disturbance area)
	Plant Species of Conservation Concern Habitat and Red-headed Woodpecker Habitat	Generalized Candidate SWH	216	>0.1 (collection line)	61 (turbine construction disturbance area)
	Common Nighthawk Habitat	Generalized Candidate SWH	216	21 (collection line)	>120 (all infrastructure)
	Plant Species of Conservation Concern Habitat	Generalized Candidate SWH	204	116 (access road and collection line)	>0.1 (collection line)
	Woodland	WOD-022	204	>120 (not included in approved NHA and EIS)	13 (collection line)
	Plant Species of Conservation Habitat and Red-headed Woodpecker Habitat	Generalized Candidate SWH	204	>120 (not included in approved NHA and EIS)	13 (collection line)
	Woodland Raptor Nesting Habitat	Generalized Candidate SWH	204	>120 (not included in approved NHA and EIS)	31 (collection line)
F1	Woodland	WOD-035	217	100 (collection line)	>120 (all infrastructure)
	Wetland	WET-009	200, 217	100 (collection line)	>120 (all infrastructure)
	Plant Species of Conservation Concern Habitat, Bat Maternity Colony and Red-headed Woodpecker Habitat	Generalized Candidate SWH	217	100 (collection line)	>120 (all infrastructure)
	Waterfowl (Tundra Swan) Stopover and Staging Area (Terrestrial)[1]	WSST-36	n/a	0 (overlapped by Project Location)	120 (collection line)

1. *Waterfowl (Tundra Swan) Stopover and Staging Area (Terrestrial) Feature WSST-36 was changed to Generalized Candidate Significant Wildlife Habitat since it is no longer within 120 m of a turbine and not overlapped by the Project Location.*

Table 6. Updated Minimum Distances Between the Project Location and Natural Features

Modification ID	Feature Type	Feature ID	Natural Area(s)	Minimum Distance from Project Location (m)	
				Distance Reported in Approved NHA and EIS (m)	Distance Corresponding to Proposed Modifications (m)
F5	Reptile Hibernacula[2]	RH-06	609	0 (transmission line is 27 m from foundation)	14 (transmission line is 44 m from foundation)
	Turtle Wintering Area	Generalized Candidate SWH	609	113 (transmission line)	>120 (all infrastructure)
H1	Woodland	WOD-145	702	40 (transmission line)	27 (transmission line)
	Plant Species of Conservation Concern Habitat, Bat Maternity Colony and Red-headed Woodpecker Habitat	Generalized Candidate SWH	702	40 (transmission line)	27 (transmission line)

2. *Reptile Hibernacula Feature RH-06 was changed to Generalized Candidate Significant Wildlife Habitat since it is no longer overlapped by the transmission line (30 m buffer included as habitat when determining distances).*

4. Addendum to the Evaluation of Significance

4.1 Methods

4.1.1 Woodlands

Woodland Feature WOD-022 was evaluated based on field data collected during site investigations conducted in support of this NHA Addendum, following the methods described in the approved NHA and EIS. Consequently, no changes are required to the methods as described in the approved NHA and EIS.

4.1.2 Wildlife Habitat

4.1.2.1 Waterfowl (Tundra Swan) Stopover and Staging Areas (Terrestrial)

Pre-construction surveys were conducted over a three week period between March 12 and March 28, 2013 to evaluate the significance of candidate significant Waterfowl (Tundra Swan) Stopover and Staging Areas (Terrestrial) Features WSST-15 and WSST-36, following the methods described in Section 4.2.3.1 of approved NHA and EIS with the following modification. The survey intensity was increased from three to six visits by conducting surveys twice per week in order to improve the accuracy of boundary delineation and ensure the peak Tundra Swan migration was captured for these candidate Significant Wildlife Habitat Features. The methods used for these pre-construction surveys are described in greater detail in **Appendix D**.

4.1.2.2 Reptile Hibernacula

The designation of Reptile Hibernacula Features RH-06 changed from candidate Significant Wildlife Habitat to Generalized Candidate Significant Wildlife Habitat as a result of Modification F5. Consequently, pre-construction Evaluation of Significance surveys are no longer required for this Feature.

4.1.2.3 Amphibian Woodland Breeding Habitat

An evaluation of significance was conducted for Candidate Significant Woodland Breeding Habitat Feature AWO-36 using the methods described for this Significant Wildlife Habitat type in the approved NHA and EIS.

4.1.2.4 Turtle Wintering Areas

Evaluation of Significance studies for Turtle Wintering Areas within the 120 m Area of Investigation (TOW-01 and TOW-03) were completed according to the methods described for this Significant Wildlife Habitat type in the approved NHA and EIS.

4.2 Results

4.2.1 Woodlands

An Evaluation of Significance was completed for woodland Feature WOD-022 (refer to **Figure 2** for location) in support of this NHA Addendum. The results of the woodland evaluation are presented in **Table 7**. Woodland Feature WOD-022 was considered significant based on meeting at least one of the criteria in the evaluation process. Therefore, this Feature was carried forward to the EIS of this NHA Addendum.

Table 7. Determination of Significance for Woodlands

Woodland Feature ID	Natural Area #	Municipality	Evaluation Criteria and Standards (Based on 21.9% woodland cover within the Municipality of Lambton Shores, 11.54% woodland cover within the Municipality of Warwick, and 14.83% woodland cover within the Municipality of North Middlesex)														# of Criteria Met to Date	Determination of Significance
			1. Woodland Size		2.a) Woodland Interior		2.b) Proximity to Other Significant Woodlands / Habitats		2.c) Linkages		2.d) Water Protection		2.e) Woodland Diversity Representation (Composition)		3. Uncommon Characteristics			
			Must be at least		Must have woodland interior at least[1]		Must be within 30 m of a significant natural Feature or fish habitat[2] and be at least		Must be located between two other significant Features each of which are 120 m apart and be at least		Must be located within 50 m of a sensitive groundwater discharge[3], recharge, headwater, watercourse or fish habitat and be at least		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		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 ten 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			
			Municipality of Bluewater: **20 ha** in size		Municipality of Bluewater: **2 ha** in size		Municipality of Bluewater: **4 ha** in size		Municipality of Bluewater: **4 ha** in size		Municipality of Bluewater**: 2 ha** in size		Municipality of Bluewater: **4 ha** in size		Municipality of Bluewater: **2 ha** in size			
			Municipality of South Huron: **4 ha** in size		Municipality of South Huron: Any size		Municipality of South Huron: **1 ha** in size		Municipality of South Huron: **1 ha** in size		Municipality of South Huron: **0.5 ha** in size		Municipality of South Huron: **1 ha** in size		Municipality of South Huron: **1 ha** 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**		
WOD-022	204	South Huron	**N**	1.0 ha	**N**	0 ha	**Y**	Within 30 m of fish habitat	**N**	Does not meet criterion (not between two other significant Features)	**Y**	Within 50 m of fish habitat	**Y**	Dominated by listed species (Oak)	**N**	Does not meet criteria (no uncommon characteristics)	3	**Significant**

Due to Modification F5, woodland Feature WOD-035 in Natural Area 217 is no longer within 120 m of the Project Location. However, WOD-035 was determined not to be a Significant Woodland Feature in the approved NHA and EIS, and therefore it was not carried forward to the EIS of this NHA Addendum.

4.2.2 Wildlife Habitat

4.2.2.1 Waterfowl (Tundra Swan) Stopover and Staging Areas (Terrestrial)

The results of the pre-construction Evaluation of Significance surveys for candidate significant Waterfowl (Tundra Swan) Stopover and Staging Areas (Terrestrial) Features WSST-15 and WSST-36 are provided in detail in **Appendix D**. The findings of these surveys are summarized below.

Feature WSST-15 was determined not to be Significant Wildlife Habitat as it does not satisfy the criteria of significance prescribed in the Ecoregion 7E Criterion Schedule Addendum to the Significant Wildlife Habitat Technical Guide (MNR, 2012b), which requires the presence of a flooded agricultural field with waste grains used annually by 100 or more Tundra Swans. Therefore, Feature WSST-15 was not carried forward to the EIS of this NHA Addendum.

Feature WSST-36 was confirmed as Significant Wildlife Habitat because more than 370 Tundra Swans were observed feeding in two locations of flooded agricultural fields with waste grains within this Feature. No Tundra Swans were observed in this location during the 2012 Tundra Swan migration surveys; however, local residents reported this as an area that is typically used by Tundra Swans during the annual spring migration. Although the area typically floods in the early spring, it did not flood in 2012, which likely accounts for the absence of Tundra Swans in this location during the 2012 survey.

The boundaries of Significant Wildlife Habitat Feature WSST-36 were refined based on the pre-construction evaluation of significance survey results by applying a 300 m buffer to the flooded areas that were occupied by 100 or more Tundra Swans in 2013 (refer to **Figure 3.2** and **Appendix D**).

Based on the refined habitat boundaries, only Turbine 46 was located within 120 m of Feature WSST-36 (measured from the 300 m buffer area associated with this habitat) at the time of the pre-construction evaluation of significance surveys. However, Turbine 46 and its associated access road and collection line are now proposed to be removed due to Modification F1. Therefore, Significant Wildlife Habitat Feature WSST-36 was changed to Generalized Candidate Significant Wildlife Habitat as it is no longer within 120 m of a turbine and is not overlapped by the Project Location, but is now within 120 m of a collection line. This Feature was carried forward to the EIS of this NHA Addendum to ensure that any potential effects of the modifications are addressed through the application of appropriate mitigation measures, if required.

4.2.2.2 Reptile Hibernacula

The designation of candidate Significant Reptile Hibernaculum Feature RH-06 changed to Generalized Candidate Significant Wildlife Habitat as a result of Modification F5; therefore, pre-construction Evaluation of Significance surveys are no longer required for this Feature. This Feature was carried forward to the EIS of this NHA Addendum to ensure that any potential effects of the modifications are addressed through the application of appropriate mitigation measures, if required.

4.2.2.3 Amphibian Woodland Breeding Habitat

Candidate Significant Amphibian Woodland Breeding Habitat Feature AWO-36 was identified as part of this NHA Addendum as being within 120 m of an access road to the new location of Turbine 83, as a result of Modification D1. This Feature is already impacted by two existing municipal roads, Crediton Road and Corbett Line, which run along the south and east edges of this upland forest containing a pond. Although this access road is within 120 m of the Feature, the potential breeding pond is located 292 m away from the proposed access road and on the other side of Crediton Road (refer to **Figure 3.1**). Permission to access private property was denied for the property on which the pond is located; therefore, surveys targeting non-vocalizing amphibians could not be completed for this Feature. Call surveys targeting vocalizing amphibians were not completed directly at the pond in Feature AWO-36; however, call surveys were completed at two locations (Natural Areas 227 and 258) that are located in close proximity to Feature AWO-36. The results of these call surveys were used to determine the significance of Feature AWO-36 (refer to **Table 8** below). Field notes are provided in **Appendix B** and the qualifications of the field personnel are provided in Appendix C of the approved NHA and EIS.

Feature AWO-36 was treated as Significant Wildlife Habitat. A chorus of American Toads was heard calling in the general direction of the pond in Feature AWO-36 during the first round of amphibian call surveys. Therefore, this Feature was carried forward to the EIS phase of this NHA Addendum to ensure that any potential effects of the modifications are addressed through the application of appropriate mitigation measures, if required.

Table 8. Amphibian Woodland Breeding Habitat Evaluation of Significance Surveys

Feature ID	Habitat Assessment		Call Surveys Targeting Vocalizing Amphibians			Surveys Targeting Non-vocalizing Amphibians		Determination of Significance
			Round 1	*Round 2*	*Round 3*	*Egg Mass Survey*	*Larval Survey*	
AWO-36	A habitat assessment was completed from the roadside during the site investigation in 2012 due to private property access restrictions. No vernal pools were observed in the forest; however, a pond was observed from the roadside with an estimated water depth of 1 m and good water quality. Fringing plant species including cattails, sedges, scotch pine and trembling aspen surround the pond. This pond was considered potentially suitable for breeding amphibians. Existing human influence affecting the Feature include two existing municipal roads, Crediton Road and Corbett Line, and agricultural fields.	**Date, Time and Weather Conditions**	April 30, 2013 23:25 – 23:53 Wind: 2 Cloud Cover: 20 % Background Noise: 1 Temperature: 16°C Precipitation: None	May 30, 2013 22:22 – 22:54 Wind: 2 Cloud Cover: 60 % Background Noise: 2 Temperature: 23°C Precipitation: None	June 19, 2013 23:07 – 23:10 Wind: 0 Cloud Cover: 0 % Background Noise: 1 Temperature: 11°C Precipitation: None	Surveys were not completed due to property access restrictions.		Yes – treated as Significant Wildlife Habitat. This Feature contains a breeding population of American Toad with at least 20 individuals and is therefore treated as Significant Amphibian Breeding Habitat.
		Results	Chorus of American Toads heard calling in the pond in AWO-36 from Natural Area 258.	No amphibians heard calling in pond in AWO-36 from either Natural Area 227 or 258.	No amphibians heard calling in pond in AWO-36 from either Natural Area 227 or 258.			

4.2.2.4 Turtle Wintering Areas

Evaluation of significance surveys for candidate significant Turtle Wintering Area Features TOW-01 and TWH-03 were completed between April 9, 2013 and May 27, 2013. The results of these surveys are summarized in **Table 9**. Field notes are provided in **Appendix B** and the qualifications of field personnel are provided in Appendix C of the approved NHA and EIS.

Neither Turtle Wintering Area was determined to be Significant Wildlife Habitat because they did not contain required numbers of the target species for this Significant Wildlife Habitat type. These Features were carried forward to the EIS of this NHA Addendum.

Table 9. Turtle Wintering Areas Evaluation of Significance Surveys

Feature		Evaluation of Significance Surveys			Determination of Significance
		Round 1	*Round 2*	*Round 3*	
TOW-01	**Date, Start and End Times, and Weather Conditions**	April 9, 2013 08:15 – 08:35 and 08:37 – 08:57 Wind (Beaufort Scale): 1 Wind Direction: NE Cloud Cover (%): 100 Temperature (°C): 5 Precipitation (cm): None	May 1, 2013 10:05 – 10:25 and 10:27 – 10:42 Wind (Beaufort Scale): 4 Wind Direction: SE Cloud Cover (%): 10 Temperature (°C): 18 Precipitation (cm): None	May 15, 2013 12:00 – 12:20 and 12:22 – 12:42 Wind (Beaufort Scale): 4 Wind Direction: SW Cloud Cover (%): 0 Temperature (°C): 21 Precipitation (cm): None	No – not Significant Wildlife Habitat Less than five Midland Painted Turtles were observed at this Feature.
	Results	No turtles observed.	No turtles observed.	Two Midland Painted Turtles observed basking on wooden planks.	
TOW-03	**Date, Start and End Times and Weather Conditions**	April 16, 2013 16:40 – 15:05 Wind (Beaufort Scale): 2 Wind Direction: NW Cloud Cover (%): 5 Temperature (°C): 11 Precipitation (cm): None	May 3, 2013 09:07 – 09:27 Wind (Beaufort Scale): 3 Wind Direction: SE Cloud Cover (%): 40-60 Temperature (°C): 16 Precipitation (cm): None	May 16, 2013 15:30 – 15:50 Wind (Beaufort Scale): 4 Wind Direction: SW Cloud Cover (%): 0 Temperature (°C): 16 Precipitation (cm): None	No – not Significant Wildlife Habitat No turtles were observed at this Feature.
	Results	No turtles observed.	No turtles observed.	No turtles observed.	

4.2.2.5 Generalized Candidate Significant Wildlife Habitat

The following new Generalized Candidate Significant Wildlife Habitat Features (*i.e.*, those not previously described in the approved NHA and EIS) were carried forward to the EIS of this NHA Addendum:

- Plant Species of Conservation Concern Habitat in Natural Areas 204 and 227;
- Common Nighthawk Habitat in Natural Area 204;
- Red-headed Woodpecker Habitat in Natural Area 204; and
- Woodland Raptor Nesting Habitat in Natural Area 204.

4.2.3 Summary of Features Carried Forward to the EIS

The following Features were evaluated and confirmed to be significant, and carried forward to the EIS:

- Woodland Feature WOD-022; and
- Amphibian Woodland Breeding Habitat Feature AWO-36.

The following new Generalized Candidate Significant Wildlife Habitat Features (*i.e.*, those not previously described in the approved NHA and EIS) were identified as a result of the proposed modifications and carried forward to the EIS of this NHA Addendum:

- Plant Species of Conservation Concern Habitat in Natural Areas 204 and 227;
- Common Nighthawk Habitat in Natural Area 204;
- Red-headed Woodpecker Habitat in Natural Area 204; and
- Woodland Raptor Nesting Habitat in Natural Area 204.

Where distances from Project infrastructure to Significant Features changed as a result of the proposed modifications (refer to **Table 1**), these Features were carried forward to the EIS of this NHA Addendum to ensure that any potential effects of the modifications are addressed through the application of appropriate mitigation measures, if required:

- Wetland Feature WET-009;
- Woodland Features WOD-034, WOD-145 and WOD-286;
- Generalized Candidate Significant Reptile Hibernaculum Feature RH-06 in Natural Area 609;
- Generalized Candidate Significant Waterfowl (Tundra Swan) Stopover and Staging Area (Terrestrial) Feature WSST-36;
- Generalized Candidate Significant Plant Species of Conservation Concern Habitat in Natural Area 204, 216, 217, 227, 250, 346, 349 and 702;
- Generalized Candidate Significant Red-headed Woodpecker Habitat in Natural Areas 216, 217, 346, 349 and 702;
- Generalized Candidate Significant Bat Maternity Colonies in Natural Areas 217, 346, 349 and 702;
- Generalized Candidate Significant Common Nighthawk Habitat in Natural Area 216; and
- Generalized Candidate Significant Turtle Wintering Area Feature in Natural Area 609.

5. Addendum to the Environmental Impact Study

5.1 Construction of the Transmission Line within the Road Right-of-way

The transmission line is proposed to be located on private property and within existing road rights-of-way. The following pertains to those portions of the transmission line that will be installed within the Crediton Road and Dump Road right-of-way, and adjacent to or within Natural Features (*i.e.*, Woodlands, Wetlands and Significant Wildlife Habitat) identified in the approved NHA and EIS or this NHA Amendment. As described in the approved NHA and EIS, vegetation removal for the roadside transmission line will be kept to a minimum and limited to the road right-of-way. Therefore, where Significant Woodlands, Significant Wetlands and Significant Wildlife Habitat Features including Generalized Candidate Significant Wildlife Habitat extend into the road right-of-way along the transmission line alignment (*i.e.*, in natural areas 738 and 739), vegetation removal in these Features will be kept to a minimum and limited to the road right-of-way. This may include trimming of branches or selective tree removal within the road right-of-way.

Additional mitigation measures will be applied where vegetation removal will occur on private property in Significant Features (*i.e.*, natural areas 648, 662, 721 and 720), as described in Sections 5.6 and 5.8 of the approved NHA and EIS.

5.2 Significant Wetlands

Significant Wetland Feature WET-009 is no longer within the 120 m Area of Investigation as result of Modification F1; therefore, the mitigation measures described for this Feature in Section 5.5.1 (Table 5.2) of the approved NHA and EIS will no longer be applied. No other changes to the mitigation measures described for Significant Wetland Features in the approved NHA and EIS are required to accommodate the proposed modifications.

5.3 Significant Woodlands

One new Significant Woodland Feature (WOD-022) was identified within the 120 m Area of Investigation as a result of Modification D3. A description of the potential effects, mitigation measures and monitoring commitments that will be applied to this Feature is provided below.

- **WOD-022:** The minimum distance from this Feature to the nearest Project infrastructure (collection line) is 13 m (from dripline; Modification D3). Therefore, mitigation measures, monitoring and contingency measures described for woodlands within 5 m to 30 m of Project infrastructure in Section 5.6.1 (Table 5.3) of the approved NHA and EIS will be applied to WOD-022.

The minimum distances from the Project Location to the following Significant Woodland Features changed as a result of the proposed modifications. An assessment of any changes required to the mitigation measures that will be applied to these Features is provided below.

- **WOD-034:** The minimum distance from this Feature to the nearest Project Infrastructure (collection line) increased from >0.1 m to 61 m (Modification D3). Therefore, the mitigation measures, monitoring and contingency measures described for woodlands within 30 m to 120 m of Project Infrastructure in Section 5.6.1 (Table 5.3) of the approved NHA and EIS will be applied to WOD-034.
- **WOD-145:** The minimum distance from this Feature to the nearest Project Infrastructure (transmission line) decreased from 40 m to 27 m (Modification H1). Therefore, the mitigation measures, monitoring and contingency measures described for woodlands within 5 m to 30 m of Project infrastructure in Section 5.6.1 (Table 5.3) of the approved NHA and EIS will be applied to WOD-145.
- **WOD-286:** The minimum distance from this Feature to the nearest Project infrastructure (collection line) increased from 16 m to 32 m (Modification A3). Therefore, the mitigation measures, monitoring and contingency measures described for woodlands within 30 m and 120 m of Project Infrastructure in Section 5.6.1 (Table 5.3) of the approved NHA and EIS will be applied to WOD-286.

No other changes to the mitigation measures proposed for Significant Woodland Features in the approved NHA and EIS are required to accommodate the proposed modifications.

5.4 Significant Wildlife Habitat

5.4.1 New Significant Wildlife Habitat Features

Mitigation measures, monitoring and contingency measures to address potential effects on Generalized Candidate Significant Wildlife Habitat as described in Section 5.8.3 (Table 5.5) of the approved NHA and EIS will be applied to the following new Generalized Candidate Significant Wildlife Habitat Features identified through this NHA Addendum:

- Plant Species of Conservation Concern Habitat in Natural Areas 204 and 227;
- Common Nighthawk Habitat in Natural Area 204;
- Red-headed Woodpecker Habitat in Natural Area 204; and
- Woodland Raptor Nesting Habitat in Natural Area 204.

5.4.2 Designation Changes to Previously Identified Significant Wildlife Habitat Features

Distances from Project infrastructure to the following Significant Wildlife Habitat Features previously identified in the approved NHA and EIS changed as a result of the proposed modifications. An assessment of any changes required to the mitigation measures that will be applied to these Features is provided below.

- **Amphibian Woodland Breeding Habitat Feature AWO-36:**
  The distance from this Feature to an access road decreased from >120 m to 41 m as result of Modification D1. As a result, the designation of this Feature changed from Generalized Candidate Significant Wildlife Habitat to candidate Significant Amphibian Woodland Breeding Habitat Feature AWO-36. However, this Feature is located adjacent to and already affected by two existing municipal roads, Crediton Road and Corbett Line, which run adjacent to the south and east edges of the forest. The access road is proposed to be constructed 292 m from the breeding pond, and on the other side of Crediton Road (refer to **Figure 3.1** for location). Therefore, the potential effects of the access road on this Feature are considered to be negligible, given the distance to the breeding pond and presence of an existing municipal road. Nonetheless, to further reduce the likelihood of any potential effects, the mitigation measures, monitoring and contingency measures described for Amphibian Woodland Breeding Habitat within 120 m of access roads in Section 5.8.3 (Table 5.6) of the approved NHA and EIS will be applied to this Feature. These measures include three years of post-construction amphibian call surveys.
- **Reptile Hibernaculum Feature RH-06:**
  The distance from this Feature to the transmission line increased from 0 m (transmission line in Feature) to 14 m (Modification F5). As a result, the designation of this Feature changed from Candidate Significant Wildlife Habitat to Generalized Candidate Significant Wildlife Habitat. Therefore, the mitigation measures, monitoring and contingency measures described for Generalized Candidate Significant Wildlife Habitat in Section 5.8.3 (Table 5.5) of the approved NHA and EIS will be applied to this Feature.
- **Waterfowl (Tundra Swan) Stopover and Staging Areas (Terrestrial) Feature WSST-36:**
  The distance from this Feature to the disturbance area of a turbine increased from 0 m to >120 m and the Feature is no longer overlapped by the Project Location; however, this Feature is still within 120 m of a collection line (Modification F1). As a result, the designation of this Feature changed from Candidate Significant Wildlife Habitat to Generalized Candidate Significant Wildlife Habitat. Therefore, the mitigation measures, monitoring and contingency measures described for Generalized Candidate Significant Wildlife Habitat in Section 5.8.3 (Table 5.5) of the approved NHA and EIS will be applied to this Feature.
- **Waterfowl (Tundra Swan) Stopover and Staging Areas (Terrestrial) Feature WSST-15:**
  Based on the results of the pre-construction evaluation of significance surveys, Feature WSST-15 was confirmed as not Significant Wildlife Habitat. Therefore, the mitigation measures, monitoring and contingency measures described in Section 5.8.3 (Table 5.6) of the approved NHA and EIS will not be applied to this Feature.
- **Generalized Candidate Significant Common Nighthawk Habitat in Natural Area 216:**
  The minimum distance from this Feature to the Project Location increased to greater than 120 m as a result of Modification D3. Therefore, mitigation measures for Generalized Candidate Significant Wildlife Habitat as described in Section 5.8.3 (Table 5.5) of the approved NHA and EIS will no longer be applied to this Feature.

- **Generalized Candidate Significant Plant Species of Conservation Concern Habitat in Natural Area 217:**
  The minimum distance from this Feature to the Project Location increased to greater than 120 m as a result of Modification F1. Therefore, mitigation measures for Generalized Candidate Significant Wildlife Habitat as described in Section 5.8.3 (Table 5.5) of the approved NHA and EIS will no longer be applied to this Feature.
- **Generalized Candidate Significant Bat Maternity Colony in Natural Area 217:**
  The minimum distance from this Feature to the Project Location increased to greater than 120 m as a result of Modification F1. Therefore, mitigation measures for Generalized Candidate Significant Wildlife Habitat as described in Section 5.8.3 (Table 5.5) of the approved NHA and EIS will no longer be applied to this Feature.
- **Generalized Candidate Significant Red-headed Woodpecker Habitat in Natural Area 217:**
  The minimum distance from this Feature to the Project Location increased to greater than 120 m as a result of Modification F1. Therefore, mitigation measures for Generalized Candidate Significant Wildlife Habitat as described in Section 5.8.3 (Table 5.5) of the approved NHA and EIS will no longer be applied to this Feature.
- **Generalized Candidate Significant Turtle Wintering Area in Natural Area 609:**
  The minimum distance from this Feature to the Project Location increased to greater than 120 m as a result of Modification F5. Therefore, mitigation measures for Generalized Candidate Significant Wildlife Habitat as described in Section 5.8.3 (Table 5.5) of the approved NHA and EIS will no longer be applied to this Feature.
- **Candidate Significant Turtle Wintering Area Feature TOW-01:**
  Based on the results of the pre-construction evaluation of significance surveys, Feature TOW-01 was confirmed as not Significant Wildlife Habitat. Therefore, the mitigation measures, monitoring and contingency measures described in Section 5.8.3 (Table 5.6) of the approved NHA and EIS will not be applied to this Feature.
- **Candidate Significant Turtle Wintering Area Feature TOW-03:**
  Based on the results of the pre-construction evaluation of significance surveys, Feature TOW-03 was confirmed as not Significant Wildlife Habitat. Therefore, the mitigation measures, monitoring and contingency measures described in Section 5.8.3 (Table 5.6) of the approved NHA and EIS will not be applied to this Feature.

Minimum distances from the following Generalized Candidate Significant Wildlife Habitat Features to the Project Location changed as result of the proposed modifications. However, these changes to minimum distances do not require changes to the mitigation measures as described for Generalized Candidate Significant Wildlife Habitat in Section 5.8.3 (Table 5.5) of the approved NHA and EIS for these Features:

- Generalized Candidate Significant Plant Species of Conservation Concern Habitat in Natural Area 204, 216, 227, 250, 346, 349 and 702;
- Generalized Candidate Significant Red-headed Woodpecker Habitat in Natural Areas 216, 346, 349 and 702; and
- Generalized Candidate Significant Bat Maternity Colonies in Natural Areas 346, 349 and 702.

No other changes to the mitigation measures proposed for significant wildlife habitat in the approved NHA and EIS are required to accommodate the proposed modifications.

6. Summary and Conclusions

As was the case for the original proposed Project (as described in the approved NHA and EIS), the significance of anticipated residual effects associated with the proposed modifications 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. No Project infrastructure is proposed to be located within significant natural Features (*i.e.*, Significant Woodlands, Significant Wetlands or Significant Wildlife Habitat) and no vegetation clearing will be required in significant natural Features for the proposed modifications.

On the basis of this NHA Addendum, the Project will be constructed as per the Project Location shown herein (which includes Turbines 9, 47 and 82, as well as associated infrastructure), rather than the alternative infrastructure layout proposed in the memo submitted to MNR on January 14, 2013 (included in Appendix K of the approved NHA and EIS). All proposed turbines are located more than 120 m away from the 300 m buffer applied to Waterfowl (Tundra Swan) Stopover and Staging Areas (Terrestrial) Feature WSST-36 (**Figure 3.2**).

Potential operation effects of turbines on bird and bat mortality will be monitored for at least 3 years post-construction and, if required, mitigation measures (including operational controls) will be implemented in accordance with Provincial guidelines and requirements, as described in Birds and Bird Habitats: Guidelines for Wind Power Projects (MNR, 2011a) and Bats and Bat Habitats: Guidelines for Wind Power Projects (MNR, 2011b).

7. References

AECOM, 2013a:
Goshen Wind Energy Centre Natural Heritage Assessment and Environmental Impact Study Report. Prepared for NextEra Energy Canada, ULC. January, 2013.

AECOM, 2013b:
Jericho Wind Energy Centre Natural Heritage Assessment and Environmental Impact Study Report Addendum. Prepared for NextEra Energy Canada, ULC. January, 2013.

Ontario Ministry of Natural Resources (MNR), 2011a:
Birds and Bird Habitats: Guidelines for Wind Power Projects.

Ontario Ministry of Natural Resources (MNR), 2011b:
Bats and Bat Habitats: Guidelines for Wind Power Projects.

Ontario Ministry of Natural Resources (MNR), 2012a:
Natural Heritage Assessment Guide for Renewable Energy Projects. 2nd Edition.

Ontario Ministry of Natural Resources (MNR), 2012b:
Ecoregion 7E Criterion Schedule Addendum to the Significant Wildlife Habitat Technical Guide. Working draft, February 2012.

Appendix A

MNR Confirmation and Re-confirmation Letters

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

Ministère des Richesses naturelles

Ontario

January 15, 2013

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

RE: NHA Confirmation for Goshen 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 Report – Goshen Wind Energy Centre* for the Goshen Wind Energy Centre project located in the Municipalities of Blue Water and South Huron, and submitted by Nextera Energy Canada, ULC on January 15, 2013.

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.
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 study report has been prepared in accordance with procedures established by the MNR.

In accordance with Section 28(3)(c) and 38(2)(c), MNR also offers the following comments in respect of the project.

Turbines 9, 46, 47 and 82

At this time, information available in the Natural Heritage Assessment and Environmental Impact Study is insufficient to support development of turbines 9, 46, 47 and 82. Candidate significant waterfowl stopover and staging habitats WSST-15 (near turbine 9) and WSST-36 (near turbines 46, 47 and 82) require additional wildlife surveys and information about potential negative environmental effects. As a result, this letter does not confirm the following section of the Environmental Impact Study:

- Table 5.6 as it relates to Waterfowl Stopover and Staging Areas

The alternative infrastructure layout proposed in a memo submitted January 14, 2013 has been accepted and supersedes information provided in the Natural Heritage Assessment and Environmental Impact Study.

Preconstruction Monitoring

In accordance with Appendix D of MNR's NHA Guide, a commitment has been made to complete pre-construction assessment(s) of habitat use for the following candidate significant wildlife habitats:

- Bat Maternity Colonies (features BMC-235, BMC-242, BMC-249, BMC-267, BMC-282, BMC-285, BMC-352, BMC-358, BMC-372, BMC-648, BMC-720)
- Turtle Wintering Ares (features TOW-01, TOW-03)
- Reptile Hibernacula (features RH-01, RH-02, RH-03, RH-04, RH-05, RH-06, RH-07, RH-08)
- Amphibian Woodland Breeding Habitat (features AWO-02, AWO-33, AWO-34, AWO-35)
- Colonial Nesting Bird Breeding Habitat (feature CNB-01; Note: this habitat was deemed significant but requires supplemental data collection)

MNR has reviewed and confirmed the assessment methods and the range of mitigation options. Pending completion of the assessments and determination of significance, the appropriate mitigation is expected to be implemented, as committed to in the environmental impact study.

Post-Construction Monitoring

A commitment has been made in the Environmental Impact Study to conduct post-construction monitoring and if determined necessary, implement mitigation measures. For the Goshen Wind Energy Centre this includes the following significant natural features:

- Bat Maternity Colonies (features BMC-189, BMC-229, BMC-326, BMC-342, BMC-757)
- Amphibian Woodland Breeding Habitat (features AWO-14, AWO-25, AWO-27, AWO-30)
- Colonial Nesting Bird Breeding Habitat (feature CNB-01)
- Habitat for Plant Species of Conservation Concern – multiple species (featuresSCP-12, SCP-13, SCP-14, SCP-15, SCP-16, SCP-17)
- Habitat for Bird Species of Conservation Concern – Red-headed Woodpecker (feature SCB-03)

The following candidate significant natural features will also be monitored post-construction if they are deemed significant during pre-construction surveys:

- Bat Maternity Colonies (features BMC-235, BMC-242, BMC-249, BMC-267, BMC-282, BMC-285, BMC-352, BMC-358, BMC-372, BMC-648, BMC-720)
- Turtle Wintering Ares (features TOW-01, TOW-03)
- Reptile Hibernacula (features RH-01, RH-02, RH-03, RH-04, RH-05, RH-06, RH-07, RH-08)
- Amphibian Woodland Breeding Habitat (features AWO-02, AWO-33, AWO-34, AWO-35)

In addition to the NHA and EIS, an Environmental Effects Monitoring Plan (EEMP) that address post-construction mortality monitoring and mitigation for birds and bats must be prepared and implemented. Environmental Effects Monitoring Plans for birds and bats must be prepared in accordance with MNR Guidelines and should 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. Comments provided by the MNR with respect to the EEMP must be submitted as part of the application for a REA.

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/EIS 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 Jim Beal at Jim.Beal@ontario.ca or 705-755-3203.

Sincerely,

Kazia Milian
Regional Planning Supervisor
Southern Region MNR

cc Jim Beal, Southern Region Renewable Energy Coordinator, MNR
Amy Cameron, Renewable Energy Planning Ecologist, MNR
Ian Hagman, Guelph District Manager, MNR
Narren Santos, Environmental Approvals Access & Service Integration Branch, MOE
Zeljko Romic, Environmental Approvals Access & Service Integration Branch, MOE

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

Ministère des
Richesses naturelles

Ontario

January 16, 2013

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

RE: Modifications to Goshen Wind Energy Centre Project Location

Dear Tom Bird:

The Ministry of Natural Resource (MNR) has received the document dated January 15, 2013, which describes modifications to the Goshen Wind Energy Centre project location made subsequent to MNR's letter confirming the Natural Heritage Assessment in respect of the project.

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 January 15, 2013 for the Goshen Wind Energy Centre project.

If you wish to discuss, please contact Jim Beal at Jim.Beal@Ontario.ca or 705-755-3203.

Sincerely,

Kazia Milian
Regional Planning Supervisor
Southern Region MNR

cc Jim Beal, Southern Region Renewable Energy Coordinator, MNR
Amy Cameron, Renewable Energy Planning Ecologist, MNR
Ian Hagman, Guelph District Manager, MNR
Narren Santos, Environmental Approvals Access & Service Integration Branch, MOE
Zeljko Romic, Environmental Approvals Access & Service Integration Branch, MOE

Appendix B

Field Notes

Appendix B1. Ecological Land Classification (ELC), Vascular Plant Inventory and Incidental Wildlife

Appendix B2. Amphibian Woodland Breeding Habitat Evaluation of Significance Surveys

Appendix B3. Turtle Wintering Area Evaluation of Significance Surveys

Appendix B1. Ecological Land Classification (ELC), Vascular Plant Inventory and Incidental Wildlife

212

204

GSH1537

GSH1536

GSH1535

GSH1528

GSH1532

GSH1075

CUP

CUM

FOD

CUW1

Roe-yes

Stick nest 69

Grand Bend Line

441250

441000

4790750

4790500

Legend

Wind Energy Centre Study Area
Goshen Transmission Line Study Area
Municipal Division
120 m Area of Investigation
Roads
Railway

Natural Feature
Watercourse (ABCA, SCRCA)
Watercourse (MNR)
Properties

Project Location
GE Turbine
Permanent MET Tower
Access Roads
Collection Line
Transmission Line
Breaker Switch Station
Transformer Substation
Laydown Yard
Disturbance Area

Natural Feature
ELC
Properties

Metres

0 5 10 20 30 40

UTM Zone 17N, NAD 83 1:2,043

Goshen Wind Energy Centre EEMP

ELC Field Map
204_GSH1536/GSH1535

April 2013
Project 60155032

AECOM

Path: N:\60-aecom\60155032\2010\FinalGISpatialMXDs\FieldMapMXDs\Project_ELC_Mapping\Goshen\GSH_ELC\60155032_GSH_ELC_204_GSH_1536_1535.mxd

ELC Community Description and Classification

Map #: 2045SH1535/1536	Polygon: CUW1	
Surveyor(s): Jen Baetz / Tom Shurey	Date: 2013/04/16	Time start: 10:35am finish: 11:45am
UTMZ: 441323	UTMZ: 4790649	UTMN:

Polygon Description

System	Substrate	Topographic Feature	Plant Form	Community
☒ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☐ Wetland	☒ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☐ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☐ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☐ Forb	☐ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☐ Tableland	☐ Lichen	☐ Swamp
☒ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☒ Deciduous	☐ Bog
History		☐ Talus	☐ Coniferous	☐ Barren
☐ Natural		☐ Crevice/Cave	☐ Mixed	☐ Meadow
☒ Cultural		☐ Alvar		☐ Prairie
Cover		☐ Rockland		☐ Thicket
☐ Open		☐ Beach / Bar		☐ Savannah
☐ Shrub		☐ Sand Dune		☒ Woodland
☒ Treed		☐ Bluff		☐ Forest
CUW				☐ 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	2/3	QUE Macro >> Crataegus sp. > Tilia AM >> Fra pen
2	7	X	
3	4	2	Crataegus sp >> Cornus / Acer NEG > Fra pen > Tilia AM
4	6	3	Acer sp >> rough herbaceous

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

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

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

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

Ecosite:	Mineral Cultural Woodland Ecosite	Code:	CUW1
Vegetation Type:	Birch dale - Hawthorn - Bassswood - Green Ash Cultural woodland	Code:	CUW1
Inclusion:		Code:	
Complex:		Code:	

Community Profile Diagram/Comments

⇒ small community adjacent to maintained area / plantation

Notes:

Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
Total						100
Basal Area (BA)						
Dead						

Soils Ontario and ELC Soils Description

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

ASA Survey

ELC Community Description and Classification

Map #: 2014GSH1535/1536	Polygon: CUP3		
Surveyor(s): Jess Pichette / Tom Shorney	Date: 2013/04/16	Time start: 10:35 am	finish: 11:45 am
UTMZ:	UTMZ:	UTMN:	

Polygon Description

System	Substrate	Topographic Feature	Plant Form	Community
☑ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☐ Wetland	☐ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☒ Parent Min.	☐ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☐ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☐ Forb	☐ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☑ Tableland	☐ Lichen	☐ Swamp
☒ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☐ Deciduous	☐ Bog
History		☐ Talus	☑ Coniferous	☐ Barren
☐ Natural		☐ Crevice/Cave	☐ Mixed	☐ Meadow
☑ Cultural		☐ Alvar		☐ Prairie
Cover		☐ Rockland		☐ Thicket
☐ Open		☐ Beach / Bar		☐ Savannah
☐ Shrub		☐ Sand Dune		☐ Woodland
☒ Treed		☐ Bluff		☐ Forest
				☑ 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	Pin Stro >> Picabie
2			
3			
4			

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

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

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

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

Ecosite:	Coniferous Plantation	Code:	CUP3
Vegetation Type:		Code:	
Inclusion:		Code:	
Complex:		Code:	

Community Profile Diagram/Comments

Notes:

Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
Total						100
Basal Area (BA)						
Dead						

Soils Ontario and ELC Soils Description

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

Plant Species List
2012

Trees & Shrubs	1	2	3	4	5
Conifers					
Balsam Fir *(Abies balsamea)*					
Common Juniper *(Juniperus communis)*					
Eastern Red Cedar *(Juniperus virginiana)*	U				
Tamarack *(Larix laricina)*					
Norway Spruce *(Picea abies)*	U				U
White Spruce *(Picea glauca)*	U				
Black Spruce *(Picea mariana)*					
Jack Pine *(Pinus banksiana)*					
Red Pine *(Pinus resinosa)*	R				
Eastern White Pine *(Pinus strobus)*	F			F	
Scotch Pine *(Pinus sylvestris)*	U				
Canada Yew *(Taxus canadensis)*					
Eastern White Cedar *(Thuja occidentalis)*	U				
Eastern Hemlock *(Tsuga canadensis)*					
Deciduous					
Manitoba Maple *(Acer negundo)*					
Black Maple *(Acer nigrum)*					
Norway Maple *(Acer platanoides)*					
Red Maple *(Acer rubrum)*					
Silver Maple *(Acer saccharinum)*					
Freeman's Maple *(Acer X freemanii)*	U				
Sugar Maple *(Acer saccharum)*					
Mountain Maple *(Acer spicatum)*					
Speckled Alder *(Alnus incana)*					
Downy Serviceberry *(Amelanchier arborea)*					
Serviceberry *(Amelanchier sanguinea)*					
Yellow Birch *(Betula alleghaniensis)*					
White Birch *(Betula papyrifera)*					
European Birch *(Betula pendula)*					
Blue Beech *(Carpinus caroliniana)*					
Bitternut hickory *(Carya cordiformis*					
Shagbark Hickory *(Carya ovata)*		R			
Climbing Bittersweet *(Celastrus scandens)*					
Common Hackberry *(Celtis occidentalis)*					
Buttonbush *(Cephalanthus occidentalis)*					
Alt.-leaved Dogwood *(Cornus alternifolia)*	U				
Silky Dogwood *(Cornus amomum)*					
Bunchberry *(Cornus canadensis)*					
Gray dogwood *(Cornus racemosa)*	F	U			
Round-leaved Dogwood *(Cornus rugosa)*					
Red-osier Dogwood *(Cornus sericea)*	R				
American Hazel *(Corylus americana)*					
Beaked Hazel *(Corylus cornuta)*					
Cockspur Thorn *(Crataegus crus-galli)*					
English Hawthorn *(Crataegus monogyna)*					
Large-fruited Thorn *(Crataegus punctata)*					
Crataegus sp.	U	F			
Crataegus					
Bush Honeysuckle *(Diervilla lonicera)*					
Russian Olive *(Elaeagnus angustifolia)*					
Autumn Olive *(Elaeagnus umbellata)*					
Run. Strawberry-bush *(Euonymus obovata)*					
American Beech *(Fagus grandifolia)*					
Glossy Buckthorn *(Frangula alnus)*					
White Ash *(Fraxinus americana)*					
Black Ash *(Fraxinus nigra)*					
Green Ash *(Fraxinus pennsylvanica)*		U			
Witch-hazel *(Hamamelis virginiana)*					
Winterberry *(Ilex verticilata)*					
Butternut *(Juglans cinerea)*					
Black Walnut *(Juglans nigra)*					
Common Privet *(Ligustrum vulgare)*					
Spicebush *(Lindera benzoin)*					
Fly Honeysuckle *(Lonicera canadensis)*					
Glaucous Honeysuckle *(Lonicera dioica)*					
Morrow's Honeysuckle *(Lonicera morrowii)*					
Tartarian Honeysuckle *(Lonicera tatarica)*					
Common Apple *(Malus pumila)*	U				
White Mulberry *(Morus alba)*					
Sweet Gale *(Myrica gale)*					
Ironwood *(Ostrya virginiana)*					
Thicket-creeper *(Parthenocissus inserta)*					
Ninebark *(Physocarpus opulifolius)*					
Balsam Poplar *(Populus balsamifera)*					
Eastern Cottonwood *(Populus deltoides)*	U				
Large-tooth Aspen *(Populus grandidentata)*					
Trembling Aspen *(Populus tremuloides)*					
Sweet Cherry *(Prunus avium)*					
Pin Cherry *(Prunus pensylvanica)*					
Black Cherry *(Prunus serotina)*					
Choke Cherry *(Prunus virginiana)*					
Prunus					

Tree & Shrubs	1	2	3	4	5
Deciduous					
White Oak *(Quercus alba)*					
Bur Oak *(Quercus macrocarpa)*		F			
Red Oak *(Quercus rubra)*					
Alder Buckthorn *(Rhamnus alnifolia)*					
Common Buckthorn *(Rhamnus cathartica)*	A				
Smooth Sumac *(Rhus glabra)*					
Staghorn Sumac *(Rhus hirta)*					
Wild Black Currant *(Ribes americanum)*					
Prickly Gooseberry *(Ribes cynosbati)*					
Swamp Black Currant *(Ribes lacustre)*					
Red Currant *(Ribes rubrum)*					
Ribes					
Black Locust *(Robinia pseudo-acacia)*					
Prickly Rose *(Rosa acicularis)*					
Smooth Rose *(Rosa blanda)*					
Multiflora Rose *(Rosa multiflora)*					
Rosa sp.	R				
Com. Blackberry *(Rubus allegheniensis)*					
Wild Red Raspberry *(Rubus idaeus)*	U				
Black Raspberry *(Rubus occidentalis)*					
Purple-fl. Raspberry *(Rubus odoratus)*					
Dwarf Raspberry *(Rubus pubescens)*					
Rubus					
Peach-leaved Willow *(Salix amygdaloides)*					
Bebb's Willow *(Salix bebbiana)*					
Pussy Willow *(Salix discolor)*					
Missouri Willow *(Salix eriocephala)*					
Sandbar Willow *(Salix exigua)*					
Shining Willow *(Salix lucida)*					
Black Willow *(Salix nigra)*					
Slender Willow *(Salix petiolaris)*					
Salix					
Hybrid Crack Willow *(Salix X rubens)*	R	R			
Black-berried Elder *(Sambucus nigra)*					
Red-berried Elder *(Sambucus racemosa)*					
Buffaloberry *(Shepherdia canadensis)*					
Eur. Mountain Ash *(Sorbus aucuparia)*					
Narrow Meadow-sweet *(Spiraea alba)*					
Common Lilac *(Syringa vulgaris)*					
Poison-ivy *(Toxicodendron rydbergii)*					
Climbing Poison-ivy *(Toxicodendron radicans)*					
White Elm *(Ulmus americana)*	R				
Siberian Elm *(Ulmus pumila)*					
Slippery Elm *(Ulmus rubra)*					
Maple-leaf Viburnum *(Viburnum acerifolium)*					
Hobblebush *(Viburnum lantanoides)*					
Nannyberry *(Viburnum lentago)*					
Guelder-Rose *(Viburnum opulus)*					
Downy Arrow-wood *(Vib. rafinesquianum)*					
Riverbank Grape *(Vitis riparia)*	U				
Am. Prickly-ash *(Zanthoxylum americanum)*					
Lady Fern *(Athyrium filix-femina)*					
Rattlesnake Fern *(Botrychium virginianum)*					
Bulbet Bladder Fern *(Cystopteris bulbifera)*					
Spin. Wood Fern *(Dryopteris carthusiana)*					
Crested Wood Fern *(Dryopteris cristata)*					
Marginal Wood Fern *(Dryopteris marginalis)*					
Dryopteris					
Ostrich Fern *(Matteuccia struthiopteris)*					
Sensitive Fern *(Onoclea sensibilis)*					
Cinnamon Fern *(Osmunda cinnamomea)*					
Interrupted Fern *(Osmunda claytoniana)*					
Royal Fern *(Osmunda regalis)*					
Christmas Fern *(Polystichum acrostichoides)*					
Eastern Bracken-fern *(Pteridium aquilinum)*					
Marsh Fern *(Thelypteris palustris)*					
Field Horsetail *(Equisetum arvense)*					
Scouring-rush *(Equisetum hyemale)*					
Variegated Horsetail *(Equisetum variegatum)*					
Equisetum					
Ground-cedar*(Lycopodium digitatum)*					
Shining Clubmoss *(Lycopodium lucidulum)*					
Ground-pine *(Lycopodium obscurum)*					

Graminoids	1	2	3	4	5
Grasses					
Giant Redtop *(Agrostis gigantea)*					
Redtop *(Agrostis stolonifera)*					
Awnless Brome *(Bromus inermis)*					
Bromus					
Blue-joint Grass *(Calamagrostis canadensis)*					
Orchard Grass *(Dactylis glomerata)*	F	U			
Poverty Oat Grass *(Danthonia spicata)*					
Quack Grass *(Elymus repens)*					
Virginia Wild Rye *(Elymus virginicus)*					
Elymus					
Fowl Manna Grass *(Glyceria striata)*					
Glyceria					
Rice Cut Grass *(Leersia oryzoides)*					
Tall Fescue *(Lolium arundinaceum)*					
Muhlenbergia					
Witch-grass *(Panicum capillare)*					
Panicum					
Reed Canary Grass *(Phalaris arundinacea)*	U				
Timothy *(Phleum pratense)*					
Common Reed *(Phragmites australis)*					
Canada Blue Grass *(Poa compressa)*					
Fowl Meadow Grass *(Poa palustris)*					
Kentucky Bluegrass *(Poa pratensis)*					
Yellow Foxtail *(Setaria pumila)*					
Green Foxtail *(Setaria viridis)*					
grass sp		F			
Sedges					
Drooping Wood Sedge *(Carex arctata)*					
Golden-fruited Sedge *(Carex aurea)*					
Graceful Sedge *(Carex gracillima)*					
Inland Sedge *(Carex interior)*					
Bladder Sedge *(Carex intumescens)*					
Lake-bank Sedge *(Carex lacustris)*					
Hop Sedge *(Carex lupulina)*					
Pennsylvania Sedge *(Carex pensylvanica)*					
Awl-fruited Sedge *(Carex stipata)*					
Fox Sedge *(Carex vulpinoidea)*					
Carex sp.		R			
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Cyperus					
Redroot Spike-rush *(Eleocharis erythropoda)*					
Eleocharis					
Hard-stem Bulrush *(Schoenoplectus acutus)*					
Three-square Bulrush *(Sch. pungens)*					
Soft-stem Bulrush *(Sch. tabernaemontani)*					
Dark-green Bulrush *(Scirpus atrovirens)*					
Wool-grass *(Scirpus cyperinus)*					
Other Graminoids					
Broad Bur-reed *(Sparganium eurycarpum)*					
Narrow-leaved Cattail *(Typha angustifolia)*					
Broad-leaved Cattail *(Typha latifolia)*					
Broad-leaved Cattail *(Typha X glauca)*					
Articulated Rush *(Juncus articulatus)*					
Soft Rush *(Juncus effusus)*					
Path Rush *(Juncus tenuis)*					
Juncus					
Juncus					

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

F - Fairly common (=Abundant in ELC) : generally widespread represented by fairly large numbers of individual clumps, usually forming >10% ground cover

U - Uncommon (=Occasional in ELC) : present as widespread scattered individuals or represented by one or more clumps of many individuals (most species will fall into this category)

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

Map Number: 2014 GSH1535/1536	1	overall plant list	4	CUP3	
Date: Aug. 16, 2013	2		5		
Surveyors: J, P, TB	3	CUW1			

Plant Species List
2012

Dicot Herbs - Asteraceae	1	2	3	4	5
Common Yarrow (*Achillea millefolium*)					
White Snakeroot (*Ageratina altissima*)					
Com. Ragweed (*Ambrosia artemisiifolia*)					
Giant Ragweed (*Ambrosia trifida*)					
Field Pussytoes (*Antennaria neglecta*)					
Artemisia					
Common Burdock (*Arctium minus*)	R	R			
Nodding Beggar-ticks (*Bidens cernua*)					
Devil's Beggar-ticks (*Bidens frondosa*)					
Spotted Knapweed (*Centaurea biebersteinii*)					
Brown Knapweed (*Centaurea jacea*)					
Chicory (*Cichorium intybus*)					
Canada Thistle (*Cirsium arvense*)					
Bull Thistle (*Cirsium vulgare*)					
Horseweed (*Conyza canadensis*)					
Daisy Fleabane (*Erigeron annus*)					
Philadelphia Fleabane (*Erig. philadelphicus*)					
Erigeron					
Joe-pye-weed (*Eupatorium maculatum*)					
Boneset (*Eupatorium perfoliatum*)					
Large-leaved Aster (*Eurybia macrophylla*)					
Flat-top Goldenrod (*Euthamia graminifolia*)					
Orange Hawkweed (*Hieracium aurantiacum*)					
Field Hawkweed (*Hieracium caespitosum*)					
Hieracium					
Elecampane (*Inula helenium*)					
Prickly Lettuce (*Lactuca serriola*)					
Lactuca					
Ox-eye Daisy (*Leucanthemum vulgare*)					
Pineapple-weed (*Matricaria discoidea*)					
Tall White Lettuce (*Prenanthes altissima*)					
Black-eyed Susan (*Rudbeckia hirta*)					
Tall Goldenrod (*Solidago altissima*)					
Blue-stem Goldenrod (*Solidago caesia*)					
Canada Goldenrod (*Solidago canadensis*)					
Zig-zag Goldenrod (*Solidago flexicaulis*)					
Giant Goldenrod (*Solidago gigantea*)					
Early Goldenrod (*Solidago juncea*)					
Gray Goldenrod (*Solidago nemoralis*)					
Solidago (8)	F	R			
Field Sow-thistle (*Sonchus arvensis*)					
Sonchus					
Heart-leaf Aster (*Symph. cordifolium*)					
Heath Aster (*Symphyotrichum ericoides*)					
Tall White Aster (*Symph. lanceolatum*)					
Calico Aster (*Symphyotrichum lateriflorum*)					
New England Aster (*Symph. novae-angliae*)					
Purple-stem Aster (*Symph. puniceus*)					
Common Tansy (*Tanacetum vulgare*)					
Common Dandelion (*Taraxacum officinale*)		R			
Com. Goatsbeard (*Tragopogon pratensis*)					
Coltsfoot (*Tussilago farfara*)					
symphyotrichum sp.	F	R			

Other Dicot Herbs
White Baneberry (*Actaea pachypoda*)
Red Baneberry (*Actaea rubra*)
Tall Agrimony (*Agrimonia gryposepala*)
Garlic Mustard (*Alliaria petiolata*)
Green Amaranth (*Amaranthus retroflexus*)
Hog-peanut (*Amphicarpa bracteata*)
Pearly Everlasting (*Anaphalis margaritacea*)
Canada Anemone (*Anemone canadensis*)
Ivy Hepatica (*Anemone acutiloba*)
Thimbleweed (*Anemone virginiana*)
Purple Angelica (*Angelica atropurpurea*)
Indian Hemp (*Apocynum cannabinum*)
Wild Sarsaparilla (*Aralia nudicaulis*)
Spikenard (*Aralia racemosa*)
Wild Ginger (*Asarum canadense*)
Swamp Milkweed (*Asclepias incarnata*)
Common Milkweed (*Asclepias syriaca*)
Yellow Rocket (*Barbarea vulgaris*)
False Nettle (*Boehmeria cylindrica*)
Black Mustard (*Brassica nigra*)
Marsh-marigold (*Caltha palustris*)
Creeping Bellflower (*Campanula rapunculoides*)

Dicot Herbs	1	2	3	4	5
Shepherd's Purse (*Capsella bursa-pastoris*)					
Cutleaf Toothwort (*Cardamine concatenata*)					
Toothwort (*Cardamine diphylla*)					
Penn. Bitter-cress (*Cardamine pensylvanica*)					
Cardamine					
Blue Cohosh (*Caulophyllum thalictroides*)					
Mouse-ear Chickweed (*Cerastium fontanum*)					
Turtlehead (*Chelone glabra*)					
Spotted Water-hemlock (*Cicuta maculata*)					
Water-hemlock (*Cicuta virosa*)					
Enchanter's Nightshade (*Circaea lutetiana*)					
Carolina Spring Beauty (*Claytonia caroliniana*)					
Virginia Spring Beauty (*Claytonia virginica*)					
Virgin's-bower (*Clematis virginiana*)					
Field Bindweed (*Convolvulus arvensis*)					
Dog-strangling Vine (*Cynanchum rossicum*)					
Wild Carrot (*Daucus carota*)	U				
Deptford Pink (*Dianthus armeria*)					
Squirrel-corn (*Dicentra canadensis*)					
Dutchman's-breeches (*Dicentra cucullaria*)					
Wild Teasel (*Dipsacus fullonum*)	U	R			
Wild Cucumber (*Echinocystis lobata*)					
Viper's Bugloss (*Echium vulgare*)					
Northern Willow-herb (*Epilobium ciliatum*)					
Hairy Willow-herb (*Epilobium hirsutum*)					
Small-fl. Willow-herb (*Epilobium parviflorum*)					
Epilobium					
Worm Mustard (*Erysimum cheiranthoides*)					
Euphorbia					
Hemp Nettle (*Galeopsis tetrahit*)					
Wild Madder (*Galium mollugo*)					
Marsh Bedstraw (*Galium palustre*)					
Sweet-scented Bedstraw (*Galium triflorum*)					
Galium (Mxm)	R	R			
Spotted Geranium (*Geranium maculatum*)					
Herb-robert (*Geranium robertianum*)					
Yellow Avens (*Geum aleppicum*)					
White Avens (*Geum canadense*)					
Urban Avens (*Geum urbanum*)					
Dame's Rocket (*Hesperis matronalis*)					
Virg. Water-leaf (*Hydrophyllum virginianum*)					
Com. St. John's-wort (*Hypericum perforatum*)					
Spotted Jewelweed (*Impatiens capensis*)					
Wood Nettle (*Laportea canadensis*)					
Motherwort (*Leonurus cardiaca*)					
Field Peppergrass (*Lepidium campestre*)					
Eur. Gromwell (*Lithospermum officinale*)					
Butter & Eggs (*Linaria vulgaris*)					
Great Lobelia (*Lobelia siphilitica*)					
Lobelia					
Cut-leaf Bugleweed (*Lycopus americanus*)					
Northern Bugleweed (*Lycopus uniflorus*)					
Fringed Loosestrife (*Lysimachia ciliata*)					
Moneywort (*Lysimachia nummularia*)					
Lysimachia					
Purple Loosestrife (*Lythrum salicaria*)					
Black Medick (*Medicago lupulina*)					
Alfalfa (*Medicago sativa*)					
White Sweet-clover (*Melilotus alba*)					
Yellow Sweet-clover (*Melilotus officinalis*)					
Wild Mint (*Mentha arvensis*)					
Wild Bergamot (*Monarda fistulosa*)					
Small Forget-me-not (*Myosotis laxa*)					
Forget-me-not (*Myosotis scorpioides*)					
Water-cress (*Nasturtium officinale*)					
Com. Evening-primrose (*Oenothere biennis*)					
Sweet-cicely (*Osmorhiza berteril*)					
Yellow Wood-sorrel (*Oxalis stricta*)					
Wild Parsnip (*Pastinace sativa*)					
English Plantain (*Plantago lanceolata*)					
Common Plantain (*Plantago major*)					
Rugel's Plantain (*Plantago rugelii*)					
May-apple (*Podophyllum peltatum*)					
Pale Smartweed (*Polygonum lapathifolium*)					
Lady's-thumb (*Polygonum persicaria*)					
Virginia Knotweed (*Polygonum virginianum*)					
Polygonum					
Polygonum					
Rough Cinquefoil (*Potentilla norvegica*)					
Rough-fruited Cinquefoil (*Potentilla recta*)					
Common Cinquefoil (*Potentilla simplex*)					
Potentilla					
Heal-all (*Prunella vulgaris*)					
Shinleaf (*Pyrola elliptica*)					

Dicot Herbs	1	2	3	4	5
Kidney-leaf Buttercup (*Ranunculus abortivus*)					
Tall Buttercup (*Ranunculus acris*)					
Hooked Buttercup (*Ranunculus recurvatus*)					
Ranunculus					
Sheep Sorrel (*Rumex acetosella*)					
Curly-leaf Dock (*Rumex crispus*)					
Bitter Dock (*Rumex obtusifolius*)					
Bloodroot (*Sanguinaria canadense*)					
Black Snakeroot (*Sanicula marilandica*)					
Bouncing Bet (*Saponaria officinalis*)					
Marsh Skullcap (*Scutellaria galericulata*)					
Mad Dog Skullcap (*Scutellaria lateriflora*)					
White Campion (*Silene latifolia*)					
Bladder Campion (*Silene vulgaris*)					
Hemlock Water-parsnip (*Sium suave*)					
Bitter Nightshade (*Solanum dulcamara*)					
Black Nightshade (*Solanum ptychanthum*)					
Grassleaf Stitchwort (*Stellaria graminea*)					
Common Chickweed (*Stellaria media*)					
Early Meadow-rue (*Thalictrum dioicum*)					
Tall Meadow-rue (*Thalictrum pubescens*)					
Field Penny-cress (*Thlaspi arvense*)					
Foamflower (*Tiarella cordifolia*)					
Star-flower (*Trientalis borealis*)					
Red Clover (*Trifolium pratense*)					
White Clover (*Trifolium repens*)					
Trifolium (M)	R				
Stinging Nettle (*Urtica dioica*)					
Greater Bladderwort (*Utricularia vulgaris*)					
Common Mullein (*Verbascum thapsus*)	R				
Blue Vervain (*Verbena hastata*)					
White Vervain (*Verbena urticifolia*)					
Water Speedwell (*Veron. anagallis-aquatica*)					
Common Speedwell (*Veronica officinalis*)					
Veronica					
Cow Vetch (*Vicia cracca*)					
Vicia					
Periwinkle (*Vinca minor*)					
Dog Violet (*Viola conspersa*)					
Yellow Violet (*Viola pubescens*)					
Com. Blue Violet (*Viola sororia*)					
Viola					
Virginia (illegible)	U				

Monocot Herbs
Water-plantain (*Alisma plantago-aquatica*)
Wild Leek (*Allium tricoccum*)
Jack-in-the-pulpit (*Arisaema triphyllum*)
Asparagus (*Asparagus officinalis*)
Wild Calla (*Calla palustris*)
Bluebead-lily (*Clintonia borealis*)
Garden Lily-of-valley (*Convallaria majalis*)
Yel. Lady's Slipper (*Cypripedium parviflora*)
Canada Waterweed (*Elodea canadensis*)
Helleborine (*Epipactis helleborine*)
Yellow Trout Lily (*Erythronium americanum*)
Blue-flag Iris (*Iris versicolor*)
Orange Day Lily (*Hemerocallis fulva*)
Lesser Duckweed (*Lemna minor*)
Starry Duckweed (*Lemna trisulca*)
Wild Lily-of-valley (*Maianthemum canadense*)
False Solom Seal (*Maianthemum racemosum*)
Star False Solomon (*Maianthemum stellatum*)
True Solomon Seal (*Polygonatum pubescens*)
Pickerel-weed (*Pontederia cordata*)
Curly-leaf Pondweed (*Potamogeton crispus*)
Sago Pondweed (*Potamogeton pectinatus*)
Potamogeton
Potamogeton
Broad-leaved Arrowhead (*Sagittaria latifolia*)
Blue-eyed-grass (*Sisyrinchium montanum*)
Herb. Carrion Flower (*Smilax herbacea*)
Bristly Greenbrier (*Smilax hispida*)
Nodding Ladies' Tresses (*Spiranthes cernua*)
Rose Twisted-stalk (*Streptopus lanceolatus*)
Skunk-cabbage (*Symplocarpus foetidus*)
Purple Trillium (*Trillium erectum*)
White Trillium (*Trillium grandiflorum*)
Large-flowered Bellwort (*Uvularia grandiflora*)

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

F - Fairly common (=Abundant in ELC) generally widespread represented by fairly large numbers of individual clumps; usually forming >10% ground cover

U - Uncommon (=Occasional in ELC) present as widespread scattered individuals or represented by one or more clumps of many individuals (most species will fall into this category)

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

Map Number:	2018SH1535115746	1	Overall plant list
Date:	April 16, 2013	2	
Surveyors:	JP+TS	3	CLWI
		4	
		5	

Significant Wildlife Habitat Form

AECOM

Study Area: BLW JER (GSH) Map #: 204-GSH1536/GSH1535
Date: 04/16/2013 Time Started: 10:35 a.m
Field Staff: Tom Storvey, Jess Time Finished: 11:45 a.m.
Weather Conditions: overcast, 11°C, calm

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: 17T 441323, 4790649 Number of nests: 1
Decription of nests (location, e.g. in tree/on built structure; material; evidence of recent use; birds present):
Stick nest built in whitebirch - Approx 15m in cattail. Smaller in pine
Description of habitat (note riparian areas if present, evidence of disturbance): Along forest edge.
Pic 69

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, turles (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, dimenstions, 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):

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, CUS, 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
69	Stick nest -		

Species of Conservation Concern Habitat and Incidental Wildlife – Goshen

Map No: 204-GSH1536/GSH1535 Field Staff: Tom Shorney, Jess Pietre Time Started: 10:35 a.m

Date (yyyy-mm-dd): 2013-04-16 Time Finished: 11:45 a.m

Observed Species List

Species Code	UTM	EV	Notes	Species Code	UTM	EV	Notes
Am. Robin		VO					
Song Sparrow		VO					
Red-Winged Blkbird		VO					
Cardinal		VO					
Killdeer		VO					
Turkey Vulture		OB					
Am. Goldfinch		OB					
No. Flicker		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=Foos/Faecal sack, AE=Nest Entry

Other Wildlife Evidence: OB=Observed, VO=Vocalization, CA=Carcass, DP=Distincitve Parts, HO=House/Den, FY=Eggs/young, TK=Tracks, FE=Feeding evidence, SC= Scat, SI=Other signs (specify)

N/O → Not observed

ELC	Species	Habitat Description	Habitat Present (Y/N; UTM; description of habitat if present)
PLANTS			
FOD7	**American Gromwell** (Lithospermum latifolium) - S3 Bloom Time - Spring	Shaded river banks, wooded floodplains. River floodplains, woods and edges of woods.	Y (N) UTM:
ALO, TPO	**Muehlenberg's astomum moss** (*Astomum muehlenbergianum*)- S2 Bloom Time - Spring	Thin soil over level outcrop ledges and on soil under grasses in open prairie	Y (N) UTM:
FOM1, FOM2, CUP3	**Autumn Coral-root** (Corallorhiza odontorhiza) - S2 Bloom Time - summer to fall	Oak-pine woods or occasionally in open, red pine or white pine plantations. Dry, sandy woods.	Y (N) UTM:
FOC, FOM, FOD	**Burning Bush** (*Euonymus atropurpureus*) – S3 Bloom Time- April - June	Species occurs in dry to moist deciduous thickets and woods	Y (N) UTM:
SWC1, SWC3, SWC4, SWM1, SWM2, SWM4, SWM5, SWM6	**Chinese Hemlock Parsley** (*Conioselinum chinense*) - S2 Bloom Time –summer to fall	Swampy places with deciduous trees, white cedars, tamarack; springy river banks, wet borders of streams and rivers. Also found among calcareous seepage slopes.	Y (N) UTM:
SWC, SWM, SWD,SWT, MAM, MAS	**Crowned Beggarticks** (*Bidens trichosperma*) -S2 Bloom Time – late summer	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 Bloom Time –mid March to August	Occurs in rich, wet-mesic floodplain forests as well as mesic forests over limestone. Includes floodplains and river banks.	Y (N) UTM:
TPS, TPW, FOM1, FOM2	**Fogg's Goosefoot** (*Chenopodium foggi*) -S2	Species occurs in sandy areas on limestone under oak or pine-oak forests	Y (N) UTM:
TPO2, TPS2, TPW2,	**Giant Ironweed** (*Vernonia gigantean*)-S1? Bloom Time-	Found in mesic prairies, thickets, moist woods, roadsides and grassy meadows	Y (N) UTM: N/O

Species of Conservation Concern Habitat and Incidental Wildlife – Goshen

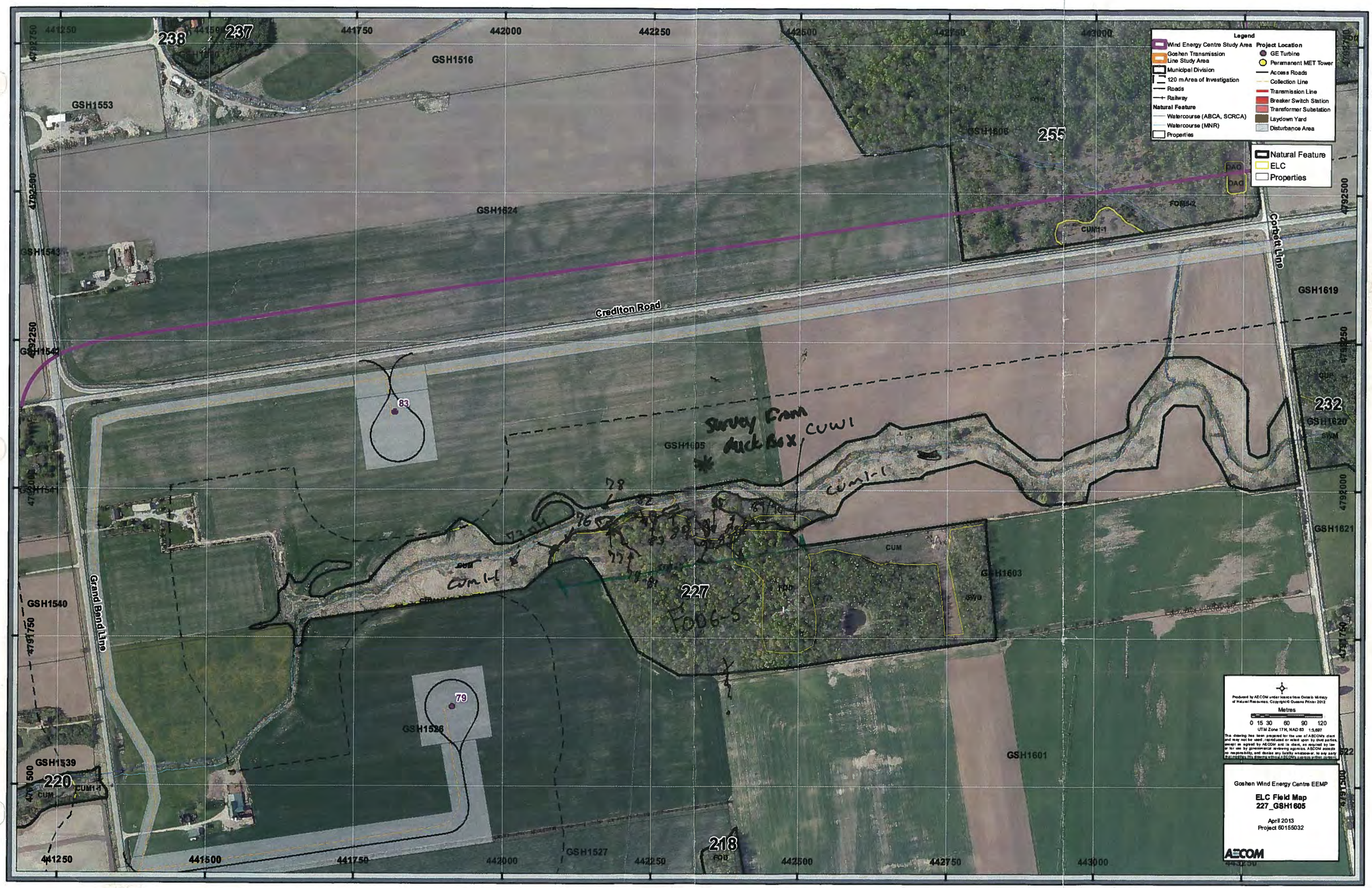
AECOM

ELC	Species	Habitat Description	Habitat Present (Y/N; UTM; description of habitat if present)
CUM1, MAM,	*June –August*		
FOD6, FOD7, FOD9	**Green Dragon (Arisaema dracontium) - SC/S3** *Bloom Time – May and June*	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:
TPO1, TPS1, TPW1, FOM1, FOM2, FOD1, FOD2, FOD3	**Hairy Bedstraw** *(Galium pilosum) -S3 Bloom Time – June-August*	Occurs in dry, sandy woods and thickets; occasionally in dry sandy fields	Y (N) UTM:
FEO1, FES1, FET1, SWC, SWM, SWD, SWT, TPO, TPS, TPW	**Hairy Valerian** (Valeriana edulis) -S1 *Bloom Time – June to August*	Inhabits swampy river flats and meadows, wet prairies, and wooded, rocky riverbanks and fens.	Y (N) UTM:
FOD6, FOD7, SWM, SWD	**Hairy Wood Mint** *(Blephilia hirsuta) –S1 Bloom Time- Summer*	Woodlands, often rocky, especially rivers. Rich woods, swamp forests, floodplains.	Y (N) UTM:
FOD6, FOD7, FOD8, FOD9	**Harbinger-of-spring** (Erigenia bulbosa) - S3 *Bloom Time – early to late April*	Occurs in rich, moist deciduous woods, especially on floodplains.	Y (N) UTM:
SAS1, SAM1, SAF1	**Hill's Pond Weed** (Potamogeton hillii) - SC/S2 *Bloom Time – summer*	Aquatic plant found in highly alkaline waters of ditches, ponds, beaver ponds, and slow-moving cold waters.	Y (N) UTM:
FOM6, FOM7, FOM8	**Large Round-leaved Orchid** (Platanthera macrophylla) - S2 *Bloom Time – June to August*	Species inhabits moist mixed woods. Found in fairly mature, upland sugar maple-beech-eastern hemlock woodlands.	Y (N) UTM:
MAM2, MAM3, MAS2, MAS3, SWD	**Lizard's Tail** (Saururus cernuus) - S3 *Bloom Time – June – September*	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 (N) UTM:
FOD6, FOD7, FOD9	**Pawpaw** *(Asimina triloba) –S3 Bloom Time – March-May*	Occurs in moist deciduous woods and stream banks.	Y (N) UTM:
FOM8, FOD6, FOD7, FOD9, CUM1	**Pilose Evening Primrose** ***(Oenothera pilosella)*** *–S2 Bloom Time – Late Spring – Early Summer*	Moist edges of woods and open, disturbed ground.	(Y) N UTM: N/O
TPW1, FOM1, FOM2, FOD1, FOD2, FOD3	**Prostate Tick-trefoil** *(Desmodium rotundifolium) –S2 Bloom Time – July-September*	Dry, sandy or rocky woods	Y (N) UTM:
FOD7, SWD	**Pumpkin Ash** *(Fraxinus profunda)-S2? Bloom Time – March - June*	Swamps and floodplains	Y (N) UTM:
CUW1, ALO, FET1, SWC	**Ram's-head Lady's-slipper** (Cypripedium arietinum) - S3 *Bloom Time –mid May to mid June*	Found in cedar woodlands, limestone plains and wooded fens, moist coniferous swamps, dry-sandy woods, and limestone barren .	Y (N) UTM:
FOD1, FOD2, FOD3, FOD4, FOD5, FOC1, FOM1, FOM5	**Rattlesnake Hawkweed** (Hieracium venosum) - S2 *Bloom Time – April – September*	Species inhabits open, dry sandy woods. Jack pine, oak, and aspen woodlands.	Y (N) UTM:
FOD6, FOD7, FOD9	**Round-leaved Groundsel** *(Packera obovata) –S3 Bloom Time- May - June*	Found in moist woods	Y (N) UTM:
CUM1, CUT1, CUS1	**Round-leaved hawthorn** *(Crataegus lumaria) –S3?*	Species occurs in old fields, poorly managed pastures, fencelines and roadsides	(Y) N UTM: N/O
FOD6, FOD7, FOD8, FOD9, SWT2, SWT3	**Scarlet Beebalm** (Monarda didyma) - S3 *Bloom Time – May to October*	Found in moist, rich woods, thicket swamps, banks and floodplains.	Y (N) UTM:
ALO, ALS, ALT, TPO, TPS, TPW	**Slender Blazing Star** *(Liatris cylindracea) –S3*	Species occurs in limestone and dolostone pavement, prairies, open woods; alvars and moist sandy meadows.	Y (N) UTM:
SBO, SBS, SBT, TPO1, TPS1, TPW1, FOD1, FOD2	**Slender Knotweed** *(Polygonum tenue)-S2*	Found in dry, sandy, open areas in deciduous (often oak woods), prairie meadows; at edges of sand pits	Y (N) UTM:
SDT1, FOD5, FOD9	**Slim-flowered Muhly** (Muhlenbergia tenuiflora) - 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 (N) UTM:
BLO1, BLS1, BLT1, TPO2, TPS2, TPW2, MAM2, FOD7	**Stiff Gentian** (Gentianella quinquefolia) - S2 *Bloom Time – late summer to mid fall*	Found in moist soils of streambanks, edges of woods, wet prairies, marshy meadows, bluffs and wooded hillsides.	Y (N) UTM:
TPS1, TPW1, CUW1, RBO, SBO	**Sundial Lupine** (Lupinus perennis) - S3 *Bloom Time – mid-March to mid-June*	Inhabits dry, sandy oak savannahs, prairies, open barrens or clearings in woodlands of oak, jack pine, and/or aspen .	Y (N) UTM:

Species of Conservation Concern Habitat and Incidental Wildlife – Goshen

AECOM

ELC	Species	Habitat Description	Habitat Present (Y/N; UTM; description of habitat if present)
TPO1, TPS1, TPW1, CUM1	**Tall Blazing Star** *(Liatris aspera)-S3/SC*	Occurs in open, sandy woods, dry roadsides and sandy prairies	Y (N) UTM:
FEO, FES, FET, MAM2, MAM3	**Tuberous Indian Plantain** (*Arnoglossum plantagineum*) - *S3* Bloom Time –mid-March to mid-June	Occurs mainly in flat, sandy areas of the Bruce Peninsula. Fens, wet meadows, and calcareous river flats.	Y (N) UTM:
FOC1, FOC2, FOC3, FOC4	**Woodland Pinedrops** (Pterospora andromedea) - S2 *Bloom Time – summer*	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 (N) UTM:
CUM1, CUT1, CUW1, RBO1, SBO1	**Yellow Ladies'-tresses** (*Spiranthes ochroleuca*) - *S2 Bloom Time – August to November*	Dry, open sites, usually on acidic sandy soil, dry to mesic open woodland, thickets, meadows, barrens, ledges, outcrops, banks and roadsides, old fields.	(Y) N UTM: N/O
BIRDS			
-	**Bald Eagle (Haliaeetus leucocephalus) - SC**	Assessed as SWH. Record species if found.	not required.
CUW, SDO, RBO, TPS	**Common Nighthawk (Chordeiles minor) - SC**	Hunts insects over a wide variety of habitats, in particular open or semi-open areas. Nests on ground in a wide range of open, sparse or vegetation-free habitats.	Y (N) UTM:
FOD, FOM	**Louisiana Waterthrush (Seiurus motacilla) - SC**	Inhabits mature forests along steeply sloped ravines adjacent to running water. Trees, bushes, exposed roots, cliffs, banks and mossy logs are favoured nesting spots. Riparian woodlands are preferred stopover sites during migration	Y (N) UTM:
FOD, CUW, CUT	**Red-headed Woodpecker (Melanerpes erythrocephalus) - 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 40 cm dbh; requires about 4 ha for a territory.	Y (N) UTM:
-	**Short Eared Owl (Asio flammeus) - SC**	Assessed as SWH. Record species if found.	not required.
CUT1	**Yellow-breasted Chat (Icteria virens) - SC**	Inhabits thickets, tall tangles of shrubbery beside streams, ponds; overgrown bushy clearings with deciduous thickets; nests above ground in bush, vines	Y (N) UTM:
REPTILES			
-	**Eastern Ribbonsnake (Thamnophis sauritus) - SC**	Assessed as SWH. Record species if found.	**not required.**
-	**Milksnake (Lampropeltis triangulum) -SC**	Assessed as SWH. Record species if found.	not required.
-	**Snapping Turtle (Chelydra serpentine) - SC**	Assessed as SWH. Record species if found.	not required.
INSECTS			
OAO, SA, SWM, SWD	**Azure Bluet** *(Enallagma aspersum) –S3*	Species inhabits fishless ponds, lakes and boggy swamps	Y (N) UTM:
TPS, TPW	**Sleepy Duskywing** (Erynnis brizo) - 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 (N) UTM:
CUM1, CUT1, CUW1	**Monarch Butterfly (Danaus plexippus) - SC**	Their larvae only feed on milkweeds (Asclepius spp.). Habitat includes abandoned farmland, along roadsides, open spaces where these plants grow	(Y) N UTM: N/O
TPS, CUW	**Mottled Duskywing (Erynnis martialis) –S2**	Usually seen nectaring or on wet sandy roads. Larvae feeds on New Jersey Tea and adults only likely near where this plant is present	Y (N) UTM:
SWT, SWD, SWM, FOM, FOD4-3, TPW, TPS, CUM1	**Tawny Emperor** *(Asterocampa clyton)* – S3	Species inhabits densely wooded riparian areas, dry woods, open woods, fencerows and parks. Usually occurs near Hackberry , the larval foodplant	Y (N) UTM:
FOD5	**West Virginia White (Pieris virginiensis) - SC**	This species is restricted to rich, moist, deciduous woods, where its foodplant Toothwort occur	Y (N) UTM:



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