Samsung Renewable Energy Inc. and

Pattern Energy

5D Natural Heritage Environmental Impact Study

For

South Kent Wind Project

HATCH™

Samsung Renewable Energy Inc. and
Pattern Energy

5D - Natural Heritage Environmental Impact Study

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April 27, 2012

Project Report

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Natural Heritage Environmental Impact Study

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1. Introduction

Hatch Ltd. was retained by Samsung Renewable Energy and Pattern Energy to complete an Environmental Impact Statement (EIS) in accordance with the Renewable Energy Approval (REA) regulation for a proposed 270 MW wind energy generating facility in the Regional Municipality of Chatham-Kent, Ontario. The EIS report is the fourth report in a series completed in support of the natural heritage component for the REA process and includes consideration of the already completed South Kent Wind Project: Records Review Report (NRSI 2012a), South Kent Wind Project: Site Investigation Report (NRSI 2012b) and South Kent Wind Project: Evaluation of Significance Report (NRSI 2012c).

1.1 Project Overview

Samsung Renewable Energy and Pattern Energy (hereinafter referred to as the "Proponent") are jointly proposing to develop the South Kent Wind Project, (hereinafter referred to as the "Project"), which will be located within the Municipality of Chatham-Kent in southwestern Ontario. The Project is located south of Highway 401 between the towns of Tilbury and Ridgetown (Figures 1.1 to 1.3) to the west and east, respectively.

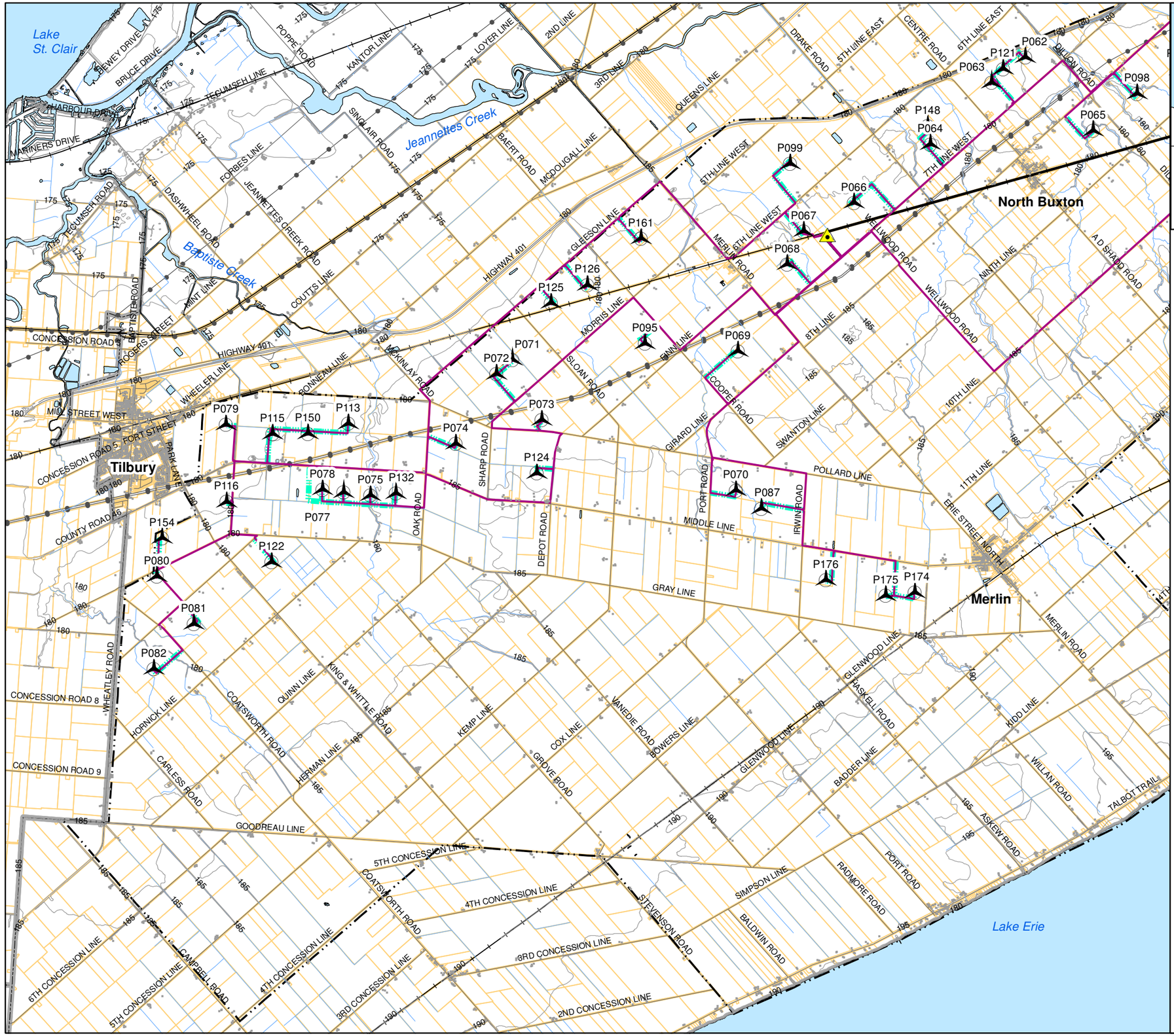
This wind energy generating facility is proposed to be 270MW in size, consisting of approximately 124 operational wind turbines, as well as supporting infrastructure, including access roads, construction and truck turnaround areas, and buried and/or overhead collection/transmission lines. The collection/transmission system will include approximately 34 km of 230 kV transmission line and two (2) substations to enable step-up of the voltage from 34.5 kV to 230 kV to connect to Chatham Switching Station (SS).

As stated in Sections 37 and 38 of Ontario Regulation (O. Reg.) 359/09 *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the "REA Regulation"), an Environmental Impact Study (EIS) is required for all significant natural features determined to be within a specified setback of the Project location in order to obtain a Renewable Energy Approval (REA). The EIS identifies the potential negative environmental effects, documents the proposed mitigation measures, and describes how the Environmental Effects Monitoring Plan (EEMP) and Construction Plan Report address any potential negative environmental impacts.

A Project component is defined as a permanent structure that will remain in place over the duration of the Project (e.g., turbine, access road, cabling, substations). As identified in the REA Regulation, the proposed layout of the Project components is collectively referred to as the 'Project location'. In accordance with Section 26 of the REA Regulation, a detailed records review and site investigation was conducted to identify any natural features within 120 m of the proposed Project location. This includes areas within 120 m of proposed turbine blade tip as well as any areas proposed for construction or development activities, including access roads, temporary lay-down areas, truck turn-around areas, crane pads, access roads, distribution and transmission lines. Within this report, the 'Project area' refers to this area of 120 m surrounding the Project location.

The Project is classified, under Section 6 of the REA Regulation, as a Class 4 wind facility and therefore requires a REA. Class 4 wind facilities are identified as having no direct contact with surface water (other than potentially a wetland) with a nameplate capacity of greater than 50 kW and a turbine maximum sound power level of greater than 102 dBA.

The REA process requires the preparation of several reports with respect to natural features on and adjacent to the Project location, including the Records Review Report (RRR), Site Investigation Report (SIR), Evaluation of Significance (EOS), and if necessary, the EIS. The legislative requirements for the EOS and EIS reports are summarized in the following sections.



Notes:
1. Base and environmental data downloaded from LIO with permission.
2. Spatial referencing UTM NAD83.
3. Parcel data obtained from Teranet, Feb. 2011.

Figure 1.1
Pattern Wind Energy Development Inc.
South Kent Wind Project
Project Location (Part A)

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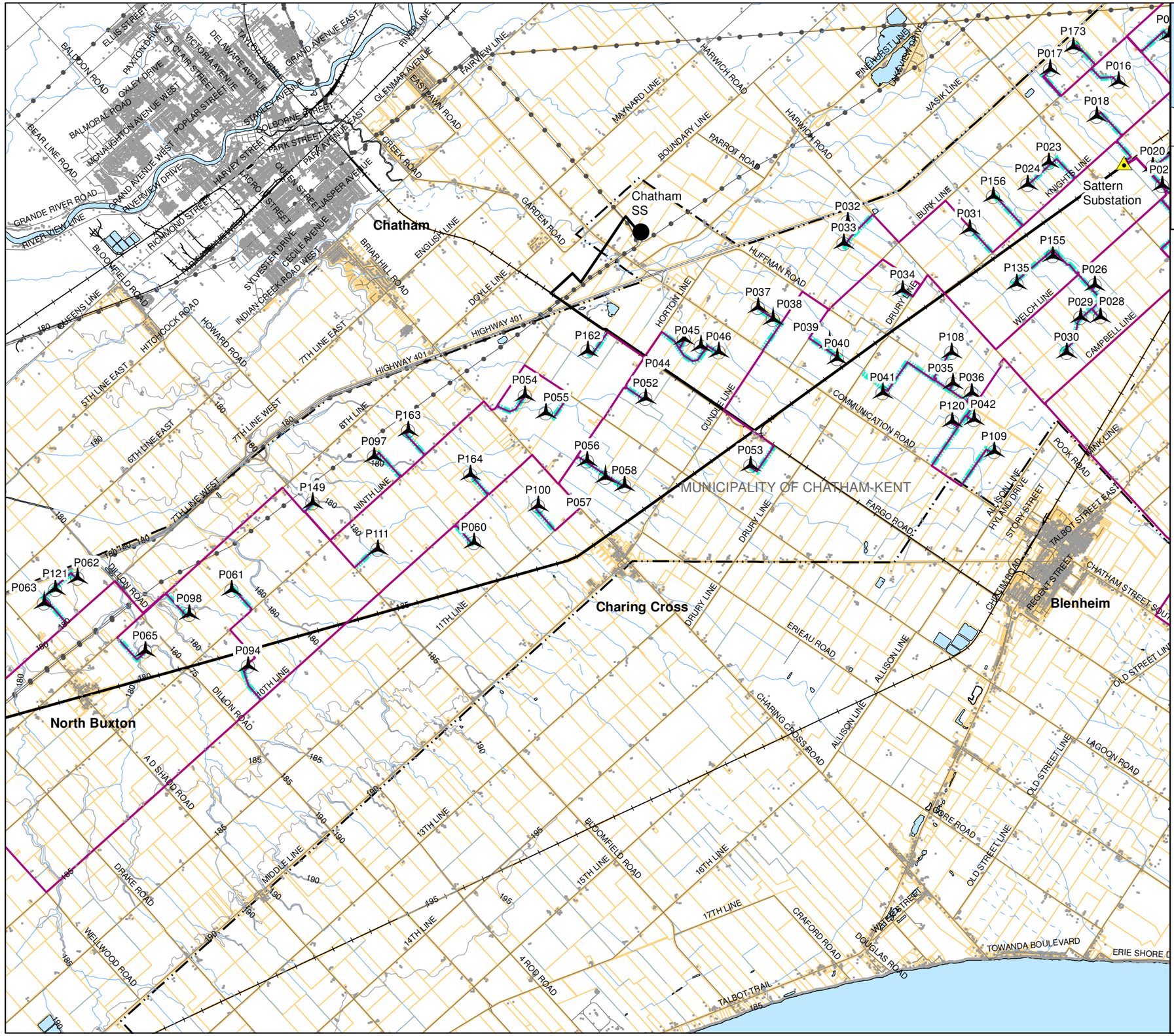

Notes:
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3. Parcel data obtained from Teranet, Feb. 2011.

Figure 1.2
Pattern Wind Energy Development Inc.
South Kent Wind Project
Project Location (Part B)
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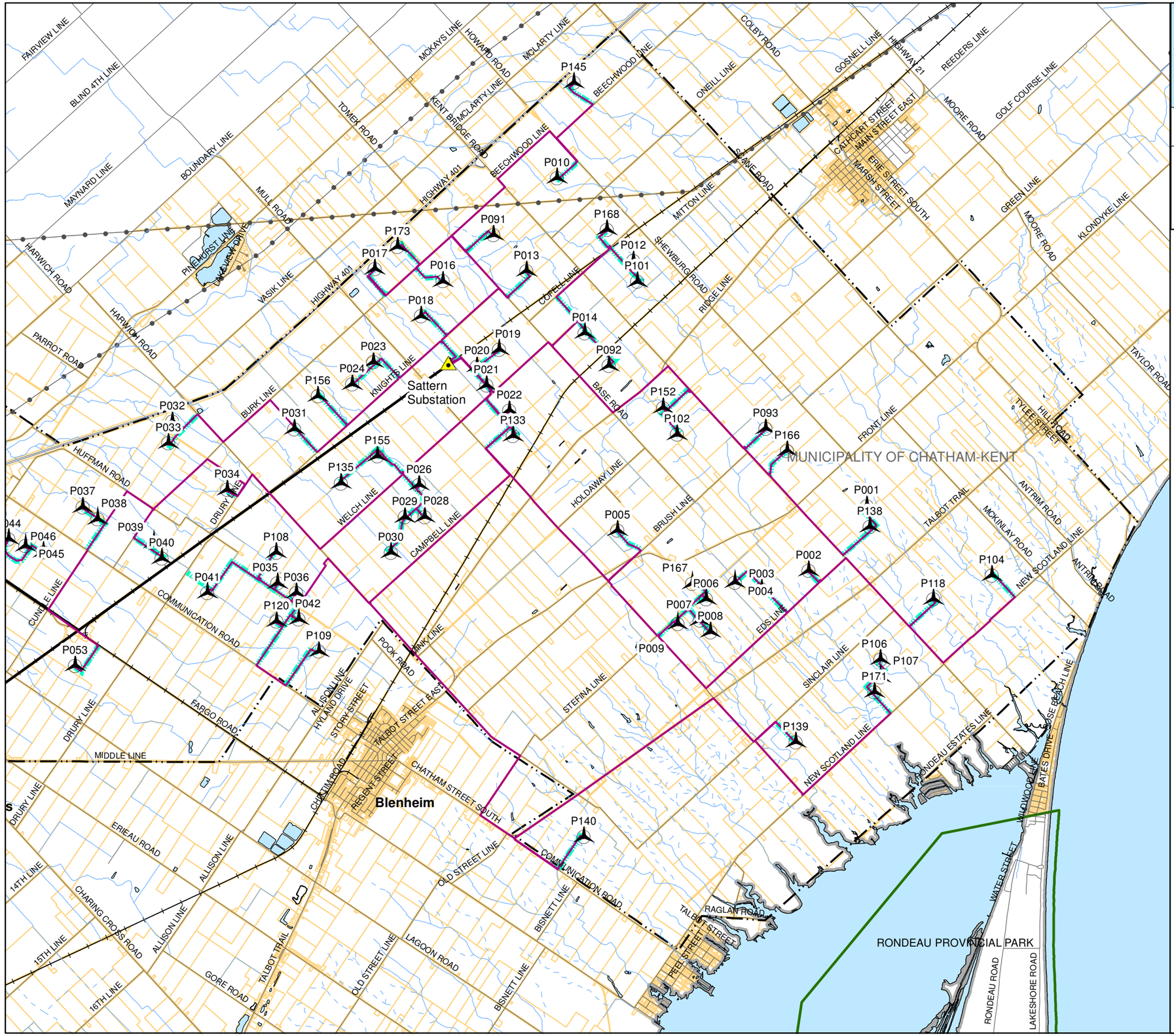

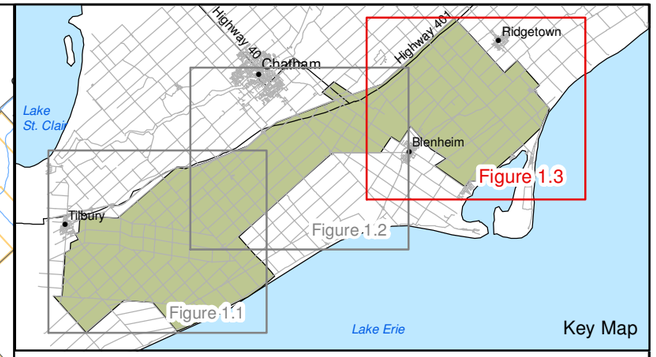

Legend

- Road
- Rail
- Hydro Line
- Topographic Contour (5m Interval)
- Intermittent Watercourse
- Watercourse
- Parcel
- Project Area
- Waterbody

Project Components

- Proposed Turbine
- Substation
- 230 kV Distribution Line
- Access Road
- Cabling

0 0.5 1 2 Km

1:75,000

NORTH

Notes:
1. Base and environmental data downloaded from LIO with permission.
2. Spatial referencing UTM NAD83.
3. Parcel data obtained from Teranet, Feb. 2011.

Figure 1.3
Pattern Wind Energy Development Inc.
South Kent Wind Project
Project Location (Part C)

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1.1.1 *Evaluation of Significance Report*

Section 27(1) of the REA Regulation requires proponents of Class 4 wind projects to prepare an EOS report for natural features identified during the records review and site investigation that sets out

- a determination of whether the natural feature is
  - provincially significant
  - significant
  - not significant
  - not provincially significant
- a summary of the evaluation criteria or procedures used to make the determinations, and
- the name and qualifications of any person who applied the evaluation criteria or procedures.

The EOS Report (NRSI 2012c) for the natural features identified within 120 m of the Project was prepared to meet these requirements. Tables 1.1 and 1.2 identify the distance of proposed Project turbine locations and other Project components from a natural feature, respectively. The term 'in' has been attributed to proposed Project components that are located within a natural feature. Project components which are immediately adjacent to a natural feature are identified as being located <1 m from the natural feature. Project components adjacent to a natural feature are identified as being 1 m to 10 m from the natural feature. The distance between the proposed Project components and the natural features are specified in all other cases. In most cases, the access roads have been attributed to individual proposed turbines.

Table 1.1 Summary of Evaluation of Significance and Environmental Impact Statement Requirements for Turbine Locations

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Proposed turbines							
P001	P001-W1 (54 m from turbine)	No	Bat Maternity Roost P001-W1 (54 m from turbine)	No	No	No	Yes
P002	No	No	No	No	No	No	No
P003	No	No	No	No	No	No	No
P004	No	No	No	No	No	No	No
P005	No	No	No	No	No	No	No
P006	No	No	No	No	No	No	No
P007	No	No	No	No	No	No	No
P008	No	No	No	No	No	No	No
P009	No	No	No	No	No	No	No
P010	No	No	No	No	No	No	No

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Proposed turbines							
P012	RB-B1 (22m to cabling and access road)	No	No	No	No	RB-B1 (22m to cabling and access road)	Yes
P013	No	No	No	No	No	No	No
P014	No	P014-WE1 (immediately adjacent to access road/ cabling)	No	No	No	No	Yes
P016	No	No	No	No	No	No	No
P017	No	No	No	No	No	No	No
P018	No	No	No	No	No	No	No
P019	No	No	No	No	No	No	No
P020	No	No	No	No	No	No	No
P021	No	No	No	No	No	No	No
P022	P022-W1 (in cabling)	No	No	No	Habitat for S-Ranked Bat Species P022-W1 (in cabling) Area Sensitive Bird Breeding Habitat P022-W1 (in cabling)	No	Yes
P023	No	No	No	No	No	No	No
P024	No	No	No	No	No	No	No
P026	No	No	No	No	No	No	No
P028	No	No	No	No	No	No	No
P029	No	No	No	No	Open Country Bird Breeding Habitat (in cabling/access road) (37 m from turbine)	No	Yes
P030	No	No	No	No	Open Country Bird Breeding Habitat (in cabling/access road)	No	Yes
P031	No	No	No	No	No	No	No
P032	No	No	No	No	No	No	No

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Proposed turbines							
P033	P033-W1 (adjacent to cabling/access road)	No	No	No	Habitat for S-Ranked Bat Species P033-W1 (adjacent to cabling/access road)	No	Yes
P034	RB-E3 (immediately adjacent to cabling)	No	No	No	No	RB-E3 (immediately adjacent to cabling)	Yes
P035	P108-W1 (16m to access road) (86m to turbine)	P108-WE1 (16m to access road) (86m to turbine)	Bat Maternity Roost P108-W1 P108-WE1 (16m to access road) (86m to turbine)	No	Habitat for S-Ranked Bat Species P108-W1 P108-WE1 (16m to access road) (86m to turbine)	No	Yes
P036	P108-W1 (16m to access road)	P108-WE1 (16m to access road)	Bat Maternity Roost P108-W1 P108-WE1 (16m to access road)	No	Habitat for S-Ranked Bat Species P108-W1 P108-WE1 (16m to access road)	No	Yes
P037	No	No	No	No	No	No	No
P038	No	No	No	No	No	No	No
P039	No	No	No	No	No	No	No
P040	RB-A2 (90 m from turbine) RB-E4 (70 m from turbine)	No	Bat Maternity Roost RB-A2 (90 m from turbine)	No	No	RB-A2 (90 m from turbine) RB-E4 (70 m from turbine)	Yes
P041	No	No	No	No	No	No	No
P042	No	No	No	No	No	No	No
P044	No	No	No	No	No	No	No
P045	No	No	No	No	No	No	No
P046	No	No	No	No	No	No	No
P052	No	No	No	No	No	No	No
P053	P053-W3 (52 m from turbine) P053-W4 (30 m to access road/cabling)	No	No	No	No	No	Yes
P054	No	No	No	No	No	No	No
P055	No	No	No	No	No	No	No
P056	No	No	No	No	No	No	No

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Proposed turbines							
P057	No	No	No	No	No	No	No
P058	No	No	No	No	No	No	No
P060	No	No	No	No	No	No	No
P061	No	No	No	No	No	No	No
P062	No	No	No	No	No	No	No
P063	No	No	No	No	No	No	No
P064	No	No	No	No	No	No	No
P065	P065-W1 (73 m from turbine and access road) P065-W2 (84 m from turbine and 81 m from access road)	No	No	No	Habitat for S-Ranked Bat Species P065-W2 (84 m from turbine and 81 m from access road)	No	Yes
P066	RB-F3 (immediately adjacent to cabling)	No	No	No	No	RB-F3 (immediately adjacent to cabling)	Yes
P067	RB-F3 (in cabling/38 m from turbine)	No	No	No	No	RB-F3 (in cabling/38 m from turbine)	Yes
P068	No	No	No	No	No	No	No
P069	No	No	No	No	No	P069-D2 (72 m to access road/ cabling)	Yes
P070	No	No	No	No	No	No	No
P071	No	No	No	No	No	No	No
P072	No	No	No	No	No	No	No
P073	No	No	No	No	No	No	No
P074	No	No	No	No	No	No	No
P075	P114-W1 (in access road/ cabling) (58m to turbine)	No	No	No	No	P114-D1 (in access road/ cabling)	Yes
P077	P077-W1 (90m from turbine/in access road/ cabling)	No	No	No	No	No	Yes
P078	No	No	No	No	No	No	No
P079	No	No	No	No	No	No	No
P080	No	No	No	No	No	No	No
P081	No	No	No	No	No	No	No

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Proposed turbines							
P082	P082-W1 (adjacent to access road/ cabling)	No	No	No	No	No	Yes
P087	No	No	No	No	No	No	No
P091	No	No	No	No	Habitat for S-Ranked Bat Species P091-W1 (112 m to turbine and 109 m to access road)	No	Yes
P092	No	No	No	No	Habitat for S-Ranked Bat Species P092-W1 (77 m to turbine and 74 m to access road)	No	Yes
P093	No	No	No	No	No	No	No
P094	RB-F2 (in cabling)	No	No	No	No	RB-F2 (in cabling)	Yes
P095	No	No	No	No	No	No	No
P097	No	No	No	No	No	No	No
P098	No	No	No	No	No	No	No
P099	No	No	No	No	No	No	No
P100	No	No	No	No	No	No	No
P101	No	No	No	No	No	No	No
P102	No	No	No	No	Habitat for S-Ranked Bat Species P102-W2 (in access road/ cabling)	No	Yes
P104	No	No	No	No	No	No	No
P106	No	No	No	No	No	No	No
P107	No	No	No	No	No	No	No
P108	P108-W1 (adjacent to cabling/access road)	P108-WE1 (adjacent to cabling/access road)	Bat Maternity Roost P108-W1 P108-WE1 (adjacent to cabling/access road)	No	Habitat for S-Ranked Bat Species P108-W1 P108-WE1 (adjacent to cabling/access road)	No	Yes

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Proposed turbines							
P109	P042-W1 (112 m to turbine and 109 m to access road)	No	No	No	Habitat for S-Ranked Bat Species P042-W1 (112 m to turbine and 109 m to access road)	No	Yes
P111	No	P111-WE1 (33 m to turbine)	No	No	Habitat for S-Ranked Bat Species P111-WE1 (33 m to turbine)	No	Yes
P113	No	No	No	No	No	No	No
P115	No	No	No	No	No	No	No
P116	No	No	No	No	No	No	No
P118	P118-W1 (55 m to turbine and 52 m to access road)	No	Bat Maternity Roost P118-W1 (55 m to turbine and 52 m to access road)	No	No	No	Yes
P120	P108-W1 (76 m to turbine)	No	Bat Maternity Roost P108-W1 (76 m to turbine)	No	Habitat for S-Ranked Bat Species P108-W1 (76 m to turbine)	No	Yes
P121	No	No	No	No	No	No	No
P122	No	No	No	No	No	No	No
P124	No	No	No	No	No	No	No
P125	RB-F3 (18 m to turbine)	No	No	No	No	RB-F3 (18 m to turbine)	Yes
P126	No	No	No	No	No	No	No
P132	No	No	No	No	No	No	No
P133	P022-W1 (in cabling)	No	No	No	Habitat for S-Ranked Bat Species P022-W1 (in cabling) Area Sensitive Bird Breeding Habitat P022-W1 (in cabling)	No	Yes

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Proposed turbines							
P135	RB-A1 (immediately adjacent to cabling)	No	No	No	No	RB-A1 (immediately adjacent to cabling)	Yes
P138	No	No	No	No	No	No	No
P139	No	No	No	No	No	P139-D1 (in cabling)	Yes
P140	No	No	No	No	No	No	No
P145	No	No	No	No	No	No	No
P148	No	No	No	No	No	No	No
P149	No	No	No	No	No	No	No
P150	No	No	No	No	No	No	No
P152	No	No	No	No	Habitat for S-Ranked Bat Species P102-W2 (in access road/ cabling)	No	Yes
P154	No	No	No	No	No	No	No
P155	P024-W2 (78 m to turbine)	No	No	No	No	No	Yes
P156	P024-W1 (27 m to cabling/access road) P156-W1 (immediately adjacent to access road/ cabling) RB-A (107 m to access road/ cabling)	No	No	No	No	RB-A (107 m to access road// cabling)	Yes
P161	No	No	No	No	No	No	No
P162	P162-W1 (17m to cabling) P162-W2 (14m to access road./ cabling)	No	No	No	No	No	Yes
P163	No	No	No	No	No	No	No
P164	No	No	No	No	No	No	No
P166	P166-W1 (74 m to turbine)	No	No	No	No	No	Yes
P167	No	No	No	No	No	No	No

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Proposed turbines							
P168	P011-W1 (in access road/cabling) RB-B (in cabling/ immediately adjacent to access road/ cabling)	No	No	No	No	RB-B (in cabling/ immediately adjacent to access road/ cabling)	Yes
P171	No	No	No	No	No	P002-D2 (immediately adjacent to access road/ cabling)	Yes
P173	P173-W1 (78 m to turbine)	No	No	No	Habitat for S-Ranked Bat Species P173-W1 (78 m to turbine)	No	No
P174	No	No	No	No	No	No	No
P175	No	No	No	No	No	No	No
P176	No	No	No	No	No	No	No

Table 1.2 Summary of Evaluation of Significance and Environmental Impact Statement Requirements for Other Project Components

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Cabling Route							
Gore Rd: Wheatley Rd to King & Whittle Rd	No	No	No	No	No	No	No
Davidson Rd: Gray Ln to Middle Ln	No	No	No	No	No	No	No
Oak Rd: Gray Ln to Pollard Ln	No	No	No	No	No	No	No
Middle Line & Valetta Road: Davidson Road to Pollard Line	P114-W1 (immediately adjacent)	No	No	No	No	P114-D1 (in)	Yes
Gleeson Line & Merlin Line: Pollard Line to Morris Line	RB-F3 (in)	No	No	No	No	RB-F3 (in)	Yes
Morris Ln: Pollard Ln to Cooper Rd	No	No	No	No	No	No	No
Merlin Rd/6th Line West: Morris Ln to P099	RB-F (adjacent)	No	No	No	No	RB-F (adjacent)	Yes
Finn Line/Merlin Road: Cooper Road to 8th Line	No	No	No	No	No	P069-D2 (in)	Yes
Port Road/8th Line: Cooper Rd to Merlin Rd	No	No	No	No	No	No	No
7th Ln W: Merlin Road to Hwy 401	No	No	No	No	No	No	No
Wellwood Rd/10th Ln: 7th Ln to Bloomfield Rd	RB-A4 (adjacent)	No	No	No	No	RB-A4 (adjacent)	Yes
9th Ln: Bloomfield Rd to Charing Cross Rd	No	No	No	No	No	No	No
8th Ln: Dillon Rd to Bloomfield Rd	No	No	No	No	No	No	No

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
10th Ln: Bloomfield Rd to Charing Cross Rd	P111-W1 (immediately adjacent)	No	No	No	No	No	Yes
Gagner Ln/Lagoon Rd: Charing CX Rd to Rail Bed	P054-W1 (adjacent) P054-W2 (adjacent)	P054-WE1 (55m)	No	No	No	No	Yes
Lagoon Rd & Horton Ln: Charing Cross Rd to Fargo Rd	P055-W1 (immediately adjacent)	No	No	No	No	No	Yes
Fargo Rd: Horton Rd to the Rail Bed	RB-B (adjacent)	No	No	No	No	RB-B (adjacent)	Yes
Burk Ln: Mull Rd to Base Rd	No	No	No	No	No	No	No
Base Rd: Burk Ln to Rail Bed	P091-W2 (110 m)	No	No	No	No	No	Yes
Base Rd/Ridge Ln: Welch Ln to Kent Bridge Rd	P092-W2 (110m) P014-W2 (34m)	P014-WE2 (86m)	No	No	No	No	Yes
Welch Ln: P155 to Base Rd	P014-W2 (immediately adjacent)	P014-WE2 (adjacent)	No	No	No	No	Yes
Kent Bridge Rd: Ridge Ln to Front Ln	No	No	No	No	No	No	No
Mull Rd: Welch Ln to Brush Ln	P027-W1 (immediately adjacent)	No	No	No	No	No	Yes
Mull Rd: Brush Ln to Sinclair Ln	P139-W1 (immediately adjacent)	No	No	No	No	No	Yes
Mull Road/New Scotland Line: Sinclair Line to P171	No	Rondeau Bay North Shore PSW	No	No	No	P139-D1 (in) P002-D2 (in)	Yes
Ed's Ln: Mull Rd to Kent Bridge Rd	P002-W1 (immediately adjacent) P002-W2 (immediately adjacent) P004-W1 (immediately adjacent)	No	No	No	No	P002-D2 (in)	Yes

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Kent Bridge Rd: Ed's Ln to New Scotland Ln	No	No	No	No	No	No	No
New Scotland Line: Kent Bridge Rd to McKinlay Rd	No	No	No	No	No	P105-D1 (in) P104-D2 (in)	Yes
Cundle Ln: Fargo Rd to P038	CLA-W2 (in)	No	No	No	No	CLA-D2 (in)	Yes
Burk Ln: Huffman Rd to P034	P034-W1 (immediately adjacent)	No	No	No	No	No	Yes
Burk Ln: Harwich Rd to P031	No	No	No	No	No	No	No
Harwich Rd: Rail Bed to P026	No	No	No	No	No	No	No
Campbell Ln: Mull Rd to Harwich Rd	P029-W1 (immediately adjacent)	No	No	No	No	No	Yes
Harwich Rd: Campbell Ln to Stefina Ln	P030-W2 (adjacent)	No	No	No	No	No	Yes
Talbot Trail: Communication Rd to Mull Rd	P139-W5 (adjacent) P139-W6 (adjacent) P139-W7 (adjacent) P139-W8 (adjacent) P139-W9 (adjacent)	No	No	No	No	No	Yes
Substations							
Railbed Substation	RB-F3 (adjacent)	No	No	No	No	RB-F3 (adjacent)	Yes
Sattern Substation	RB-E2 (immediately adjacent)	No	No	No	No	RB-E2 (immediately adjacent)	Yes
Transmission Corridor							
RSS to Dillon Rd	RB-F3 (adjacent) RB-A5 (adjacent) P065-W1 (14m) P065-W3 (12m)	No	No	No	No	RB-F3 (adjacent) RB-A5 (adjacent)	Yes

Project Component	Woodlands	Wetlands	Significant Wildlife Habitat				EIS Required
			Seasonal Concentration Areas	Rare Vegetation Communities and Specialized Wildlife Habitat	Habitats of Species of Conservation Concern	Animal Movement Corridors	
Dillon Rd to Charing Cross Rd	RB-F2 (adjacent) RB-A4 (adjacent) RB-F1 (adjacent) RB-A3 (adjacent) RB-B4 (adjacent) P117-W1 (immediately adjacent)	No	No	No	No	RB-F2 (adjacent) RB-A4 (adjacent) RB-F1 (adjacent) RB-A3 (adjacent) RB-B4 (adjacent)	Yes
Charing Cross Rd to Huffman Rd	RB-B4 (adjacent) RB-E5 (adjacent) RB-B3 (adjacent) RB-D2 (adjacent) RB-E4 (adjacent) RB-A2 (adjacent) CLA-W2 (14m)	No	Bat Maternity Roost RB-A2 (adjacent)	No	No	CLA-D2 (in) RB-B4 (adjacent) RB-E5 (adjacent) RB-B3 (adjacent) RB-D2 (adjacent) RB-E4 (adjacent) RB-A2 (adjacent)	Yes
Fargo Rd: Hwy 401 to the Chatham Transformer Station	No	No	No	No	No	No	No
Huffman Rd to SSS	RB-E3 (adjacent) RB-A1 (adjacent) RB-D1 (adjacent) RB-E2 (adjacent) P024-W2 (adjacent)	No	No	No	No	RB-E3 (adjacent) RB-A1(adjacent) RB-D1(adjacent) RB-E2 (adjacent)	Yes

1.1.2 Environmental Impact Study Report

Section 38(1) of the REA Regulation prohibits the construction, installation or expansion of any component of a wind project within the following locations:

- provincially significant northern wetland or within 120 m of a provincially significant northern wetland
- within 120 m of a provincially significant southern wetland
- within 120 m of a provincially significant coastal wetland
- a provincially significant area of natural and scientific interest (ANSI) (earth science) or within 50 m of a provincially significant ANSI (earth science)
- a provincially significant ANSI (life science) or within 120 m of a provincially significant ANSI (life science)
- a significant valleyland or within 120 m of a significant valleyland
- a significant woodland or within 120 m of a significant woodland
- a significant wildlife habitat or within 120 m of a significant wildlife habitat
- within 120 m of a provincial park
- within 120 m of a conservation reserve.

However, Section 38(2) of the REA Regulation allows proponents to construct within the locations noted above, subject to the completion of an EIS to assess negative effects and evaluate appropriate mitigation and monitoring measures.

Section 38(2) of the REA Regulation indicates that the EIS report must:

- identify and assess any negative environmental effects of the projects on a natural feature, provincial park or conservation reserve referred to in Section 38.(1) of the REA Regulation
- identify mitigation measures in respect of any negative environmental effects
- describe how the environmental effects monitoring plan in the Design and Operations Report (Hatch, 2012a) addresses any negative environmental effects, and
- describe how the Construction Plan Report (Hatch, 2012b) addresses any negative environmental effects.

This EIS has been prepared to address these requirements for Project components within 120 m of the natural features noted in Section 1.2.

1.2 Background Information on Significant Natural Features

The EOS (NRSI, 2012c) identified a total of 98 significant natural features (Table 1-3) in or within 120 m of the Project location.

The natural features that are classified as significant are:

- Significant woodlands – A total of forty-nine (49) woodlands ranging from approximately 2 ha to 55.4 ha have been identified as significant based on the criteria outlined in the Natural Heritage Assessment Guide (OMNR 2011).

- Significant wetlands –A total of six (6) wetlands have been identified as significant based on existing records (Rondeau Bay North Shore PSW) or delineation of the boundaries using the Ontario Wetland Evaluation System (OWES) criteria with the ecological functions and characteristics of the wetlands assessed using the Wetland Characteristics and Ecological Functions Assessment as described in Appendix C of the Natural Heritage Assessment Guide (OMNR 2012).
- Significant Wildlife Habitat - Four (4) broad categories of significant wildlife habitat, as identified by the Significant Wildlife Habitat Technical Guide (SWHTG) (MNR 2000) have been used to describe this natural feature. These four (4) categories include: seasonal concentration areas, rare vegetation communities or specialized wildlife habitat, habitats of species of conservation concern, and animal movement corridors. Seasonal concentration areas identified as significant, include; 4 bat maternity roosts, one (1) open country bird breeding habitat and one (1) area sensitive bird breeding area were identified as a significant habitat for species of conservation concern, as well as 9 significant habitats for S1-S3 ranked bat species. A total of eight (8) animal movement corridors were also identified as significant. In addition, several generalized candidate significant wildlife habitats including turtle nesting habitat, bat maternity roosts, open country bird breeding habitat, area-sensitive bird breeding areas, as well as significant habitat for S1-S3 ranked bat species, and animal movement corridors.

These significant natural features and the potential impacts/mitigation measures as it relates to the Project location are further discussed in Section 4.

1.3 Environmental Impact Study Format

This report is structured as follows:

- Section 1 identifies the legislative requirements for an EOS and EIS under the REA Regulation, provides an overview of the Natural Heritage Assessment and identifies the reasons why an EIS is required for the Project.
- Section 2 provides the methodology of the EIS.
- Section 3 summarizes the activities associated with Project construction, operation and decommissioning, as described in the Project Description Report (Hatch, 2012d).
- Section 4 identifies and assesses negative environmental effects and the proposed mitigation measures to prevent/minimize/mitigate the potential effects. Section 4 also describes the environmental effects monitoring plan (EEMP) from the Design and Operations Report (Hatch, 2012a).
- Section 5 describes how the Construction Plan Report (Hatch, 2012b) addresses the potential negative environmental effects.
- Section 6 summarizes the results of the EIS.
- Section 7 contains references.

2. Methodology

The following steps outline the methodology that was used to prepare this EIS:

1. Documentation of Project components and activities during all Project phases, including construction, operations and decommissioning, including identification of temporal and spatial boundaries.
2. Background data collection on the natural features within 120 m of the Project location through the records review and site investigation processes.
3. Identification and assessment of all potential negative environmental effects of the project on significant natural features.
4. Development of mitigation measures to eliminate, alleviate or avoid the identified negative effects.
5. Design of an Environmental Effects Monitoring plan (EEMP) to confirm the predicted effects and the effectiveness of mitigation measures.

3. Project Components and Activities

The following sections briefly describe the construction, operation and decommissioning phases of the Project. More detailed information on the Project phases can be found in the Construction Plan Report (Hatch, 2012b), Design and Operations Plan (Hatch, 2012a) and Decommissioning Plan Report (Hatch, 2012c). The proposed Site Layout from the Construction Plan Report (Hatch, 2012b) is provided in Appendix A to show the locations of the wind turbines, access roads, collector lines, and substations (transformers).

3.1 Construction

Construction is anticipated to occur over approximately an 18-month period. The activities associated with construction are summarized in Table 3.1 below.

Table 3.1 General Description of Construction Activities (From Hatch, 2012b)

Activity	Description
Public Road Upgrades, Access Road, Construction Turn-around Area, and Crane Access	Surveys of all roads in the Project location will be conducted to assess their condition to handle construction traffic loading. Where required road upgrades will be completed, in consultation with the Municipality, to ensure construction vehicles may be accommodated. For the Project, either the construction of new access roads or upgrading existing farm access roads for each turbine location will be needed to provide access to the site during the construction and operation phases of the Project. Access roads will also be used as crane paths to access the Project locations during construction. For both the construction of the new access roads and the upgrades to the existing farm access roads, the activities are the same since the existing farm access roads have not been built to support the work required for the construction of a wind facility. Therefore, the effects to the significant natural features will be same for both. The proposed access road ROW will be 11 m wide to allow for a 5 m wide access road, a 1 m wide ROW for the connector line (described in applicable section below) immediately adjacent to the access road, and a 2.5 m buffer on either side of the ROW to permit construction. In order to protect sensitive environmental features, in certain areas the access road ROW will be restricted to smaller widths; these areas are noted individually within the report below. The access road will be constructed with suitable base material and a finished surface of granular 'A' material, sourced from a local aggregate quarry. Geo-grid and geotextile fabric will be used where necessary to stabilize area of soft ground. The minimum thickness of the access road granular base and top course material will be 300 mm. The topsoil and subsoil will be removed prior to the placement of the granular base. Consideration for truck turning radiuses, turn-around and laydown areas, identified as constructible areas in mapping, has been included within a 50 m radius around the turbine base, within the 11 m ROW established for the access road and connector line, and at turning points within the access road network. The extent of the constructible area is shown in project mapping (Appendix A (NRSI 2012c). The 50 m

Activity	Description
	radius around the turbine base also includes the area required for crane pads. The constructible areas will be built using the same methodology as described above for the access roads.
Site Preparation	The properties will be surveyed and staked. Where practical, topsoil/subsoil will be stripped from access road, turbine, and crane pad locations and stored on-site. Topsoil will be kept separate from other soil horizons for use in site rehabilitation. Locations of topsoil and subsoil stockpiles will be determined in consultation with the landowner and will be located at least 30 m from a water body. Where necessary, a quick sprouting native seed mix (in consultation with the landowner) will be applied to the stockpiles for erosion control purposes. If topsoil is not stripped, the agricultural crops will be left uncut, or shredded and spread over the entire working area. A granular base will be placed on the access road and crane pad locations only. Ditches and culverts will be constructed along the access roads within the 6m ROW, where necessary, for proper storm water run-off, site drainage and to minimize road and soil erosion. The locations of ditches or culverts will be determined on a location by location basis during detail design and in consultation with the local municipalities. Design of culverts, swales, and ditches as necessary will be in accordance with OPSS regulations and local municipal engineering guidelines. Consultation with the responsible government agencies will be initiated well in advance of culvert construction to ensure any regulatory permits and approvals required are received prior to construction. Erosion and sedimentation control measures (e.g., silt fence barriers, rock flow check dams, etc) will be installed on the Project location, as necessary. Further details provided below in Section 4.1.
Installation of Support Structures	A concrete foundation will be erected for the wind turbine generators. The foundations will be 17 m to 20 m diameter with the final size determined during detailed design. The turbine foundations will be entirely located within the 50 m construction area at the base of turbines.
Collector System	The collector system will be primarily comprised of buried cables, except in instances where it is not possible to bury the cable, at which point overhead collector lines will be used. Buried cables will be installed using a simple trenching device which sequentially excavates a small trough, places the cable in a trench, and replaces the soil. Directional drilling of the cables will be used to cross large water crossings and around sensitive environmental features as noted individually within the report below. Locations where directional drilling will be required will be identified during detail design investigations. The entrance and exit points of any required directional drill will be located outside, and at least 5 m, from a significant natural feature to avoid clearing of any vegetation associated with the feature. The entrance and exit points will be determined during detailed design and verified during pre-construction surveys to avoid impacting the significant natural feature

Activity	Description
	An environmental management plan (EMP) will be developed by the owner to address mitigation measures to be implemented during execution of the directional drill (sediment and erosion controls, monitoring upstream and downstream for turbidity). Where required, post holes for overhead collector lines will be dug and the poles erected at 15 m to 30 m intervals as per Chatham-Kent municipal by-laws.
Transmission Line Right-of-way (ROW)	The width of the transmission ROW containing the overhead cabling, poles and service road will be between 5 m and 10 m wide. It will contain the poles supporting the 230 kV transmission line and a service road. Post holes for the transmission distribution lines will be placed no closer than 4.5 m from the north vegetated edge of the currently defined rail ROW and the poles erected at approximately 15 m to 30 m intervals. The service road will be approximately 3 m wide and placed to the south of the transmission line. This road will be constructed by removing the topsoil and subsoil, if necessary, prior to placement of a granular base.
Site Security	Signs will be erected to indicate the presence of a construction site. The erection of fences, security cameras and/or motion sensor flood lighting will be provided where deemed necessary. Additionally, each substation will be fenced as it houses the transformer and maintenance equipment.
Substation Installation	Two (2) substation locations are identified on Figures 1.1 and 1.3 of this report. The proposed Rail bed and Sattern substation areas will be 75 m x 46 m and 64 m x 46 m respectively, and are located outside of any significant natural feature. Construction will include excavation of topsoil, installation of ground grid, foundation construction, covering of the surface area with crushed stone, installation of a grounding system and installation of electrical equipment. Switchgear and protection and control equipment will be housed in a weatherproof control building, which is bolted to a concrete foundation. Any outdoor electrical cabinets, such as the transformer control cabinet, will be weatherproof cabinets. The substation area will be fenced and appropriately signed for safety and security purposes.
Commissioning	Turbines, collection system, and substation will be checked for system continuity and expected performance. Tests will be conducted by the turbine manufacturer and Hydro One. If problems or issues are identified, modifications will be made prior to start-up.
Rehabilitation of Site	All disturbed areas required for construction but no longer needed to house Project components for operation within the Project location defined on the mapping will be rehabilitated to pre-construction condition or as directed by landowner. An example of this may be that the crane pad or laydown area within the 50 m radius identified as constructible area when only a portion of this area will be required for the turbine foundation. Post- construction site rehabilitation plans will be provided during detailed design. All construction material, equipment, temporary facilities, and waste will be removed from the site. The area will be graded to match the surrounding landscape with the provision of subsoil where required to achieve proper drainage. The area will be revegetated using native plants and/or hydro-seeding where required.

3.2 Operation

The Project will operate year round and generate electricity if wind is present. The generators require a cut-in or minimum wind speed of 4 m/s or 14.4 km/hr before any power is generated, with an optimal wind speed of 12 to 13 m/s or 46.8 km/hr. The wind turbines will be shutdown once the wind speeds reach 25 m/s or 90 km/hr to protect the wind turbines from excessive stresses experienced at these wind speeds. The turbines will be appropriately designed to perform under varying weather conditions. Approximately 18-22 employees will be permanently located on the site. Periodic inspections by approximately 30 personnel will be conducted during the operations phase, with maintenance conducted as required. Operations and maintenance requirements are summarized in Table 3.2. It is anticipated that the Project will operate for at least 20 years.

Table 3.2 General Description of Operating Activities

Activity	Description
Expected Commercial Operation Date	December 2013
On-Site Employees	18-22 permanent on-site employees; thirty (30) maintenance personnel on a periodic basis.
Periodic Inspection and Maintenance	Routine maintenance will be conducted twice per year per turbine. Typically, maintenance on one (1) turbine can be completed within one (1) working day. The turbines will also be inspected whenever the power output is lower than anticipated as this would be indicative of a mechanical problem. Maintenance would include fluid level checks, greasing, bolt torque checks, filter changes, inspection of blades, inspection of brake pads, as well as electrical activities such as inspection of cable connections, fuse checks, voltage level checks, battery inspections, trip tests and electrical cable inspections.
Major Maintenance	Planned for 5, 10, and 15 years into the Project's operation, including a major overhaul after ten (10) years of operation. In the event of a component failure, all major maintenance can be performed utilizing existing roads and site access.
Fuel Consumption	None.
Solid Waste	None. The system does not produce waste of any type. All debris as a result of maintenance or cleaning will be removed from the site immediately by the contracted party.

3.3 Decommissioning

A 25 to 30-year lifespan is anticipated for the Project. At that point, the Project will be decommissioned or refurbished depending on market conditions and/or technological changes.

If the decision is to discontinue renewable energy generation, the decommissioning process would involve the following:

- Removal of the wind turbine and cabling. Where possible, these materials will be recycled, with non-recyclables taken to an approved disposal site. Removal of access roads will be conducted on a case by case basis in consultation with the landowners.

- Removal of foundations to a depth that would allow for surface activities to occur uninhibited. The materials removed will be recycled where possible.
- Site cleanup and regrading to original contours, and any damage to tile drainage system to be repaired/replaced.

Once the Project, other materials, and road network are removed from the site, the fields will be returned to their original condition prior to the Project at the discretion of the landowner.

It is anticipated that cabling and the transmission line and associated service road within the transmission line ROW will remain for possible transmission use by another electricity provider. Additionally, where consultation with the landowner has indicated, a number of the access roads may remain in place for future use by the landowner.

4. Potential Negative Environmental Effects and Proposed Mitigation Measures

This section describes the anticipated potential negative environmental effects on the function of identified significant natural features (see Section 1.2) that could occur as a result of the construction, operation and/or decommissioning phases of the Project (described in Section 3). Potential negative effects are discussed by natural feature (Section 4.2 and Section 4.3) for the development of the various Project components.

Measures are proposed to avoid, minimize, or mitigate any negative effects to identified significant natural features. Section 4.1 provides the standard mitigation measures to be utilized to address the potential negative effects associated with fugitive dust generation, surface water runoff, wildlife avoidance, and groundwater. Where these effects are anticipated to occur on a specific natural feature, Section 4.1.1 (fugitive dust generation); Section 4.1.2 (surface water runoff) and Section 4.1.3 (wildlife avoidance) will be referenced.

The potential negative effects and applicable mitigation measures for each of the identified natural feature are further discussed in the following subsections according to the Project phase (Construction, Operation, and Decommissioning).

4.1 Standard Mitigation Measures

4.1.1 Fugitive Dust Generation

Dust may be generated due to vehicular traffic and heavy machinery use, drilling and soil moving activities (e.g., excavation.) during construction, and decommissioning of the Project. Dust generation during the operation phase of the Project is not anticipated due to the infrequent use of the area by Project vehicular/machinery. Complaints of excessive dust generation received from the area residents will be further investigated and mitigated using the following measures identified in the paragraphs below, if required.

The amount of dust generated and allowed to settle on the surrounding area will be generally proportional to the level of impact to the surrounding environment. Dust settling on vegetation may restrict the amount of sunlight and water received by the vegetation and therefore possibly prevent, limit or kill any further growth of vegetation. With regard to wildlife, dust generation may indirectly cause avoidance of the area due to poor air quality, which may cause irritation to eyes, lungs, etc., of wildlife. Dust depositing on reptile eggs may potentially impact the gender of the reptile, thereby indirectly impacting the gender ratio of the local population. The dust acts as a coat on the egg preventing a certain amount of heat from penetrating the egg which is used to determine gender in certain species of reptiles (Bull and Voigt, 1979).

The effects of fugitive dust generation can be substantially mitigated through the use of standard construction site best management practices and mitigation measures. In this regard, the document entitled “Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities” (Cheminfo Services Inc., 2005) will be used as a guideline for contractors. Mitigation measures to control dust may include, but are not limited to:

- use of approved dust suppression (i.e., water or non-chloride based materials) on exposed areas including access roads, stockpiles and work/laydown areas as necessary;
- hard surfacing (addition of coarse granular A material free of fine soil particles) of access roads or other high-traffic work areas;
- phased construction, when possible, to limit the amount of time soils are exposed (i.e., winter construction proposed for this Project will assist in limiting dust generation);
- avoid earthmoving work during periods of high winds. Stockpiles are to be worked (e.g., loaded/unloaded) from the downwind side to minimize wind erosion; and
- stockpiles and other disturbed areas will be stabilized as necessary (e.g., tarped, mulched, graded, revegetated or watered to create a hard surface crust) to reduce/prevent erosion and escape of fugitive dust.

Visual monitoring of dust generation will occur during the construction and decommissioning phases of the Project and if dust is observed to be of concern, mitigation as discussed above will be implemented. Given the mitigation and monitoring proposed, it is anticipated that dust generation will be relatively low in magnitude and limited in duration and geographical area, such that no negative effects on vegetation and wildlife communities will occur as a result of dust.

4.1.2 Surface Water Runoff

An increase in surface water runoff (drainage and rates) may potentially occur on a temporary basis during the construction and decommissioning phases of the Project as a result of the following Project activities (discussed in detail below):

- land grading and ditching associated with access roads
- activities resulting in impervious or less pervious surfaces
- soil compaction due to heavy equipment, and
- vegetation removal.

Generally, in order to mitigate this potential, a conceptual erosion and sediment control (ESC) plan is proposed in Section in 4.1.2.5.

4.1.2.1 Land Grading and Ditching

No major grading works are anticipated to be required to install any of the temporary or permanent Project components. Minor, localized grading may be required. This minor grading may locally alter runoff patterns compared to the existing diffuse runoff from the agricultural fields. However, the size of the graded area will be very small relative to the size of the Project location, so no measurable effect on surface water runoff is anticipated to occur.

Drainage features including ditching and cross culverts will be required to maintain site drainage across access roads traversing the Project location. The location of culverts will be determined during detailed design and the pre-construction field survey in consultation with municipal engineers and MNR/ Lower Thames Valley Conservation Authority (LTVCA) if any permits are required. Flow velocity measures to reduce runoff velocities in ditches or other drainage routes, or along slopes, will be addressed through the implementation of rock flow check dams, straw bales, sediment traps, or geotextile placement which will help to minimize erosion potential.

These drainage features will serve to concentrate site runoff at terminal discharge points, which will likely be at low points in the local topography around the periphery of the Project location. Therefore, surface runoff at these discharge points may be at a higher rate than runoff from the existing agricultural fields, since runoff from the fields is more diffuse.

This potentially higher rate of runoff from the Project location could potentially result in negative effects such as increased turbidity in the receiving waterbodies and increased erosion and sedimentation. These changes could lead to the creation of gulls and rills. The increase in surface water runoff may also indirectly cause an increase in turbidity in the receiving waters. Sedimentation may also cause infilling of interstitial spaces in areas with rock substrate. In order to mitigate negative effects flow dissipation measures (e.g., rock check dams or enhanced vegetated swales) will be installed to temporarily retain water and decrease flow velocity, and grading will be conducted to promote diffuse overland flow at ditch discharge locations.

Therefore, surface water runoff from the Project location may be increased at ditch discharge areas compared to more diffuse runoff from the existing fields. However, the mitigation noted above to control runoff is anticipated to be sufficient to minimize changes in surface water runoff such that significant natural features are not adversely affected. Maintenance will be provided as required.

4.1.2.2 Impervious or Less Pervious Surfaces

The presence of impermeable surfaces associated with the presence of Project infrastructure (i.e., access roads, concrete tower bases, etc) during the operation phase of the Project may increase the potential for surface runoff on a longer term basis. Mitigation measures to address any operation phase surface water runoff from these areas will be implemented prior to the end of the construction phase and are discussed below.

Substations

The substations will sit on concrete pads and will be an impervious surface that will not allow infiltration of surface water into the soil. Surface precipitation landing on the pads will immediately runoff to the adjacent ground surface. Therefore, the runoff from the area of the pad will be higher than would normally occur for the existing agricultural field, since there will be no infiltration. However, the size of these impervious areas will be negligible compared to the overall size of the Project location. Therefore, no overall effect on surface water runoff from the Project location is anticipated to occur as a result of these concrete pads.

Access Roads

Access road surfaces may be less pervious than the existing agricultural fields. Therefore, more surface runoff per unit area may occur on the access roads compared to the existing conditions. This runoff will likely enter the roadside ditches. However, the mitigation noted in Section 4.1.2.1 will be sufficient to prevent any long-term effects due to this minor change in local runoff.

4.1.2.3 Soil Compaction

Soil compaction may result from the use of heavy equipment (e.g., tracked bulldozers and backhoes), and stockpiling of heavy materials (e.g., soils). Soil compaction occurs when heavy equipment or material causes the soil particles to be pushed together, thereby increasing soil density and reducing the pore space within the soil structure (DeJong-Hughes et al, 2001). Excessive soil compaction can result in inhibited water infiltration due to decreased pore space within the soil structure (DeJong-Hughes et al, 2001). Significant woodlands on the Project location may experience dieback of trees with critical root zones (CRZ) located within Project locations where excessive soil compaction has occurred due to the reduction in air and water reaching the root systems. This is also applicable for

other vegetation which may have root systems present in areas of soil compaction. Decreased water infiltration into the soil could also potentially result in an increase in surface runoff. A limited amount of soil compaction is anticipated within the Project location. Areas of soil compaction are most likely to occur in areas of high construction equipment volume, or routes utilized by heavy construction equipment or where stockpiles of materials are kept for an extended period of time.

Pre-construction surveys of significant wood lands < 30 m from Project locations (identified in Table 4.1 below) will be conducted to identify the CRZ (as delineated by the dripline of the trees) of trees along the edge of the feature.

Table 4.1 Significant woodlands identified within 30 m or less of Project Locations (includes woodlands where project components are proposed within the woodlands)

P002-W1	P002-W2	P004-W1	P011-W1
P014-W2	P022-W1	P024-W1	P024-W2
P027-W1	P029-W1	P030-W2	P033-W1
P034-W1	P054-W1	P054-W2	P055-W1
P065-W1	P065-W3	P077-W1	P082-W1
P108-W1	P111-W1	P114-W1	P117-W1
P139-W1	P139-W5	P139-W6	P139-W7
P139-W8	P139-W9	P156-W1	P162-W1
P162-W2	CLA-W2	RB-A	RB-B
RB-D	RB-E	RB-F	

Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is immediately adjacent (less than 1 m) to the Project location (including construction/laydown areas). Where Project activities (including construction activities) are proposed within the CRZ, i.e., in locations where woodland clearing is required, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction. The movement of heavy machinery within a CRZ will be limited to one (1) movement each way (restricted activity) if Project location does not allow for alternative routing to avoid the CRZ zone. The following activities will not be permitted within a CRZ and will be identified in the specifications developed during detail design.

- No placement of staging or stockpile areas
- No storing of machinery, vehicles waste or materials
- Storage of chemicals storage and disposal occurs outside of CRZ areas.

The CRZ will be visually monitored to assess the level of compaction throughout construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Restoration efforts (e.g., discing or other soil loosening methods) will be undertaken as required to prevent long-term impacts due to excessive amounts of compaction. Soil compaction will likely occur in localized areas within the zone of disturbance during the short-term construction period. However, no significant long-term change in soil structure is anticipated following implementation of site restoration and associated mitigation to remediate significantly compacted areas, although minor amounts of compaction may persist in localized areas.

Therefore, no measurable change in surface water runoff is anticipated to occur due to minor, localized soil compaction occurring during the construction phase.

4.1.2.4 Vegetation Removal

At the beginning of the construction phase, there may be remnants of the previous year's row crop or winter wheat, and possibly new vegetative spring growth, depending on whether or not the fields were tilled following the last fall/spring harvest. It is anticipated that vegetation clearing will not be required for the majority of the fields to prepare the land for construction and therefore very little change in the vegetation community will occur. Areas where revegetation will occur will be reseeded with natural vegetation that is suitable and comparable to the local vegetation community. The type of vegetation to be used for reseeding is expected to have a higher water intake rate than crops and the surrounding vegetation community, and as such the revegetated area once established may aid in erosion and sediment control. Therefore, no adverse effects on surface water drainage are anticipated due to minor vegetation removal during construction.

4.1.2.5 Erosion and Sedimentation Control

The ESC will be supplemented by an ESC drawing prepared by the Proponent's engineer or contractor. Additional information on the ESC plan is also provided in the Construction Plan Report (Hatch, 2012b). The ESC plan will be prepared in accordance with the guidance provided in the *Erosion & Sediment Control Guideline for Urban Construction* (GGHACA, 2006).

Preventing erosion from occurring in the first place is the primary goal of the ESC plan and measures such as proper construction phasing, minimizing the size and duration of soil disturbance and exposure, and revegetation or stabilization as soon as possible after disturbance are all identified as effective erosion control measures. Sediment control measures are the last line of defence and are implemented to ensure that eroded soil particles are not transported off the Project location or to watercourses. Sediment control measures include measures such as silt fence barriers to trap and retain sediments.

The main mitigation measures that will form the basis for the ESC plan will include the following:

- Minimize the size of the cleared and disturbed areas at the construction site. Install fencing to prevent the contractor from operating outside the defined constructible area (e.g., silt fences at the edge of Project location where significant features are within 10 m).
- Phase construction to minimize the time that soils are exposed.
- Limit vegetation removal to existing agricultural fields. Fencing will be installed outside the drip line of residual trees, where possible.
- An adequate supply of erosion control devices (e.g., geotextiles, revegetation materials) and sediment control devices (e.g., silt fence barriers) will be provided on site to control erosion and sedimentation and respond to unexpected events (Refer to Tables 4.9, 4.10, and 6.1 for more information).
- Sediment control fencing shall be installed, prior to the initiation of construction activities, along the outside edge of the areas to be disturbed by the construction activities. The potential for movement of sediment off-site will be identified during detail design and pre-construction site visits. These silt fence barriers should remain in place and will be maintained in good working

order until construction is complete and disturbed area have been stabilized through re vegetation or other long-term protection measures to prevent further erosion.

- Divert runoff from the Project locations (access roads and turbine areas) through vegetated areas or into a properly designed and constructed drainage collection system (as discussed in Land Grading and Ditching, Section 4.1.2.1, above) to ensure that exposed soils are not eroded. Runoff velocities in ditches or other drainage routes, or along slopes, to be kept low via proper installation of flow velocity control measures such as rock flow check dams, to minimize erosion potential. Runoff discharge locations are to be protected with erosion resistant material, if required.
- Grade stockpiles to a stable angle as soon as possible after disturbance to eliminate potential slumping. Revegetation (if during the growing season) or some other means of stabilization (e.g., tarping) should occur for any disturbed surface that is to be left exposed for longer than 30 days.
- Revegetate or stabilize exposed sites as soon as possible after they have been disturbed, using quick growing grasses or other native vegetation species approved by the LTVCA. Where revegetation is not possible other erosion protection methods, such as erosion matting will be used.
- Monitoring the tracking of mud onto local streets during construction. If mud on streets occurs, the contractor will be required to implement a system to prevent transfer of this material to local ditches and waterbodies. This could potentially include wheel washing areas at the exit from the construction site or end-of-day street sweeping/scraping to remove accumulated materials from local streets.

It is anticipated that the implementation of effective mitigation measures will avoid, minimize or mitigate the potential to change surface water runoff rates, quantities and vectors as a result of the proposed Project. Additionally, all grading of the Project site will be conducted to ensure that surface water runoff flows are maintained as close as possible to pre-development drainage.

4.1.3 Wildlife Avoidance

Avoidance of the area by wildlife may occur as a result of the increase in construction vehicles, construction personnel, air quality (due to dust generation), and the associated noise during the construction and decommissioning phases of the Project. However, as the Project is generally located in an area that is relatively disturbed (e.g., in active agricultural production) further increases in noise, dust generation and/or presence of construction workers is not anticipated to contribute to a significant change in wildlife avoidance in the general Project location. Wildlife avoidance during the operation phase of the Project is not anticipated due to the infrequent use of the area by Project vehicular/machinery.

Speed limits on access roads during operation will be restricted to 30 km/h by Proponent policy and visual monitoring of the access roads for the presence of wildlife will be completed in conjunction with other natural heritage monitoring required for the Project. In addition, the construction workforce will be made aware of the potential for wildlife occurring on the Project location and the measures to be taken to avoid wildlife (wildlife given the right-of-way), wherever possible. A "Special Wildlife Provision" in the construction specifications will be provided for:

- migratory and breeding/nesting timing windows including:
  - Potential disturbance effects to breeding birds will be minimized through avoiding construction activities during sensitive periods (i.e., the breeding season).
- wildlife encounters on-site
- the use of standard care protocols for the removal of wildlife from the Project locations with instructions to contact the appropriate Project personnel if a rare species specimen has been identified within the construction area.
- nuisance wildlife on-site and MNR contact information to determine appropriate action.

4.1.4 Groundwater

Groundwater is not expected to be affected during the construction phase of the Project. Geotechnical investigations concluded that the presence of groundwater is significantly below the required foundation excavation depth of 2.5 m and therefore dewatering is not anticipated. There are no other excavation activities planned for the Project, as the erection of turbine towers and the construction of cabling and distribution lines are not expected to affect groundwater. Groundwater will not be used during any phase of the Project.

4.2 Significant Woodlands

The criteria for establishing woodland significance are identified within Section 7 of the Natural Heritage Assessment Guide (MNR, 2011) and include woodland size, ecological functions, and uncommon characteristics. The criteria used to assess the woodlands within 120 m of the Project location were:

- woodland size (woodlands greater than 2 ha are significant)
- ecological function:
  - woodlands having any interior habitat are significant (e.g., any interior habitat is significant when woodland cover less than 15%)
  - proximity to other woodlands or other habitats, where woodlands within 30 m of a significant natural feature receiving ecological benefit from the woodland are significant
  - linkages, where woodlands providing a connecting link between two (2) other significant features are significant
  - water protection, where woodlands within 50 m of water features are significant
  - woodland diversity, where a woodlands with high native diversity through a combination of composition and terrain are significant
- woodlands with uncommon characteristics (i.e., old-growth, rare vegetation communities) are significant

A total of 49 woodland habitats were identified in Section 7.2 of the EOS Report (NRSI, 2012c) as significant woodlands. Additional information on each of the significant woodlands is provided in the EOS Report (NRSI, 2012c). The potential to negatively affect, either indirectly or directly, the significant woodlands found within 120 m of the Project location vary on the Project components (e.g., cabling, access roads) and distance of the Project location to the significant woodlands. Woodlands located within 120 m of the Project location are addressed below with respect to indirect

impacts (Section 4.2.1), and woodlands in the Project location are discussed with respect to direct impacts (Section 4.2.2). Distances of Project components to natural features can be found in Table 1.2.

4.2.1 Woodlands within 120 m of the Project location

The potential exists for Project development activities to negatively affect, through indirect impacts, significant woodlands within 120 m of the Project location identified in the EOS report (NRSI, 2012c). The significant woodlands, identified in Table 4.2 below may potentially be indirectly impacted by Project activities and components occurring within 120 m of these features.

The indirect impacts that may potentially affect the significant woodlands are fugitive dust, increased surface water runoff, and wildlife avoidance. Fugitive dust that may settle on vegetation which may restrict the amount of sunlight and water received by the vegetation and therefore possibly prevent, limit or kill any further growth of vegetation. Surface water runoff may occur as a result of impervious or less pervious soils within the Project location. This increase in surface water runoff may cause erosion and sedimentation as well as could lead to the creation of gulls and rills within woodlands. Wildlife avoidance may alter the ecological functions of the woodland as certain wildlife species may no longer be present within the woodland as a result of the disturbances. Mitigation measures to be applied to each significant woodland for soil compaction, dust generation, surface water runoff and wildlife avoidance are described in Section 4.1.1, 4.1.2, and 4.1.3, respectively and Table 4.2.

Construction

Construction activities (as identified in Table 3.1) for the development of the turbines, access roads, cabling, and transmission line adjacent to the significant woodlands may result in soil compaction, fugitive dust generation, increased surface water runoff and wildlife avoidance within the woodland. Significant woodlands may experience dieback of trees as a result of soil compaction within CRZ, which is delineated by the dripline of the trees, reducing the air and water reaching the root systems. As woodlands have been delineated by their dripline, there is no potential for impact to CRZ of woodlands located within 120 m of the Project location, including those immediately adjacent. Fugitive dust may cover vegetation resulting in inhibited growth or death as a result of lack of sunlight and water able to reach the vegetation. Increased surface water runoff may lead to increased erosion and sedimentation which may cause the root systems of the vegetation to be exposed and the potential to be easily damaged. Species of wildlife may avoid the area during construction activities and this may temporarily alter the ecological functions of the woodlands. Mitigation measures for these potential impacts are described in Section 4.1.1, 4.1.2 and 4.1.3 respectively.

Rehabilitation of the disturbed areas within the constructible areas not required for Project infrastructure will consist of revegetation with native species of grasses and forbs.

The construction of the transmission line ROW will require the provision of a service road and post holes at intervals of approximately 15 m to 30 m depending on pole design. The transmission poles will be placed 4.5 m from the northern hedgerow (identified as RB) of the rail line ROW with the service road placed between the poles and the middle of the ROW and therefore no direct encroachment (i.e., no construction activities, including vegetation removal) will occur within the woodlands.

Work areas will be clearly demarcated through flagging in order to protect the significant woodland. All Project personnel will be informed of the designated work areas (portion of the existing ROW) prior to initiation of construction activities, and provided in construction drawings as determined during detailed design, and the exclusion of construction activities outside of this defined work area. The service road will be constructed with suitable base material and a finished surface of granular 'A' material, sourced from a local aggregate quarry. Geo-grid and geotextile fabric will be used where necessary to stabilize area of soft ground. The minimum thickness of the access road granular base and top course material will be 300 mm. The topsoil and subsoil will be removed prior to the placement of the granular base. The ROW will then be revegetated with a native seed mix and/or similar vegetation species, and erosion control measures implemented to assist in the re-establishment of the vegetation.

The construction of the transmission line and service road is not expected to impact the form of the significant woodland given that the critical root zone of the trees within the woodlands will not be impacted by the development. Construction of the transmission line may result in some temporary disruption of wildlife use of the linkage function of this woodland community. This would be expected to be restricted to the period of time during which the line was being installed. As work would be occurring in localized areas, it is expected that wildlife would likely detour around the disturbance areas. Further, as construction will primarily occur during the day, construction disturbances would not impact nocturnal wildlife. As a result, though there will be temporary, localized disturbances, the woodland is expected to maintain linkage functions throughout the construction period in at least portions of the community not directly adjacent to active work areas. As this feature is not associated with specific wildlife communities, but general passage of wildlife, timing restrictions do not apply as the corridor is equally as likely to be used at any period of the year.

There will be an increased risk of incidental take during this installation as a result of the presence of the linkage corridor. Work areas will be searched for wildlife prior to start of work, and all incidents of incidental take will be tracked.

Operation

The operation of the wind turbines is not anticipated to directly affect the significant woodlands themselves, though direct impacts to significant wildlife habitats associated with these woodlands as a result of operations of the turbines is addressed within Section 4.4. The operation of the access roads/cabling is not anticipated to have a direct negative effect on the significant woodlands or its designation of significance. The transmission line and service road within the rail line corridor will be located within the disturbed limits of the corridor and not within the significant woodland and as such will not limit animal movement through the woodlands, nor are they expected to disturb animal movement within the woodlands. Indirect impacts may include: generation of dust as a result of the use of the Project roads by Project vehicles, increase in surface water runoff due to the existence of a less permeable surface area then what had originally existed, and wildlife avoidance due to the change in wildlife habitat within the ROW of the roadways as a result of a change in vegetation. Mitigation measures detailed in Sections 4.1.2 and 4.1.3 will mitigate any potential effects.

Table 4.2 Significant Woodlands within 120 m of the Project Location - Potentially Impacts (Note: Significant Wildlife Habitat Attributes of Significant Woodlands, as well as associated Impacts and Mitigation Measures are addressed in Section 4.4)

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P001-W1	Woodland size (15.8 ha of deciduous woodland) Woodland contains a swamp community and water protection to a manmade drainage feature more than 120 m from the Project location.	P001 (turbine) (Construction and Decommissioning)	Constructible area of P001 is proposed 54m from P001-W1	There will be no direct impact to woodland size, the embedded wetland or water protection as a result of construction, operation or decommissioning of the Project due to setback from the woodland. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods as per Section 4.1.3.	NRSI (2012c) Figure 3-8
P002-W1	1.4 ha woodland dominated by young white pine (*Pinus strobus*) and red pine (*Pinus resinosa*), with groundcover dominated by smooth brome (*Bromus inermis ssp. Inermis*) and garlic mustard (*Alliaria petiolata*). Ecological benefits provided by association with nearby watercourse i.e., water protection, linkage habitat for several wildlife species found in Rondeau Bay.	Ed's Ln: Mull Rd to Kent Bridge Rd cabling. (Construction and Decommissioning)	Constructible area of cabling within road allowance is immediately adjacent (1 m) to P002-W1	There will be no direct impact to woodland functions of water protection or provision of linkage habitat as a result of the installation of cabling (either overhead or underground) within the municipal right of way as there will be no removal of vegetation from the woodland. Indirect effects are addressed below. Construction • Fugitive dust • Increased surface water runoff; and • wildlife avoidance. Decommissioning • Increased surface water runoff • fugitive dust generation • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c) Figure 3-8

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P002-W2	1 ha woodland dominated by immature white elm and green ash (*Fraxinus pennsylvanica*), with groundcover dominated by reed canary grass (*Phalaris arundinacea*) and Canada goldenrod (*Solidago canadensis*). Ecological benefits provided by association with nearby watercourse i.e., water protection, linkage habitat for several wildlife species found in Rondeau Bay.	Ed's Ln: Mull Rd to Kent Bridge Rd – cabling (Construction and Decommissioning)	Constructible area of cabling within road allowance is immediately adjacent (1 m) to P002-W2	There will be no direct impact to woodland functions of water protection or provision of linkage habitat as a result of the installation of cabling (either overhead or underground) within the municipal right of way as there will be no removal of vegetation from the woodland. Indirect effects are addressed below. Construction • Fugitive dust, • Increased surface water runoff; wildlife avoidance. Decommissioning • fugitive dust generation • Increased surface water runoff;wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods as per Section 4.1.3.	NRSI (2012c) Figure 3-8
P004-W1	7.8 ha woodland dominated by immature white ash (*Fraxinus americana*) and hawthorn sp. (*Crataegus sp.*), with a meadow inclusion. The woodland is considered significant for size and ecological function.	Ed's Ln: Mull Rd to Kent Bridge Rd – cabling (Construction and Decommissioning)	Constructible area of cabling within road allowance is immediately adjacent (1 m) to P004-W1	There will be no direct impact to the function of woodland size as clearing is not proposed. Indirect impacts to ecological functions may occur from: Construction • Fugitive dust, • Increased surface water runoff; • wildlife avoidance. Decommissioning • Increased surface water runoff; • fugitive dust generation • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods as per Section 4.1.3.	NRSI (2012c) Figure 3-8

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P014-W2	Large woodland (13.7 ha) dominated by Freeman's maple and white elm. This community is highly disturbed from human and agricultural activities, including debris and cattle grazing. A wetland with an open water pond inclusion has also been identified within a portion of this forest community within 120m of the Project location. This woodland is considered significant for size, interior, and presence of the wetland.	Cabling is immediately adjacent to P014-W2 (Construction and Decommissioning)	Constructible area of cabling within road allowance is immediately adjacent (1 m) to P014-W2	As there will be no construction within the feature, there is no potential for direct impacts to size, amount of woodland interior or presence of the wetland within the woodland. Indirect effects are addressed below. Construction • Fugitive dust, • Increased surface water runoff; • wildlife avoidance. Decommissioning • Increased surface water runoff; • fugitive dust generation • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods as per Section 4.1.3.	NRSI (2012c), Figure 3-9
P024-W1	8.1 ha woodland dominated by white elm and shagbark hickory. The woodland is considered significant for size, water protection and linkages.	Cabling and access road for turbine P156 (Construction and Decommissioning)	Cabling and access road, and associated constructible area, for turbine P156 proposed 27 m from P024-W1	Given the setback from the woodland, there is no potential for direct impacts to the woodland size, protection the woodland provides the adjacent watercourse, or linkages. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods as per Section 4.1.3.	NRSI (2012c), Figure 3-9

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P024-W2	55.4 ha woodland dominated by bur oak, American basswood (*Tilia americana*), and silver maple in the canopy, with abundant trees up to 24 cm dbh and occasional snag habitat. This woodland is considered significant for size, interior habitat, and connectivity to other nearby significant woodlands.	P155 (turbine) Access road and cabling for P155 (turbine). 230 kV cabling and service road (Construction and Decommissioning)	Turbine P155 proposed 78 m from constructible area of P024-W2 Constructible area for 230 kV cabling and service road is adjacent (9 m) to P024-W2	Given the setback from the woodland, there is no potential for direct impacts to the woodland size, presence of interior habitat, or linkages. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3. • Avoidance of areas with a high water table; limited excavation depths.	NRSI (2012c), Figure 3-9
P027-W1	16.4 ha woodland dominated by green ash, white elm, and eastern cottonwood, within the relatively open canopy. This woodland is significant for size, linkages and habitat diversity	Mull Rd: Welch Ln to Brush Ln-cabling (Construction and Decommissioning)	Constructible area of cabling within road allowance is proposed immediately adjacent (1m) from P027-W1	As there will be no construction within the feature, there is no potential for direct impact to size, linkages or habitat diversity within the woodland. Indirect effects are addressed below. Construction • Fugitive dust • Surface water runoff, and • wildlife avoidance. Decommissioning • Fugitive dust • Surface water runoff, and • wildlife avoidance.	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-8
P029-W1	This small (2.74 ha) woodlot is dominated by sugar maple, bur oak, shagbark hickory, and white elm in both the canopy and sub-canopy. This woodland is considered significant for size.	Section of the transmission corridor on Campbell Line from Mull Road to Harwich Road	Constructible area of transmission corridor within road allowance is proposed immediately adjacent (1m) from P029-W1	As there will be no construction within the feature, there is no potential for direct impact to size of the woodland. Indirect effects are addressed below. Construction • Fugitive dust • Surface water runoff, and • wildlife avoidance. Decommissioning • Fugitive dust • Surface water runoff, and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3. • Avoidance of areas with a high water table; limited excavation depths.	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P030-W2	This small (2.2ha) woodlot is a mature forest community dominated by eastern cottonwood in the super-canopy, with cottonwood, Freeman's maple and white willow in the canopy. This woodland is considered significant for size.	Section of the transmission corridor on Harwich Road from Campbell Line to Stefina Line	Constructible area of transmission corridor within road allowance is proposed adjacent (3m) from P029-W1	As there will be no construction within the feature, there is no potential for direct impact to size of the woodland. Indirect effects are addressed below. Construction • Fugitive dust • Surface water runoff, and • wildlife avoidance. Decommissioning • Fugitive dust • Surface water runoff, and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3. • Avoidance of areas with a high water table; limited excavation depths.	NRSI (2012c), Figure 3-8
P033-W1	Woodland is 1.4 ha in size, dominated by sugar maple with shagbark hickory and American beech. This woodland is significant for water protection functions as it is adjacent to watercourse containing sensitive fish species.	Cabling and access road for turbine P033 (Construction and Decommissioning)	Constructible area for cabling system/access road proposed adjacent (7 m) of P033-W1	Given the setback from the woodland, there is no potential for direct interference to the function of water protection. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-6
P034-W1	Woodland (4.0 ha) providing vegetative cover along a small segment of a watercourse. A wetland community has also been identified within this woodland, though is located more than 120 m from the Project location. This woodland is considered significant for size and water protection.	Cabling route along Burk Line, from Huffman Road to P034 (Construction and Decommissioning)	Constructible area for cabling within road allowance is located adjacent (3m) to P034-W1	Given the setback from the woodland, there is no potential for direct interference to woodland size or the function of water protection. Indirect effects are addressed below. Construction • Fugitive dust • Surface water runoff, and • wildlife avoidance. Decommissioning • Surface water runoff • Fugitive dust and • wildlife avoidance.	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P042-W1	Large woodland (13.7 ha) dominated by white elm, silver maple, and bur oak in the canopy and sub-canopy, with abundant green ash snags; This woodland is significant for size and proximity to linkage corridors and other significant woodlands.	P109 (turbine) Access Road (Construction and Decommissioning)	Constructible area for turbine P109 and the associated access road are located 112 m and 109 m, respectively, from P042-W1.	Given the separation from the Project components and this woodland, there is no potential for direct impacts to woodland size or proximity to linkage corridors and other significant woodlands. Indirect effects are addressed below. Construction • fugitive dust generation • wildlife avoidance. Decommissioning • fugitive dust generation • wildlife avoidance.	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-8
P053-W3	Large woodland (11.1 ha) dominated by young white elm, bur oak and eastern cottonwood. This feature is considered significant only for size of the woodland.	P053 (turbine) (Construction and Decommissioning)	Constructible area for turbine P053 is 52 m from P053-W3	Given the separation from the Project components and this woodland, there is no potential for direct impacts to woodland size. Indirect effects are addressed below. Construction • fugitive dust generation • wildlife avoidance Decommissioning • fugitive dust generation • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-6
P053-W4	Moderate woodland (4.95 ha) dominated by red maple, shagbark hickory and white ash. Gray dogwood and red osier dogwood are occasionally found in the understory with groundcover of clover and wild strawberry. This woodland is considered significant for size and connection to P053-W3.	P053 (turbine) Access Road/Cabling (Construction and Decommissioning)	Constructible area for turbine P053, and associated access road and cabling is located 30 m from P053-W4	Given that there will be no construction within this feature, there will be no potential for direct impact to woodland size or connection to P053-W3. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods as per Section 4.1.3.	NRSI (2012c), Figure 3-6

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P054-W1	Moderate woodland (13.22ha), dominated by sugar maple, American beech, bur oak and Freeman's maple in the canopy and sub-canopy. This woodland is considered significant for size alone.	Located along a portion of cabling along Gagner Line (Construction and Decommissioning)	Constructible area for cabling within road allowance is located adjacent (3m) from P054-W1	Given that there will be no construction within this feature, there will be no potential for direct impact to woodland size. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods as per Section 4.1.3.	NRSI (2012c), Figure 3-6
P054-W2	Small (1.69ha) woodland dominated by sugar maple, white ash, black cherry and American beech in the canopy. This woodland also contains an inclusion of wetland habitat, and is considered significant for the water protection afforded to the wetland	Located along a portion of cabling along Gagner Line (Construction and Decommissioning)	Constructible area for cabling within road allowance is located adjacent (10m) from P054-W2	Given that there will be no construction within this feature, there will be no potential for direct impact to water protection. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods as per Section 4.1.3.	NRSI (2012c), Figure 3-6

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P055-W1	Moderate woodland (5.1 ha) containing a high diversity of tree species, dominated by sugar maple, American basswood, and American beech. This woodland is considered significant for size alone.	Immediately adjacent to cabling along Lagoon Road/Horton Line, from Charing Cross Road to Fargo Road. (Construction and Decommissioning)	Constructible area for the cabling within the road allowance is located immediately adjacent (1m) from P055-W1	As there will be no construction within the feature there will be no impact to woodland size. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff wildlife avoidance	• Cabling to be placed within Public ROW along road and therefore will not affect the woodland. • Vehicles will access pole locations from road. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-6
P065-W1	Woodland follows existing watercourse and is 2 ha in size dominated by young Manitoba maple and white elm. This woodland is considered significant for water protection.	P065 (turbine) Transmission Corridor (Construction and Decommissioning)	Constructible area for turbine P065 is 73 m from P065-W1 Constructible area of the transmission (rail ROW) corridor is adjacent (14 m) from P065-W1	The setback from this feature to constructible areas will prevent direct impacts to water protection functions of the woodland. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-5
P065-W2	Woodland (3.3 ha) dominated by bur oak and shagbark hickory. This woodland is considered significant for size and water protection.	P065 (turbine) (Construction and Decommissioning)	Constructible area for turbine P065 is 84 m, associated access road is 81 m, from P065-W2	The setback from this feature to constructible areas will prevent direct impacts to woodland size and function of water protection. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-5

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P065-W3	Woodland (2.5 ha) dominated by bur oak, white elm, and silver maple in the canopy, with shagbark hickory in the sub-canopy. This woodland is considered significant for size and connectivity through the adjacent railway corridor and drain. This woodland also contains a wetland; however, it is located greater than 120 m from the Project location.	Transmission ROW- RSS to Dillon Rd (Construction and Decommissioning)	Constructible area for the transmission corridor is located 12 m from P065-W3	Given the separation between the constructible area and the feature, there is no potential for direct impacts to woodland size or connectivity. Indirect effects are addressed below. Construction • fugitive dust generation • increase in surface water runoff • wildlife avoidance Decommissioning • fugitive dust generation • increase in surface water runoff; • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-5
P082-W1	Woodland (2.1 ha) dominated by red oak and sugar maple, with occasional white elm, bur oak, and shagbark hickory. This woodland is considered significant based on size alone.	Access road/ cabling for turbine no. P082 (Construction and Decommissioning)	Constructible area for the access road and cabling is adjacent (8m) from P082-W1	The separation between the constructible area and the feature will prevent direct impacts to woodland size. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-2
P091-W2	Woodland (8.7 ha) dominated by white elm and Manitoba maple, with common buckthorn and white elm in the lower habitat strata. This woodland is considered significant for size and water protection.	Cabling along Base Rd. (Construction and Decommissioning)	Constructible area for the cabling within the road allowance is located 110 m from P091-W2	There is no potential direct impact to woodland size or the function of water protection as a result of setback from this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-9

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P092-W2	4.26ha coniferous woodlot is dominated entirely by white pine trees, with some garlic mustard and dandelion within the groundcover layer. This woodland is considered significant based on size alone.	Cabling along Base Road and Ridge Line (Construction and Decommissioning)	Constructible area for the cabling within the road allowance is located 110 m from P091-W2	There is no potential direct impact to woodland size as a result of setback from this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3	NRSI (2012c), Figure 3-8
P108-W1	Large woodland (24.98) ha dominated by white elm and silver maple. The sub canopy is dominated by several green ash and white elm saplings. The community is a moist forest that contains an inclusion of confirmed wetland habitat. This woodland is considered significant for size, wetland inclusion, amphibian breeding habitat, and connectivity to nearby significant woodland.	P120 (turbines) (Construction and Decommissioning)	Constructible area for Turbine No. P120 is located 76 m from P108-W1.	Given the setback from this feature, there is no potential direct impact to the woodland and its associated functions. Indirect impacts are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-8
P111-W1	Large woodland (7.83 ha) dominated by black cherry, sugar maple and basswood in the dense super-canopy. This woodland is considered significant for size, water protection and linkages.	Cabling - 10th Line: Bloomfield Rd to Charing Cross Rd (Construction and Decommissioning)	Constructible area for cabling within the road allowance is located immediately adjacent (1m) from P111-W1	As there will be no construction within the feature, there is no potential for direct impacts to woodland size or functions of water protection and linkages. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-5

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P117-W1	6.8 ha woodland dominated by sugar maple and American beech. This woodland is considered significant for size and proximity to linkage features.	Transmission corridor: Dillon Road to Charing Cross Rd (Construction and Decommissioning)	The constructible area for the transmission corridor within the railbed is located adjacent (3m) to P117-W1	As there will be no construction within the feature, there is no potential for direct impact to woodland size or proximity to linkage features. Indirect effects are assessed below. Construction • fugitive dust generation • increased surface water runoff • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff; • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-5
P118-W1	6.7 ha woodland dominated by American basswood, white elm and black walnut canopy. This woodland is considered significant for size and linkage features.	P118 (turbine) (Construction and Decommissioning)	Constructible areas for turbine P118 and associated access road are located 55 m and 52 m, respectively, from P118-W1.	The setbacks of the constructible areas from this feature will prevent any direct impacts. Indirect effects are discussed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-7

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P139-W1	A 2.3 ha immature white spruce (*Picea glauca)*, white cedar (*Thuja occidentalis*), and sugar maple plantation, with larger coniferous trees along the outside and smaller deciduous trees in the centre. Groundcover in this community is dominated by Canada goldenrod, smooth brome, and wild carrot (*Daucus carota*). The largest trees are less than 10 m in height, with no trees larger than 24 cm dbh. This woodland is considered significant for size alone.	Cabling route along Mull Road, from Brush Line to Sinclair Line (Construction and Decommissioning)	The constructible area for the cabling within the road allowance is located immediately adjacent (1m) to P139-W1	There is no potential direct impact to woodland size as no construction will occur within this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-7
P139-W5	This 3.95ha woodlot is dominated by white ash, bur oak, black walnut and eastern red cedar in the canopy, and white ash, staghorn sumac and tartarian honeysuckle in the sub-canopy This woodland is considered significant for size, water protection for the drain that runs through it and connectivity to P139-W6	Cabling route along Talbot Trail (Construction and Decommissioning)	The constructible area for the cabling within the road allowance is located adjacent (5m) to P139-W5	There is no potential direct impact to woodland size, or the functions of water protection and connectivity, as no construction will occur within this feature. Indirect effects are addressed below. Construction • Soil compaction of critical root zone • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • Soil compaction of critical root zone • fugitive dust generation • increased surface water runoff and wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3	NRSI (2012c), Figure 3-7

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P139-W6	This small woodlot is 1.23ha in size. The mid-age community is dominated by white ash, trembling aspen and white spruce in the canopy, with white ash, trembling aspen and white cedar in the sub-canopy. This woodlot is considered significant for water protection for the drain that runs through it and is connected to P139-W5	Cabling route along Talbot Trail (Construction and Decommissioning)	The constructible area for the cabling within the road allowance is located adjacent (8m) to P139-W6	There is no potential direct impact to the functions of water protection and connectivity, as no construction will occur within this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-7
P139-W7	This moderate sized woodlot is 5.74ha. The community is dominated by black walnut, sugar maple, and white ash in the canopy, with sugar maple, white elm and red oak in the sub-canopy This woodland is considered significant for size and water protection.	Cabling route along Talbot Trail (Construction and Decommissioning)	The constructible area for the cabling within the road allowance is located adjacent (9m) to P139-W6	There is no potential direct impact to the woodland size or the function of water protection, as no construction will occur within this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-7
P139-W8	This woodlot is 13.3ha in size and is dominated by sugar maple, white ash and American beech in the canopy, with sugar maple, American beech and white pine in the sub-canopy This woodland is considered significant for size, presence of interior forest, and water protection	Cabling route along Talbot Trail (Construction and Decommissioning)	The constructible area for the cabling within the road allowance is located adjacent (10m) to P139-W6	There is no potential direct impact to the woodland size or the functions of provision of forest interior or water protection, as no construction will occur within this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-7

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P139-W9	This woodlot is 2.84ha in size and is dominated by white elm, Freeman's maple and weeping willow in the canopy, with white elm, white cedar and white pine in the sub-canopy. It is considered significant for size and water protection	Cabling route along Talbot Trail	The constructible area for the cabling within the road allowance is located adjacent (7m) to P139-W6	There is no potential direct impact to the woodland size or the function of water protection, as no construction will occur within this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-7
P156-W1	Large woodland (10.29 ha) of mid-age forest community dominated by shagbark hickory, green ash and tulip tree. This woodland is considered significant for size, connectivity and interior habitat.	Access road/ cabling associated with P156 (turbine) (Construction and Decommissioning)	Constructible area for the access road/cabling is located adjacent (5m) from P156-W1	There is no potential direct impact to the woodland size or the functions of provision of interior habitat or connectivity, as no construction will occur within this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P162-W1	Large woodland (30.08 ha) dominated by sugar maple, American beech, white ash and bur oak in the super canopy, in addition to abundant snags and deadfall. This woodland is considered significant for size and interior habitat.	Cabling associated with P162 (turbine) (Construction and Decommissioning)	Constructible area for cabling within the railbed is located 17m from P162-W1	There is no potential direct impact to the woodland size or the function of provision of interior habitat, as no construction will occur within this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-6
P162-W2	Large woodland (9.31 ha) dominated by sugar maple and white ash in the canopy. The sparse sub-canopy also includes sugar maple and white ash as well as silver maple and basswood. This woodland is considered significant based on size alone	Cabling/access road to turbine P162 (Construction and Decommissioning)	Constructible area for the cabling/access road is located 14 m from P162-W2	There is no potential direct impact to the woodland size, as no construction will occur within this feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3	NRSI (2012c), Figure 3-6
P166-W1	This large (11.84 ha), mid-age forest is dominated by sugar maple, silver maple and American beech in the thick canopy. The sub-canopy also includes sugar maple, silver maple and beech, while the understory is dominated by sparse sugar maple, riverbank grape and horsetail. The sparse groundcover consists of moss species. This woodland is considered significant based on size alone.	Turbine P166 Construction and Decommissioning)	Constructible area for turbine No. P166 is 74 m from P166-W1	There is no potential direct impact to the woodland size, as no construction will occur within this feature. Indirect effects are addressed below. Construction • fugitive dust generation and • wildlife avoidance Decommissioning • fugitive dust generation • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Speed limit enforcement; visual monitoring of access roads;	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P173-W1	This small (1.5 ha), mature community consists of a dense canopy of sugar maple, American beech, white ash and black cherry. Sugar maple and American beech are also present in the sub-canopy. Understory species include sugar maple, American beech and white ash. The thick groundcover consists of poison ivy, Virginia creeper, stinging nettle and enchanter's nightshade. This woodland is considered significant as a result of the provision of habitat for bat species of conservation concern (see Section 4.4)	Turbine P173 Construction and Decommissioning	Constructible area for P173 is proposed 78 m from P173-W1.	Impacts to the function of provision of bat habitat are assessed within Section 4.4 Indirect effects to the form of the woodland are addressed below. Construction • fugitive dust generation • wildlife avoidance Decommissioning • fugitive dust generation • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Speed limit enforcement; visual monitoring of access roads;	NRSI (2012c), Figure 3-9
RB-A: RB-A1 RB-A2 RB-A3 RB-A4 RB-A5	Length of vegetated rail bed corridor - hedgerow(described as deciduous woodland, primarily dominated by trembling aspen with white elm, silver maple, and red oak as well as Manitoba maple in the sub canopy. These features are considered significant for ecological linkage functions.	Turbines P031, P135, and P156; access road and cabling associated with turbine no. P040. 230kV distribution line and associated road. (Construction and Decommissioning)	RB-A communities are located within 120m of the constructible areas of the following wind turbines: P031, P135, and P156. In addition, these communities are 90 m from the constructible area for the access road and cabling associated with turbine no. P040, and immediately adjacent (1m) from the cabling for turbine P135. Constructible area for 230 kV distribution line and associated road within the railbed are proposed 2 to 4m from RB-A1 - RB-A5. (Construction and Decommissioning)	There will be no direct impacts to the linkage function of the woodland as there will be no construction within the feature Indirect are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-6

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
RB-B	Length of vegetated railbed corridor (described as mixed savannah, consisting of a few trembling aspen and white elm in the canopy, with some eastern red cedar, trembling aspen, hawthorns and Manitoba maple in the sub canopy). This woodland is considered significant for linkage functions and uncommon characteristics.	Access roads and cabling associated with P012 and P168. Cabling route (to be placed within the road allowance) along Fargo Road, from Horton Line to the Rail Bed. 230kv distribution line (cabling) and the associated service road. (Construction and Decommissioning)	Constructible area for access road and cabling for P012 is located 22 m from these woodlands. Constructible area for access roads and cabling for P168 is located 5 m from these woodlands. Constructible area for 230 kV distribution line and associated road within the railbed are proposed 2 to 4m from RB-B woodlands. .	There will be no direct impacts to the linkage or uncommon characteristic functions of the woodland as there will be no construction within the feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff and • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff and • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-9
RB-D1, RB-D2	Length of vegetated railbed corridor (consisting of a sparse layer of staghorn sumac, Manitoba maple, eastern red cedar, and trembling aspen and a dense understory of predominantly spotted knapweed, with some Canada goldenrod, red raspberry, and riverbank grape. This woodland is considered significant for linkage functions.	Transmission Corridor from Charing Cross to Huffman Road and from Huffman Rd to SSS (Construction and Decommissioning)	Constructible area for 230 kV distribution line and associated road within the railbed are proposed 3 to 8m from RB-D woodlands.	There will be no direct impact to the linkage function of the woodland as there will be no construction within the feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-6

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
RB-E	Length of vegetated Rail Bed corridor (including sparse trembling aspen and white elm in the canopy, with some Manitoba maple, common buckthorn, hawthorns, and eastern red cedar in the sub-canopy. The understory is dominated by red-raspberry, Canada goldenrod, gray dogwood, and staghorn sumac). This woodland is considered significant for ecological linkage functions.	Adjacent to the access road and cabling associated with turbine nos. P034. Adjacent to the Sattern substation. Within 70 m of the access roads and cabling associated with turbine no. P040. Adjacent to a section of the cabling route along Kent Bridge Road, from the Rail Bed to Front Line. Adjacent to a section of the cabling route along Drury Line, from the Railway to Harwich Road The 230kv distribution line (cabling) and the associated service road (Construction and Decommissioning)	Constructible area for the Sattern Substation is located immediately adjacent (1m) from the woodland. Constructible area for the cabling to P034 within the road allowance is located immediately adjacent (1m) from the woodland. Constructible area for the cabling to P040 is located 70 m from the woodland. Adjacent (5m) to a section of the constructible area for cabling route along Kent Bridge Road, from the Rail Bed to Front Line. Cabling will be placed in the road allowance. Adjacent (5 m) to a section of the constructible area for the cabling route (to be located within the road allowance) along Drury Line, from the Railway to Harwich Road. Drury Line: Railway to Harwich Road. RB-E communities are also located 2 to 6 m from sections of the constructible areas for the transmission corridor from Charing Cross to Huffman and from Huffman Rd to the Sattern Substation.	There will be no direct impact to the linkage function of the woodland as there will be no construction within the feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff; • wildlife avoidance	• Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Significant Woodland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Woodland	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
RB-F	Length of vegetated railbed corridor (classified as deciduous savannah and characterized by sparse trembling aspen, white elm and hawthorns, with a thick understory of red raspberry, viper's bugloss, common reed, and wild carrot). This woodland is considered significant for ecological linkage functions.	Access road and cabling associated with turbines: P012, P066 and P168; proposed turbine P125; access road and cabling associated with turbine no. P067; and proposed turbine no. P094. Cabling route (to be located within the road allowance) along Cooper Road, from Morris Line to Gleeson Line, along Morris Line/6th Line West, from Cooper Road to turbine No. P099, adjacent to transmission corridor from the Railbed Substation to Dillon Road and from 9th Line to Charing Cross Road. Adjacent to Railbed Substation (Construction and Decommissioning)	Immediately adjacent to the constructible areas for turbines P094 and P125, and access road and cabling associated with turbine P066. Immediately Adjacent (1m) to a section of the constructible area for the cabling route within the road allowance along Cooper Road, from Morris Line to Gleeson Line, and adjacent (10m) to the constructible area within the road allowance for the cabling route along Morris Line/6th Line West, from Cooper Road to turbine No. P099. Woodland is adjacent (3m) from sections of the constructible area of the transmission corridor from the Railbed Substation to Dillon Road and from 9th Line to Charing Cross Road. RB-F community is also adjacent (2m) to the constructible area of the Railbed Substation.	There will be no direct impact to the linkage function of the woodland as there will be no construction within the feature. Indirect effects are addressed below. Construction • fugitive dust generation • increased surface water runoff • wildlife avoidance Decommissioning • fugitive dust generation • increased surface water runoff • wildlife avoidance	• Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3.	NRSI (2012c), Figure 3-4

Decommissioning

The decommissioning of the turbines requiring the removal of these Project components is not anticipated to directly affect the significant woodlands, with indirect impacts anticipated to be similar to the construction phase. Therefore the decommissioning of the turbines will not to have a direct negative effect on the significant woodlands or its designation of significance. The decommissioning of the access roads and cabling system may require the removal of the Project components with indirect impacts anticipated to be similar to the construction phase and therefore will not to have a direct negative effect on the significant woodlands or its designation of significance. The removal of the access road and cabling system associated with the turbines would be conducted in consultation with the landowner prior to decommissioning to confirm whether these Projects components will be removed. If the landowner identifies the removal of the Project components, the potential impacts and mitigation measures would be similar to the construction phase (as discussed above). The rehabilitation of this area would include the grading of the surrounding area, scarification of soil, and seeding with similar vegetation species or in the case of agricultural fields, the field would be turned over to the landowner to seeding of crops. Revegetation plans, if area is not to be turned over to agriculture, would be developed by the decommissioning contractor as a requirement in the specifications and in consultation with MNR at that time.

It is anticipated that the cabling system (distribution lines), and the transmission line and associated service road within the transmission line ROW will remain for possible transmission use by another electricity provider. If this occurs the direct and indirect impacts will be similar to the operations phase (as discussed above). Should decommissioning activities result in direct impacts to the significant woodlands, consultation with the MNR with respect to mitigation measures will be conducted.

If the service road and cabling, including overhead poles where required, are to be removed, the indirect impacts are expected to be similar to the construction phase (as discussed above) although there is the potential of rehabilitation of these areas using similar community species for revegetation of the area based on the communities defined in the SIR.

4.2.2 Direct Impacts

Direct impacts to significant woodlands will occur as a result of encroachment by Project components into the significant woodland features (e.g., removal of vegetation). A number of the associated infrastructure (i.e., access roads, cabling system) for the turbines will be located through portions of the woodlands and therefore direct impacts will occur. The significant woodlands identified as being directly affected by Project components are P011-W1 (access road and cabling), P022-W1 (access road and cabling), P077-W1 (access road and cabling), CLA-W2 (transmission line and cabling) and a portion of RB-F3 (cabling) to the south of turbine No. P067. The direct impacts on these significant woodlands, however, may be avoided, minimized or mitigated, where possible, through the implementation of mitigation measures or avoidance of the feature. Detailed below are the direct impacts and proposed mitigation measures to be implemented during construction, operation and decommissioning of the Project for each significant woodland identified in Table 4.3 below.

Table 4.3 Directly Impacted Significant Woodlands (Note: Significant Wildlife Habitat Attributes of Significant Woodlands, as well as associated Impacts and Mitigation Measures are addressed in Section 4.4)

Feature No.	Functions/Attributes of Significant Woodland, including the size of the woodland	Project Phase, Activity, or Component(s) within the Woodland	Potential Direct Impacts	Mitigation Measures Proposed to Address Impact	Refer to Figure/Map for mapping of component and feature
P011-W1	This significant woodland is comprised of white ash, balsam poplar (*Populus balsamifera ssp. balsamifera*), and staghorn sumac (*Rhus hirta*). This linear community follows the abandoned railway just north of the proposed location of turbine no. P012. This community is considered significant for size, 2.1 ha, and linkage function in conjunction with other habitats along the railway.	P011-W1 is crossed by the access road and cabling associated with proposed turbine no. P012. Construction, Operations, and Decommissioning	**Construction:** • Clearing/Removal of Vegetation: 0.04 ha (approx. 11m wide area) proposed to be removed of the woodland. **Operation:** • Extent of cleared area reduced to 6m **Decommissioning** • Removal of vegetation (white ash, balsam poplar, and staghorn sumac), including select few trees for removal of cabling	• Access road and cabling will be located to cross the woodland at a right angle; • Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species. Should rare or declining vegetation species be recorded, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting. • Clearing of vegetation to be minimized to only that area required for construction • Use of directional drilling to avoid or reduce the removal of vegetation from the woodland will be reviewed during detailed design and the pre-construction field survey. All entrance and exit points will be located outside and at least 5 m from the significant woodland. As an access road is required at this location, directional drilling will not decrease fragmentation. • Areas to be cleared will be demarcated and workers made aware not to clear outside of the marked area; • Following completion of construction activities, the ROW will be reduced to 6 m through revegetation of the additional 5 m (2.5 m on either side of the roadway) with native shrubs and trees species of the area. • Following decommissioning, the entire ROW will be revegetated with native species. • Revegetation will occur in the subsequent spring or fall, following the completion of use of the disturbed areas. Revegetation will consist of applying a native seed mixture, and planting of trees/shrubs in areas which were formerly vegetated with these features.	NRSI (2012c), Figure 3-9
P022-W1	Large woodland (13.6 ha) composed of two deciduous forests with direct connectivity through a very short linear hedgerow feature dominated by shagbark hickory, bur oak and silver maple. This woodland is considered significant for size, interior habitat, and connectivity to other features. The woodland consists of 2 larger woodlands connected by a hedgerow	Significant woodland is south of turbine P022, north of turbine P133: -Cabling connecting turbines P022 and P133 proposed through hedgerow. (Construction, Operations, Decommissioning)	**Construction:** • Clearing/Removal of Vegetation: 0.02 ha (approx. 6 m wide area) proposed to be removed from the hedgerow that is part of the significant woodland. **Decommissioning** • Removal of vegetation (green ash, silver maple, shagbark hickory and white oak), including select few trees for removal of access road and cabling.	• Pre-construction field surveys during detail design will be conducted to clearly delineate/flag the area to be cleared through the woodland and the contract specifications will clearly state the significance of the woodland and the protection measures to be implemented (i.e., clearing beyond flagged area will not be allowed) during construction • Cabling will be located to cross the hedgerow only (avoid the woodland) at a right angle; • Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species. Should rare or declining vegetation species be recorded, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting. • Clearing of vegetation to be minimized to only that area required for construction. Use of directional drilling to avoid or reduce the removal of vegetation from the significant woodland including the hedgerow is the preferred methodology and will be reviewed during detailed design and the pre-construction field survey. All entrance and exit points will be located	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Significant Woodland, including the size of the woodland	Project Phase, Activity, or Component(s) within the Woodland	Potential Direct Impacts	Mitigation Measures Proposed to Address Impact	Refer to Figure/Map for mapping of component and feature
				outside and at least 5 m from the significant woodland. • Areas to be cleared will be demarcated and workers made aware not to clear outside of the marked area; • Revegetation of (with native species of the area) disturbed areas not to be used for operation and following decommissioning; • Revegetation will occur in the subsequent spring or fall, following the completion of use of the disturbed areas. Revegetation will consist of applying a native seed mixture, and planting of trees/shrubs in areas which were formerly vegetated with these features.	
P077-W1	Woodland size (2.5 ha dominated by a mix of bur oak, white elm and shagbark hickory; green ash saplings are present within the ground cover layer of avens sp. and poison ivy.)	P077-W1 is proposed to be crossed by the proposed access road and cabling associated with turbine no. P077. (Construction, Operations, and Decommissioning)	**Construction:** • Clearing/Removal of Vegetation: 0.25 ha (approx. 11 m wide area) proposed to be removed of the significant woodland. **Operation:** • Extent of cleared area reduced to 6m **Decommissioning:** • Removal of vegetation (green ash, silver maple, shagbark hickory and white oak), including select few trees for removal of access road and cabling.	• Pre-construction field surveys during detail design will be conducted to clearly delineate/flag the area to be cleared through the woodland and the contract specifications will clearly state the significance of the woodland and the protection measures to be implemented (i.e., clearing beyond flagged area will not be allowed) during construction. Should rare or declining vegetation species be recorded during these surveys, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting. • Clearing of vegetation to be minimized to only that area required for construction; Use of directional drilling to avoid or reduce the removal of vegetation from the woodland will be reviewed during detailed design and the pre-construction field survey. All entrance and exit points will be located outside and at least 5 m from the significant woodland. • Identification and avoidance of critical root zone; discing or other soil loosening methods to restore potentially compacted areas; • Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Speed limit enforcement; visual monitoring of access roads; standard care protocols for wildlife removal and avoidance of construction activities during sensitive periods; as per Section 4.1.3. • Following completion of construction activities, the ROW will be reduced to 6 m through revegetation of the additional 5 m (2.5 m on either side of the roadway) with native shrubs and trees species of the area. • Following decommissioning, the entire ROW will be revegetated with native species. • Revegetation will occur in the subsequent spring or fall, following the completion of use of the disturbed areas. Revegetation will consist of applying a native seed mixture, and planting of trees/shrubs in areas which were formerly vegetated with these features.	NRSI (2012c), Figure 3-2
P114-W1	Large riverine woodland (12.4 ha) dominated by white elm in the canopy and sub-canopy, and staghorn sumac and hawthorn shrubs in the dense understory). This woodland is considered significant for size and linkage function	Constructible area for Turbine P075 is 58 m from P114 – W1. The constructible area for the access road and cabling for	**Construction:** Clearing/removal of 0.030 ha (6. m wide) of vegetation (few trees, occasional snag habitat) from the woodland **Decommissioning:** • Removal of vegetation (green ash, silver maple, shagbark	• Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species. Should rare or declining vegetation species be recorded during these surveys, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting.	NRSI (2012c), Figure 3-2, 3-4

Feature No.	Functions/Attributes of Significant Woodland, including the size of the woodland	Project Phase, Activity, or Component(s) within the Woodland	Potential Direct Impacts	Mitigation Measures Proposed to Address Impact	Refer to Figure/Map for mapping of component and feature
		turbines P077, P075, P113 and P132 crosses P114-W1. Cabling along Middle Line and Valetta Road are immediately adjacent to the feature.	hickory and white oak), including select few trees for removal of cabling	• Clearing of vegetation to be minimized to only that area required for construction; Use of directional drilling to avoid or reduce the removal of vegetation from the woodland will be reviewed during detailed design and the pre-construction field survey. All entrance and exit points will be located outside and at least 5 m from the significant woodland. • Area to be cleared will be demarcated and workers made aware not to clear outside of the marked area; • Following decommissioning, the entire ROW will be revegetated with native species. • Revegetation will occur in the subsequent spring or fall, following the completion of use of the disturbed areas. Revegetation will consist of applying a native seed mixture, and planting of trees/shrubs in areas which were formerly vegetated with these features. Potential directional drilling of connector cable to transmission ROW to avoid negative effects.	
CLA-W2	Woodland size (4.1 ha of young riverine forest dominated by white elm) and ecological linkage function. A wetland has also been identified within this woodland, however it is greater than 120m of the Project location.	Cabling along Cundle Line (between Fargo Rd to P038) (Construction and Decommissioning)	**Construction/Decommissioning:** • Cabling along Cundle Line will be directionally drilled beneath the woodland, with entrance and exit points at 5 m from the woodland.	• Use of directional drilling to avoid the removal of vegetation from the woodland. All entrance and exit points will be located outside and at least 5 m from the significant woodland. • Identification and avoidance of critical root zone; discing or other soil loosening methods to restore potentially compacted areas; • Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5.	NRSI (2012c), Figure 3-6
RB- F3	Length of vegetated railbed corridor (classified as deciduous savannah and characterized by sparse trembling aspen, white elm and hawthorns, with a thick understory of red raspberry, viper's bugloss, common reed, and wild carrot). This woodland is considered significant for ecological linkage functions.	Cabling associated with turbine no. P067 and P099. The cabling is located "in" (crosses) the RB-F3 community on either side of the rail bed. (Construction and Decommissioning)	**Clearing/Removal of Vegetation:** • Approximately 0.12 ha (approx. 6m wide area) total - proposed to be removed of the woodland. **Construction:** • Maintenance of 0.12 ha (6m wide) of vegetation (few trees, occasional snag habitat) from the woodland). **Decommissioning:** • Removal of vegetation (green ash, silver maple, shagbark hickory and white oak), including select few trees for placement of cabling	• Pre-construction field surveys during detail design will be conducted to clearly delineate/flag the area to be cleared through the woodland and the contract specifications will clearly state the significance of the woodland and the protection measures to be implemented (i.e., clearing beyond flagged area will not be allowed) during construction. Should rare or declining vegetation species be recorded during these surveys, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting. • Clearing of vegetation to be minimized to only that area required for construction; Use of directional drilling to avoid or reduce the removal of vegetation from the woodland will be reviewed during detailed design and the pre-construction field survey. All entrance and exit points will be located outside and at least 5 m from the significant woodland. • Identification and avoidance of critical root zone; discing or other soil loosening methods to restore potentially compacted areas; • Use of dust suppression; hard surfacing; phased construction; avoidance of earthworks during high winds; and stabilization of stockpiles. • Implementation of Erosion and Sedimentation Control Plan as per Section 4.1.2.5. • Revegetation will occur in the subsequent spring or fall, following the completion of use of the disturbed areas. Revegetation will consist of applying a native seed mixture, and planting of trees/shrubs in areas which were formerly vegetated with these features.	NRSI (2012c), Figure 3-4

4.2.2.1 P011-W1

This significant woodland was identified as a regenerating community dominated by white ash, balsam poplar (*Populus balsamifera ssp. balsamifera*), and staghorn sumac (*Rhus hirta*). This significant woodland follows the abandoned railway just south of the proposed location of turbine no. P168 (Appendices I - Turbine No. P168 (NRSI, 2012c)) and north of turbine no. P012 (Appendices I - Turbine No. P012 (NRSI, 2012c)) and is considered significant as a result of the large size of the community (2.1 ha), and provides linkage function in conjunction with other habitats along the railway. The location of the access road and cabling (immediately adjacent to each other) to turbine no. P012 is proposed through a narrow section of the woodland and will be constructed at a right angle thereby minimizing potential disturbance of the woodland. Approximately 0.04 ha of woodland vegetation will be removed.

Construction

The construction of the access road and cabling through this portion of the woodland will require the removal of vegetation, approximately 11 m wide, through a small portion of the western end of the significant woodland in mapping for turbine No. P012. The removal of the 11 m section equates to approximately 0.04 ha of vegetation removal from within the significant woodland. This will result in a temporary fragmentation of the significant woodland through the length of the construction period. Once construction of the feature is completed, the 5 m of disturbed habitat that was temporarily disturbed during construction will be revegetated with native trees and shrubs to reduce the overall gap within the community to 6 m. As a result, this will restore connectivity within the woodland. Species of trees to be removed will be confirmed by pre-construction field surveys.

Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above.. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, pole locations will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species will not be affected by Project activities. Should rare or declining vegetation species be recorded during these surveys, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting. The removal of edge species is not expected to impact the ecological functions of the woodlands. Potential direct impacts to this significant woodland are outlined in Table 4.3 above.

The mitigation measures will include crossing the significant woodland at right angle to minimize disturbance. Mitigation measures for clearing will include demarcation of all work areas through flagging in order to protect the vegetation adjacent to, and outside of the cleared area. Work areas will be clearly demarcated through flagging in order to protect the significant woodland and silt fence erected between the working area and the significant feature. All Project personnel will be

informed of the designated work areas (portion of the existing ROW) prior to initiation of construction activities, and provided in construction drawings as determined during detailed design, and the exclusion of construction activities outside of this defined work area. Any trees will be felled into areas which have already been disturbed, with all cleared and grubbed materials temporarily stockpiled within the construction (disturbed) work areas to minimize potential disturbances to adjacent vegetation. The area will then be revegetated with a herbaceous native seed mix and planted with native trees and shrubs, and erosion control measures (i.e., grading, geotextile, silt fences, riprap) implemented to assist in the re-establishment of the woodland and hedgerow community.

As a result of construction activities, such as clearing, within and adjacent to the woodland, fugitive dust generation, increased surface water runoff and wildlife avoidance may occur within the woodland. Fugitive dust may cover vegetation resulting in inhibited growth or death as a result of lack of sunlight and water able to reach the vegetation. Increased surface water runoff may lead to increased erosion and sedimentation which may cause the root systems of vegetation to be exposed and potential to be easily damaged. Species of wildlife may avoid the area during construction activities and this may alter the ecological functions of the woodland. Mitigation measures for these potential impacts are described in Sections 4.1.1, 4.1.2 and 4.1.3, respectively.

As a result of the mitigation measures for clearing and the revegetation measures outlined above within the hedgerow and significant woodland, construction of the access road and cabling will have a minor effect on the woodland, and will not affect the overall designation of significance as the woodland will continue to meet the size requirement and function as a linkage as well as provide wildlife habitat for the local species.

Operation

The operation of the access road is not anticipated to have a negative effect on the woodland or its designation of significance as it will only be used as required for the maintenance of the wind turbines. There will be no effects from the operation of the cabling. Indirect impacts may include the generation of dust as a result of the use of the access road by Project vehicles, increase in surface water runoff due to the existence of a less permeable surface area then what had originally existed, and wildlife avoidance due to the change in wildlife habitat as a result of a change in vegetation. Mitigation measures detailed in Sections 4.1.1, 4.1.2 and 4.1.3 will mitigate any potential effects. The operational activities will not impact the woodland interior habitat, as no interior habitat was identified within P011-W1. The negative effects have been determined to be negligible during operations as the woodland will continue to be designated as significant since there will be no impact on its size or linkage function.

Decommissioning

The decommissioning of the Project components will require the removal of vegetation to remove the cabling system, and where required by the landowner, grading, scarification of the soil (decompaction), and revegetation with native shrubs and trees in areas that were formerly part of the woodland community. There is the potential for the landowner to request that the access road be left in place for their future use and therefore the Project components may be left in place or the cabling removed. Potential impacts and mitigation measures should the project components be decommissioned will be similar to the construction phase (as discussed above) and therefore decommissioning is anticipated to have a minor effect on the significant woodland. If revegetation of

the areas is required, the plans will be supplied by the decommissioning contractor, in consultation with MNR, and identified in the specifications at that time.

4.2.2.2 P022-W1

This significant woodland is located south of turbine no. P022 (Appendices I - Turbine No. P022 (NRSI, 2012c)) and north of turbine no. P133 (Appendices I - Turbine No. P0133 (NRSI, 2012c)) and is considered significant as a result of the large size of the community (13.6 ha), small amount of interior habitat, and some connectivity to other nearby features. This woodland consists of two (2) larger wooded areas connected by a thin hedgerow feature (details provided in Table 4.3 above). Cabling connecting turbines nos. P022 and P133 is located through the hedgerow portion of this woodland connecting the two (2) portions of the significant woodland together.

This significant woodland has also been identified as area sensitive bird breeding habitat and habitat for S1-S3 ranked bat species. The impacts and mitigation measures associated with these significant wildlife habitats will be further discussed in Sections 4.4.2.2. and 4.4.2.3.

Construction

The construction of the cabling through the hedgerow will require the removal of vegetation, approximately 6 m wide, through a portion of the hedgerow in which the cabling is shown as traversing on the mapping for P022-W1. The removal of the 6 m section equates to approximately 0.02 ha of vegetation removal from within the hedgerow. This will not impact the function of the hedgerow as a linkage between the two (2) wooded areas, given the amount of vegetation to be removed, a few trees (predominated by shagbark hickory, bur oak, and silver maple) may have to be removed, and there will be no removal of vegetation from the woodland to which this hedgerow connects. Species of trees to be removed will be confirmed by pre-construction field surveys. As the hedgerow is a single row of trees, this represents a negligible loss of habitat.

The mitigation measures will include crossing the hedgerow at a right angle and through the narrowest point to minimize disturbance. Mitigation measures for clearing will include all work areas be clearly flagged in order to protect the vegetation adjacent to, and outside of the hedgerow. Work areas will be clearly demarcated through flagging in order to protect the significant woodland. All Project personnel will be informed of the designated work areas (portion of the existing ROW) prior to initiation of construction activities, and provided in construction drawings as determined during detailed design, and the exclusion of construction activities outside of this defined work area. Detailed design investigations will verify the specific locations for clearing and identify any rare or declining vegetation species. Should rare or declining vegetation species be recorded during these surveys, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting. Any trees will be felled into areas which have already been disturbed, with all cleared and grubbed materials temporarily stockpiled within the constructible areas outside of the woodland to minimize potential disturbances to adjacent vegetation. The temporary stockpile materials located within the Project location and will be removed from the sites prior to completion of construction. The area will then be revegetated with a native seed mix and/or similar vegetation species, and erosion control measures (i.e., grading, erosion control blankets, riprap) implemented to assist in the re-establishment of the hedgerow.

Indirect impacts such as fugitive dust generation, increased surface water runoff and wildlife avoidance may occur within the woodland as a result of construction activities, such as clearing, within and adjacent to the woodland. Fugitive dust may cover vegetation resulting in inhibited growth or death as a result of a decrease in sunlight and water that reaches the vegetation. Increased surface water runoff may lead to increased erosion and sedimentation which may cause the root systems of vegetation to be exposed and/or damaged and potentially kill the vegetation. Species of wildlife may avoid the area during construction activities and therefore alter the ecological functions of the woodland. Mitigation measures to address potential impacts are described in Sections 4.1.1, 4.1.2 and 4.1.3, respectively.

As a result of the mitigation measures for clearing and small width of vegetation removed, construction of the cabling will not affect the two (2) larger portions of the woodland as no direct encroachment will occur. The overall designation of significance will not be impacted as the woodland will continue to meet the size requirement, forest interior and function as a linkage as well as provide wildlife habitat for the local species.

Operation

The operation of the cabling is not anticipated to have a negative effect on the woodland or its designation of significance as it is expected to remain buried for the life of the Project. Therefore, there is no anticipated effect to the woodland during the operations phase.

Decommissioning

The decommissioning of the Project would require the removal of the cabling system although consultation with the landowner prior to decommissioning will confirm whether these projects components will be removed. If the landowner identifies the removal of the Project components, the potential impacts and mitigation measures would be similar to the construction phase (as discussed above) with the rehabilitation of this area with similar vegetation species as identified in the SIR for the woodland is expected to provide a positive net effect in the long-term through reinforcement of the linkage benefit of the hedgerow. Revegetation plans would be developed by the decommissioning contractor as a requirement in the specifications and in consultation with MNR at that time.

4.2.2.3 P077-W1

This relatively open woodland is 2.5 ha in size, dominated by a mix of bur oak, white elm, and shagbark hickory, and has been identified as a significant woodland by municipal mapping for the Community of Tilbury East Township (Chatham-Kent 2010). Green ash saplings are present within the ground cover layer of avens sp. (*Geum* sp.) and poison ivy (*Toxicodendron radicans* ssp. negundo). A cleared open area, dominated by Canada goldenrod, is located within the limits of this natural feature. This woodland has limited connectivity to other candidate significant features, provides limited ecological function to the surrounding natural environment and is considered significant on size alone. P077-W1 is proposed to be crossed by the access road and cabling associated with turbine no. P077 requiring the removal of 0.25 ha of woodland. It is also 90 m from proposed turbine no. P077.

Construction

The construction of the access road and cabling system will require the removal of vegetation (including trees), approximately 11 m wide (access road and cabling), through a portion of the

significant woodland and increase the potential for surface water runoff impacts (Section 4.1.2). The removal of the 11 m section equates to approximately 0.25 ha of vegetation removal, namely bur oak, white elm, and shagbark hickory, from the southern edge of the significant woodland. This will result in a temporary fragmentation of the significant woodland through the length of the construction period. Once construction of the feature is completed, the 5 m of disturbed habitat that was temporarily disturbed during construction will be revegetated with native trees and shrubs to reduce the overall gap within the community to 6 m. As a result, this will restore connectivity within the woodland. Species of trees to be removed will be confirmed by pre-construction field surveys.

Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, pole locations will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species will not be affected by Project activities. Should rare or declining vegetation species be recorded during these surveys, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting. The removal of edge species is not expected to impact the ecological functions of the woodlands. Potential direct impacts to this significant woodland are outlined in Table 4.3 above.

Mitigation measures for clearing will include demarcation of all work areas through flagging in order to protect the vegetation adjacent to, and outside of the cleared area. Work areas will be clearly demarcated through flagging in order to protect the significant woodland and silt fence erected between the working area and the significant feature. All Project personnel will be informed of the designated work areas (portion of the existing ROW) prior to initiation of construction activities, and provided in construction drawings as determined during detailed design, and the exclusion of construction activities outside of this defined work area. Any trees will be felled into areas which have already been disturbed, with all cleared and grubbed materials temporarily stockpiled within the construction (disturbed) work areas to minimize potential disturbances to adjacent vegetation. The area will then be revegetated with native trees and shrubs, and erosion control measures (i.e., grading, geotextile, silt fences, riprap) implemented to assist in the re-establishment of the woodland and hedgerow community.

As a result of construction activities, such as clearing, within and adjacent to the woodland, fugitive dust generation, increased surface water runoff and wildlife avoidance may occur within the woodland. Fugitive dust may cover vegetation resulting in inhibited growth or death as a result of lack of sunlight and water able to reach the vegetation. Increased surface water runoff may lead to increased erosion and sedimentation which may cause the root systems of vegetation to be exposed and potential to be easily damaged. Species of wildlife may avoid the area during construction

activities and this may alter the ecological functions of the woodland. Mitigation measures for these potential impacts are described in Sections 4.1.1, 4.1.2 and 4.1.3, respectively.

As a result of the mitigation measures for clearing and revegetation efforts within the hedgerow and significant woodland, construction of the cabling and access road will have a minor effect on the woodland, and will not affect the overall designation of significance as the woodland will continue to meet the size requirement and function as a linkage as well as provide wildlife habitat for the local species.

Operation

The operation of the access road is not anticipated to have a negative effect on the woodland or its designation of significance as it will only be used as required for the maintenance of the wind turbines (approximated at once every six (6) months). Operation of the cabling will not affect the significant feature and natural regeneration of the area over the cabling is anticipated. Indirect impacts may include the generation of dust as a result of the use of the access road by Project vehicles, increase in surface water runoff due to the existence of a less permeable surface area then what had originally existed, and wildlife avoidance due to the change in wildlife habitat as a result of a change in vegetation. Mitigation measures detailed in Sections 4.1.1, 4.1.2 and 4.1.3 will mitigate any potential effects. The operational activities will not impact the woodland interior habitat, as no interior habitat was identified within P077-W1. The negative effects have been determined to be negligible during operations as the woodland will continue to be designated as significant since there will be no impact on its size or linkage function.

Decommissioning

The decommissioning of the Project components will require the removal of vegetation through excavation to remove the cabling system, and where required by the landowner, grading, scarification of the soil (decompaction), and revegetation with native shrubs and trees in areas that were formerly part of the woodland community. There is the potential for the landowner to request that the access road be left in place for their future use and therefore the Project components may be left in place or the cabling removed. Potential impacts and mitigation measures should the project components be decommissioned will be similar to the construction phase (as discussed above) and therefore decommissioning is anticipated to have a minor effect on the significant woodland. If revegetation of the areas is required, the plans will be supplied by the decommissioning contractor, in consultation with MNR, and identified in the specifications at that time.

4.2.2.4 114-W1

This significant corridor woodland is dominated by white elm in the canopy and sub-canopy, and staghorn sumac and hawthorn shrubs in the dense understorey. The woodland consists of very few trees larger than 24 cm dbh. This significant woodland is located 58 m to the east of turbine no. P075 (Appendices I - Turbine No. P075 (NRSI, 2012c), is crossed by the access road and cabling leading to turbine No. P075 and the access road and cabling for P132 requiring the removal of 0.06 ha from the woodland. This feature is considered significant based on the size (12.4 ha) and linkage function of the woodland as an animal movement corridor (P114-D1). Animal movement corridors are further discussed in Section 4.3.3 below.

Construction

The construction of the access road and cabling system will require the removal of vegetation (including trees), approximately 6 m wide (access road and cabling), through a portion of the significant woodland and increase the potential for surface water runoff impacts (Section 4.1.2). The removal of the 6 m section equates to approximately 0.03 ha of vegetation removal, namely white elm, staghorn sumac and hawthorn shrubs, through this significant woodland. This will not impact the function of the woodland as the removal of vegetation accounts for 0.004% of the total size of the woodland and this small amount of clearing will not impact the function of the woodland or its designation as significant. Species of trees to be removed will be confirmed by pre-construction field surveys.

Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, pole locations will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species will not be affected by Project activities. Should rare or declining vegetation species be recorded during these surveys, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting. Potential direct impacts to this significant woodland are outlined in Table 4.3 above.

The mitigation measures will include crossing the significant woodland at right angle to minimize disturbance. Mitigation measures for clearing will include demarcation of all work areas through flagging in order to protect the vegetation adjacent to, and outside of the cleared area. Work areas will be clearly demarcated through flagging in order to protect the significant woodland and silt fence erected between the working area and the significant feature. All Project personnel will be informed of the designated work areas (portion of the existing ROW) prior to initiation of construction activities, and provided in construction drawings as determined during detailed design, and the exclusion of construction activities outside of this defined work area. Pre-construction field surveys during detail design will verify the specific locations for clearing, if required, and identify rare or declining vegetation species. Any trees will be felled into areas which have already been disturbed, with all cleared and grubbed materials temporarily stockpiled within the construction (disturbed) work areas to minimize potential disturbances to adjacent vegetation. The area will then be revegetated with native trees and shrubs, and erosion control measures (i.e., grading, geotextile, silt fences, riprap) implemented to assist in the re-establishment of the woodland and hedgerow community.

As a result of construction activities, such as clearing, within and adjacent to the woodland, fugitive dust generation, increased surface water runoff and wildlife avoidance may occur within the

woodland. Fugitive dust may cover vegetation resulting in inhibited growth or death as a result of lack of sunlight and water able to reach the vegetation. Increased surface water runoff may lead to increased erosion and sedimentation which may cause the root systems of vegetation to be exposed and potential to be easily damaged. Species of wildlife may avoid the area during construction activities and this may alter the ecological functions of the woodland. Mitigation measures for these potential impacts are described in Sections 4.1.1, 4.1.2 and 4.1.3, respectively.

As a result of the mitigation measures for clearing and the revegetation efforts within the significant woodland, construction of the access road and cabling will have a minor effect on the woodland, and will not affect the overall designation of significance as the woodland will continue to meet the size requirement and function as a linkage as well as provide wildlife habitat for the local species.

Operation

The operation of the access road is not anticipated to have a negative effect on the woodland or its designation of significance as it will only be used as required for the maintenance of the wind turbines. There will be no effects from the operation of the cabling. Indirect impacts may include the generation of dust as a result of the use of the access road by Project vehicles, increase in surface water runoff due to the existence of a less permeable surface area then what had originally existed, and wildlife avoidance due to the change in wildlife habitat as a result of a change in vegetation. Mitigation measures detailed in Sections 4.1.1, 4.1.2 and 4.1.3 will mitigate any potential effects. The operational activities will not impact the woodland interior habitat, as no interior habitat was identified within 114-W1. The negative effects have been determined to be negligible during operations as the woodland will continue to be designated as significant as there will be no impact on its size or linkage function.

Decommissioning

The decommissioning of the Project component will require the removal of vegetation to remove the cabling system, and where required by the landowner, grading, scarification of the soil (decompaction), and revegetation with native shrubs and trees in areas that were formerly part of the woodland community. There is the potential for the landowner to request that the access road be left in place for their future use and therefore the Project components may be left in place or the cabling removed. Potential impacts and mitigation measures should the project components be decommissioned will be similar to the construction phase (as discussed above) and therefore decommissioning is anticipated to have a minor effect on the significant woodland. If revegetation of the areas is required, the plans will be supplied by the decommissioning contractor, in consultation with MNR, and identified in the specifications at that time.

4.2.2.5 CLA-W2

This significant woodland is identified as a young riverine forest dominated by white elm. It is located along a creek corridor, and the forest connects to the rail bed, an important linear linkage feature across the landscape. A wetland has also been identified within the woodland. Its' significance as an animal movement corridor is further discussed in Section 4.3 below. This significant woodland is considered significant due to size and as a linkage function in conjunction with other habitats along the railway. Though the cabling is proposed within the feature, directional drilling will be used to avoid clearing within the woodland.

Construction

Entrance and exit points for the direction drilling will be placed at 5 m from the dripline of the woodland to prevent impacts to the CRZ of trees within the woodland community. The CRZ will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures). Silt fence will be installed between the work areas and the significant woodland. Potential direct impacts to this significant woodland are outlined in Table 4.3 above

Work areas will be clearly demarcated through flagging in order to protect the significant woodland and silt fence erected between the working area and the significant feature. All Project personnel will be informed of the designated work areas (portion of the existing ROW) prior to initiation of construction activities, and provided in construction drawings as determined during detailed design, and the exclusion of construction activities outside of this defined work area. Following construction, disturbed areas area will be revegetated with a herbaceous native seed mix, and erosion control measures (i.e., grading, geotextile, silt fences, riprap) implemented to assist in the re-establishment of the woodland community.

As a result of construction activities, fugitive dust generation, increased surface water runoff and wildlife avoidance may occur within the woodland. Fugitive dust may cover vegetation resulting in inhibited growth or death as a result of lack of sunlight and water able to reach the vegetation. Increased surface water runoff may lead to increased erosion and sedimentation which may cause the root systems of vegetation to be exposed and potential to be easily damaged. Species of wildlife may avoid the area during construction activities and this may alter the ecological functions of the woodland. Mitigation measures for these potential impacts are described in Sections 4.1.1, 4.1.2 and 4.1.3, respectively.

The use of directional drilling beneath this feature will ensure that there is no impact to the woodland community, or the significant functions provided by the feature.

Operation

As the cabling will be directionally drilled beneath the feature, there will be no impact to the feature as a result of the operation of the cabling.

Decommissioning

As the cabling was installed via directional drilling, there will be no direct impact to the woodland as a result of the Project. Potential impacts and mitigation measures should the project components be decommissioned will be similar to the construction phase (as discussed above) and therefore decommissioning is anticipated to have a negligible effect on the significant woodland. If revegetation of the areas is required, the plans will be supplied by the decommissioning contractor, in consultation with MNR, and identified in the specifications at that time.

4.2.2.6 RB-F3

This significant woodland is identified as deciduous savannah, and characterized by sparse trembling aspen, white elm, and hawthorns, with a thick understorey of red raspberry, viper's bugloss (*Echium plantagineum*), common reed, and wild carrot. This community is contiguous to other communities along the rail bed and provide significant wildlife habitat as animal movement corridors. Its'

significance as an animal movement corridor is further discussed in Section 4.3 below. This significant woodland follows the abandoned railway on either side of the rail bed and is located to the south of proposed turbine no. P067 (NRSI, 2012c) and is considered significant due to size and as a linkage function in conjunction with other habitats along the railway. The location of the cabling, from turbine no. P067 to the Railbed substation, is proposed through a narrow section of the woodland on either side of the abandoned rail bed and will be constructed at a right angle thereby minimizing potential disturbance of the woodland. Approximately 0.06 ha of woodland vegetation will be removed.

Construction

The construction of the access road and cabling through this portion of the woodland will require the removal of vegetation, approximately 6 m wide, through a small portion of the significant woodland on either side of the rail bed identified in Figure 3-5 – Significant Wildlife Habitat. The removal of the 6 m section on either side equates to approximately 0.12 ha of vegetation removal from within the significant woodland. This will not impact the function of the woodland due to size or as a linkage with other habitats along the railway, given the amount of vegetation to be removed, a few trees (predominated by sparse trembling aspen, white elm, and hawthorns) may have to be removed. Species of trees to be removed will be confirmed by pre-construction field surveys.

Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, pole locations, if required, will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species will not be affected by Project activities Should rare or declining vegetation species be recorded during these surveys, it will be determined if it is possible to redirect the infrastructure to avoid the individual. If this is not possible, MNR will be contacted to discuss mitigation options, such as transplant or compensation planting. The removal of edge species is not expected to impact the ecological functions of the woodlands. Potential direct impacts to this significant woodland are outlined in Table 4.3 above

The mitigation measures will include crossing the significant woodland at right angle to minimize disturbance. Use of directional drilling to avoid or reduce the removal of vegetation from the woodland will be reviewed during detailed design and the pre-construction field survey. All entrance and exit points will be located outside and at least 5 m from the significant woodland.

Mitigation measures for clearing will include demarcation of all work areas through flagging in order to protect the vegetation adjacent to, and outside of the cleared area. Work areas will be clearly demarcated through flagging in order to protect the significant woodland and silt fence erected between the working area and the significant feature. All Project personnel will be informed of the designated work areas (portion of the existing ROW) prior to initiation of construction activities, and

provided in construction drawings as determined during detailed design, and the exclusion of construction activities outside of this defined work area. Any trees will be felled into areas which have already been disturbed, with all cleared and grubbed materials temporarily stockpiled within the construction (disturbed) work areas to minimize potential disturbances to adjacent vegetation. The area will then be revegetated with native trees and shrubs, and erosion control measures (i.e., grading, geotextile, silt fences, riprap) implemented to assist in the re-establishment of the woodland community.

As a result of construction activities, such as clearing, within and adjacent to the woodland, fugitive dust generation, increased surface water runoff and wildlife avoidance may occur within the woodland. Fugitive dust may cover vegetation resulting in inhibited growth or death as a result of lack of sunlight and water able to reach the vegetation. Increased surface water runoff may lead to increased erosion and sedimentation which may cause the root systems of vegetation to be exposed and potential to be easily damaged. Species of wildlife may avoid the area during construction activities and this may alter the ecological functions of the woodland. Mitigation measures for these potential impacts are described in Section 4.1.1, 4.1.2 and 4.1.3, respectively.

As a result of the mitigation measures for clearing and the revegetation efforts within the significant woodland, construction of the cabling will have a minor effect on the woodland, and will not affect the overall designation of significance as the woodland will continue to meet the size requirement and function as a linkage.

Operation

There will be no effects from the operation of the cabling. The negative effects have been determined to be negligible during operations as the significant woodland will continue to meet the size requirement and function as a linkage.

Decommissioning

The decommissioning of the Project component will require the removal of vegetation to remove the cabling system. Potential impacts and mitigation measures should the project components be decommissioned will be similar to the construction phase (as discussed above) and therefore decommissioning is anticipated to have a negligible effect on the significant woodland. If revegetation of the areas is required, the plans will be supplied by the decommissioning contractor, in consultation with MNR, and identified in the specifications at that time.

4.3 Significant Wetlands

The EOS Report (NRSI, 2012c) identified six (6) significant wetlands (i.e., P014-WE1, P014-WE2, P054-WE1, P108-WE1, P111-WE1, and Rondeau Bay North Shore) within 120 m of the Project location.

Rondeau Bay North Shore was identified within the Records Review as a Provincially Significant Wetland.

For the remaining five (5) wetlands, a full wetland evaluation following the *Ontario Wetland Evaluation System* (MNR, 1993) was not completed. NRSI biologists delineated the boundaries of these wetlands using the *Ontario Wetland Evaluation System (OWES)* criteria. These wetlands were initially classified as woodlands, but upon further examination and soil sampling, it was determined

that these communities were either wetlands in their entirety, or they contained wetland inclusions, based on the presence of several wetland indicator species. These wetlands are assumed to be significant based on functions/attributes associated with hydrology and significant wildlife habitat. Further discussion on a scoped evaluation to assess the wetland attributes was completed using the *Wetland Characteristics and Ecological Functions Assessment* as described in Appendix C of the *Natural Heritage Assessment Guide (OMNR 2011)*.

The Project components associated with the proposed development are within 120 m of the significant wetlands. No direct impacts to the significant wetlands are expected to occur as the Project location is not within the significant wetlands. However, there are potential indirect negative environmental effects that may occur, which are discussed in Section 4.3.1 for each of the activity phases of the Project.

4.3.1 Indirect Impacts

The potential indirect negative environmental effects associated with each Project component during all activity phases (i.e., construction, operation and decommissioning) are discussed below and summarized in . Recommended mitigation measures to minimize any negative environmental effects and ensure the long-term ecological health and integrity of the significant wetlands is also provided.

Construction

The following potential negative environmental effects associated with the construction of Project components is provided below:

Potential Impacts

- Fugitive Dust Generation – Fugitive dust generation has the potential to impact vegetation communities within the significant natural feature as heavy dust loads on the photosynthetic surfaces of plants can retard growth and ultimately result in loss of the individual. Given the mitigation and monitoring proposed, it is anticipated that dust generation will be relatively low in magnitude and limited in duration and geographical area, such that no negative effects on vegetation and wildlife communities will occur as a result of dust.
- Surface Water Runoff – Runoff patterns may be altered as a result of minor land grading and an increase in less pervious surfaces compared to existing conditions.
- Erosion and Sedimentation – Increased surface water runoff may result in erosion and sedimentation to the significant wetlands due to construction of Turbine P111 and access roads.
- Wildlife Avoidance – Increased noise, traffic and human-wildlife interactions may result in avoidance of wildlife to the significant wetlands.

Recommended Mitigation Measures

- Fugitive Dust Generation
  - use of Best Management Practices (BMP) following the guidelines in the "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" (Cheminfo Services Inc., 2005)

Table 4.4 Potential Indirect Environmental Effects to Significant Wetlands within 120 m of the Project Location (Note: Significant Wildlife Habitat Attributes of Significant Wetlands, as well as associated Impacts and Mitigation Measures are addressed in Section 4.4)

Feature No.	Functions/Attributes of Significant Wetland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Wetland	Potential Indirect Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P014-WE1	Fresh-Moist Oak-Maple Deciduous Forest Type. High flood retention functions	**Construction**: Access road/ cabling (P014) **Decommissioning**: access road/ cabling (P014)	Immediately adjacent to access road/ cabling (P014)	**Construction**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance. **Decommissioning**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance.	Fugitive dust generation: Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations. Erosion and sedimentation: Install silt fencing, flow velocity control measures (e.g., rock flow check dams) prior to, during and post- construction. Wildlife avoidance: Avoid construction and decommissioning activities during breeding bird season (May-July); Reduce vehicular noise; restrict personnel presence to the construction work area to limit human-wildlife interactions	NRSI (2012c), Figure 3-8
P014-WE2	Fresh-Moist White Elm Lowland Deciduous Forest Type (FODM7-1) & Open Water Pond (OAO) Inclusion Inclusion of significant woodland P014-W2 High flood retention functions	**Construction**: Cabling (Welch Line from P155 to Base Road) **Decommissioning**: Cabling (Welch Line from P155 to Base Road)	Adjacent (1 to 10 m) from Cabling (Welch Line from P155 to Base Road)	**Construction**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance. **Decommissioning**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance.	Fugitive dust generation: Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations. Erosion and sedimentation: Install silt fencing, flow velocity control measures (e.g., rock flow check dams) prior to, during and post- construction. Wildlife avoidance: Avoid construction and decommissioning activities during breeding bird season (May-July); Reduce vehicular noise; restrict personnel presence to the construction work area to limit human-wildlife interactions	NRSI (2012c), Figure 3-8
P054-WE1	Swamp Maple Mineral Deciduous Swamp (SWDM3-3) High flood retention functions	**Construction**: Cabling (Gagner Line/Lagoon Road from Charing Cross Road to the Rail Bed) **Decommissioning**: Cabling (Gagner Line/Lagoon Road from Charing Cross Road to the Rail Bed)	55m from cabling (Gagner Line/Lagoon Road from Charing Cross Road to the Rail Bed)	**Construction**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance. **Decommissioning**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance.	Fugitive dust generation: Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations. Erosion and sedimentation: Install silt fencing, flow velocity control measures (e.g., rock flow check dams) prior to, during and post- construction. Wildlife avoidance: Avoid construction and decommissioning activities during breeding bird season (May-July); Reduce vehicular noise; restrict personnel presence to the construction work area to limit human-wildlife interactions	NRSI (2012c), Figure 3-6
P108-WE1	Swamp Maple Mineral Deciduous Swamp Type (SWDM3-3) Inclusion of significant woodland	**Construction**: Cabling (P035, P036, P108) **Decommissioning**: Cabling	19 m from Cabling (P035, P036, P108)	**Construction**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion	**Fugitive dust generation:** Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Significant Wetland	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Wetland	Potential Indirect Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
	P108-W1 High flood retention functions	(P035, P036, P108)		and sedimentation; and Wildlife avoidance. **Decommissioning**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance.	 Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations. Erosion and sedimentation: Install silt fencing, flow velocity control measures (e.g., rock flow check dams) prior to, during and post- construction. Wildlife avoidance: Avoid construction and decommissioning activities during breeding bird season (May-July); Reduce vehicular noise; restrict personnel presence to the construction work area to limit human-wildlife interactions	
P111-WE1	Silver Maple Mineral Deciduous Swamp (SWDM3-2) High flood retention functions	**Construction**: *Turbines and access roads and cabling* **Operation**: Turbines **Decommissioning**: Turbines and access roads	33 m to turbine and access road	**Construction**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; Wildlife avoidance **Operation**: Wildlife avoidance **Decommissioning**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance.	Fugitive dust generation: Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations. Erosion and sedimentation: Install silt fencing, flow velocity control measures (e.g., rock flow check dams) prior to, during and post- construction. Wildlife avoidance: Avoid construction and decommissioning activities during breeding bird season (May-July); Reduce vehicular noise; restrict personnel presence to the construction work area to limit human-wildlife interactions	NRSI (2012c), Figure 3-5
Rondeau Bay North Shore PSW	The Rondeau Bay North Shore PSW complex is dominated by robust emergent and submerged plant vegetation forms, and is composed primarily of humic/mesic soils with some clay/loam soils. The Rondeau Bay North Shore PSW complex is a provincially significant waterfowl staging and breeding area, as well as a provincially significant migratory passerine, shorebird, or raptor stopover area. This wetland complex provides habitat for several provincially significant species	Cabling near turbine no. P171, along New Scotland Line Construction, Decommissioning	90 m from constructible area for cabling	**Construction**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; Wildlife avoidance **Decommissioning**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance.	Fugitive dust generation: Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations. Erosion and sedimentation: Install silt fencing, flow velocity control measures (e.g., rock flow check dams) prior to, during and post- construction. Wildlife avoidance: Avoid construction and decommissioning activities during breeding bird season (May-July); Reduce vehicular noise; restrict personnel presence to the construction work area to limit human-wildlife interactions	NRSI (2012c), Figure 3-7

- use of approved dust suppression (i.e., water or non-chloride based materials) on exposed areas including access roads, stockpiles and work/laydown areas as necessary
- hard surfacing (addition of coarse granular A material free of fine soil particles) of access roads or other high-traffic work areas
- phased construction, when possible, to limit the amount of time soils are exposed (i.e., winter construction proposed for this Project will assist in limiting dust generation)
- avoid earthmoving work during periods of high winds. Stockpiles are to be worked (e.g., loaded/unloaded) from the downwind side to minimize wind erosion, and
- stockpiles and other disturbed areas will be stabilized as necessary (e.g., tarped, mulched, graded, revegetated or watered to create a hard surface crust) to reduce/prevent erosion and escape of fugitive dust
- Visual monitoring of dust

- Surface Water Runoff
  - Installation of flow dissipation measures (e.g., rock check dams or enhanced vegetated swales) to temporarily retain water and decrease flow velocity.
  - Grading will be conducted to promote diffuse overland flow at ditch discharge locations.
- Erosion and Sedimentation
  - Minimize the size of the cleared and disturbed areas at the construction site. Install fencing to prevent the contractor from operating outside the defined construction area (e.g., silt fences at the edge of the 30 m buffer from significant wetlands).
  - Phase construction to minimize the time that soils are exposed.
  - Limit vegetation removal to existing agricultural fields. Fencing should be installed outside the drip line of residual trees, where possible.
  - An adequate supply of erosion control devices (e.g., geotextiles, revegetation materials) and sediment control devices (e.g., silt fence barriers) will be provided on site to control erosion and sedimentation and respond to unexpected events (Refer to Tables 4.9, 4.10, and 6.1 for more information).
  - Sediment control fencing may be installed, prior to the initiation of construction activities, along the outside edge of the areas to be disturbed at the Project locations. The potential for movement of sediment off-site will be identified during detail design and pre-construction site visits. These silt fence barriers should remain in place and will be maintained in good working order until construction is complete and disturbed areas have been stabilized through re vegetation or other long-term protection measures to prevent further erosion.
  - Divert runoff from the Project locations (access roads and turbine areas) through vegetated areas or into a properly designed and constructed drainage collection system (as discussed in Land Grading and Ditching above) to ensure that exposed soils are not eroded. Runoff velocities in ditches or other drainage routes, or along slopes, to be kept low via proper

installation of flow velocity control measures such as rock flow check dams, to minimize erosion potential. Runoff discharge locations are to be protected with erosion resistant material, if required.

- Grade stockpiles to a stable angle as soon as possible after disturbance to eliminate potential slumping. Revegetation (if during the growing season) or some other means of stabilization (e.g., tarping) should occur for any disturbed surface that is to be left exposed for longer than 30 days.
- Revegetate or stabilize exposed sites as soon as possible after they have been disturbed, using quick growing grasses or other native vegetation species approved by the Lower Thames Valley Conservation Authority (LTVCA). Where revegetation is not possible other erosion protection methods, such as erosion matting will be used.
- Monitoring the tracking of mud onto local streets during construction. If mud on streets occurs, the contractor will be required to implement a system to prevent transfer of this material to local ditches and waterbodies. This could potentially include wheel washing areas at the exit from the construction site or end-of-day street sweeping/scraping to remove accumulated materials from local streets.

- Wildlife Avoidance
  - Speed limits on access roads during operation will be restricted by Proponent policy and visual monitoring of the access roads for the presence of wildlife will be completed in conjunction with other natural heritage monitoring required for the Project.
  - Potential disturbance effects to breeding birds will be minimized through avoiding construction activities during sensitive periods (i.e. the breeding season).

Operation

The operation of Turbine P111 (only turbine proposed within 120 metres of significant wetlands) and access roads may result in the following indirect negative environmental effects:

Potential Impacts

- Wildlife Avoidance – Increased noise, traffic and human-wildlife interactions may result in avoidance of wildlife to the significant wetlands.

Recommended Mitigation Measures

- Wildlife Avoidance
  - Speed limits on access roads during operation will be restricted by Proponent policy and visual monitoring of the access roads for the presence of wildlife will be completed in conjunction with other natural heritage monitoring required for the Project.

Decommissioning

The following potential negative environmental effects associated with the decommissioning of Turbine P111 and access roads is provided below:

Potential Impacts

- Fugitive Dust Generation – Fugitive dust generation has the potential to impact vegetation communities within the significant natural feature as heavy dust loads on the photosynthetic surfaces of plants can retard growth and ultimately result in loss of the individual. Given the mitigation and monitoring proposed, it is anticipated that dust generation will be relatively low in magnitude and limited in duration and geographical area, such that no negative effects on vegetation and wildlife communities will occur as a result of dust.
- Surface Water Runoff – Runoff patterns may be altered as a result of minor land grading and an increase in less pervious surfaces compared to existing conditions.
- Erosion and Sedimentation – Increased surface water runoff may result in erosion and sedimentation to the significant wetlands due to construction of Turbine P111 and access roads.
- Wildlife Avoidance – Increased noise, traffic and human-wildlife interactions may result in avoidance of wildlife to the significant wetlands.

Recommended Mitigation Measures

- Fugitive Dust Generation
  - use of Best Management Practices (BMP) following the guidelines in the "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" (Cheminfo Services Inc., 2005).
  - use of approved dust suppression (i.e., water or non-chloride based materials) on exposed areas including access roads, stockpiles and work/laydown areas as necessary;
  - hard surfacing (addition of coarse granular A material free of fine soil particles) of access roads or other high-traffic work areas;
  - phased construction, when possible, to limit the amount of time soils are exposed (i.e., winter construction proposed for this Project will assist in limiting dust generation);
  - avoid earthmoving work during periods of high winds. Stockpiles are to be worked (e.g., loaded/unloaded) from the downwind side to minimize wind erosion; and
  - stockpiles and other disturbed areas will be stabilized as necessary (e.g., tarped, mulched, graded, revegetated or watered to create a hard surface crust) to reduce/prevent erosion and escape of fugitive dust.
  - visual monitoring of dust
- Surface Water Runoff
  - Installation of flow dissipation measures (e.g., rock check dams or enhanced vegetated swales) to temporarily retain water and decrease flow velocity.

- Erosion and Sedimentation
  - Minimize the size of the cleared and disturbed areas at the construction site. Install fencing to prevent the contractor from operating outside the defined construction area (e.g., silt fences at the edge of the 30 m buffer from significant wetlands).
  - Phase decommissioning activities to minimize the time that soils are exposed.
  - Limit vegetation removal to existing agricultural fields. Fencing should be installed outside the drip line of residual trees, where possible.
  - An adequate supply of erosion control devices (e.g., geotextiles, revegetation materials) and sediment control devices (e.g., silt fence barriers) will be provided on site to control erosion and sedimentation and respond to unexpected events (Refer to Tables 4.5, 4.6, and 6.1 for more information).
  - Sediment control fencing should remain in place until decommissioning activities are completed and disturbed areas have been stabilized through revegetation or other long-term protection measures to prevent further erosion.
  - Revegetate or stabilize exposed sites as soon as possible after they have been disturbed, using quick growing grasses or other native vegetation species approved by the LTVCA. Where revegetation is not possible other erosion protection methods, such as erosion matting will be used.
  - Monitoring the tracking of mud onto local streets during decommission. If mud on streets occurs, the contractor will be required to implement a system to prevent transfer of this material to local ditches and waterbodies. This could potentially include wheel washing areas at the exit from the construction site or end-of-day street sweeping/scraping to remove accumulated materials from local streets.
- Wildlife Avoidance
  - Speed limits on access roads during decommission will be restricted by Proponent policy and visual monitoring of the access roads for the presence of wildlife will be completed in conjunction with other natural heritage monitoring required for the Project.
  - Potential disturbance effects to breeding birds will be minimized through avoiding decommissioning activities during sensitive periods (i.e. the breeding season).

4.4 Significant Wildlife Habitat

The criteria for establishing significant wildlife habitat were based on the Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000) which identifies four (4) broad categories including:

- seasonal concentration areas,
- rare vegetation communities and specialized wildlife habitat,
- habitats of species of conservation concern, and
- animal movement corridors.

It is anticipated that Project activities will occur both within, and within 120 meters of significant wildlife habitat and therefore may directly and indirectly impact the wildlife present within those features throughout the various Project phases.

Significant wildlife habitat can be impacted by a number of activities, including the following:

- Direct encroachment on the feature – The removal of vegetation from the significant natural feature would have an impact on the vegetation community as a whole and the wildlife habitat that is provided therein.
- Behaviour avoidance of significant wildlife habitat(s) due to changes within or development of certain project components adjacent to certain SWH types
- Fugitive dust generation – Fugitive dust generation has the potential to impact vegetation communities within the significant natural feature as heavy dust loads on the photosynthetic surfaces of plants can retard growth and ultimately result in loss of the individual.
- Changes in surface water runoff altering the moisture regime of the feature – Alterations in surface water runoff may impact the moisture regime of the receiving significant natural feature. If the moisture regime of the receiving natural feature was altered significantly, the composition of these communities may change.
- Changes in groundwater – Changes in groundwater levels and flows could affect groundwater delivery to the natural features, which may alter local moisture regimes and the vegetation communities they support.

A discussion on the potential impacts and associated mitigation measures for these four (4) categories is provided in Section 4.1. The SWH that was identified as within the project location or within 120 metres of the project location includes:

- Animal Movement Corridors
- Bat Maternity Roosts
- Habitats for Species Ranked S1-S3
- Open Country Bird Breeding Habitats
- Generalized Candidate Significant Turtle Nesting and Overwintering Habitat.

4.4.1 Seasonal Concentration Areas

4.4.1.1 Bat Maternity Roost

Two different categories of bat maternity roosts were identified within the EOS; those located within 120 m of a wind turbine, and those located within 120 m of another Project component.

For bat maternity roosts located within 120 m of a Project component, other than a wind turbine, these bat maternity roosts have been determined to be generalized candidate significant wildlife habitat, in accordance with Appendix D of the Natural Heritage Assessment Guide (MNR, 2011). This includes nine (9) bat maternity roosts associated with the following woodlands: P002-W1, P002-W2, P004-W1, P139-W1, P139-W5, P139-W6, P139-W7, P139-W8, and P139-W9. (see Figures 1-8 – Significant Wildlife Habitat - Transmission Corridors NRSI, 2012c).

For bat maternity roosts located within 120 m of a wind turbine, or with a Project component within the feature, in accordance with Appendix D of the Natural Heritage Assessment Guide (MNR, 2011), the bat maternity roosts are treated as significant and a study of habitat use will be completed prior to construction. This includes four (4) bat maternity roosts associated with the following woodlands: P001-W1, P108-W1/P108-WE1, P118-W1, RB-A2. (see Figures 1-8 – Significant Wildlife Habitat - Transmission Corridors NRSI, 2012c).

The study of habitat use will occur in June 2012 and will be conducted in accordance with the proposed work plan provided in Appendix B.

Once these studies are completed, results will be analyzed in order to determine whether the features are significant bat maternity roosts. Criteria for significant maternity roosts are provided within the work plan included in Appendix B. If the results of the habitat use study determines that the habitat does not meet the criteria, then the features are determined to not be a significant bat maternity roost, and no mitigation is required.

The potential negative environmental effects associated with each Project component during all activity phases (i.e., construction, operation and decommissioning) on both generalized candidate significant bat maternity roosts, and bat maternity roosts determined to be significant during the habitat use study are discussed below and summarized in Table 4.5.

Construction Phase

No Project components are proposed within the generalized candidate significant bat maternity roosts (refer to Table 4.5) removing the potential for direct impact to these habitats. Further, as construction will occur during the daytime, and since construction activities will occur outside of the woodlands providing the habitat, the potential for disrupting active, breeding, or roosting bats is not anticipated.

Indirect impacts to the significant bat maternity roost habitat include changes to surface water runoff rate and fugitive dust generation.

Table 4.5 Potential Environmental Effects to Bat Maternity Roosts Within 120 m of the Project Location

Feature No.	Functions/Attributes of Habitat	Distance of Project Phase, Activity, or Component(s) to Bat Maternity Roost	Potential Direct/Indirect Impacts	Mitigation Measures Proposed to Address Impact	Refer to Figure/Map for mapping of component and feature
P001-W1 (Treated as significant; habitat use study required)	Woodland P001-W1 is 15.8ha in size, with no interior habitat, a swamp and a potential man-made drainage feature is located on the north end of the feature. The woodland is greater than 0.5ha and within six (6) km of Rondeau Bay.	Constructible area for turbine P-001 is 54 m from the habitat	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P001-W1. Operation phase – potential increase in bat mortality or behavioural avoidance due to the presence of wind turbine Decommissioning phase – same as those identified for construction phase	Pre-Construction phase - Pre-construction exit surveys at identified maternity roosts will occur in June 2012. Surveys will be conducted following protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods as practicable. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required. Post construction monitoring will be conducted as per pre-construction protocols to determine potential behavioural avoidance. Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-8
P002-W1 (Generalized Candidate Significant Maternity Roost)	The woodland is greater than 0.5ha and within six (6) km of Rondeau Bay.	Constructible area for cabling within road allowance along Ed's Line is proposed immediately adjacent (1 m) of the habitat	Construction phase –Indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – presence of cabling is not anticipated to have an impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the cabling will be located within the existing public road allowance for Ed's Line. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Decommissioning phase – No direct impacts anticipated. It is anticipated that the cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Habitat	Distance of Project Phase, Activity, or Component(s) to Bat Maternity Roost	Potential Direct/Indirect Impacts	Mitigation Measures Proposed to Address Impact	Refer to Figure/Map for mapping of component and feature
P002- W2 (Generalized Candidate Significant Maternity Roost)	The woodland is greater than 0.5ha and within six (6)km of Rondeau Bay.	Constructible area for cabling within road allowance along Ed's Line is proposed immediately adjacent (1 m) of the habitat	Construction phase –Indirect impacts to *surface* water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – presence of cabling is not anticipated to have an impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the cabling will be located within the existing public road allowance for Ed's Line. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Decommissioning phase – No direct impacts anticipated. It is anticipated that the cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-8
P004-W1 (Generalized Candidate Significant Maternity Roost)	The woodland is greater than 0.5ha and within six (6) km of Rondeau Bay.	Constructible area for cabling within road allowance along Ed's Line is proposed immediately adjacent (1 m) of the habitat	Construction phase –Indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – presence of cabling is not anticipated to have an impact. Decommissioning phase – same as those identified for construction phase	Construction phase - direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the cabling will be located within the existing road allowance for Ed's Line. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Decommissioning phase – No direct impacts anticipated. It is anticipated that the cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Habitat	Distance of Project Phase, Activity, or Component(s) to Bat Maternity Roost	Potential Direct/Indirect Impacts	Mitigation Measures Proposed to Address Impact	Refer to Figure/Map for mapping of component and feature
P108-W1/ P108-WE1 (Treated as significant; habitat use study required)	This woodland is 24.98 ha and the Harwich Wind Farm Project conduct a RADAR survey in the vicinity of the woodland, finding 5.4 bat passes/hr.	Constructible area for turbine P120 is 76 m from the habitat. Constructible area for access roads associated with Turbine Nos. P035 and P038 are located 16 m from the habitat. Constructible area for cabling and access road to P108 are located adjacent (5m) to this habitat.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – direct impacts include a potential increase in bat mortality, or behavioural avoidance, due to the presence of wind turbine. Decommissioning phase – same as those identified for construction phase	Pre-Construction phase - Pre-construction exit surveys at identified maternity roosts will occur in June 2012. Surveys will be conducted following protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods as practicable. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required. Post construction monitoring will be conducted as per pre-construction protocols to determine potential behavioural avoidance. Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-8
P118-W1 (Treated as significant; habitat use study required)	The woodland is greater than 0.5ha and within 6km of Rondeau Bay.	Constructible areas for Turbine P118 and associated access roads are located 55m and 52 m from the habitat, respectively.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – direct impacts include a potential increase in bat mortality, or behavioural avoidance, due to the presence of wind turbine. Decommissioning phase – same as those identified for construction phase	Pre-Construction phase - Pre-construction exit surveys at identified maternity roosts will occur in June 2012. Surveys will be conducted following protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods, as practicable. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required. Post construction monitoring will be conducted as per pre-construction protocols to determine potential behavioural avoidance. Decommissioning phase – same as those identified for construction phase.	NRSI (2012c), Figure 3-7

Feature No.	Functions/Attributes of Habitat	Distance of Project Phase, Activity, or Component(s) to Bat Maternity Roost	Potential Direct/Indirect Impacts	Mitigation Measures Proposed to Address Impact	Refer to Figure/Map for mapping of component and feature
P139-W1 (Generalized Candidate Significant Maternity Roost)	This woodland is 2.3 ha and within 6km of Rondeau Bay.	Constructible area for cabling within road allowance is immediately adjacent (1m) to the habitat	Construction phase –Indirect impacts to *surface* water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – presence of cabling is not anticipated to have an impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the cabling will be located within the existing public road allowance. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Decommissioning phase – No direct impacts anticipated. It is anticipated that the cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-7
P139-W5 (Generalized Candidate Significant Maternity Roost)	This woodland is 3.95 ha and within 6km of Rondeau Bay.	Constructible area for cabling within road allowance is adjacent (5m) to the habitat	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – presence of cabling is not anticipated to have an impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the cabling will be located within the existing public road allowance. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Decommissioning phase – No direct impacts anticipated. It is anticipated that the cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-7

Feature No.	Functions/Attributes of Habitat	Distance of Project Phase, Activity, or Component(s) to Bat Maternity Roost	Potential Direct/Indirect Impacts	Mitigation Measures Proposed to Address Impact	Refer to Figure/Map for mapping of component and feature
P139-W6 (Generalized Candidate Significant Maternity Roost)	This woodland is 1.23 ha and within 6km of Rondeau Bay.	Constructible area for cabling within road allowance is adjacent (8m) to the habitat	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – presence of cabling is not anticipated to have an impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the cabling will be located within the existing public road allowance. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Decommissioning phase – No direct impacts anticipated. It is anticipated that the cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-7
P139-W7 (Generalized Candidate Significant Maternity Roost)	This woodland is 5.74 ha and within 6km of Rondeau Bay.	Constructible area for cabling within road allowance is adjacent (9m) to the habitat	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – presence of cabling is not anticipated to have an impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the cabling will be located within the existing public road allowance. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Decommissioning phase – No direct impacts anticipated. It is anticipated that the cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-7
P139-W8 (Generalized Candidate Significant Maternity Roost)	This woodland is 13.3 ha and within 6km of Rondeau Bay.	Constructible area for cabling within road allowance is adjacent (10m) to the habitat	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – presence of cabling is not anticipated to have an impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the cabling will be located within the existing public road allowance. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Decommissioning phase – No direct impacts anticipated. It is anticipated that the cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-7

Feature No.	Functions/Attributes of Habitat	Distance of Project Phase, Activity, or Component(s) to Bat Maternity Roost	Potential Direct/Indirect Impacts	Mitigation Measures Proposed to Address Impact	Refer to Figure/Map for mapping of component and feature
P139-W9 (Generalized Candidate Significant Maternity Roost)	This woodland is 2.84 ha and within 6km of Rondeau Bay.	Constructible area for cabling within road allowance is adjacent (7m) to the habitat	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – presence of cabling is not anticipated to have an impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the cabling will be located within the existing public road allowance. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Decommissioning phase – No direct impacts anticipated. It is anticipated that the cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-7
RB-_A2 (Treated as significant; habitat use study required)	This RB-A community is 2.52 ha (hedgerow) along the rail bed. Regardless of their size, these rail bed communities represent important ecological linkage features in the landscape, connecting important habitats across a large distance.	Constructible area for Turbine P040 is 90 m from the habitat. Constructible area for the transmission corridor (230 kV distribution line, poles, and 3 m wide service road) within the railbed from Charing Cross Road to Huffman Road is adjacent (2m) from the habitat.	Construction phase –Indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Operation phase – direct impacts include a potential increase in bat mortality, or behavioural avoidance, due to the presence of wind turbine. Decommissioning phase – same as those identified for construction phase	Pre-Construction phase - Pre-construction exit surveys are identified maternity roosts will occur in June 2012. Surveys will be conducted following protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is within the rail allowance. Sections 4.1.2 and 4.1.1 discuss indirect impacts of surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – There are no activities associated with the operation of the cabling. Post construction monitoring will be conducted as per pre-construction protocols. Decommissioning phase – No direct impacts anticipated. It is anticipated that the above ground cabling will not be removed but will continue to service the area beyond the life of this Project through another service provider. If the decommissioning is required, the indirect impacts/ associated mitigation measures identified in Section 4.1.1 and 4.1.2 will apply.	NRSI (2012c), Figure 3-6

An altered surface water runoff rate may result in changes to the amount of surface water runoff that occurs within the bat maternity roost as well as alter the discharge points. Should surface water runoff be altered it is possible that it could impact nearby receiving waterbodies which may be used by various insects as breeding or foraging habitat. This could in turn cause a localized decrease in insect activity in and around the maternity roost and as such cause bats to travel further and forage longer throughout the night. Surface water runoff mitigation measures are described in Section 4.1.2.

Fugitive dust generation may indirectly affect the natural feature by decreasing air quality. Dust generation activities will occur during the day allowing for any excess dust, not addressed by mitigation measures identified in Section 4.1.1, to have settled or blown away by dusk when bats become active and therefore avoiding any potential impacts from fugitive dust emissions.

Operations Phase

As there will be limited disruption from periodic inspections and with maintenance occurring as required, potential impacts will be restricted to avoidance of bat maternity roosts, potential increase in bat mortality events at specified bat maternity roosts (refer to Table 4.5) and changes in surface water runoff as described above.

Disturbance effects studies, following confirmation of the presence of significant bat maternity roost habitat, as delineated by the extent of the ELC polygon containing the maternity roosts, within 120 m of wind turbines through the habitat study in 2012, will be conducted. Disturbance effects monitoring, i.e. a repetition of pre-construction exit surveys within the significant bat maternity roost habitat, will be conducted in accordance with the pre-construction work plan identified in Appendix B. The pre- and post-construction monitoring plans for bat avoidance behaviour are discussed in Table 4.11 while post-construction monitoring plans for bat avoidance behaviour and bat mortality are also discussed in Section 4.4 EEMP – Design and Operations Report. Bat activity varies greatly from night to night and across seasons, due to factors such as ambient air temperature, wind speed, humidity, lunar phase and insect availability (MNR, 2006). Recognizing this fact, MNR, along with the Proponent and other relevant agencies, will be asked to collectively review the results of the post-construction monitoring to determine if an ecologically significant disturbance/avoidance effect is occurring, and whether such an effect is attributable to the wind turbines and not external factors. These discussions will determine if and when the contingency plan will be implemented and if any additional measures are warranted. The best available science and information will be considered when determining appropriate mitigation and will use an adaptive management approach.

Turbines placed in forested areas had greater mortality rates per turbine compared to turbines placed in agricultural fields. This could simply be due to larger bat populations and high bat activity within forested areas, however the high mortality rates at turbines (for other projects) may also indicate that bats do not avoid their foraging and breeding habitat.

While there is an abundant amount of information available on the mortality of bats due to wind turbines, there is little available information pertaining to bat behaviour avoidance of significant wildlife habitats (maternity colonies) due to the proximity of wind turbines. There has been limited evidence that proximity to trees (blades $<$50 m away) had some influence on bat mortality, and as such avoidance (James, 2008). The distances from the identified bat maternity roosts to the wind

turbines are provided in Table 4.5 with the closest Turbine proposed to be located 57 m from a bat maternity roost and as such are not anticipated to cause an impact to the bat maternity roosts. While other Project components (access road, cabling) may be closer, they are not anticipated to impact the bat maternity roosts. Of these Project components, only the access road will be actively used, and will only be used during periodic maintenance activities.

Post-construction bat behavioural avoidance studies, in accordance with the protocols outlined in Appendix B, will assist in confirming that, based on the results of studies completed for other projects, the effects of the placement of turbines within 120 m of significant bat maternity roost is not anticipated to cause any avoidance of bats from this natural feature.

Maintenance shutdown will coincide with periods of high bat activity, specifically in the spring and autumn during bat migration, where possible. Data collected during the bat behavioural monitoring will be used in order to assist in determining the shutdown period.

Decommissioning Phase

Certain decommissioning activities will be similar to those activities that occurred during the construction phase of the Project, and as such mitigation measures from the construction phase (as discussed above) will be similar to those employed in the decommissioning phase.

4.4.2 Specialized Wildlife Habitat

4.4.2.1 Generalized Candidate Significant Turtle Nesting or Overwintering Habitat.

Based on LIO mapping, a small portion of the Rondeau Bay North Shore PSW complex is located within the Project Area along New Scotland Line. This area was examined during the site investigation, and it consists of a well-vegetated drain which may provide habitat for nesting turtles. This feature is located 90 m from cabling along New Scotland Line.

Construction Phase

As this feature is associated with the wetland community, mitigation measures identified within Section 4.3 will be effective at mitigation potential impacts to the form of the wetland community.

Construction activities may impact wildlife use of this habitat, however since works are located 90 m from the habitat, construction will be a short-term activity in proximity of the wetland, and construction will occur from the roadway, which is an existing disturbance source from vehicle movement, this is expected to have a minimal potential for disturbance of turtle nesting within the wetland community.

Table 4.6 Significant Specialized Wildlife Habitat within 120 m of the Project Location – Generalized Candidate Turtle Nesting Habitat

Feature No.	Functions/Attributes of Open Country Breeding Bird Habitat	Project Phase, Activity, or Component(s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
Generalized Candidate Significant Turtle Nesting Habitat	Associated with Rondeau Bay North Shore Provincially Significant Wetland	Constructible area for cabling along New Scotland Line is 90m away from this feature. Construction/ Decommissioning	**Construction**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; Wildlife avoidance **Decommissioning**: Fugitive dust generation; Surface water runoff (i.e. land grading / ditching and an increase in impervious or less pervious surfaces associated with access road construction); Erosion and sedimentation; and Wildlife avoidance.	Fugitive dust generation: Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations. Erosion and sedimentation: Install silt fencing, flow velocity control measures (e.g., rock flow check dams) prior to, during and post- construction. Wildlife avoidance: No impact is anticipated given setback	NRSI (2012c), Figure 3-7

Operations Phase

The presence of cabling within the road allowance will not impact turtle nesting.

Decommissioning Phase

Following completion of the Project, cabling may remain in place for use by the local distribution company. Should removal of the cabling be required, certain decommissioning activities will be similar to those activities that occurred during the construction phase of the Project, and as such mitigation measures from the construction phase (as discussed above) will be similar to those employed in the decommissioning phase.

4.4.3 Significant Habitat of Species of Conservation Concern

A total of two (2) open country breeding bird habitat was identified in two (2) locations on the Project location: one is located south of the rail bed, west of Fargo, identified as a meadow community - P053-W2 and in the agricultural field adjacent to the north side of Campbell Line in the area of P029 and P030. In addition, there were five (5) area sensitive bird breeding habitat: P162-W2, P022-W1, P156-W1, P139-W8 and P014-W2. Furthermore, there were 14 woodlands and wetland identified as habitat for S1-S3 ranked bat species (Small-footed Bat (*Myotis leibii*), Northern Long-eared Bat (*Myotis septentrionalis*), and Tricoloured Bat (*Perimyotis subflavus*)). The potential direct and indirect impacts to the open country breeding bird habitat, area sensitive bird breeding habitat, and habitat for S1-S3 ranked bat species resulting from the construction, operation, and decommissioning of Project are discussed in the subsections below.

4.4.3.1 Open Country Breeding Bird Habitat

Two different categories of open country breeding bird habitat were identified within the EOS; those with Project components in the feature, and those with Project components within 120 m of the feature.

For the open country breeding bird habitat where Project components are not located within the feature, the feature has been determined to be generalized candidate significant wildlife habitat, in accordance with Appendix D of the Natural Heritage Assessment Guide (MNR, 2011). This feature (P053-W2) is a 14.3 ha meadow community located south of the railbed, west of Fargo (see Figure 3-7(NRSI, 2012C)).

For the open country breeding bird habitat where Project components are located within the feature, in accordance with Appendix D of the Natural Heritage Assessment Guide (MNR, 2011), the open country breeding bird habitat is treated as significant and a study of habitat use will be completed prior to construction. This feature is P029 – Open Field (Campbell Line), located on the north side of Campbell line and is dominated by golden rod and grasses (Figure 3-6) and is approximately 42.8 ha (see Figure 3-6(NRSI, 2012C)).

The study of habitat use will occur in June through early July 2012 and will be conducted following the protocols outlined in Appendix C.

Once these studies are completed, results will be analyzed in order to determine whether the feature is a significant open country breeding bird habitat. Criteria for determining significance are provided within Appendix C. Should this feature be determined to be significant, post-construction surveys will also take place for three (3) years following construction, as discussed in Table 4.11.

If the feature is determined to not be significant, then mitigation measures outlined within the Construction Plan Report (Hatch, 2012a) will be effective at minimizing impacts to wildlife that may be using the non-significant habitat. This may include such measures as minimizing the disturbance footprint within the habitat and constructing outside of the breeding bird season (typically May through July), as practicable.

The potential negative environmental effects associated with each Project component during all activity phases (i.e., construction, operation and decommissioning) on both the generalized candidate significant open country breeding bird habitat, and the open country breeding bird habitat determined to be significant during the habitat use study are discussed below and summarized in Table 4.6.

Construction Phase

The open country breeding bird habitat located on the north side of Campbell line will be directly impacted with the construction of the access roads for turbines P029 and P030. Construction will occur outside of the breeding bird period in order to further reduce any potential impacts. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Use of these mitigation measures is anticipated to prevent potential effects to nesting birds. Further the construction area will be clearly delineated (flagging and exclusion fencing) to further reduce any added impacts to the feature. All Project personnel will be instructed on the limits of the construction area and the exclusion of activities outside of the defined construction area. The impacted habitat is estimated to be 0.34 ha during construction as an 11 m ROW will be required for construction of the 6 m access road and cabling. This will result in a temporary fragmentation of the habitat, though as construction will be timed outside of the breeding bird period, the period of time during which this fragmentation will occur will not actually impair the function of the habitat. Once construction of the feature is completed, the 5 m of disturbed habitat that was temporarily disturbed during construction will be revegetated with resseded to reduce the overall gap within the community to 6 m, resulting in a reduction of the footprint to 0.17 ha. As a result, this will restore connectivity within the habitat. Following completion of construction, an approximately 0.17 ha disturbed area will exist during operations, and will consist of access road construction and cabling.

This loss of habitat will have minimal impact on the open country bird breeding habitat given its size (42.8 ha). Further, the absence of vertical structures within the habitat will minimize both the disturbance as well as the risk of increased predation. Stockpiling of removed material will be temporarily stockpiled within the constructible area on the Project location to minimize potential disturbances to adjacent vegetation. Additionally, turbine P029 will be constructed within 37 m of the feature.

The meadow community located south of the railbed, west of Fargo is to be located at a minimum of 5 m to a maximum of 23 m away from the proposed transmission corridor. No direct encroachment into this habitat will occur. Construction will occur outside of the breeding bird period in order to further reduce any potential impacts. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest

location until such time as the nest is abandoned. Use of these mitigation measures is anticipated to prevent potential effects to nesting birds. Further the construction area will be clearly delineated (flagging and exclusion fencing) to further reduce any added impacts to the feature.

As a result of construction activities, such as clearing and stockpiling, adjacent to this natural feature, fugitive dust generation and increased surface water runoff may occur. Fugitive dust may cover vegetation resulting in inhibited growth or death as a result of lack of sunlight and water able to reach the vegetation. Increased surface water runoff may lead to increased erosion and sedimentation which may cause the root systems of vegetation to be exposed and potential to be easily damaged. Species of birds may temporarily avoid the area during construction activities and this may alter the use of this breeding habitat; however constructions activities will be timed for outside the breeding bird period wherever possible. Mitigation measures for these potential impacts are described in Section 4.1.1, 4.1.2 and 4.1.3, respectively.

Operations Phase

Potential impacts on open country bird breeding habitat are expected to only occur as a result of the presence of Project components within breeding bird habitat and within 120 metres of turbine P029.

The meadow located south of the railbed breeding bird habitat proposed to be at a minimum of 5 m to a maximum of 23 m from the transmission line and associated service road is adjacent to the feature and not anticipated to have any impact. The P029 and P030 (Campbell Line) open field have access roads and associated cabling proposed within the open country bird breeding habitat. The presence of an access road is not anticipated to cause any significant impacts to the open country bird breeding habitat given that this natural feature is surrounded by agricultural fields and roadways at present. Further, there will be no visual structures associated with the roadway, and therefore there will be a minimal visual disruption, and no increased risk of predation from birds of prey. The footprint of the access road and cabling through the habitat will be minimized to the greatest extent possible.

Turbine P029 is located approximately 37 m from the open country bird breeding habitat. Potential impacts that may occur to areas confirmed as significant open country bird breeding habitat within 120 m of turbine nos. P029 and P030, access roads, and cabling include incidental take of wildlife by Project vehicles and avoidance of the habitat due to disturbance from operation of the turbines.

Table 4.7 Significant Habitat of Species of Conservation Concern within 120 m of the Project Location - Open Country Breeding Bird Habitat

Feature No.	Functions/Attributes of Open Country Breeding Bird Habitat	Project Phase, Activity, or Component(s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P029 – Open Field (Campbell Line) (Treated as significant; Habitat Use Study required)	42.8 ha in size. Fallow agricultural field dominated by grasses and goldenrods, consistent in composition and as such conducive to open country breeding bird habitat. Confirmation of specific species to occur during preconstruction surveys.	Constructible area for access road and cabling crosses this feature. Constructible area for Turbine P029 located 37 m from this feature.	Construction – Temporary loss of 0.34 ha for direct encroachment onto the feature for access road and cabling installation. Indirect impacts from dust and surface water runoff Operation – Footprint within the feature reduced to 0.17 ha following revegetation of temporarily disturbed areas. Direct impact for the operation of turbine P029 may cause an increase in bird mortality. Indirect impacts such as dust (from access road usage) and change in surface water runoff patterns. Decommissioning – Indirect impacts from dust and surface water runoff	Preconstruction – preconstruction surveys will be undertaken to determine significance Construction – direct encroachment onto the feature will occur. Construction will occur, where possible, outside of the breeding bird period. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Habitat avoidance anticipated to be minimal due to short time from of construction. Stockpiling will only occur in temporary locations in constructible areas. The work area will be flagged and personnel will be instructed on the limits of the construction area, to limit any further impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Following completion of construction activities, the ROW will be reduced to 6 m through revegetation of the additional 5 m (2.5 m on either side of the roadway) with a native seed mix of herbaceous species, Operation – presence of P029 within 37 m may have the direct impact of increasing bird mortality. Following confirmation of significance, further discussions with MNR to determine mitigation measures and monitoring plans. The presence of access road and underground cabling is not anticipated to have an impact. Maintenance activities for the underground cabling and access road will not occur during the bird breeding season, where possible. If maintenance is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to activities to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. . Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Decommissioning – Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. The area will be revegetated with a native seed mix of herbaceous species, wherever possible, to facilitate open country bird breeding	NRSI (2012c), Figure 3-8
P053-W2 (Generalized Candidate Significant Wildlife Habitat)	Meadow community (14.3 ha) background research indicates the presence of indicator species (e.g. vesper sparrow (*Pooecetes gramineus*)) in general area.	Constructible area for transmission corridor and associated service road proposed to be immediately adjacent (1m) to the feature.	Construction – Direct encroachment onto habitat will not occur. Indirect impacts from dust and surface water runoff Operation –Indirect impacts such as dust (from service road usage) and change in surface water runoff patterns. Decommissioning – Indirect impacts from dust and surface water runoff	Construction – direct encroachment onto the feature will not occur. Construction will occur, where possible, outside of the breeding bird period. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Habitat avoidance anticipated to be minimal due to short time of construction. Stockpiling will only occur in temporary locations in previously disturbed areas. The work area will be flagged and personnel will be instructed on the limits of the construction area, to limit any further impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation - the presence of the transmission line and service road is not anticipated to have any impact. If maintenance is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to the activities to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Sections 4.1.2 and 4.1.1 discuss surface water runoff (including the use of erosion and sedimentation control) and fugitive dust generation, respectively, including impacts and mitigation measures. Decommissioning - sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures.	NRSI (2012c), Figure 3-6

Maintenance requiring the use of cranes or heavy equipment will occur outside of the breeding bird period in order to further reduce any potential impacts. If ground disturbing maintenance is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to the maintenance activities to identify the presence or absence of nests. If nests protected under either the Migratory Bird Convention Act or the Fish and Wildlife Conservation Act are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Use of these mitigation measures is anticipated to prevent potential effects to nesting birds. Maintenance of the turbine P029 is not anticipated to have any impacts, as the blades will be stopped during the maintenance activities.

Disturbance of nesting open country breeding birds is typically not expected; many open country breeding bird species are known to nest in close proximity to operating wind turbines, and have been recorded foraging around wind turbines (James, 2008).

Following confirmation of significance, post construction monitoring will be conducted as described in Table 4.11.

Decommissioning Phase

Certain decommissioning activities will be similar to those activities that occurred during the construction phase (as discussed above) of the Project, and as such mitigation measures from the construction phase will be similar to those employed in the decommissioning phase. Decommissioning will not take place during the breeding bird period.

4.4.3.2 Area Sensitive Breeding Bird Habitat

Two different categories of area-sensitive breeding bird habitat were identified within the EOS; those with Project components in the feature, and those with Project components within 120 m of the feature.

For the four (4) area-sensitive breeding bird habitats where Project components are not located within the feature, the features have been determined to be generalized candidate significant wildlife habitat, in accordance with Appendix D of the Natural Heritage Assessment Guide (MNR, 2011). This includes area-sensitive breeding bird habitats associated with the following woodlands:

- P014-W2
- P156-W1
- P139-W8
- P162-W2

For the area-sensitive breeding bird habitat where Project components are located within the feature (P022-W1), in accordance with Appendix D of the Natural Heritage Assessment Guide (MNR, 2011), the open country breeding bird habitat is treated as significant and a study of habitat use will be completed prior to construction.

The study of habitat use will occur in June through early July 2012 and will be conducted following the protocols outlined in Appendix D.

Once these studies are completed, results will be analyzed in order to determine whether the feature is a significant area sensitive bird breeding habitat. Criteria for evaluating significant of area-sensitive bird breeding habitats are identified in Appendix D. Should this feature be determined to be significant, post-construction surveys will also take place for three (3) years following construction, as discussed in Table 4.11.

If the feature is determined to not be significant, then mitigation measures outlined within the Construction Plan Report (Hatch, 2011a) will be effective at minimizing impacts to wildlife that may be using the non-significant habitat. This will include such measures as minimizing the disturbance footprint within the habitat and constructing outside of the breeding bird season (typically May through July).

The potential negative environmental effects associated with each Project component during all activity phases (i.e., construction, operation and decommissioning) on both the generalized candidate significant area sensitive breeding bird habitat, and the area sensitive breeding bird habitat determined to be significant during the habitat use study are discussed below and summarized in Table 4.7.

Construction Phase

Though cabling will be installed through the hedgerow which connects the two woodland areas which comprise P022-W1, this will not result in either a loss of form or function from the community as, apart from connectivity, the hedgerow does not provide any contribution to the function of the woodland areas as area-sensitive breeding bird habitat; the removal of vegetation from the hedgerow will not result in a loss of woodland area, nor increase edge effects, or reduce the amount of forest interior within the habitat. Further, in order to prevent fragmentation, the constructible area within the feature will be restricted to 6m, or approximately 0.02 ha of the woodland.

Construction will occur outside of the breeding bird period in order to further reduce any potential impacts. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Use of these mitigation measures is anticipated to prevent potential effects to nesting birds.

The intrusion through the hedgerow will enter at a right angle to reduce the Project location area within the feature. Further, to prevent further clearing within the area sensitive bird breeding habitat, work areas will be clearly flagged and exclusion fencing erected. All Project personnel will be instructed on the limits of the construction area and the exclusion of activities outside of the defined construction area. Further, the workforce will be advised not to enter natural features located outside of their Project-related footprint.

As a result of construction activities, such as clearing and stockpiling, adjacent to all of the identified area-sensitive breeding bird habitats, fugitive dust generation and increased surface water runoff may occur within the area sensitive breeding bird habitat. Fugitive dust may cover vegetation resulting in inhibited growth or death as a result of lack of sunlight and water able to reach the vegetation. Increased surface water runoff may lead to increased erosion and sedimentation which may cause the root systems of vegetation to be exposed and potential to be easily damaged. Species of birds

Table 4.8 Significant Habitat of Species of Conservation Concern within 120 metres of the Project Location - Area Sensitive Bird Breeding Habitat

Feature No.	Functions/Attributes of Area Sensitive Breeding Bird Habitat	Project Phase, Activity, or Component(s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P014-WE2 (within P014-W2) (Generalized Candidate Significant Wildlife Habitat)	13.7 ha is size. Species composition to be determined following pre-construction survey.	Constructible area for the cabling is proposed to be adjacent (5m) to the feature	Construction – No direct impacts to feature to occur. Indirect impacts from dust and surface water runoff Operation – above ground transmission line not anticipated to have an impact.. Indirect impacts from dust and surface water runoff may occur. Decommissioning – Indirect impacts from dust and surface water runoff.	Construction – Construction will occur outside of the breeding bird period. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Stockpiling will only occur in temporary locations in previously disturbed areas. The work area will be flagged and personnel will be instructed on the limits of the construction area, to limit any further impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation –Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Maintenance activities will be timed outside of the bird breeding season. Decommissioning – same as those identified for construction phase. Decommissioning will be timed outside of the bird breeding season. If decommissioning is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. The area will be restored to the original state, or by landowner request.	NRSI (2012c) Figure 3-8
P022-W1 (Treated as significant; habitat use study required)	13.6 ha in size. Species composition to be determined following preconstruction surveys	Constructible area for the cabling to P133 is located within the feature	Construction – Removal of vegetation will occur. Indirect impacts from dust and surface water runoff Operation – cabling is not anticipated to have an impact. Indirect impacts from dust and surface water runoff may occur. Decommissioning – Indirect impacts from dust and surface water runoff.	Preconstruction – Habitat use study (area searches/point counts during breeding season) as described above required to confirm significance of this feature. Construction – direct encroachment onto the feature (hedgerow portion only) removing approximately 0.02ha. Construction will occur outside of the breeding bird period. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. The access road and underground cabling will enter the feature at a right angle to minimize the constructible area. Stockpiling will only occur in temporary locations in constructible areas. The work area will be flagged and personnel will be instructed on the limits of the construction area, to limit any further impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation –Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Maintenance activities will be timed outside of the bird breeding season. Decommissioning – same as those identified for construction phase. Decommissioning will be timed outside of the bird breeding season. If decommissioning is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. The area will be restored to the original state.	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Area Sensitive Breeding Bird Habitat	Project Phase, Activity, or Component(s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P156-W1 (Generalized Candidate Significant Wildlife Habitat)	10.29 ha is size. Species composition to be determined following preconstruction surveys.	Constructible area for access road and cabling to P156 is located 34 m from the habitat. Constructible area for transmission corridor is adjacent (5m) to the habitat.	Construction –no direct impact anticipated. Indirect impacts from dust and surface water runoff Operation – access road, cabling and transmission line and service road not anticipated to have an impact. Indirect impacts from dust and surface water runoff may occur. Decommissioning – Indirect impacts from dust and surface water runoff.	Construction –no direct impacts onto feature will be made. Construction will occur outside of the breeding bird period. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Stockpiling will only occur in temporary locations in constructible areas. The work area will be flagged and personnel will be instructed on the limits of the construction area, to further reduce any chance impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation –Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Maintenance activities will be timed outside of the bird breeding season. Decommissioning – same as those identified for construction phase. Decommissioning will be timed outside of the bird breeding season If decommissioning is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. The area will be restored to the original state.	NRSI (2012c), Figure 3-8
P139-W8 (Generalized Candidate Significant Wildlife Habitat)	13.3 ha is size. Species composition to be determined following preconstruction surveys.	Constructible area for the cabling within the road allowance is proposed to be located adjacent (10 m) from the feature.	Construction –no direct impact anticipated. Indirect impacts from dust and surface water runoff Operation –cabling not anticipated to have an impact. Indirect impacts from dust and surface water runoff may occur. Decommissioning – Indirect impacts from dust and surface water runoff.	Construction –no direct impacts onto feature will be made. Construction will occur outside of the breeding bird period. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Stockpiling will only occur in temporary locations in constructible areas. The work area will be flagged and personnel will be instructed on the limits of the construction area, to further reduce any chance impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation –Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Maintenance activities will be timed outside of the bird breeding season. Decommissioning – same as those identified for construction phase. Decommissioning will be timed outside of the bird breeding season. If decommissioning is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. The area will be restored to the original state.	NRSI (2012c), Figure 3-7

Feature No.	Functions/Attributes of Area Sensitive Breeding Bird Habitat	Project Phase, Activity, or Component(s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P162-W1 (Generalized Candidate Significant Wildlife Habitat)	30.08 ha is size. Species composition to be determined following preconstruction surveys.	Constructible area of the transmission corridor is located 17 m from the feature.	Construction –no direct impact anticipated. Indirect impacts from dust and surface water runoff Operation –cabling, transmission line, switch and service road not anticipated to have an impact.. Indirect impacts from dust and surface water runoff may occur. Decommissioning – Indirect impacts from dust and surface water runoff.	Construction –no direct impacts onto feature will be made. Construction will occur outside of the breeding bird period. If construction is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. Stockpiling will only occur in temporary locations in constructible areas. The work area will be flagged and personnel will be instructed on the limits of the construction area, to further reduce any chance impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation –Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Maintenance activities will be timed outside of the bird breeding season. Decommissioning – same as those identified for construction phase. Decommissioning will be timed outside of the bird breeding season. If decommissioning is required inside the breeding bird period, a trained avian biologist will survey the area immediately (48 hours) prior to construction to identify the presence or absence of nests. If nests are found, work will be suspended within 100 m of the nest location until such time as the nest is abandoned. The area will be restored to the original state.	NRSI (2012c), Figure 3-6

may temporarily avoid the area during construction activities and this may alter the use of this breeding habitat. However, constructions activities will be timed for outside the breeding bird period wherever possible. Mitigation measures for these potential impacts are described in Section 4.1.1, 4.1.2 and 4.1.3, respectively.

Operations Phase

Potential impacts on these significant natural features are expected to only occur as a result of the presence of Project components, the cabling, within the area sensitive breeding bird habitat. This will only apply to P022-W1, should the results of the habitat use study determine that this feature is significant.

Regular maintenance of the cabling system through P022-W1 will be scheduled to occur outside of the breeding bird period. Use of these mitigation measures is anticipated to prevent potential effects to nesting wildlife. As mentioned, post-construction monitoring will occur as explained in Table 4.11.

Decommissioning Phase

Certain decommissioning activities will be similar to those activities that occurred during the construction phase (as discussed above) of the Project, and as such mitigation measures from the construction phase will be similar to those employed in the decommissioning phase. Decommissioning will not take place during the breeding bird period.

4.4.3.3 Significant S1-S3 Ranked Bat Habitat

Habitat for three (3) bat species of concern was identified within the Project location. Eastern Small-footed Bat (*Myotis leibii*), ranked S2-S3 by the MNR, Northern Long-eared Bat (*Myotis septentrionalis*), ranked S3 by the MNR, and Tricolour Bat (*Perimyotis subflavus*), ranked S3? by the MNR. All three (3) species are noted as having declined in population (MNR 2012). Eastern Small-footed Bat habitat consists of deciduous forests in the Great Lakes – St Lawrence Region (MNR 2006). Northern Long-eared Bat typically roost in tree cavities and under loose bark. Maternal colonies occur within shade tolerant mature deciduous stands (MNR 2006). Tricoloured Bat can roost in buildings, under loose bark, woodpecker cavities, and hollows of old trees. Foraging typically occurs over watercourses and open spaces such as fields and clearings (MNR 2006).

Two different categories of significant S1-S3 ranked bat habitat were identified within the EOS; those located within 120 m of a wind turbine, and those located in or within 120 m of another Project component.

For significant S1-S3 ranked bat habitat located within 120 m of a Project component, other than a wind turbine, these bat habitats have been determined to be generalized candidate significant wildlife habitat, in accordance with Appendix D of the Natural Heritage Assessment Guide (MNR, 2011). This includes five (5) significant S1-S3 ranked bat habitats associated with the following woodlands: P033-W1, P065-W3, P162-W1, P162-W2, and P117-W1.

For significant S1-S3 ranked bat habitats located within 120 m of a wind turbine, or with a Project component within the feature, in accordance with Appendix D of the Natural Heritage Assessment Guide (MNR, 2011), the bat habitats are treated as significant and a study of habitat use will be completed prior to construction. This includes nine (9) significant S1-S3 ranked bat habitats

associated with the following woodlands: P022-W1, P042-W1, P065-W2, P091-W1, P092-W1, P102-W2, P108-W1/P108-WE1, P111-WE1, P173-W1

The study of habitat use will occur in June 2012 and will be conducted following the protocols outlined in Appendix B.

Once these studies are completed, results will be analyzed in order to determine whether the features are significant S1-S3 ranked bat habitat. Criteria for evaluating significance are identified in Appendix B.

If the results of the habitat use study, then the features are determined to not be a significant S1-S3 ranked bat habitat, and no mitigation is required.

The potential negative environmental effects associated with each Project component during all activity phases (i.e., construction, operation and decommissioning) on both generalized candidate significant bat maternity roosts, and bat maternity roosts determined to be significant during the habitat use study are discussed below and summarized in Table 4.8.

Construction Phase

There will be minimal encroachment onto the significant S1-S3 ranked bat habitat and, therefore, loss of habitat due to vegetation removal will be kept to a minimum. Vegetation removal is only anticipated in P022-W1, and this is going to be restricted to a 6 m clearing within a hedgerow community which connects the two core areas of the woodland providing the habitat. Therefore, the potential that a maternity roost would be impacted directly by the project, given that only 2 or 3 trees will be removed, is considered to be minimal. Further, as the resulting intrusion within the woodland will be less than 6 m and will not contain aboveground structures, it will not impact the overall form or function of the community to provide significant S1-S3 ranked bat habitat, should the habitat use study determine this feature is providing this function.

In order to minimize clearing within the significant bat habitat, work areas will be clearly flagged and exclusion fencing erected. All Project personnel will be informed of the designated work areas (portion of the existing ROW) prior to initiation of construction activities, and provided in construction drawings as determined during detailed design, and the exclusion of construction activities outside of this defined work area. All cleared and grubbed materials will be temporarily stockpiled within the constructible areas on the Project location to minimize potential disturbances to adjacent vegetation. The disturbed portions of the constructible area will then be revegetated, in the following spring or fall, with a native seed mix and/or similar vegetation species, and erosion control measures implemented to assist in the re-establishment of the vegetation community.

With respect to all S1-S3 ranked bat habitats, as construction will occur during the daytime, and construction activities will occur in agricultural fields, the potential for disrupting active, breeding, or roosting bats is considered to be minimal. Therefore, there is minimal effect of construction on local S1-S3 ranked bat species.

As a result of construction activities, such as clearing and stockpiling, adjacent to significant habitat for S1 – S3 bat species, fugitive dust generation, and increased surface water runoff may occur. However given that the surrounding area is agricultural land, the impacts are expected to be negligible. Fugitive dust generation may indirectly affect the natural feature by decreasing air

quality. Dust generation activities will occur during the day allowing for any excess dust to have settled or blown away by dusk when bats become active and therefore avoiding any potential impacts from fugitive dust emissions. Altered surface water runoff rates may lead to a change in the amount of surface water runoff and location of discharge. This may impact the receiving waterbodies which could be used by insects as breeding or foraging habitat. The bat species may avoid the areas during construction activities, however given that these activities will only occur during the day it is unlikely that any individuals will avoid the areas during the night when bats are active and no construction activities are occurring. Mitigation measures for these potential impacts are described in Section 4.1.1, 4.1.2 and 4.1.3, respectively.

Operations Phase

Potential impacts on the significant natural features are expected to be limited to avoidance of bat maternity roosts and changes in surface water runoff.

The mitigation measures previously identified in Sections 4.1 and 4.4.1.1, as well in the monitoring and mitigation measures described in Section 4.5 EEMP – Design and Operations Report will be effective at mitigating potential impacts during operation.

Disturbance effects monitoring, i.e. a repetition of pre-construction exit surveys at identified maternity roosts, will be conducted in accordance with the Bat and Bat Habitat Guideline for Wind Power Projects (MNR, 2011). The post-construction monitoring plans for bat avoidance behaviour and bat mortality are further discussed in Table 4.11. Bat activity varies greatly from night to night and across seasons, due to factors such as ambient air temperature, wind speed, humidity, lunar phase and insect availability (MNR, 2006). Recognizing this fact, MNR, along with the Proponent and other relevant agencies, will be asked to collectively review the results of the post-construction monitoring to determine if an ecologically significant disturbance/avoidance effect is occurring, and whether such an effect is attributable to the wind turbines and not external factors. These discussions will determine if and when the contingency plan will be implemented and if any additional measures are warranted. The best available science and information will be considered when determining appropriate mitigation and will use an adaptive management approach.

Decommissioning Phase

Certain decommissioning activities will be similar to those activities that occurred during the construction phase (as discussed above) of the Project, and as such mitigation measures from the construction phase will be similar to those employed in the decommissioning phase.

4.4.4 Animal Movement Corridors

There are eight (8) significant animal movement corridors within 120 m of the Project location. The animal movement corridors were found to be significant for meeting various criteria as described in Section 7.4.4 of the EOS Report (NRSI, 2010c). These significant natural features can be found on Figures 2-4 through 2-9, Significant Natural Features (NRSI, 2012c). Table 4.9 provides the potential impacts and mitigation measures for the significant animal movement corridors.

Table 4.9 Significant Habitat of Species of Conservation Concern within 120 metres of the Project Location – Habitat for S-Ranked Bat Species

Feature No.	Functions/Attributes of Habitat for S – Ranked Bat Species	Distance of Project Phase, Activity, or Component(s) (s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P033-W1 (Treated as significant; habitat use study required)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation s	Constructible area for the access road and cabling is proposed to be adjacent (7m) to the feature	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P033-W1. Operation phase – presence of access road and cabling are not anticipated to have any impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. The woodland will be marked off, to avoid any potential direct impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – No mitigation required as no impact anticipated. Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-6
P065-W2 (Treated as significant; habitat use study required)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observations	Constructible area for turbine P065 and associated access road will be 84 m and 81 m, respectively, from this habitat.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P065-W2. Operation phase –Potential increase in bat mortality due to the presence of the wind turbine within 120 m of the habitat. Decommissioning phase – same as those identified for construction phase	Preconstruction monitoring – Pre-construction exit surveys at maternity roosts within the ELC polygon providing the habitat will occur in June 2012. Surveys will be conducted following the protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required. Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-5

Feature No.	Functions/Attributes of Habitat for S – Ranked Bat Species	Distance of Project Phase, Activity, or Component(s) (s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P065-W3 (Generalized Candidate Significant Wildlife Habitat)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observations	Constructible area for the transmission corridor is located 12 m from this feature	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P065-W3. Operation phase – presence of transmission corridor is not anticipated to have any impact. Decommissioning phase – same as those identified for construction phase	Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. The woodland will be marked off, to avoid any potential direct impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – No mitigation required as no impact anticipated. Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-5
P091-W1 (Treated as significant; habitat use study required)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible areas for turbine P091 and associated access road are 112 m and 109 m, respectively, from this feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P091-W1. Operation phase – following determination of significance from the preconstruction monitoring, further mitigation measures and monitoring (behavioural avoidance studies) to be confirmed with MNR. Potential increase in bat mortality due to the presence of the wind turbine within 120 m of the habitat. Decommissioning phase – same as those identified for construction phase	Preconstruction monitoring – Pre-construction exit surveys at maternity roosts within the ELC polygon providing the habitat will occur in June 2012. Surveys will be conducted following the protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required. Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-9

Feature No.	Functions/Attributes of Habitat for S – Ranked Bat Species	Distance of Project Phase, Activity, or Component(s) (s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P092-W1 (Treated as significant; habitat use study required)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for turbine P092 and associated access road are 77 m and 74 m, respectively, from this feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P092-W1. Operation phase – following determination of significance from the preconstruction monitoring, further mitigation measures and monitoring (behavioural avoidance studies) to be confirmed with MNR. Potential increase in bat mortality due to the presence of the wind turbine within 120 m of the habitat. Decommissioning phase – same as those identified for construction phase	Preconstruction monitoring – Pre-construction exit surveys at maternity roosts within the ELC polygon providing the habitat will occur in June 2012. Surveys will be conducted following the protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required. Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-9
P102-W2 (Treated as significant; habitat use study required)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for access road and cabling associate associated with turbines P102 and P152 overlaps this feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P102-W1. Operation phase – presence of access road and cabling are not anticipated to have any impact. Decommissioning phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation.	Preconstruction monitoring – Pre-construction exit surveys at maternity roosts within the ELC polygon providing the habitat will occur in June 2012. Surveys will be conducted following the protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required. Decommissioning phase – Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Avoidance is not anticipated as again, the adjacent land use continues to have an anthropogenic impact.	NRSI (2012c), Figure 3-9

Feature No.	Functions/Attributes of Habitat for S – Ranked Bat Species	Distance of Project Phase, Activity, or Component(s) (s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P042-W1 (Treated as significant; habitat use study required)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for turbine P109, and associated access road/cabling is located 112 m and 109 m, respectively, from the feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P042-W1. Operation phase – presence of the access road is not anticipated to have any impact Decommissioning phase – same as those identified for construction phase	Preconstruction monitoring – Pre-construction exit surveys at maternity roosts within the ELC polygon providing the habitat will occur in June 2012. Surveys will be conducted following the protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Further directional drilling is proposed for the underground cabling, further limiting any impacts. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. The woodland will be marked off, to avoid any potential direct impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-8
P042-W1 (Treated as significant; habitat use study required)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for turbine P109, and associated access road/cabling is located 112 m and 109 m, respectively, from the feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P042-W1. Operation phase – presence of the access road is not anticipated to have any impact Decommissioning phase – same as those identified for construction phase	Preconstruction monitoring – Pre-construction exit surveys at maternity roosts within the ELC polygon providing the habitat will occur in June 2012. Surveys will be conducted following the protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Further directional drilling is proposed for the underground cabling, further limiting any impacts. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. The woodland will be marked off, to avoid any potential direct impacts. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Habitat for S –Ranked Bat Species	Distance of Project Phase, Activity, or Component(s) (s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P111-WE1 (Treated as significant; habitat use study required)	Wetland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for turbine 11 and associated access road/cabling is located 33 m from the feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P111-WE1. Operation phase – following determination of significance from the preconstruction monitoring, further mitigation measures and monitoring (behavioural avoidance studies) to be confirmed with MNR. Potential increase in bat mortality due to the presence of the wind turbine within 120 m of the habitat. Decommissioning phase – same as those identified for construction phase	Preconstruction monitoring – Pre-construction exit surveys at maternity roosts within the ELC polygon providing the habitat will occur in June 2012. Surveys will be conducted following the protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the direct impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required. Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-5
P022-W1 (Treated as significant; habitat use study required)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for cabling to P133 is within this feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. Minor vegetation removal may be required. Operation phase – presence of access road and cabling are not anticipated to have any impact. Decommissioning phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation.	Preconstruction monitoring – Pre-construction exit surveys at maternity roosts within the ELC polygon providing the habitat will occur in June 2012. Surveys will be conducted following the protocols outlined in Appendix B. Construction phase – direct impact of tree removal may occur. Trees to be removed will be inspected by a qualified biologist for evidence of use prior to removal, further information (e.g. bat species and additional mitigation measures) to be identified at time of clearing. Limited duration of construction and day time construction practices will further reduce any impact. Areas to be cleared will be clearly marked and trees will be felled outside of the feature, where possible. Avoidance is not anticipated as the location in question is in active agricultural production. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – No mitigation measures required as turbine is not within 120 m and infrequent use of roads and operation of underground connector not anticipated to have any effects on this habitat Decommissioning phase – Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Avoidance is not anticipated as again, the adjacent land use continues to have an anthropogenic impact	NRSI (2012c), Figure 3-8

Feature No.	Functions/Attributes of Habitat for S –Ranked Bat Species	Distance of Project Phase, Activity, or Component(s) (s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P162-W1 (Generalized Candidate Significant Wildlife Habitat)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for cabling is proposed to be located within 17 m of this feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P162-W1. Operation phase – presence of the access road, cabling, transmission line, service road and switch is not anticipated to have any impact Decommissioning phase – same as those identified for construction phase	Construction phase – no direct impact in anticipated. Avoidance is not anticipated as the location in question is in active agricultural production. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – No mitigation measures required as turbine is not within 120 m and infrequent use of roads and operation of under and above ground connector, and the transmission line is not anticipated to have any effects on this habitat Decommissioning phase – Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Avoidance is not anticipated as again, the adjacent land use continues to have an anthropogenic impact.	NRSI (2012c), Figure 3-6
P162-W2 (Generalized Candidate Significant Wildlife Habitat)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for cabling is proposed to be located within 14 m of this feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P162-W1. Operation phase – presence of cabling and access road are not anticipated to have any impact. Decommissioning phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation.	Construction phase – no direct impact in anticipated. Avoidance is not anticipated as the location in question is in active agricultural production. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – No mitigation measures required as operation of cabling and transmission line in addition to the infrequent use of the service road is not anticipated to have any effects on this habitat Decommissioning phase – Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Avoidance is not anticipated as again, the adjacent land use continues to have an anthropogenic impact.	NRSI (2012c), Figure 3-6

Feature No.	Functions/Attributes of Habitat for S –Ranked Bat Species	Distance of Project Phase, Activity, or Component(s) (s) within 120 m	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
P117-W1 (Generalized Candidate Significant Wildlife Habitat)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for the transmission corridor is proposed to be located adjacent (3m) to this feature.	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P117-W1. Operation phase – presence of transmission line is not anticipated to have any impact. Decommissioning phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation.	Construction phase - no direct impact in anticipated. Avoidance is not anticipated as the location in question is in active agricultural production. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – No mitigation measures required as turbine is not within 120 m and operation of the transmission line and infrequent use of service road Decommissioning phase – Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Avoidance is not anticipated as again, the adjacent land use continues to have an anthropogenic impact.	NRSI (2012c), Figure 3-6
P173-W1 (Treated as significant; habitat use study required)	Woodland contains abundant amounts of large (>25 cm dbh) snags and are within 5 km of thenorthern long-eared bat, tricolored bat, and eastern small-footed bat observation	Constructible area for turbine P173 is proposed to be located 78 m from this feature	Construction phase – indirect impacts to surface water runoff, impacting potential feeding areas, fugitive dust generation. No vegetation/tree removal is proposed for P173-W1. Operation phase – following determination of significance from the preconstruction monitoring, further mitigation measures and monitoring (behavioural avoidance studies) to be confirmed with MNR. Potential increase in bat mortality due to the presence of the wind turbine within 120 m of the habitat. Decommissioning phase – same as those identified for construction phase	Preconstruction monitoring – Pre-construction exit surveys at maternity roosts within the ELC polygon providing the habitat will occur in June 2012. Surveys will be conducted following the protocols outlined in Appendix B. Construction phase – direct impacts of construction will not occur, construction to take place during the day, limiting the impact on bat populations. Avoidance is not anticipated as the location in question is in active agricultural production, and therefore no removal of trees is proposed. Sections 4.1.2 and 4.1.1 discuss surface water runoff and fugitive dust generation, respectively, including impacts and mitigation measures. Operation phase – limited lighting to reduce the attraction of prey for bats. Maintenance shutdown period will coincide with confirmed bat migration periods. Further, contingency measures, including increasing the cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s if bat mortality surpasses threshold limits, will also be employed, as required (refer to Table 4.6 – Bat Mortality). Decommissioning phase – same as those identified for construction phase	NRSI (2012c), Figure 3-9

Table 4.10 Significant Wildlife Habitat within 120 metres of the Project Location - Animal Movement Corridors

Feature No.	Functions/Attributes of Animal Movement Corridors	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Significant Habitat	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
Watercourse P002-D2	Size, treed vegetation on both sides of watercourse, linkage to Rondeau Bay, species use (aquatic and terrestrial)	Construction and Decommissioning of the access road and cabling associated with turbine no. P171, and with the section of cabling along Ed's Line, from Mull Road to Kent Bridge Road.	Access road and cabling associated with P171 crosses P002-D2 (animal movement corridor). Cabling along Ed's Line from Mull Road to Kent Bridge Road also crosses P002-D2	• Avoidance by wildlife • Surface run-off • Fugitive dust emissions • Interruption of amphibian movement	• Reduce vehicular noise and restrict personnel presence to construction work area • Implement Erosion and Sediment control plan (ESC) • Application of water and limit vehicle movements • Construction and decommissioning to be timed outside of amphibian migration period (March 1 through April 30, and September 1 through October 31) • A 30 m buffer will be maintained around the watercourse during construction except where the installation/upgrade of a culvert is required. • Direction drilling will be considered for underground cabling when crossing the watercourse. Other measures include bringing the connector above ground on poles and locating the poles outside of the 30 m watercourse buffer.	NRSI (2012c), Figure 3-8
Watercourse P104-D2	Size, treed vegetation on both sides of watercourse, linkage to Rondeau Bay, species use (aquatic and terrestrial)	Construction and Decommissioning, of the cabling along New Scotland Line, from Kent Bridge Road to McKinlay Line.	Proposed cabling crosses P104-D2 (animal movement corridor).	• Avoidance by wildlife • Surface run-off • Fugitive dust emissions • Interruption of amphibian movement	• Reduce vehicular noise and restrict personnel presence to construction work area • Implement Erosion and Sediment control plan (ESC) • Application of water and limit vehicle movements • Construction and decommissioning to be timed outside of amphibian migration period (March 1 through April 30, and September 1 through October 31) • A 30 m buffer will be maintained around the watercourse during construction except where the installation/upgrade of a culvert is required. • Direction drilling will be considered for underground cabling when crossing the watercourse. Other measures include bringing the connector above ground on poles and locating the poles outside of the 30 m watercourse buffer.	NRSI (2012c), Figure 3-7
Watercourse P105-D1	Treed along certain segments, direct linkage to Rondeau Bay, species use (aquatic and terrestrial)	Construction and Decommissioning of the cabling along New Scotland Line, from Kent Bridge Road to McKinlay Line	Cabling is in this feature.	• Avoidance by wildlife • Surface run-off • Fugitive dust emissions • Interruption of amphibian movement	• Reduce vehicular noise and restrict personnel presence to construction work area • Implement Erosion and Sediment control plan (ESC) • Application of water and limit vehicle movements • Construction and decommissioning to be timed outside of amphibian migration period (March 1 through April 30, and September 1 through October 31). • A 30 m buffer will be maintained around the watercourse during construction, except where the installation/upgrade of a culvert is required. • Direction drilling will be considered for underground cabling when crossing the watercourse. Other measures include bringing the connector above ground on poles and locating the poles outside of the 30 m watercourse buffer.	NRSI (2012c), Figure 3-7
Watercourse P139-D1	Direct linkage to Rondeau Bay, species use (aquatic and terrestrial)	Construction and Decommissioning of the cabling route associated with turbine P139	Cabling across the watercourse.	• Avoidance by wildlife • Surface run-off • Fugitive dust emissions • Interruption of amphibian movement	• Poles to be located on either side of watercourse outside of 30 m buffer where possible. • Reduce vehicular noise and restrict personnel presence to construction work area • Implement Erosion and Sediment control plan (ESC) • Application of water and limit vehicle movements • Construction and decommissioning to be timed outside of amphibian migration period (March 1 through April 30, and September 1 through October 31) • A 30 m buffer will be maintained around the watercourse during construction, except where the installation/upgrade of a culvert is required. • Direction drilling will be considered for underground cabling when crossing the watercourse. Other measures include bringing the connector above ground on poles and locating the poles outside of the 30 m watercourse buffer.	NRSI (2012c), Figure 3-7

Feature No.	Functions/Attributes of Animal Movement Corridors	Project Phase, Activity, or Component(s) within 120 m	Distance from Project Component(s) to Significant Habitat	Potential Impacts	Mitigation Measures	Refer to Figure/Map for mapping of component and feature
Watercourse CLA-D2	Densely wooded on both sides, size, linkage to movement corridor of the rail line, species use (aquatic and terrestrial)	Construction, Operation and Decommissioning of access road and cabling associated with turbine P044. Construction and Decommissioning of the cabling route along Drury Line from the Railway to Harwich Road, and along the transmission corridor from Charing Cross Road to Huffman Road.	95 m from P044, cabling and transmission line are in this feature.	• Avoidance by wildlife • Surface run-off • Fugitive dust emissions • Interruption of amphibian movement	• Reduce vehicular noise and restrict personnel presence to construction work area • Implement Erosion and Sediment control plan (ESC) • Application of water and limit vehicle movements • Construction and decommissioning to be timed outside of amphibian migration period (March 1 through April 30, and September 1 through October 31) • A 30 m buffer will be maintained around the watercourse during construction except where the installation/upgrade of a culvert is required.. • Direction drilling will be considered for underground cabling when crossing the watercourse. Other measures include bringing the connector above ground on poles and locating the poles outside of the 30 m watercourse buffer.	NRSI (2012c), Figure 3-6
Watercourse P069-D2	Size, complex vegetation habitat on either side, species use (aquatic and terrestrial)	Construction, Operation and Decommissioning for access road and cabling for turbine P069	72 m from access road and cabling for P069.	• Avoidance by wildlife • Surface run-off • Fugitive dust emissions • Interruption of amphibian movement	• Reduce vehicular noise and restrict personnel presence to construction work area • Implement Erosion and Sediment control plan (ESC) • Application of water and limit vehicle movements • Construction and decommissioning to be timed outside of amphibian migration period (March 1 through April 30, and September 1 through October 31) • A 30 m buffer will be maintained around the watercourse during construction except where the installation/upgrade of a culvert is required.. • Direction drilling will be considered for underground cabling when crossing the watercourse. Other measures include bringing the connector above ground on poles and locating the poles outside of the 30 m watercourse buffer.	NRSI (2012c), Figure 3-3
Watercourse P114-D1	Size, complex vegetation habitat on either side	Construction, Operation and Decommissioning for access road and collector for P113 and P075	The cabling for Turbine nos.P113 and P075 crosses this feature	• Avoidance by wildlife • Surface run-off • Fugitive dust emissions • Interruption of amphibian movement	• Reduce vehicular noise and restrict personnel presence to construction work area • Implement Erosion and Sediment control plan (ESC) • Application of water and limit vehicle movement • Construction and decommissioning to be timed outside of amphibian migration period (March 1 through April 30, and September 1 through October 31). • A 30 m buffer will be maintained around the watercourse during construction except where the installation/upgrade of a culvert is required.. • Direction drilling will be considered for underground cabling when crossing the watercourse. Other measures include bringing the connector above ground on poles and locating the poles outside of the 30 m watercourse buffer.	NRSI (2012c), Figure 3-2
Vegetated corridor along railway line (RB-A to RB-F)	Size, linkage, habitat composition	Construction and Decommissioning of the entire length of the transmission corridor	4.5 m (north hedgerow) and 5 to 23 m (south hedgerow depending on area along the transmission ROW)	• Avoidance by wildlife • Surface run-off • Fugitive dust emissions • Interruption of amphibian movement	• Reduce vehicular noise and restrict personnel presence to construction work area • Implement Erosion and Sediment control plan (ESC) • Application of water and limit vehicle movement • Construction and decommissioning to be timed outside of amphibian migration period (March 1 through April 30, and September 1 through October 31)	NRSI (2012c), Figure 3-6

Construction Phase

All of the eight (8) (P002-D2, P104-D2, P105-D1, P139-D1, CLA-D2, P069-D2, P114-D1, RB-A to RB-F) animal movement corridors are associated with a watercourse and as such will be protected by a 30 m buffer from substations or wind turbines, however, upgrades and/or installations of water crossings, potentially at several points along an individual corridor, may be required across 7 of the 8 watercourses (exception of the rail bed – transmission corridor). The methodology for installation of the cabling (and potential for alternative methodologies for construction of cabling such as directional drilling across larger watercourses or bringing the cabling above ground in some areas) across the watercourse or upgrades to the existing culverts will be determined during detailed engineering and pre-construction surveys. At this time, it is anticipated that all cabling will be installed via directional drilling where crossings of cabling alone occur. Consultation with the responsible agencies to obtain the required permits/approvals, if required, will be conducted at this time. All eight (8) animal movement corridors are currently interrupted at various locations by municipal and farm access roads and therefore additional crossings for access roads is not anticipated to effect the movement of the animals currently using these corridors. Where overhead cabling is determined to be required, poles will not be located within the corridors and the cabling will not provide a barrier to movement. No fencing will be installed through these animal movement corridors.

The animal movement corridor not associated with a watercourse (RBA to RBF) is the abandoned railway to be developed as the proposed transmission line corridor. While components of the transmission line (and service road) will be within the significant animal movement corridor, the transmission poles and the service road will temporarily limit but not prevent the movement of wildlife through this area. This road will be constructed by removing the topsoil and subsoil, if necessary, prior to placement of a granular base. No buried infrastructure will be installed. Given the lack of overhead cover and existing disturbances (e.g. garbage dumping), no impacts to this animal movement corridor are expected. No permanent fencing will be installed within this animal movement corridor, however some temporary fencing will be in place during construction activities in order to prevent workers from entering and therefore impacting to the animal movement corridor (see Section 4.3.3.3). Silt fencing will be installed at the limits of the Project disturbance to prevent sediment from entering the watercourse and maintained through visual inspection on a daily basis throughout construction activities and until disturbed areas have stabilized.

Daily visual monitoring of the work area and construction equipment will be completed to search for reptiles and amphibians to ensure that potential impacts to these species are minimized. In addition, the construction workforce will be made aware of the potential for wildlife occurring on the Project location and that measures should be taken to avoid wildlife wherever possible. As per Section 4.1.3, the construction workforce will be made aware of the potential for wildlife occurring on the Project location and the measures to be taken to avoid wildlife (wildlife given the right-of-way), wherever possible. A "Special Wildlife Provision" in the construction specifications will be provided for:

- migratory and breeding/nesting timing windows including:
  - Potential disturbance effects to breeding birds will be minimized through avoiding construction activities during sensitive periods (i.e., the breeding season).

- wildlife encounters on-site
- the use of standard care protocols for the removal of the wildlife from the Project locations with instructions to contact the appropriate Project personnel if a rare species specimen has been identified within the construction area.
- nuisance wildlife and MNR contact information to determine appropriate action.

Disturbance of the Project location due to vegetation clearing, topsoil and subsoil stripping, grading, use of heavy machinery, stockpiling, construction of access roads and water crossings and concentration of flow in drainage features (e.g. ditches) has the potential to increase soil erosion due to exposure of soil (not protected by vegetation) to the effects of surface water (e.g., rain, overland flow due to rain/snow melt). The change in the surface runoff regime may potentially alter the vegetation cover, watercourse geomorphology or the land surface defining the area as an animal movement corridor. Surface runoff and the proposed mitigation measures are provided in Section 4.1.2. The conduct of these construction activities also has the potential to create fugitive dust. Fugitive dust may impact the animal movement corridor by reducing the local air quality and thus impact the animal movement corridors. Mitigation measures described in Section 4.1.1 will be employed to mitigate any potential impacts.

Operations Phase

As there will be limited disruption from periodic inspections and with maintenance occurring as required, potential impacts will be restricted to increased surface water runoff and wildlife avoidance. Mitigation for surface water runoff is described in Section 4.1.2.

There exists various interruptions in the feature due to the use of access roads within P139-D1, P114-D1 and the railway line, and since the use of access roads will be infrequent, no additional impacts as a result of the Project are expected.

Minor and infrequent maintenance will be required for the proposed transmission line. Yearly mowing is expected to occur in the vegetation beneath the transmission line. This mowing will occur outside of the breeding bird period (typically May through July). Mowing may result in incidental take of small mammals and amphibians who may not be able to move out of the way.

Mitigation and monitoring for incidental take is discussed in Section 4.4.

Visual monitoring of the access roads for wildlife (including but not limited to deer, fox, snakes etc), will be completed as identified in Section 4.1.3. In addition, the construction workforce will be made aware of the potential for wildlife occurring on the Project location and that measures should be taken to avoid wildlife wherever possible. If wildlife are observed on the Project location, they will be either directed off of the Project location by the worker (without the use of vehicles) or collected by a designated employee, who has been provided with protocols for the safe handling and transport of wildlife, and transported to the nearest available location off site and released.

Decommissioning Phase

Certain decommissioning activities will be similar to those activities that occurred during the construction phase of the Project, and as such mitigation measures from the construction phase (Section 4.3.3.4.1) will be similar to those employed in the decommissioning phase.

4.4.5 Summary of Net Effects on Significant Natural Features

Table 4.10, provided below, identifies the potential impacts, proposed mitigation measures, and the net effects on the significant natural features identified in the EOS Report (NRSI, 2012c).

4.5 Environmental Effects Monitoring Plan – Design and Operations Report

As discussed in the Design and Operations Report (Hatch, 2012a), the EEMP is proposed in respect of any negative environmental effects that may result from engaging in the Project. As per the REA Regulation, the monitoring plan identifies

- performance objectives in respect of the negative environmental effects
- mitigation measures to assist in achieving the performance objectives
- a program for monitoring negative environmental effects for the duration of the time the Project is engaged in, including a contingency plan to be implemented if any mitigation measures fail.

For the purposes of this EIS report, the effects monitoring measures with respect to negative effects on the significant natural feature have been reproduced here, in Table 4.11.

The monitoring proposed in Table 4.11 will serve to verify that mitigation measures are functioning as designed to meet performance objectives. If monitoring shows that performance objectives are not being met, the contingency measures documented in Table 4.10 will be used to ensure that remedial action is undertaken as necessary to meet the performance objectives.

Table 4.11 Summary of Net Effects on Significant Natural Features

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
Indirectly impacted Significant Woodlands						
Woodlands P001-W1, P002-W1, P002-W2, P004-W1, P014-W2 P024-W1, P024-W2, P027-W1, P029-W1, P030-W2, P033-W1, P034-W1, P042-W1, , P053-W3, P053-W4, P054-W1, P054-W2 P055-W1, P065-W1, P065-W2, P065-W3, P082-W1, P091-W2, P092-W2, P108-W1, P111-W1, P117-W1, P118-W1, P139-W1, P139-W5, P139-W6, P139-W7, P-139-W8, P139-W9 P156-W1, P162-W1, P162-W2, P166-W1, P173-W1, CLA-W2, RB-A, RB-B, RB-D, RB-E, RB-F	Cabling (Construction and Decommissioning)	Size, linkage, proximity to watercourse, woodland interior, support significant wildlife habitat	Surface Water Runoff, Wildlife Avoidance, Erosion and Sedimentation, Fugitive Dust Emissions	Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area.	Placement of cabling to avoid removal of trees. Where overhead cabling will be required, access pole locations from roadway.	Negligible
Directly Impacted Significant Woodlands						
P011-W1	Access Road (Construction, Operation, and Decommissioning) and Cabling (Construction and Decommissioning)	Size, linkage	Removal of 0.04 ha vegetation (11 m ROW) through hedgerow portion connection the two wooded areas, surface water runoff, fugitive dust emissions, wildlife avoidance.	Access road and cabling will be located to cross the woodland only at a right angle (i.e., avoid the woodland to the greatest extent possible). Critical root zones (CRZ) for any woodland trees adjacent to Project location will be identified prior to construction. Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, cabling will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species. If rare or declining species are identified, efforts will be made to avoid the species. If this is not possible, consultation will be held with MNR to determine additional mitigation measures, such as compensation planting or transplanting Revegetation plans will be supplied by the construction or decommissioning contractor, in consultation with MNR, and identified in the specifications at that time. Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered. Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area.	Minimize clearing required by crossing linkage at right angle.	Minimal loss of vegetation in area required for access road surface construction through operations. Minor following regrading and revegetation during decommissioning.

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
P022-W1	Cabling (Construction and Decommissioning)	Size, woodland interior, linkage	Removal of 0.02 ha of vegetation (6 m ROW) through hedgerow portion connection the two wooded areas, surface water runoff, fugitive dust emissions, wildlife avoidance.	Access road and cabling will be located to cross the hedgerow portion of the significant woodland at a right angle. Critical root zones (CRZ) for any woodland trees adjacent to Project location will be identified prior to construction. Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, cabling will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species. If rare or declining species are identified, efforts will be made to avoid the species. If this is not possible, consultation will be held with MNR to determine additional mitigation measures, such as compensation planting or transplanting Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered. Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area.	Minimize clearing required by crossing linkage at right angle.	Minimal loss of vegetation (6 m width) in area required for cabling. Minor following regrading and revegetation during decommissioning.

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
P077-W1	Proposed access road and cabling associated with turbine no. P077 will be located in P077-W1. It is also 90 m from proposed turbine no. P077. (Construction and Decommissioning)	Size	Removal of 0.25 ha of vegetation (11 m ROW) for construction of access road and underground cabling through P77-W1. Soil compaction of critical root zone; fugitive dust generation; increased surface water runoff and wildlife avoidance.	Access and underground cabling will be located outside of woodland and identified in the detail design plans. If relocation of the Project components is not possible, the following measures will be applied: Critical root zones (CRZ) for any woodland trees adjacent to Project location will be identified prior to construction. Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, cabling will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species. If rare or declining species are identified, efforts will be made to avoid the species. If this is not possible, consultation will be held with MNR to determine additional mitigation measures, such as compensation planting or transplanting Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered. Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction. Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area.	Minimize clearing by moving Project components outside or as close as possible to the edge of the woodland	Minor loss of vegetation in area required for access road surface construction through operations. Minor impact following regrading and revegetation during decommissioning.

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
P114-W1	Turbine P075 (Construction, Operation, and Decommissioning) Access Road (Construction, Operation, and Decommissioning) and Cabling (Construction and Decommissioning)	Size, linkage	Removal of vegetation (6 m ROW) through woodland and watercourse for the access road and cabling. Surface water runoff, fugitive dust emissions, wildlife avoidance. No impacts anticipated from turbine.	Access road and cabling will be located at narrow point of significant feature. Critical root zones (CRZ) for any woodland trees adjacent to Project location will be identified prior to construction. Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, cabling will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species. If rare or declining species are identified, efforts will be made to avoid the species. If this is not possible, consultation will be held with MNR to determine additional mitigation measures, such as compensation planting or transplanting Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered. Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area.	Minimize clearing by staying within narrow section of woodland and identify trees required for clearing.	Minor loss of vegetation in area required for access road construction, to remain present through operations. Minor following regrading and revegetation during decommissioning.

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
RB-F2	Cabling (Construction and Decommissioning)	Size, linkage	Removal of 0.06 ha of vegetation (3 m ROW) for cabling through RB-F2. Soil compaction of critical root zone; fugitive dust generation; increased surface water runoff and wildlife avoidance.	Access road and cabling will be located at right angles to the significant feature. The potential to directional drill the underground cable will be reviewed during the detail design phase and the pre-construction survey. All entrances and exits for the directional drill will be located at least 5 m outside of the significant woodland. Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, pole locations will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species will not be affected by Project activities. If rare or declining species are identified we will consult with the MNR prior to moving forward with construction activities. If revegetation of the areas is required, the plans will be supplied by the construction or decommissioning contractor, in consultation with MNR, and identified in the specifications at that time. Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area..	Minimize clearing required by crossing RB-F2 at right angle. Potential to directional drill in this location to be reviewed during detailed design. If possible, all entrances and exits for the directional drill will be placed at least 5 m outside of the significant woodland.	Short term minimal loss of vegetation in area for cabling. Negligible following revegetation/ natural regeneration following construction and decommissioning.

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
RB-F3	Cabling (Construction and Decommissioning)	Size, linkage	Removal of 0.12 ha of vegetation (6 m ROW) for construction underground cabling through RB-F3. Soil compaction of critical root zone; fugitive dust generation; increased surface water runoff and wildlife avoidance.	Access road and cabling will be located at right angles to the significant feature. The potential to directional drill the underground cable will be reviewed during the detail design phase and the pre-construction survey. All entrances and exits for the directional drill will be located at least 5 m outside of the significant woodland. Critical root zones (CRZ) for any woodland trees adjacent to Project location will be identified prior to construction. Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, cabling will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species. If rare or declining species are identified, efforts will be made to avoid the species. If this is not possible, consultation will be held with MNR to determine additional mitigation measures, such as compensation planting or transplanting Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area.	Minimize clearing required by crossing RB-F3 at right angle. Potential to directional drill in this location to be reviewed during detailed design. All entrances and exits for the directional drill will be placed at least 5 m outside of the significant woodland.	Short term minimal loss of vegetation in area for cabling. Minor following revegetation/ natural regeneration following construction and decommissioning.

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
Significant Wetlands						
Wetlands P014-WE1, P014-WE2, P054-WE1, P108-WE1, P111-WE1, and Rondeau Bay North Shore PSW.	P111-WE1 is 33m from Turbine no. P111 and associated access road/ cabling. (Construction, Operations and Decommissioning) Other wetlands adjacent to 90 m from cabling. (Construction, and Decommissioning)	Characteristics and ecological functions	Wetland adjacent >10 m to the cabling and access road, soil compaction, surface water runoff, fugitive dust emissions, and wildlife avoidance.	Critical root zones (CRZ) for any woodland trees adjacent to Project location will be identified prior to construction. Pre-construction surveys will identify the critical root zones (CRZ) for any woodland trees prior to construction. Setbacks will be identified during detailed design/pre-construction surveys to avoid those CRZs, where the CRZ is adjacent to the Project location. Where Project activities (including construction) is proposed within the CRZ, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction as identified above. The CRZ will be visually monitored to assess the level of compaction through construction and into rehabilitation (grading, seeding, implementation of sediment and erosion control measures) where activities are proposed within the CRZ or within 15 m of the CRZ. Silt fence will be installed between the work areas and the significant woodland. If possible, cabling will be relocated to avoid these areas. The clearing will occur along the edge of the woodlands and therefore it is likely that only edge species will be affected. Pre-construction field surveys will verify the specific locations for clearing and identify rare or declining vegetation species. If rare or declining species are identified, efforts will be made to avoid the species. If this is not possible, consultation will be held with MNR to determine additional mitigation measures, such as compensation planting or transplanting Fugitive dust generation: Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations. Erosion and sedimentation: Install silt fencing, flow velocity control measures (e.g., rock flow check dams) prior to, during and post- construction. Wildlife avoidance: Avoid construction and decommissioning activities during breeding bird season (May-July); Reduce vehicular noise; restrict personnel presence to the construction work area to limit human-wildlife interactions	Minimize disturbance in close proximity to the wetland through entering sites from the roadway. Identify trees required for clearing.	None following effective use of mitigation measures.

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
Seasonal Concentration Areas						
Bat Maternity Roosts (Woodlands P001-W1, P002-W1, P002-W2, P004-W1, P108-W1, P118-W1, P139-W1, P139-W5, P139-W6, P139-W7, P139-W8, P139-W9, RB-A2	Access Road (Construction, Operation, and Decommissioning) and Cabling (Construction and Decommissioning),	Size, high bat activity within woodlands	Bat avoidance and mortality Indirect impacts - surface water runoff, fugitive dust emissions	No construction within woodlands identified as bat maternity roosts. Fugitive dust generation: Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations	Minimize bat avoidance and mortality.	Negligible – avoidance of these woodland habitats.
Specialized Wildlife Habitat						
Turtle Nesting Habitat Associated with Rondeau Bay North Shore PSW	Cabling (Construction and Decommissioning)	Provision of nesting habitat for turtles	Turtle avoidance Indirect impacts - surface water runoff, fugitive dust emissions	Feature is located 90 m from cabling. Mitigation measures identified with respect to wetland will ensure form of the wetland is unchanged. EEMP – Implementation of Pre- and Post-construction Monitoring Program as identified in Table 4-11.	Prevent turtle avoidance	No effect anticipated following effective use of mitigation measures.
Significant Habitat of Species of Conservation Concern						
Significant S1-S3 Ranked Bat Habitat Woodlands P022-W1, P065-W1, P065-W2, P091-W1, P092-W1, P102-W2, P111-WE1, P022-W1, P162-W1, P162-W2, P117-W1, P173-W1, P033-W1, P108-W1, P042-W1, and P162-W1	Access Road (Construction, Operation, and Decommissioning) Cabling (Construction and Decommissioning), Turbines P047, P065 and P152 (Construction, Operation, and Decommissioning)	Size, identified presence of S1-S3 ranked bat species	Bat avoidance and mortality Indirect impacts - surface water runoff, fugitive dust emissions	Clearing is proposed solely through a hedgerow of P022-W1, and will be restricted to a 6m width. Clearing will be timed outside of the breeding season (May through July). In order to prevent clearing within the significant bat habitat, work areas be clearly flagged and exclusion fencing erected. All Project personnel will be informed of the designated work areas (portion of the existing ROW) prior to initiation of construction activities, and provided in construction drawings as determined during detailed design, and the exclusion of construction activities outside of this defined work area. All cleared and grubbed materials will be temporarily stockpiled within the area of disturbance on the Project location to minimize potential disturbances to adjacent vegetation. The area will then be revegetated with a native seed mix and/or similar vegetation species, and erosion control measures implemented to assist in the re-establishment of the vegetation community. Fugitive dust generation: Best management practices will be applied; use of dust suppression; hard surfacing; phased construction to limit amount of time soil is exposed; avoid earth moving work during high winds; stabilize stockpiles and disturbed areas as necessary; application of water / limit vehicle movements Surface water runoff: installation of flow dissipation measures; grading to promote diffuse overland flow at ditch discharge locations.	Minimize bat avoidance and mortality. Minimize removal of habitat.	Negligible – avoidance of these woodland habitats.

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
Open Country Bird Breeding Habitat (P053-W2 and agricultural field north of Campbell Line (P029 & P030.)	Access Road, (Construction, Operation, and Decommissioning) Cabling (Construction and Decommissioning), Transmission ROW (Construction, Operations, Decommissioning)	Size, vegetation community, grassland species present	Bird mortality, removal of vegetation, avoidance by wildlife, surface water run-off, fugitive dust emissions, loss of habitat	Clearing and Revegetation measures – See P011-W1 above. Habitat loss of 0.34 ha during construction is minor to total size (42.8 ha), and will be reduced to 0.17 ha during operations. Construction scheduled outside of breeding bird season window or if not possible, nest survey to be performed by a trained biologist. Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area. EEMP – Implementation of Post-construction Monitoring Program as identified in Table 4-2.	Minimize bird avoidance and mortality. Minimize removal of habitat.	Minor following revegetation
Area Sensitive Breeding Bird Habitat (P014-W2, P022-W1, P156-W1, P139-W8, P162-W2)	Access road (Construction, Operation , Decommissioning) cabling (Construction, Operation , Decommissioning) Transmission line, service road and switch (Construction, Operation, Decommissioning)	Size, possible use of woodlands for breeding (preconstruction surveys to confirm)	Bird mortality, removal of vegetation, avoidance by wildlife, surface water run-off, fugitive dust emissions, loss of habitat	Clearing and Revegetation measures – See P011-W1 above. Construction scheduled outside of breeding bird season window or if not possible, nest survey to be performed by a trained biologist. Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area. EEMP – Implementation of Post-construction Monitoring Program as identified in Table 4-11.	Minimize bird avoidance and mortality. Minimize removal of habitat.	Negligible
Significant Animal Movement Corridors						
Vegetated Corridor Along Railway (RB-A, RB-B, RB-D, RB-E, RB-F)	Transmission Line ROW (Construction, Operations, Decommissioning)	Size, linkage, habitat composition	Avoidance by wildlife, compaction of soil in critical root zones of trees, removal of vegetation, surface water run-off, fugitive dust emissions	Critical root zones (CRZ) for any woodland trees adjacent to Project location will be identified prior to construction. Silt fence will be installed between the work areas and the significant woodlands in all areas. Where the CRZ extends into areas to be disturbed by Project activities, the area will be delineated as a restricted activity area and Project activities limited or minimized during construction. Clearing and Revegetation measures – See P077-W1 above. Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction	Avoid clearing. Placement of Project components adjacent to vegetation communities or within abandoned railway bed.	Negligible

Significant Natural Feature – ID No.	Project Phase and Activity	Functions and Attributes	Potential Direct /Indirect Impacts	Proposed Mitigation Measure(s)	Performance Objectives	Net Effects
				Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area. EEMP – Implementation of Post-construction Monitoring Program as identified in Table 4-2.		
Watercourses (CLA-D2, P002-D2, P069-D2, P104-D2, P105-D1, P114-D1, and P139-D1)	Access Road (Construction, Operations, Decommissioning) and Cabling (Construction, Decommissioning)	Size, linkage, species use (aquatic and terrestrial)	Avoidance by wildlife, surface water run-off, fugitive dust emissions	Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered Erosion and Sediment Control (ESC) – Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area. Clearing and Revegetation measures – See P077-W1 above. A 30 m buffer will be maintained around the watercourse during construction except where the upgrade or installation of a culvert is required. Direction drilling will be considered for underground cabling when crossing the watercourse. Other measures include bringing the connector above ground on poles and locating the poles outside of the 30 m watercourse buffer.	Maintain 30 m buffer from significant habitat where possible Cross feature at narrow section and at right angles to minimize clearing of vegetation. No significant impact to water quality due to installation of culvert and underground cabling.	Negligible

Table 4.12 Summary of Environmental Effects Monitoring Requirements with Respect to Significant Natural Feature

Significant Natural Feature – ID No.	Negative Effect	Mitigation Strategy	Performance Objective	Monitoring Plan					Contingency Measures
				Methodology	Monitoring Locations	Frequency	Rationale	Reporting Requirements	
Preconstruction Phase									
Bat Maternity Roosts (Woodlands P001-W1, P108-W1/P108-WE1, P118-W1, RB-A2) Significant S1-S3 Ranked Bat Habitat (Woodlands P065-W2, P091-W1, P092-W1, P102-W2, P108-W1/P108-WE1, P111-WE1, P022-W1,P042-W1, P173-W1)	n/a	June 2012 surveys	Confirm significance and determine species composition	Identification of cavity trees and maternity roost exit surveys as outlined in Appendix B at the Bat Maternity Roosts and S1-S3 Ranked Bat Habitat located within 120 m of Project turbines, or where Project components are proposed within the feature	P001-W1, P108-W1, P118-W1, RB-A2, P065-W2, P091-W1, P092-W1, P102-W2, P111-WE1, P022-W1, P042-W1, P117-W1, P173-W1	Each candidate maternity roost within 120 meters of a turbine will be surveyed once during June 2012	Determine which candidate roost sites within significant habitat are occupied.	Report to the MNR for further discussion	N/A – Preconstruction survey
Open Country Bird Breeding Habitat (agricultural field north of Campbell Line (P029 & P030).	n/a	June and July 2012 surveys	Confirmation of significance and determine species composition	Breeding bird surveys will be completed following a standard protocols as outlined in Appendix C, at locations where Project components are proposed within the feature, or a wind turbine is located within 120 m of the feature	agricultural field north of Campbell Line	A total of 3 breeding bird visits, consisting of area searches and point counts, will occur from June1 through early July 2012, with at least 10 days between visits.	Confirm the use of the habitat and determine specific species	Report to the MNR for further discussion	N/A – Preconstruction survey
Area Sensitive Breeding Bird Habitat (P022-W1)	n/a	June and July 2012 surveys	Confirmation of significance and determine species composition	The habitat will be surveyed using a combination of a 10-minute point count and area searches throughout the habitat	P022-W1	A total of 3 breeding bird visits, consisting of area searches and point counts, will occur from late May through June 2012, with at least 10 days between visits.	Confirm the use of the habitat and determine specific species	Report to the MNR for further discussion	N/A – Preconstruction survey
Construction Phase									
All Significant Natural Features	Dust generation and off-site transport	Standard construction site best management practices to prevent fugitive dust	Minimize fugitive dust from the construction site	Visual monitoring of visible dust plumes during construction	Throughout constructible area.	Periodically during all construction activities	Visual dust monitoring would identify if dust plumes are an issue and where their source may be	Reported in monthly environmental monitoring report during construction	Dust control measures implemented as necessary to prevent/minimize dust generation.
All Significant Natural Features	Sediment and Erosion Control	Implementation of erosion control measures in accordance with best management practices and standard specifications for construction.	Minimize movement of sediment and surface run-off off-site.	Implementation of measures including placement of silt fences, rip rap, straw bales, sediment ponds/traps, culverts and ditches.	At limits of constructible area for each location where pre-construction surveys have determined potential for erosion and where significant features are adjacent to the Project location,	Daily and following storm events	Ensure measures are maintained in good working order.	Reported in monthly environmental monitoring report during construction	Extra materials (geotextile, straw, riprap) to be kept on hand to ensure maintenance can be carried out in a timely manner.

Significant Natural Feature – ID No.	Negative Effect	Mitigation Strategy	Performance Objective	Monitoring Plan					Contingency Measures
				Methodology	Monitoring Locations	Frequency	Rationale	Reporting Requirements	
Watercourses CLA-D2, P002-D2, P104-D2, P105-D1, P114-D1 and P139-D1	Interruption of wildlife movement through animal movement corridor	Education of workers on proper handling of situations involving wildlife.	Minimize impact to wildlife movement through the area.	Reporting of all wildlife sightings on site to track movement.	At watercourse crossing	As per sighting of wildlife on Project locations.	To ensure no harm to wildlife from construction activities.	Reported in monthly environmental monitoring report during construction	Daily tool box talks identifying wildlife sighting requirements.
Directly impacted woodlands	Woodland clearing	Minimize size of disturbed area. Revegetate following removal of temporary disturbance,	Minimize impact to the remnant woodland	Monitoring observations of work area restrictions. Monitoring remnant trees for evidence of stress/dieback	At locations where clearing is required.	Weekly during work within these features	To ensure impacts to remnant vegetation are minimized	Reported in monthly environmental monitoring report during construction	Should evidence of dieback be recorded within remnant trees, planting of trees to compensate the loss will occur.
All Significant Natural Features	Incidental take of wildlife	Speeds to be limited on project site and construction workforce to be made aware of potential for wildlife on the Project location. Avoidance of specified habitat areas during breeding season, where possible.	Minimize incidental take	Occasions of incidental take to be reported as they are identified	Throughout constructible area	Ongoing during construction	Incidental take will be reported by construction workforce if incidents occur	Reported in monthly environmental monitoring report during construction, unless the species is a species of conservation concern in which case reporting will be immediate to the MNR	If incidental take of species of conservation concern are recorded, work within the immediate area will be ceased until such time as a trained biologist can state that the species is no longer present in the area. All other occasions of incidental take will be recorded, and should significant levels be recorded at an individual location, MNR will be consulted to determine whether additional mitigation measures are required.
Operations Phase									
All Significant Natural Features within 120 m of access roads	Incidental take of other species of wildlife	Speeds to be limited to 30 km/h on Project site and maintenance workforce to be made aware of potential for wildlife on the Project location	Minimize incidental take	Occasions of incidental take to be reported as they are identified	Throughout constructible area	Ongoing during maintenance activities	Incidental take will be reported by maintenance staff if incidents occur	No requirement; unless the incident involves a species of conservation concern in which case reporting will be to the MNR within 24 hours	If incidental take of species of conservation concern are recorded, work within the immediate area will be ceased until such time as a trained biologist can state that the species is no longer present in the area. All other occasions of incidental take will be recorded, and should significant levels be recorded at an individual location, MNR will be consulted to determine whether additional mitigation measures are required.
Bat Maternity Roosts (Woodlands P001-W1, P108-W1/P108-WE1, P118-W1, RB-A2) Significant S1-S3 Ranked Bat Habitat (Woodlands P065-W2, P091-W1, P092-W1, P102-W2, P108-	Disturbance Effects Monitoring	Three (3) years of annual post-construction bat behavioural monitoring (as per the Bat and Bat Habitats: Guidelines for Wind Power Projects (OMNR,	Minimize disturbance effects at maternity roosts	Maternity roost exit surveys completed in accordance with the protocols in Appendix B at the Bat Maternity Roosts and S1-S3 Ranked Bat Habitat located within 120 m of Project turbines, or where Project components are proposed	P001-W1, P022-W1, P042-W1, P065-W2, P091-W1, P092-W1, P102-W2, P108-W1/P108-WE1, P111-WE1, P118-W1, P173-W1, RB-A2	Each candidate maternity roost within the habitat will be surveyed once during June, for three years following start of operations.	Operation may result in disturbance/habitat avoidance in bats	Reported yearly to MOE/MNR for each monitoring year	Operational mitigation, which may include increasing cut-in speed s or feathering of wind turbine blades, during peak maternity roost period.

Significant Natural Feature – ID No.	Negative Effect	Mitigation Strategy	Performance Objective	Monitoring Plan					Contingency Measures
				Methodology	Monitoring Locations	Frequency	Rationale	Reporting Requirements	
W1/P108-WE1, P111-WE1, P022-W1,P042-W1, P173-W1)		March 2011))		within the feature that were confirmed as significant through pre-construction monitoring					
	Bat Mortality	Three (3) years of annual post-construction bat mortality monitoring (as per the Bat and Bat Habitats: Guidelines for Wind Power Projects (OMNR, 2011))	Minimize incidental bat mortality.	Bat mortality surveys around specific wind turbines; monitoring of bat carcass removal; searcher efficiency trials once >50% of turbines are operational.	Sub-sample of at least 30% of the total number of turbines to cover representative areas throughout the Project location.	May 1 to October 31 – every three (3) to four (4) days at each monitored turbine	Identify specific periods of high bat mortality to evaluate the success of construction mitigation (e.g., siting) and establish protocols for operational mitigation, if required.	Reported yearly to MOE for each monitoring year.	Operational mitigation, which may include increasing cut-in speed to 5.5 m/s or feathering of wind turbine blades when wind speeds are below 5.5 m/s, during peak bat migration. Coordination of turbine maintenance with periods of high bat activity and/or mortality to reduce operational impacts.
	Bird Monitoring	Three (3) years of annual post-construction bird mortality monitoring (as per the Birds and Bird Habitats: Guidelines for Wind Power Projects (OMNR, 2011)	Minimize incidental bird mortality.	Conduct mortality surveys, carcass removal and searcher trials once >50% of turbines are operational.	Sub-sample of at least 30% of the total number of turbines to cover representative areas throughout the Project location. All turbines for raptor mortalities (monthly)	May 1 to October 31 – every three (3) to four (4) days at each monitored turbine, with continued monitoring weekly for raptors from November 1 to November 30. May 1 to November 31 – once a month for raptors	Identify specific species, specific periods of high mortality and specific turbines/turbine groups linked to bird mortality. Identify and scope subsequent monitoring needs, evaluate the success of mitigation measures (e.g., siting), establish protocols for operational mitigation, if required, and inform adaptive management.	Reported yearly to MOE for each monitoring year.	Two (2) year monitoring of mortality and effects monitoring of turbines located 120 m outside of bird SWH where annual bird/raptor mortality threshold is exceeded. Immediate post-construction mitigation and three (3) years of effectiveness monitoring for turbines located within 120 m of bird SWH where significant annual bird or raptor mortality or disturbance effects associated with bird SWH are identified. Operational mitigation will include periodic shutdown of select turbines or blade feathering during periods of high mortality.
Decommissioning Phase									
All Significant Natural Features	Dust generation and off-site transport	Standard construction site best management practices to prevent fugitive dust	Minimize fugitive dust from the construction site	Visual monitoring of visible dust plumes during construction	Throughout constructible area.	Periodically during all construction activities	Visual dust monitoring would identify if dust plumes are an issue and where their source may be	Reported in monthly environmental monitoring report during construction	Dust control measures implemented as necessary to prevent/minimize dust generation.
All Significant Natural Features	Sediment and Erosion Control	Implementation of erosion control measures in accordance with best management practices and standard specifications for construction.	Minimize movement of sediment and surface run-off off-site.	Implementation of measures including placement of silt fences, rip rap, straw bales, sediment ponds/traps, culverts and ditches.	At limits of constructible area for each location where pre-construction surveys have determined potential for erosion and where significant features are adjacent to the Project location,	Daily and following storm events	Ensure measures are maintained in good working order.	Reported in monthly environmental monitoring report during construction	Extra materials (geotextile, straw, riprap) to be kept on hand to ensure maintenance can be carried out in a timely manner.

Significant Natural Feature – ID No.	Negative Effect	Mitigation Strategy	Performance Objective	Monitoring Plan					Contingency Measures
				Methodology	Monitoring Locations	Frequency	Rationale	Reporting Requirements	
Watercourses CLA-D2, P002-D2, P104-D2, P105-D1, P114-D1 and P139-D1	Interruption of wildlife movement through animal movement corridor	Education of workers on proper handling of situations involving wildlife.	Minimize impact to wildlife movement through the area.	Reporting of all wildlife sightings on site to track movement.	At watercourse crossing	As per sighting of wildlife on Project locations.	To ensure no harm to wildlife from construction activities.	Reported in monthly environmental monitoring report during construction	Daily tool box talks identifying wildlife sighting requirements.
All Significant Natural Features	Incidental take of wildlife	Speeds to be limited on project site and construction workforce to be made aware of potential for wildlife on the Project location. Avoidance of specified habitat areas during breeding season, where possible.	Minimize incidental take	Occasions of incidental take to be reported as they are identified	Throughout constructible area	Ongoing during construction	Incidental take will be reported by construction workforce if incidents occur	Reported in monthly environmental monitoring report during construction, unless the species is a species of conservation concern in which case reporting will be immediate to the MNR	If incidental take of species of conservation concern is recorded, work within the immediate area will be ceased until such time as a trained biologist can state that the species is no longer present in the area.

5. Construction Plan Report

The REA Regulation requires proponents of Class 4 wind projects to prepare a Construction Plan Report (CPR).

The CPR details the construction and installation activities, location and timing of construction and installation activities, any negative environmental effects that result from construction activities within 300 m of the Project and mitigation measures for the identified negative environmental effects. The CPR addresses all potential effects of construction on natural features within 300 m of the Project site in a general manner. The mitigation proposed in the CPR with respect to preventing/minimizing negative effects on natural features is the same as that discussed in this EIS. Additional mitigation is proposed to address negative effects during construction not related to significant natural features. Therefore, the CPR and this EIS should be read in conjunction with each other, although all negative effects and mitigation requirements with respect to significant natural feature are contained within this EIS and duplicated in the CPR.

6. Summary and Conclusions

As discussed in the Natural Heritage Records Review (NRSI 2012a), the Natural Heritage Site Investigation (NRSI 2012b) and the Evaluation of Significance (NRSI 2012c), there are several significant natural features in and/or within 120 m of the Project location, and include:

- forty-nine (49) significant woodlands (ranging from approximately 2 ha to 54 ha);
- six (6) wetland features
- four (4) bat maternity roosts
- one (1) open country bird breeding habitat
- one (1) area sensitive bird breeding area
- nine (9) significant habitats for S1-S3 ranked bat species.
- eight (8) animal movement corridors (seven (7) watercourse and one (1) vegetated corridor).

In addition, several generalized candidate significant wildlife habitats including turtle nesting habitat, bat maternity roosts, open country bird breeding habitat, area-sensitive bird breeding areas, significant habitat for S1-S3 ranked bat species, and animal movement corridors.

This EIS has been prepared to identify potential negative environmental effects that all phases of the Project may have on the significant natural features. Mitigation measures have been proposed to prevent these effects from occurring or minimize the magnitude, extent, duration and frequency in the event that they do occur. The primary mitigation measure that will prevent adverse effects on the natural feature is avoidance of direct encroachment onto many of the features themselves. Monitoring measures have been proposed to confirm that mitigation measures are having the intended effect and that performance objectives are being met.

A summary of impacts and mitigation can be found in Table 6.1 below.

Table 6.1 Summary of Impacts and Mitigation

Significant Natural Feature – ID No.	Proposed Activities and Potential Negative Environmental Effects	Mitigation Measures	Monitoring Measures	Contingency Measures	Threshold for Implementation
Woodlands P001-W1, P002-W1, P002-W2, P004-W1, P011-W1, P014-W2 P022-W1, P024-W1, P024-W2, P027-W1, P029-W1, P030-W2 P033-W1, P034-W1, P042-W1, P053-W3, P053-W4, P054-W1, P054-W2, P055-W1 P065-W1, P065-W2, P065-W3, P077-W1, P082-W1, P091-W2, P092-W2, P108-W1, P111-W1, P114-W1 P117-W1, P118-W1, P139-W1, P139-W5, P139-W6, P139-W7 P139-W8 P139-W9, P156-W1, P162-W1, P162-W2, P166-W1, P173-W1, CLA-W2, RB-A, RB-B, RB-D, RB-E, RB-F	Installation of Project components within 120 m. Fugitive dust emissions. Surface water runoff Wildlife avoidance	Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered. Erosion and Sediment Control (ESC) – use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction. Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area.	Visual monitoring of visible dust plumes and erosion and sedimentation control measures during construction. Methodology for visual monitoring will be provided in the construction environmental monitoring plan to be developed during detailed design.	Installation of additional sediment and erosion control features. Increase application of water to limit dust emissions. Limit construction vehicles on site. Reduce vehicle speed allowance	Significant visual dust generation (complaints from adjacent residents). Significant increase in surface water runoff (significant visual erosion).
Woodlands P022-W1, P114-W1,	Installation of access road and cabling in the significant woodlands. Removal of vegetation. Soil compaction of CRZs. Fugitive dust generation. Surface water runoff. Wildlife avoidance.	Entering woodlands at right angles in order to limit impacts. Identify trees to be removed prior to start of construction activities within the woodland in order to limit vegetation removal. Revegetate with native species. Identification and avoidance of critical root zone; discing or other soil loosening methods to restore potentially compacted areas; Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered. Erosion and Sediment Control (ESC) Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction. Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area.	Visual monitoring of areas to be disturbed during construction. Visual monitoring of visible dust plumes and erosion and sedimentation control measures during construction. Methodology for visual monitoring will be provided in the construction environmental monitoring plan to be developed during detailed design.	Installation of additional sediment and erosion control features. Increase application of water to limit dust emissions. Limit construction vehicles on site. Reduce vehicle speed allowance Planting more native vegetation species	Significant visual dust generation (complaints from adjacent residents). Significant increase in surface water runoff (significant visual erosion). Significant presence of invasive species.
Woodlands P014-W2, P055-W1, P139-W1	Installation of cabling adjacent to significant woodlands. Soil compaction of CRZs. Removal of select vegetation (if required). Fugitive dust generation. Surface water runoff. Wildlife avoidance.	Identify trees to be removed prior to start of construction activities within the woodland in order to limit vegetation removal. Revegetate with native species. Identification and avoidance of critical root zone; discing or other soil loosening methods to restore potentially compacted areas; Application of water/limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered. Erosion and Sediment Control (ESC) Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction. Avoidance of the Area by Wildlife – Reduce vehicular noise and restrict personnel presence to the construction work area.	Visual monitoring of areas to be disturbed during construction. Visual monitoring of visible dust plumes and erosion and sedimentation control measures during construction.	Installation of additional sediment and erosion control features. Increase application of water to limit dust emissions. Limit construction vehicles on site. Reduce vehicle speed allowance Planting more native vegetation species	Significant visual dust generation (complaints from adjacent residents). Significant increase in surface water runoff (significant visual erosion). Significant presence of invasive species.

Significant Natural Feature – ID No.	Proposed Activities and Potential Negative Environmental Effects	Mitigation Measures	Monitoring Measures	Contingency Measures	Threshold for Implementation
Animal Movement Corridors (CLA-D2, P002-D2, P069-D2, P104-D2, P105-D1, P114-D1, P139-D1, RB-A to RB-F)	Installation of access road and/or cabling crossings within corridors. Installation of cabling, turbines, access roads and/or transmission ROW within 120 m of corridors. Fugitive dust generation. Surface water runoff. Wildlife avoidance. Erosion of watercourses and increased sedimentation	Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered. 30 m buffer will be maintained where possible for the construction of above and underground cabling. Erosion and Sediment Control (ESC) -Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction. Use of Bailey Bridges to cross P114-D1. No fencing to be installed. No clearing required within vegetated corridor.	Visual monitoring of areas to be disturbed during construction. Visual monitoring of visible dust plumes and erosion and sedimentation control measures during construction.	Installation of additional sediment and erosion control features. Increase application of water to limit dust emissions. Limit construction vehicles on site. Reduce vehicle speed allowance.	Significant visual dust generation (complaints from adjacent residents). Significant increase in surface water runoff (significant visual erosion). Significant decrease in surface water quality (as determined by environmental monitors on site).
Bat Maternity Roosts (P001-W1, P002-W1, P002-W2, P004-W1, P007-W1, P108-W1, P118-W1, P139-W1, P139-W5, P139-W6, P139-W7, P139-W8, P139-W9, RB-A2)	Installation of access road, above and underground cabling and turbines within 120 m. Fugitive dust generation. Surface water runoff. Bat avoidance and mortality during operations.	Pre-construction monitoring surveys at habitats within 120 m of turbine locations or where Project components are found in the feature. Post-construction monitoring to occur over first three (3) years of operations where significant maternity roosts are identified during pre-construction surveys. Maintenance shutdown of turbines within migratory bat period, as practicable. Construction restrictions at turbine locations within 120 m of maternity roosts confirmed to be significant during pre-construction surveys. Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered. Erosion and Sediment Control (ESC) - use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction	Significant maternity roost monitoring to occur over first three (3) years of operations. Visual monitoring of visible dust plumes and erosion and sedimentation control measures during construction.	Voluntary turbine cut-in speed adjustments during peak bat migration period. Installation of additional sediment and erosion control features. Increase application of water to limit dust emissions. Limit construction vehicles on site. Reduce vehicle speed allowance.	10 bats/turbine/year (based on MNR Guidelines) Significant visual dust generation (complaints from adjacent residents). Thresholds for behavioural avoidance will be established through consultation with MNR following analysis of pre-construction monitoring results.
S1-S3 ranked Bat Habitat (Woodlands P047-W1, P065-W1, P065-W2, P091-W1, P092-W1, P102-W2, P111-WE1, P022-W1, P022-W1, P162- W1, P162-W2, P118-W1, P173-W1, P033-W1, P108-W1/P108-WE1, P042-W1, P162-W1)	Fugitive dust generation Surface water runoff Bat avoidance and bat mortality during operations	Pre-construction monitoring surveys at habitats within 120 m of turbine locations or where Project components are found in the feature. Post-construction monitoring to occur over first three (3) years of operations where significant maternity roosts are identified during pre-construction surveys. Maintenance shutdown of turbines within migratory bat period. Construction restrictions at turbine locations within 120 m of maternity roosts confirmed to be significant during pre-construction surveys. Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required.	Visual monitoring of areas to be disturbed during construction. Significant maternity roost monitoring to occur over first three (3) years of operations. Visual monitoring of visible dust plumes and erosion and sedimentation control measures during construction.	Voluntary turbine shutdown during bat migration period. Installation of additional sediment and erosion control features. Increase application of water to limit dust emissions. Limit construction vehicles on site. Reduce vehicle speed allowance.	10 bats/turbine/year (based on MNR Guidelines) Significant visual dust generation (complaints from adjacent residents). Significant increase in surface water runoff (significant visual erosion). Thresholds for behavioural avoidance will be established through consultation with MNR

Significant Natural Feature – ID No.	Proposed Activities and Potential Negative Environmental Effects	Mitigation Measures	Monitoring Measures	Contingency Measures	Threshold for Implementation
		Nearby stockpiles to be covered. Erosion and Sediment Control (ESC) -Use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction			following analysis of pre-construction monitoring results.
Open Country Breeding Bird Habitat (P053-W3, field north of Campbell Line)	Installation of access road and underground cabling in the field north of Campbell Line. Removal of vegetation. Fugitive dust generation. Surface water runoff.	Pre-construction monitoring surveys for field north of Campbell Line. Enter habitat at right angle to angles in order to limit impacts. Revegetate with native species. Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered Erosion and Sediment Control (ESC) – use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction. Nest searches to be conducted prior to start of construction activities within breeding bird period. If nest found 100 m buffer around nest will be employed.	Visual monitoring of areas to be disturbed during construction. Visual monitoring of visible dust plumes and erosion and sedimentation control measures during construction. Monitoring of nests, should they be identified.	Installation of more sediment and erosion control features. Increase application of water to limit dust emissions. Limit construction vehicles on site. Reduce vehicle speed allowance. Planting more native vegetation species.	Significant visual dust generation (complaints from adjacent residents). Significant increase in surface water runoff (significant visual erosion). Significant presence of invasive species. Thresholds for behavioural avoidance will be established through consultation with MNR following analysis of pre-construction monitoring results.
Area Sensitive Breeding Bird Habitat (P014-W2, P022-W1, P139-W8, P156-W1, P162-W2)	(P053-W2 and agricultural field north of Campbell Line(P029 & P030. Access road, Underground cabling, Transmission line, service road and switching station Removal of vegetation. Fugitive dust generation. Surface water runoff.	Pre-construction monitoring surveys for P022-W1. Enter habitat at right angle to angles in order to limit impacts. Revegetate with native species. Application of water/ limit vehicle movements to prevent fugitive dust emissions, as required. Nearby stockpiles to be covered Erosion and Sediment Control (ESC) – use of silt fence, ditching/grading, straw bales, and rock check dams, etc, to be in place prior to the start of construction. Nest searches to be conducted prior to start of construction activities within breeding bird period. If nest found, 100 m buffer around nest will be employed.	Visual monitoring of areas to be disturbed during construction. Visual monitoring of visible dust plumes and erosion and sedimentation control measures during construction. Monitoring of nests, should they be identified.	Installation of more sediment and erosion control features. Increase application of water to limit dust emissions. Limit construction vehicles on site. Reduce vehicle speed allowance. Planting more native vegetation species.	Significant visual dust generation (complaints from adjacent residents). Significant increase in surface water runoff (significant visual erosion). Significant presence of invasive species. Thresholds for behavioural avoidance will be established through consultation with MNR following analysis of pre-construction monitoring results.

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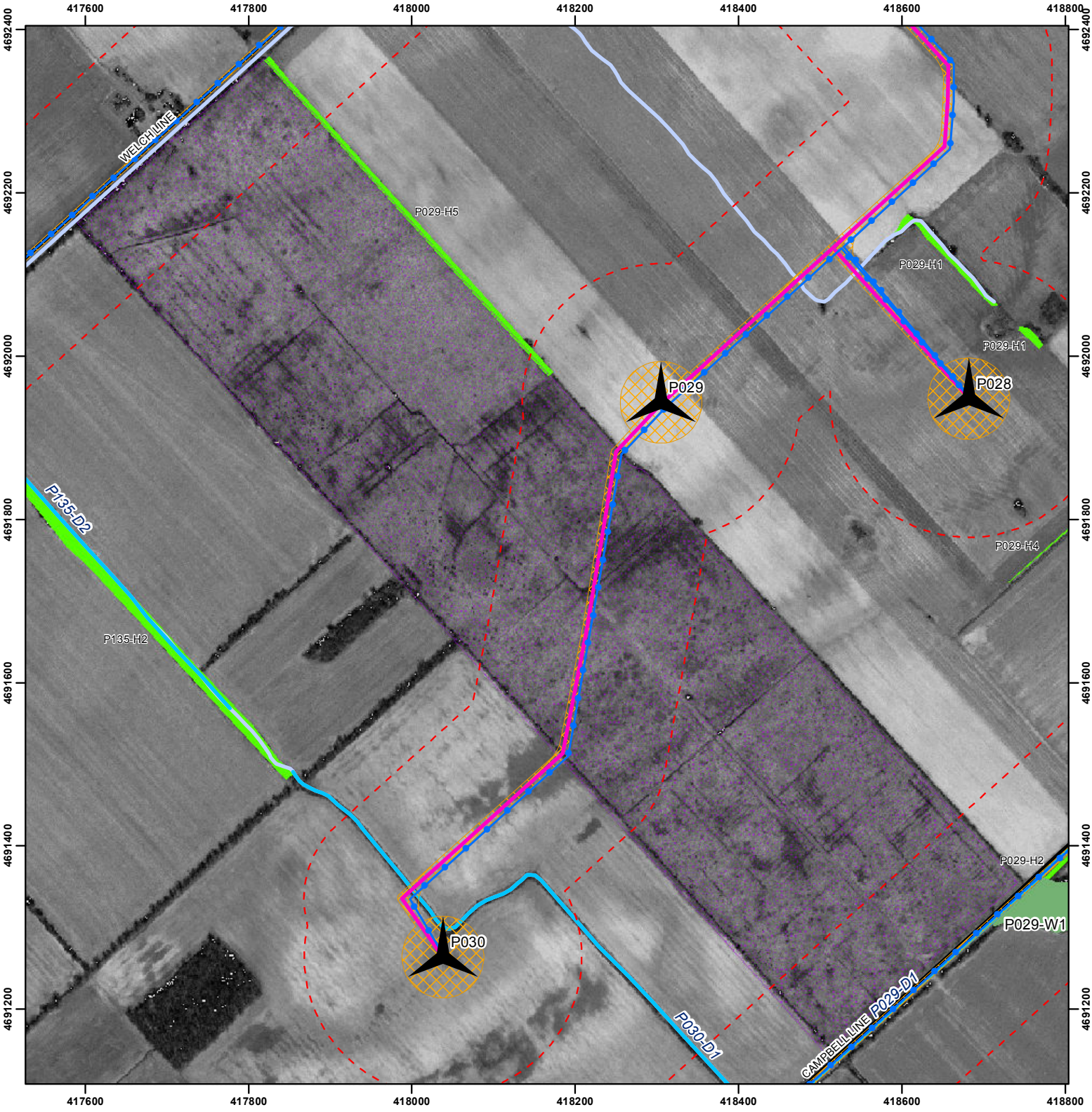
Appendix A

NRSI EOS Figures (NRSI 2012c)



South Kent Wind Project

Open Country Bird Breeding Habitat

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

N

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

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4691200 4691000 4690800 4690600 4690400 4690200 4690000

CLA-D2
CLA-D3
CLA-D3
BURK LINE
COMMUNICATION RD
CLA-H4
CLA-H2
CUNDLE LINE
CLA-W2
CLA-H3
CLA-D2
RB-D2
RB-B3

South Kent Wind Project

CLA-W2

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Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

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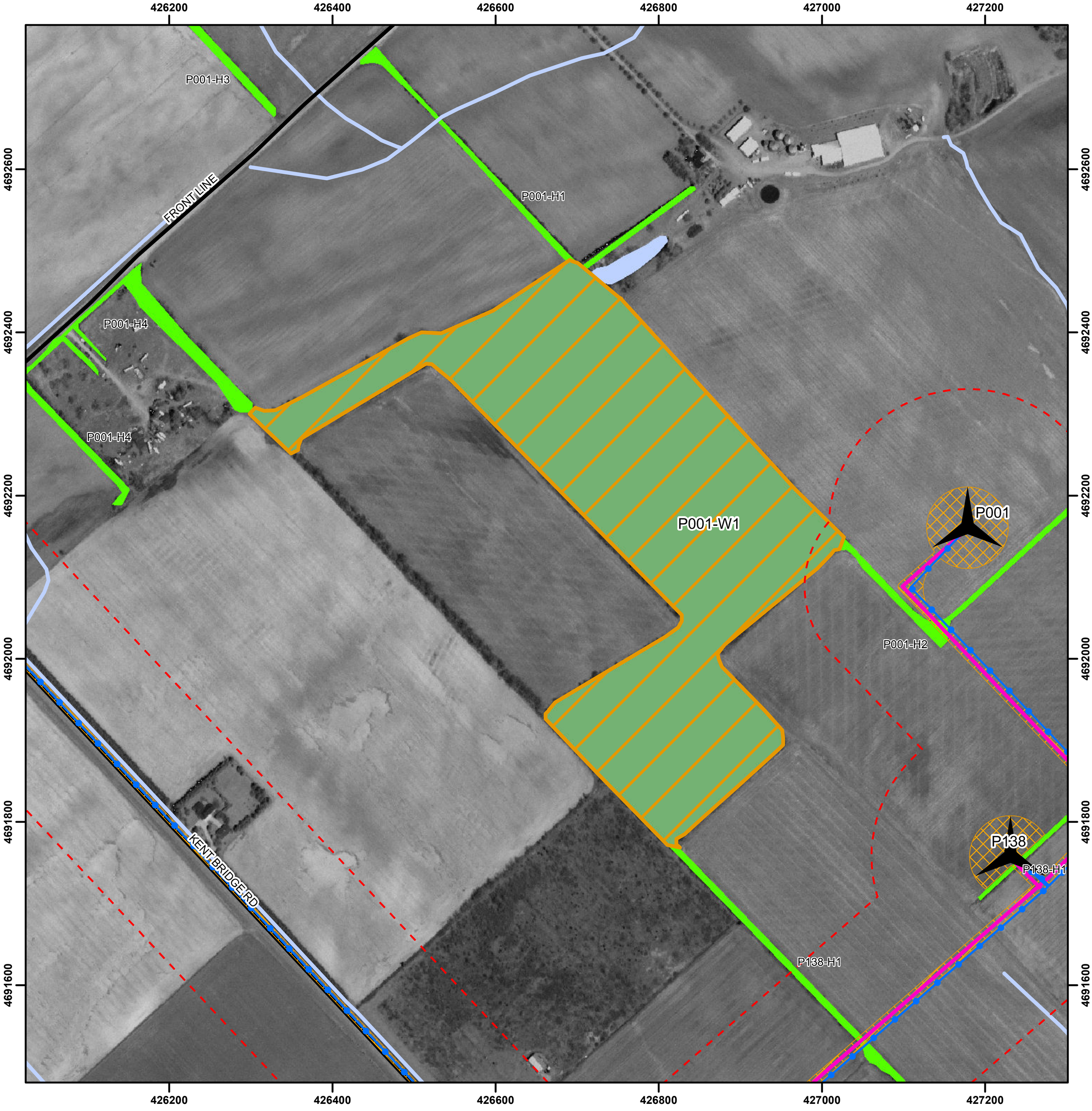

South Kent Wind Project

P001-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

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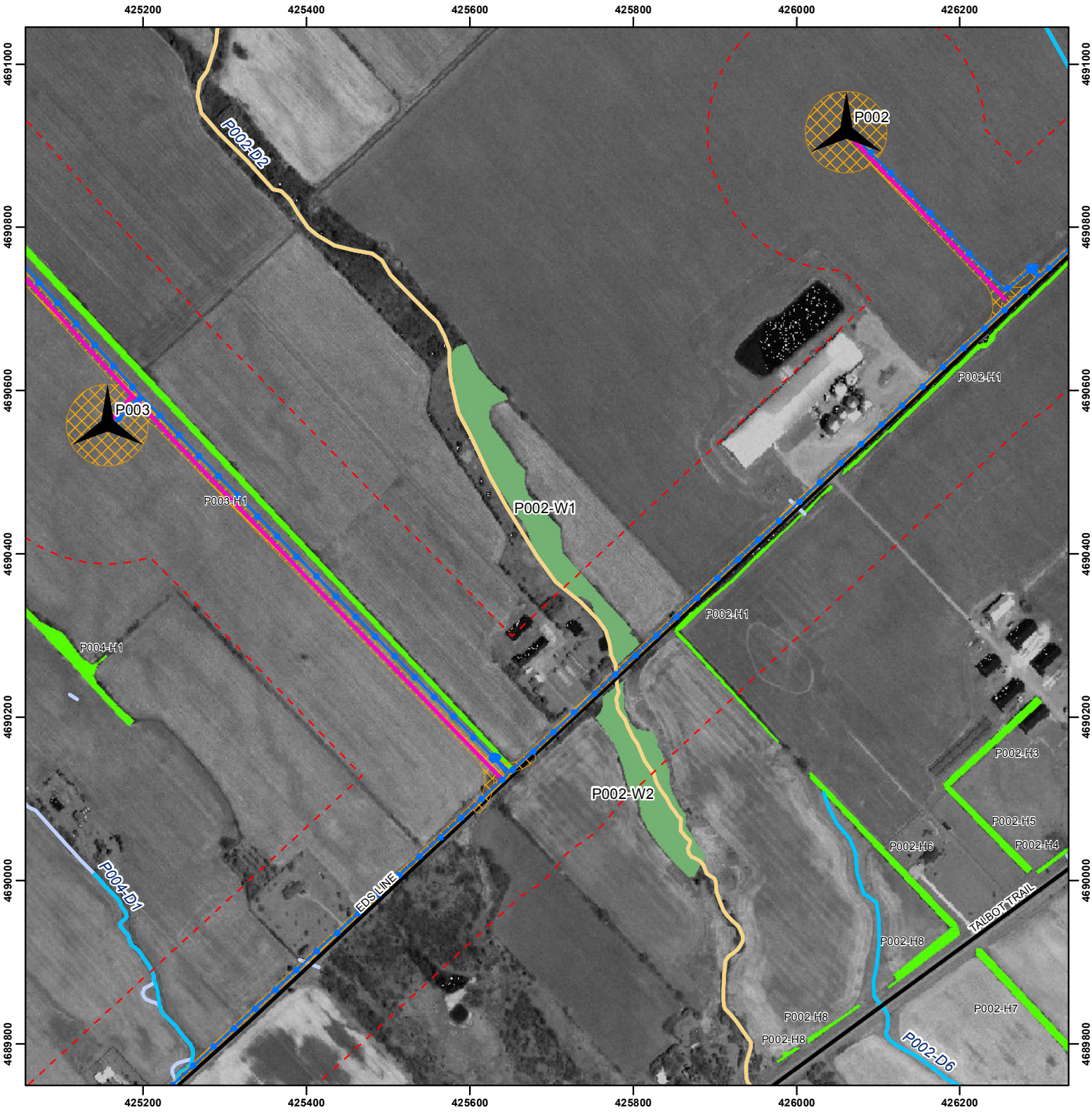

South Kent Wind Project

P002-W1, P002-W2

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Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

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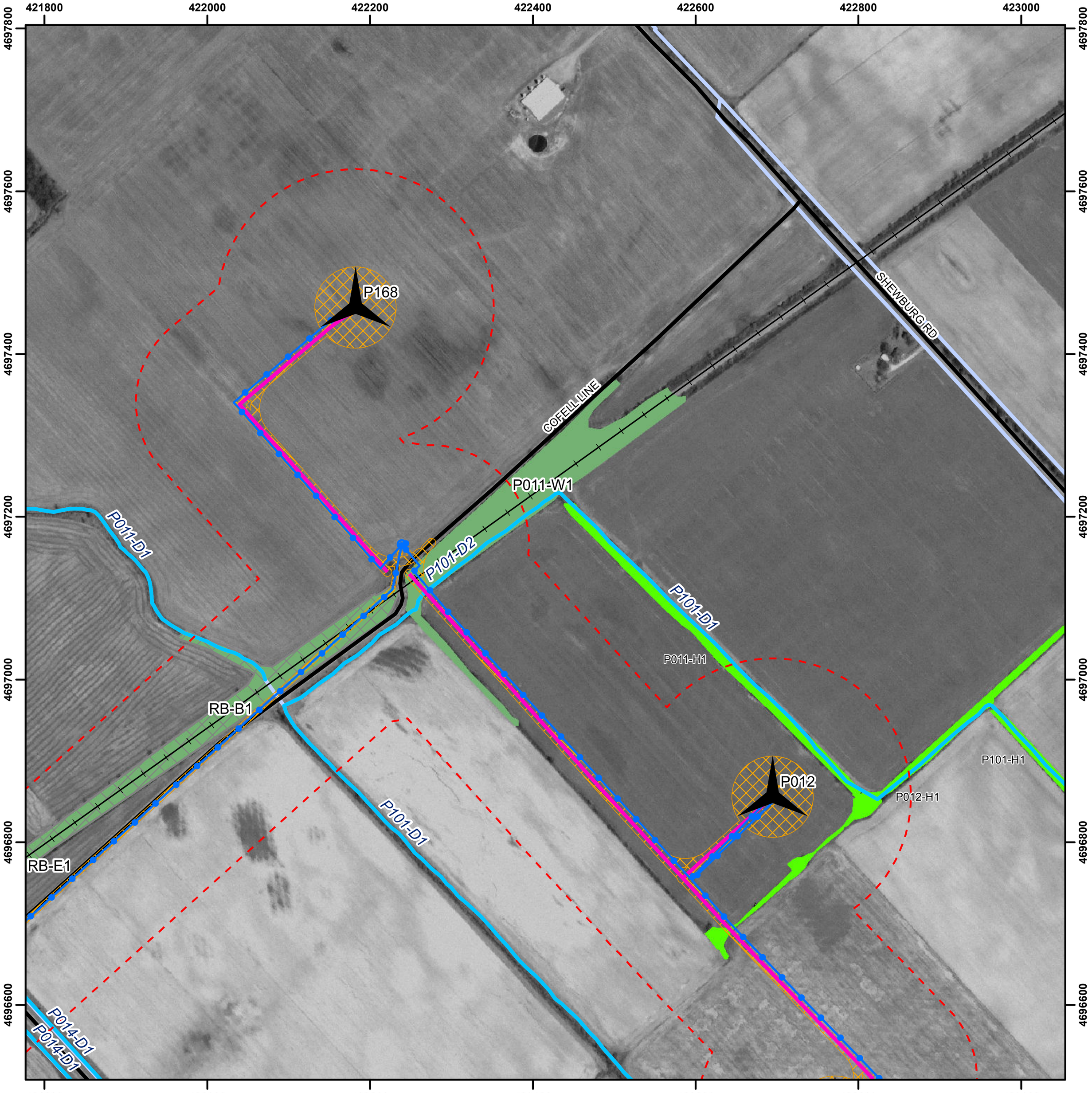

South Kent Wind Project

P011-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

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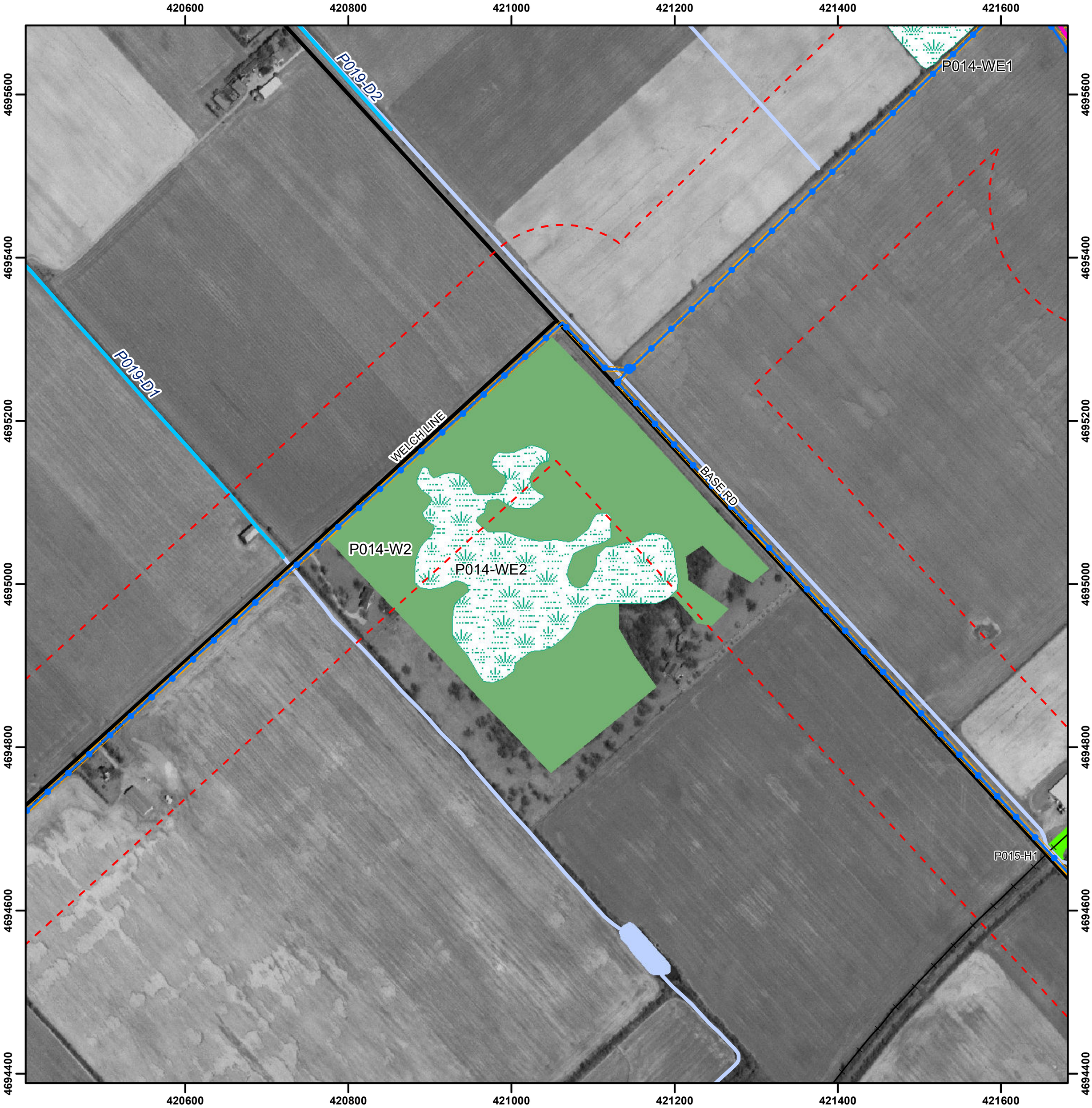


South Kent Wind Project

P014-W2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P014-WE1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

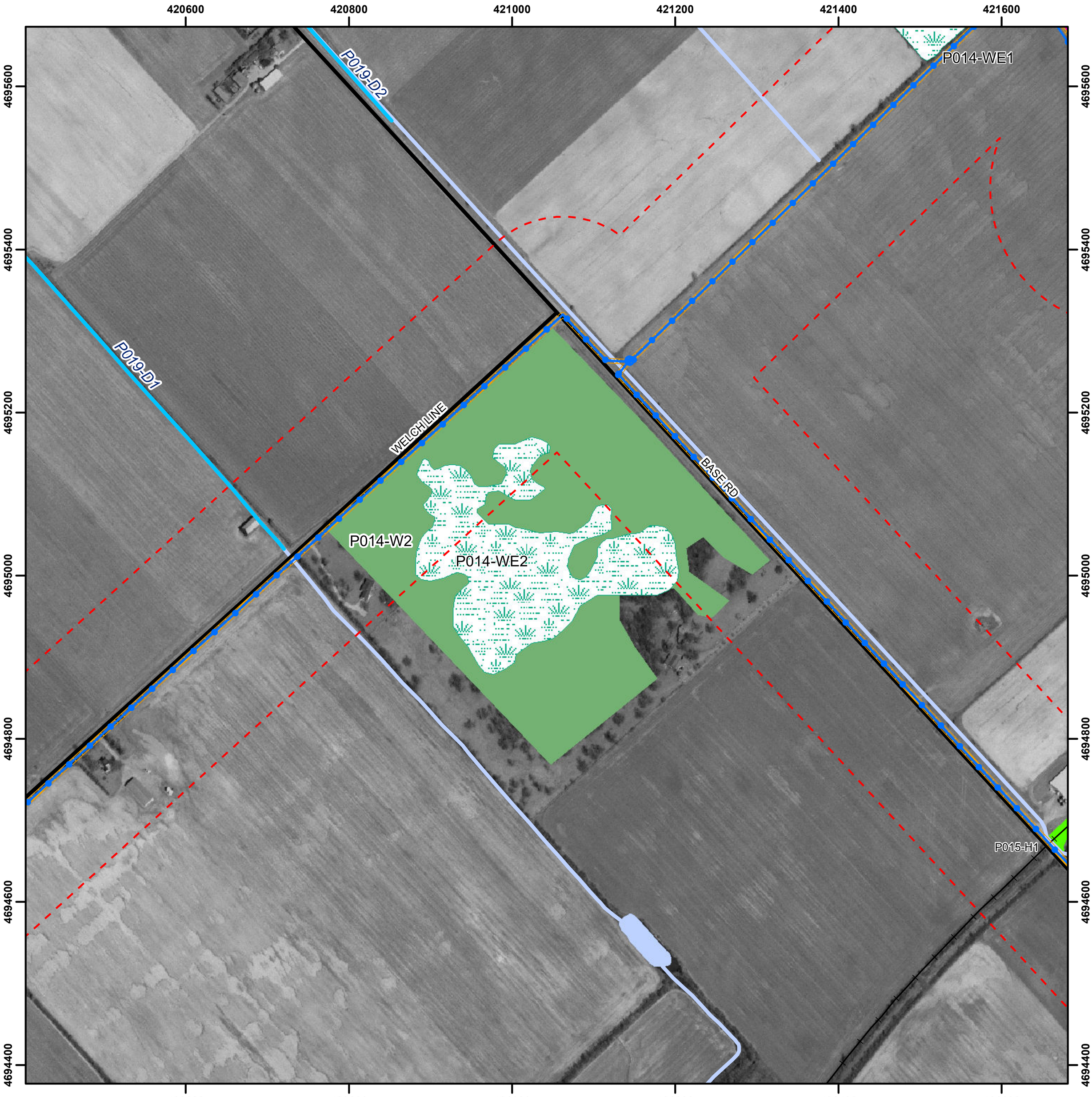
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P014-WE2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

N

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

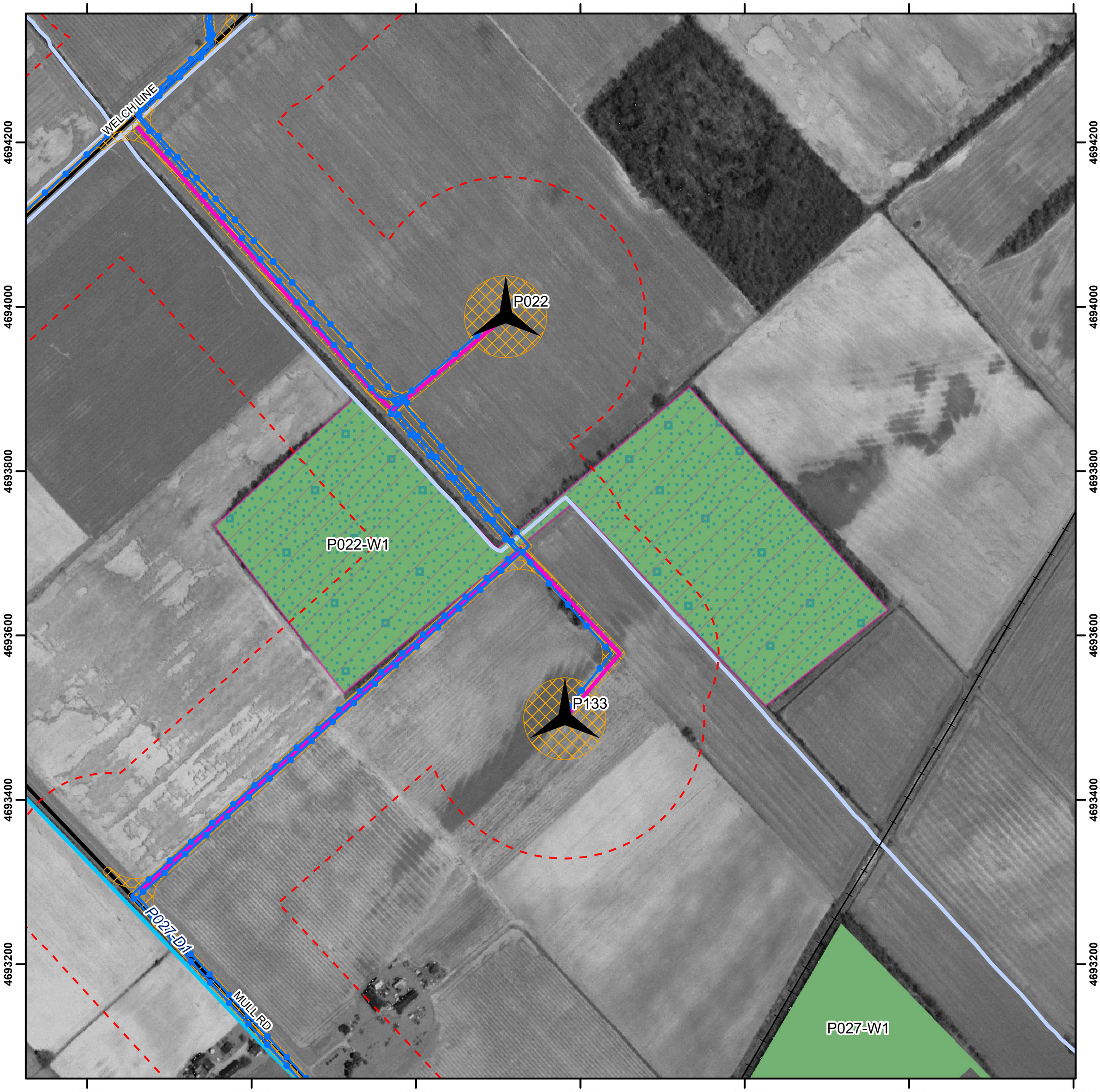
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P022-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P024-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P024-W2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

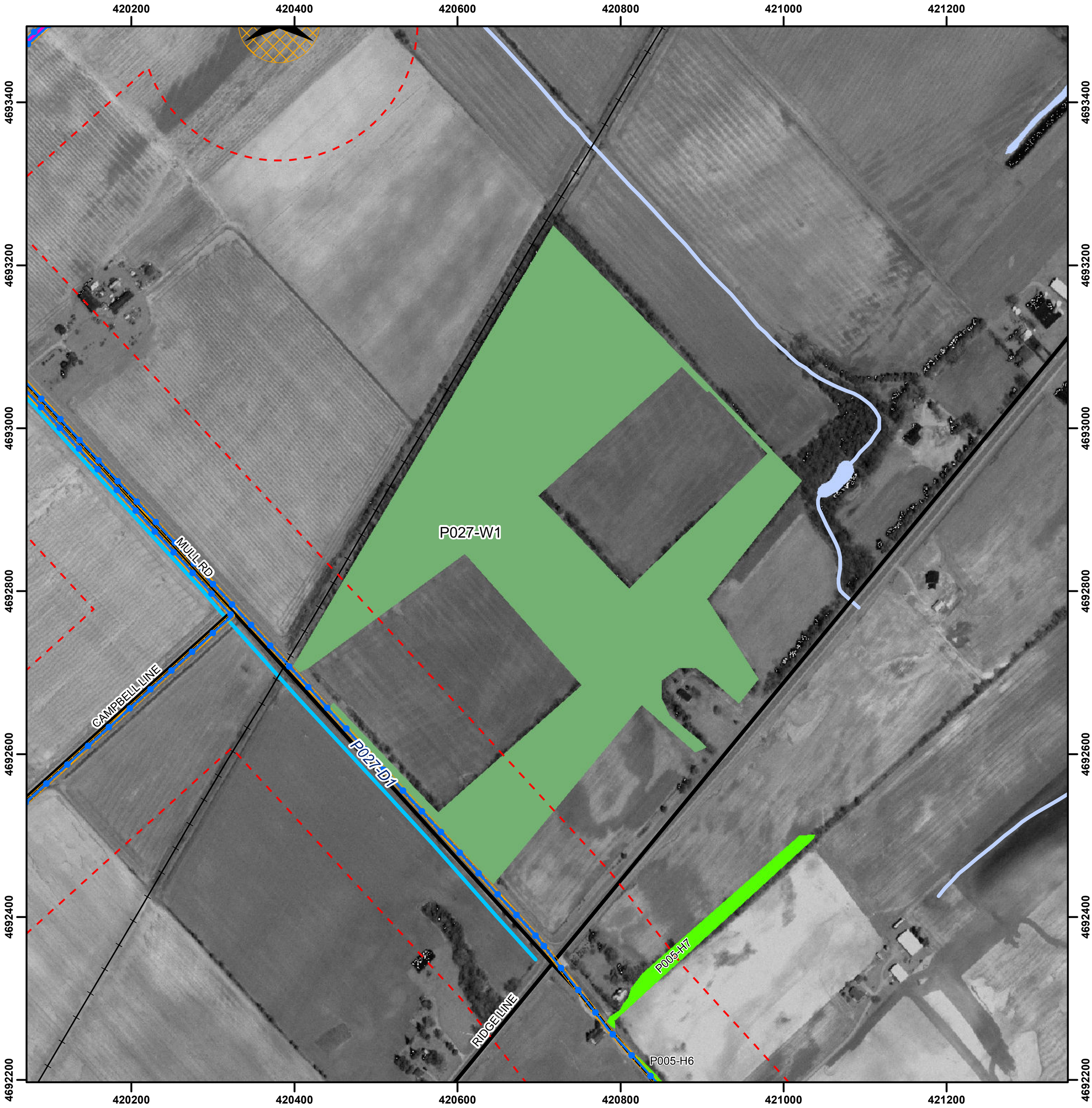
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P027-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

N

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

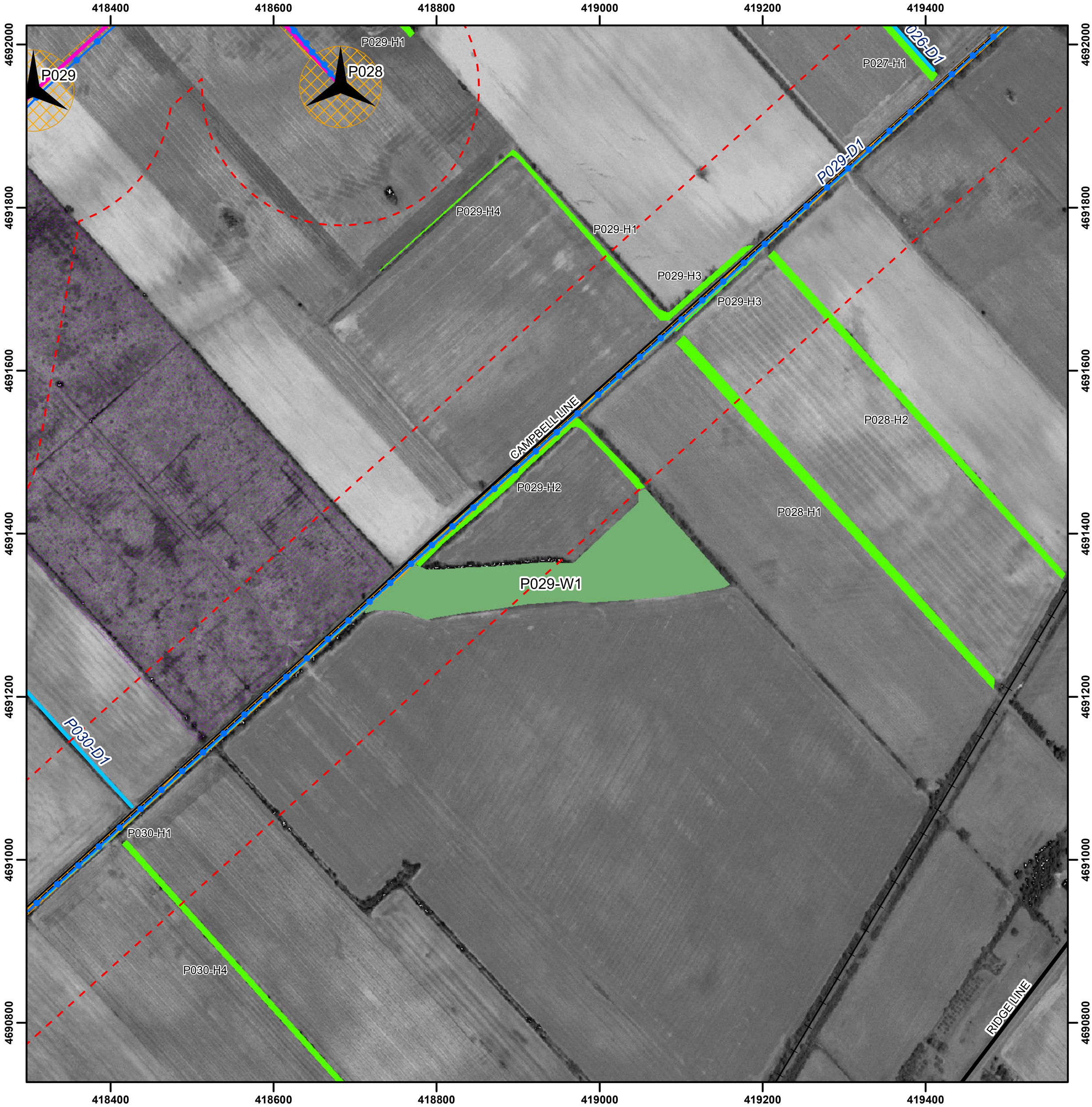
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P029-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

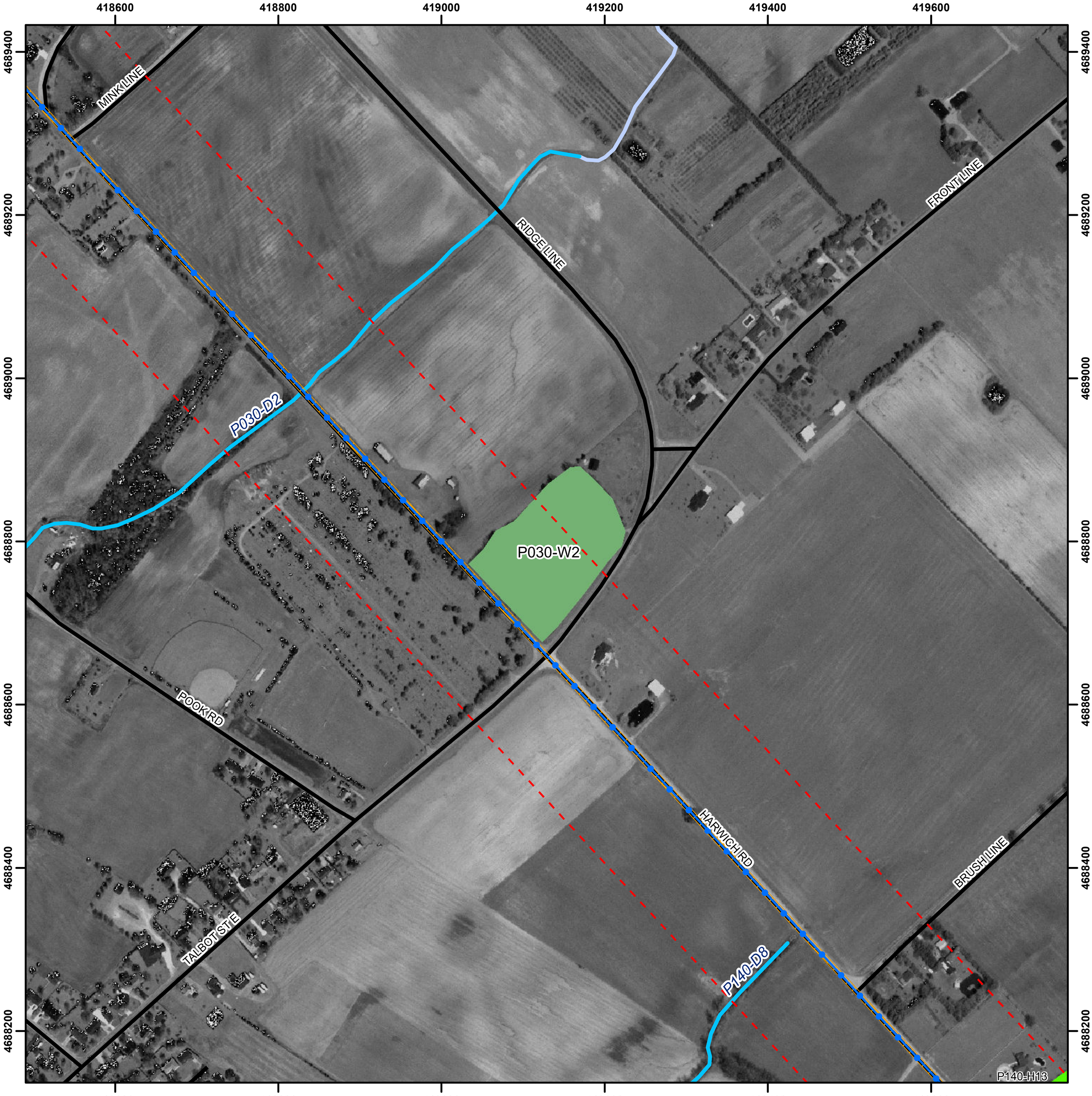
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P030-W2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

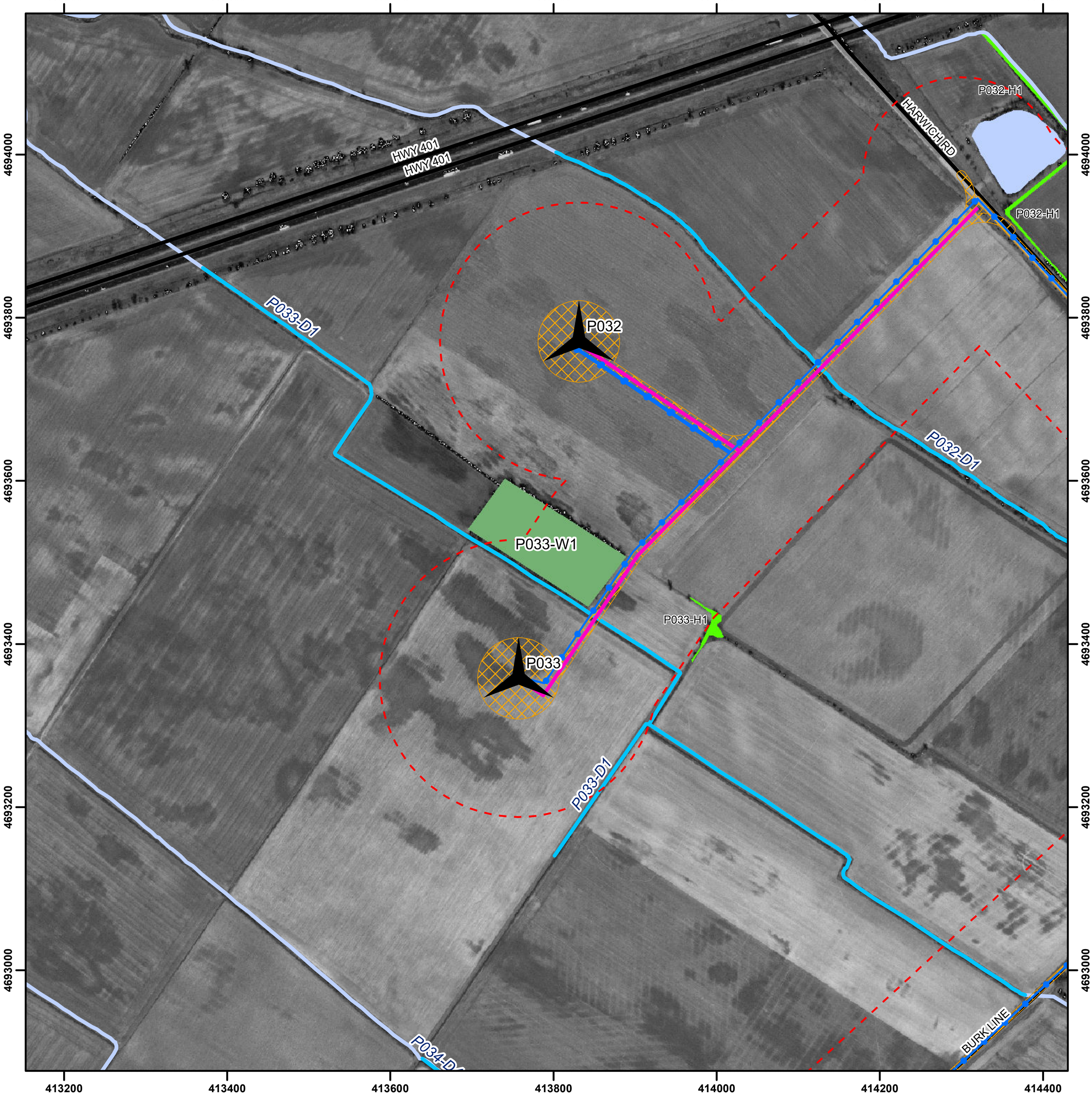
- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor



South Kent Wind Project

P033-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

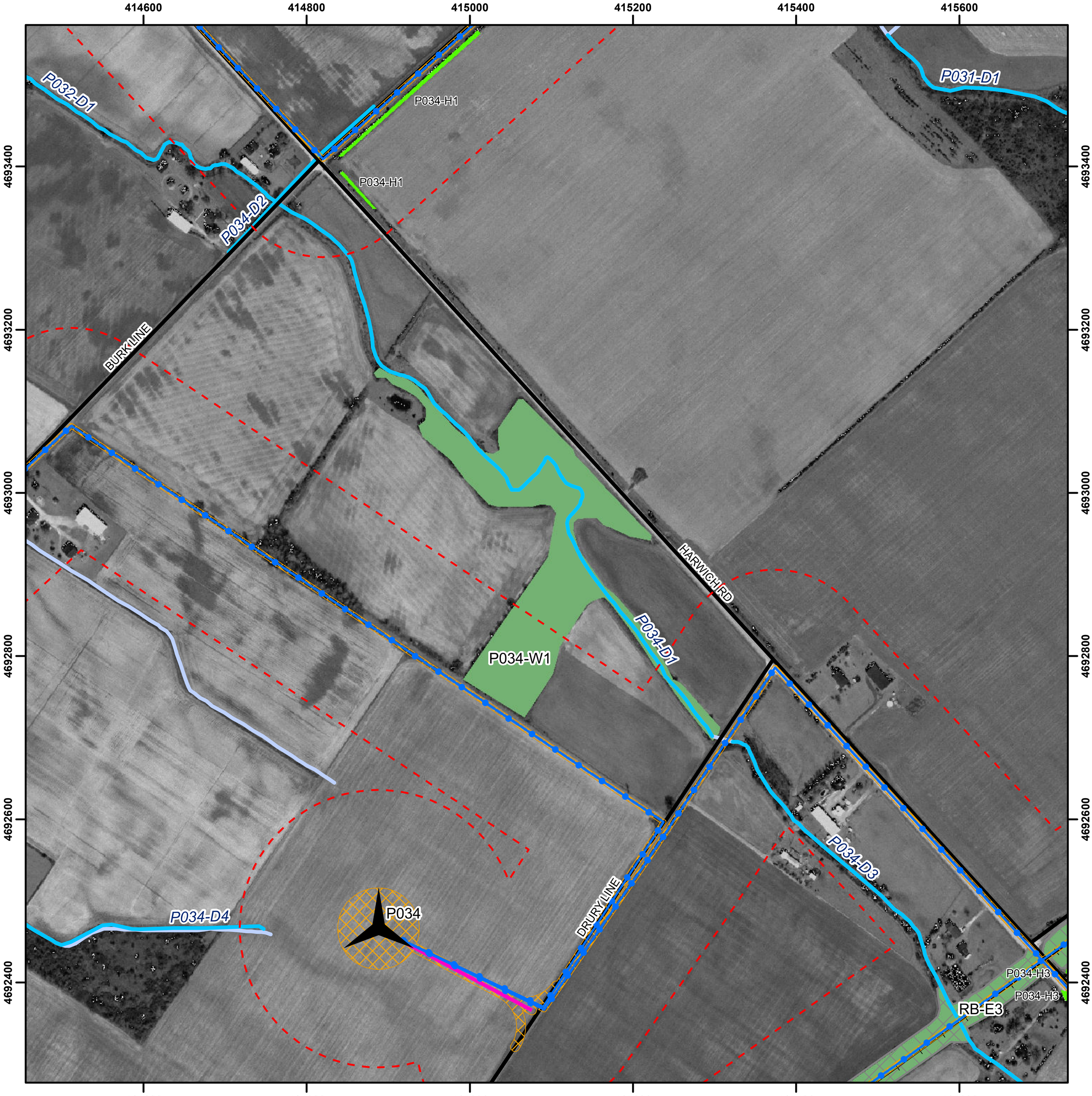
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P034-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

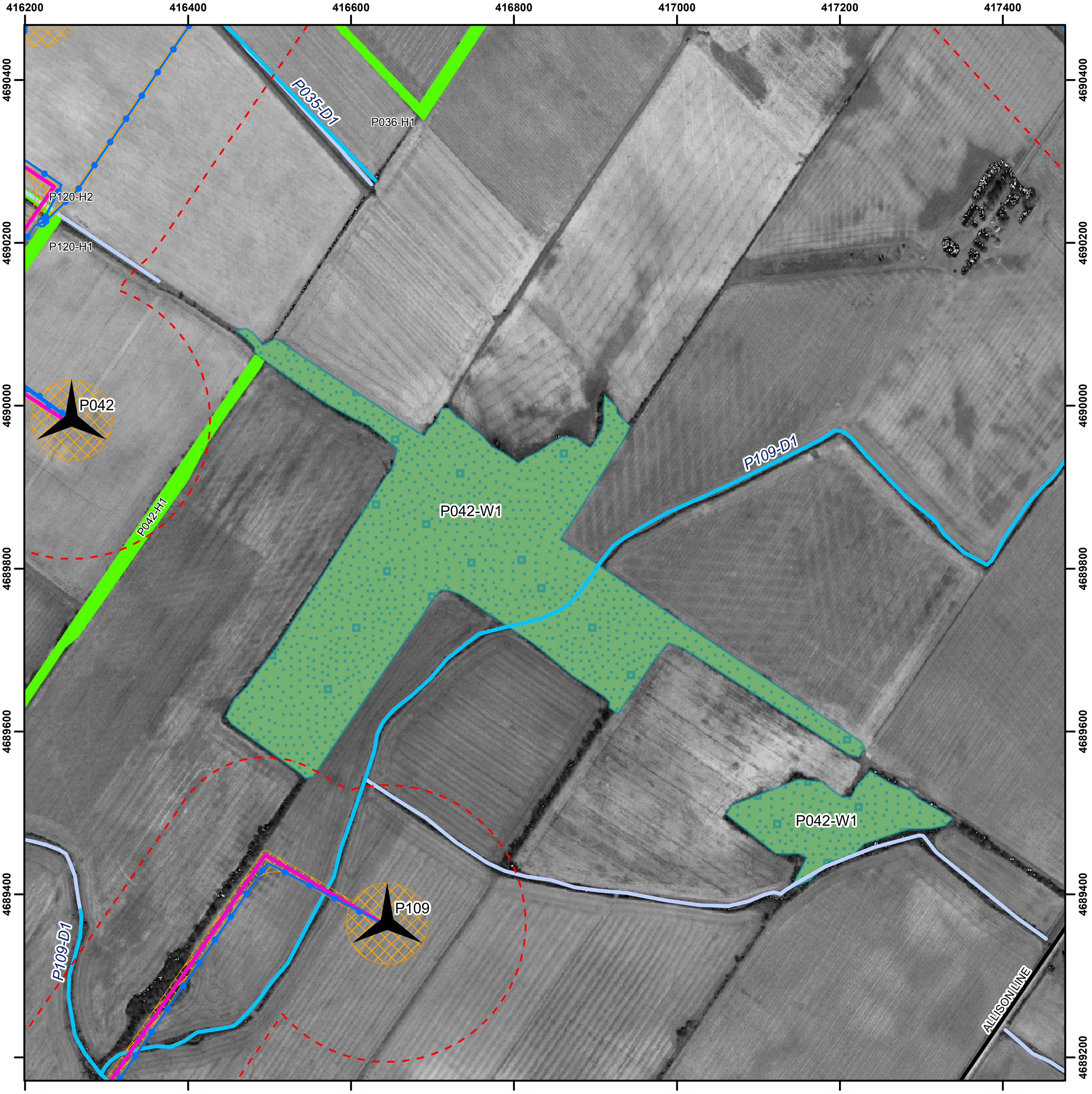
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P042-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

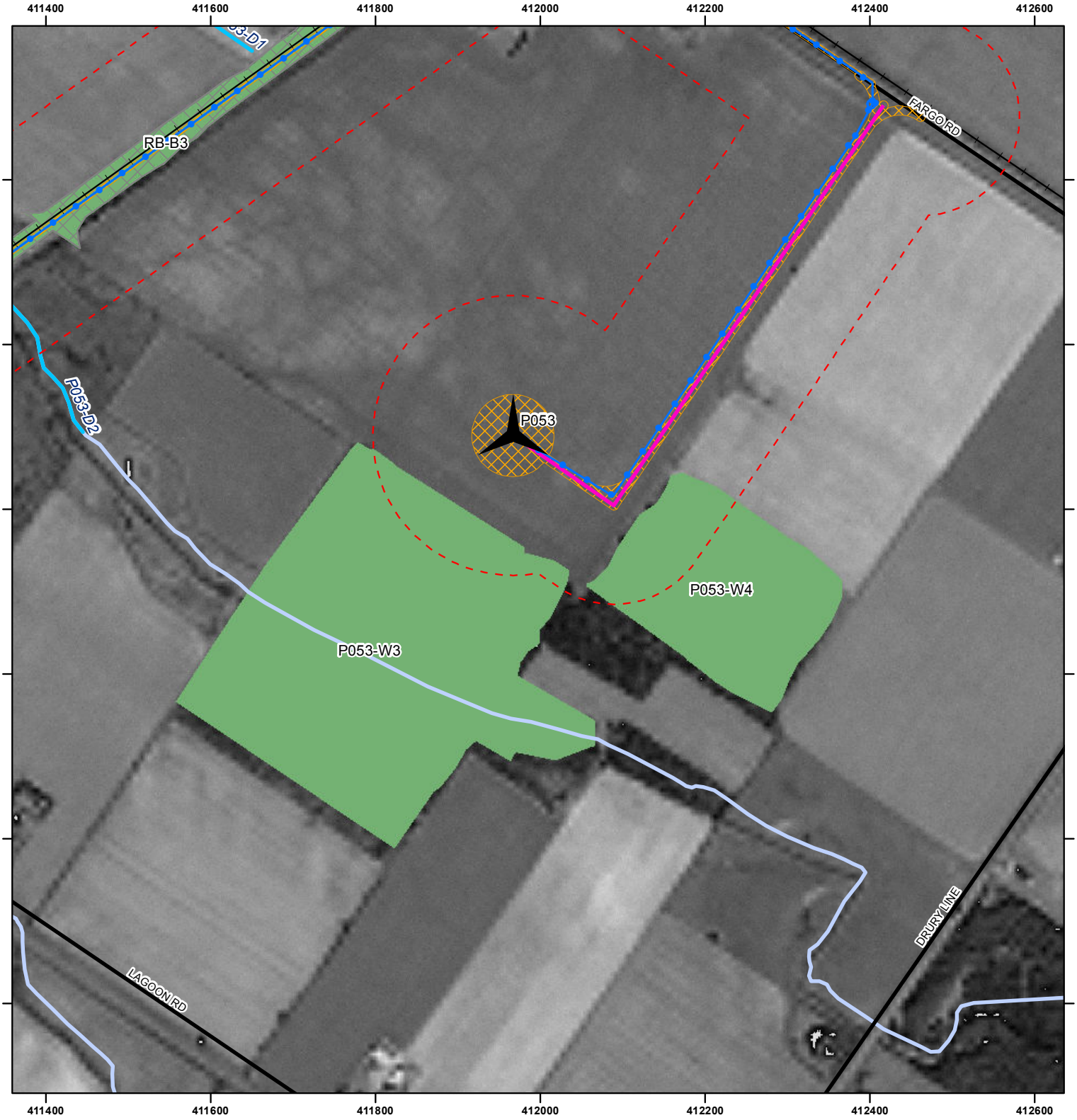
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P053-W3, P053-W4

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

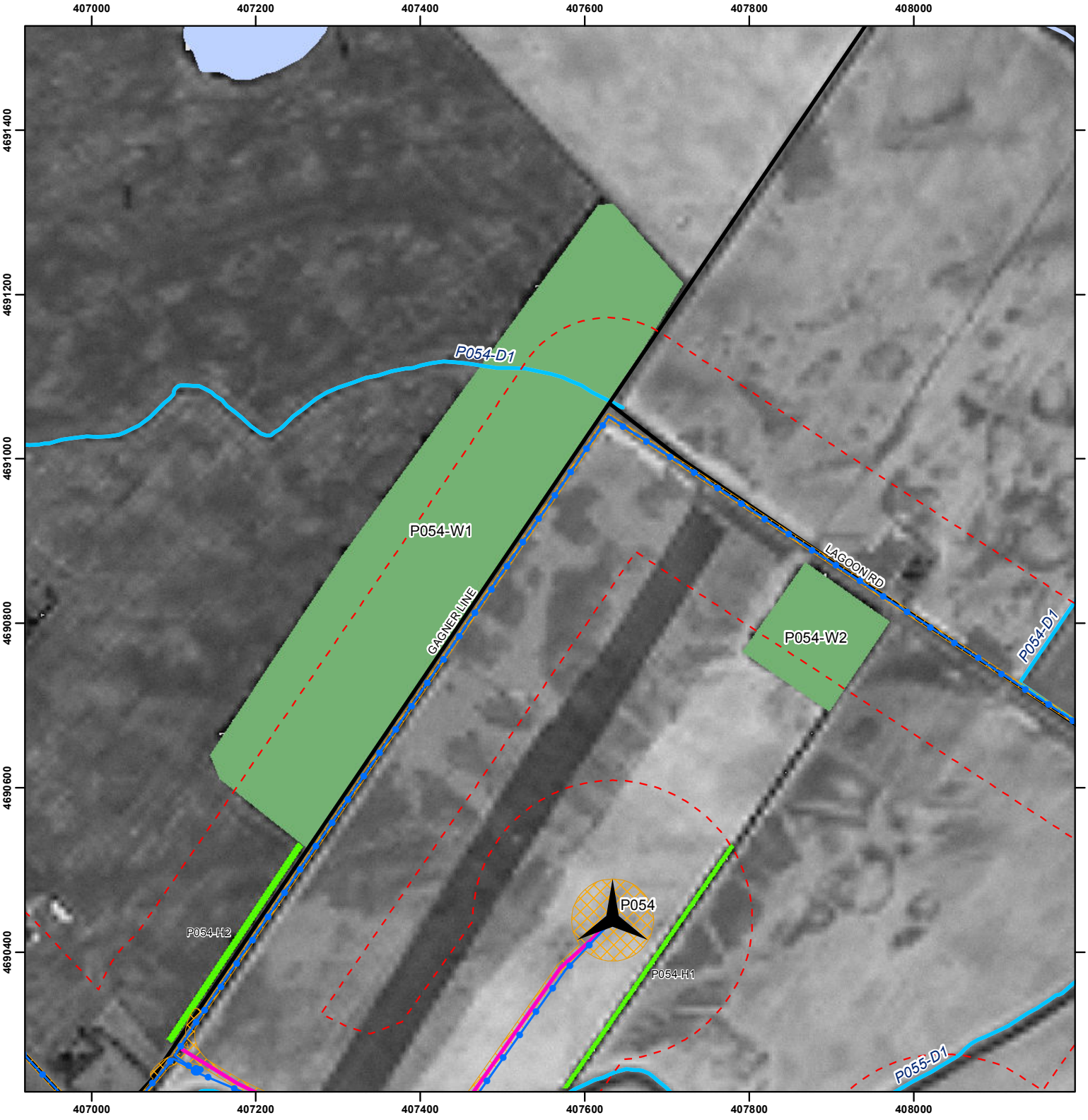
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P054-W1, W2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

N

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P055-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

N

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

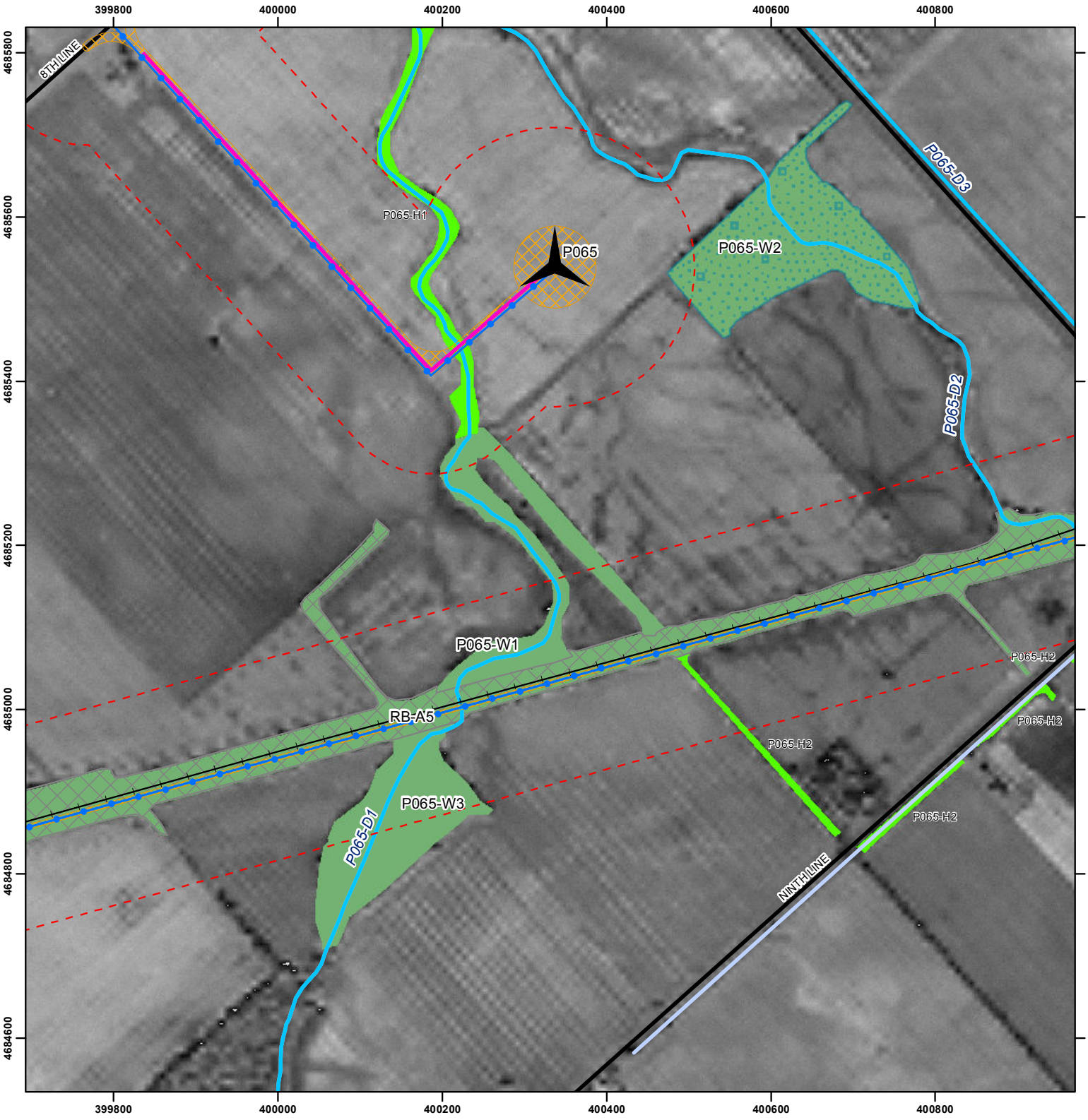
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P065-W1, P065-W2, P065-W3

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

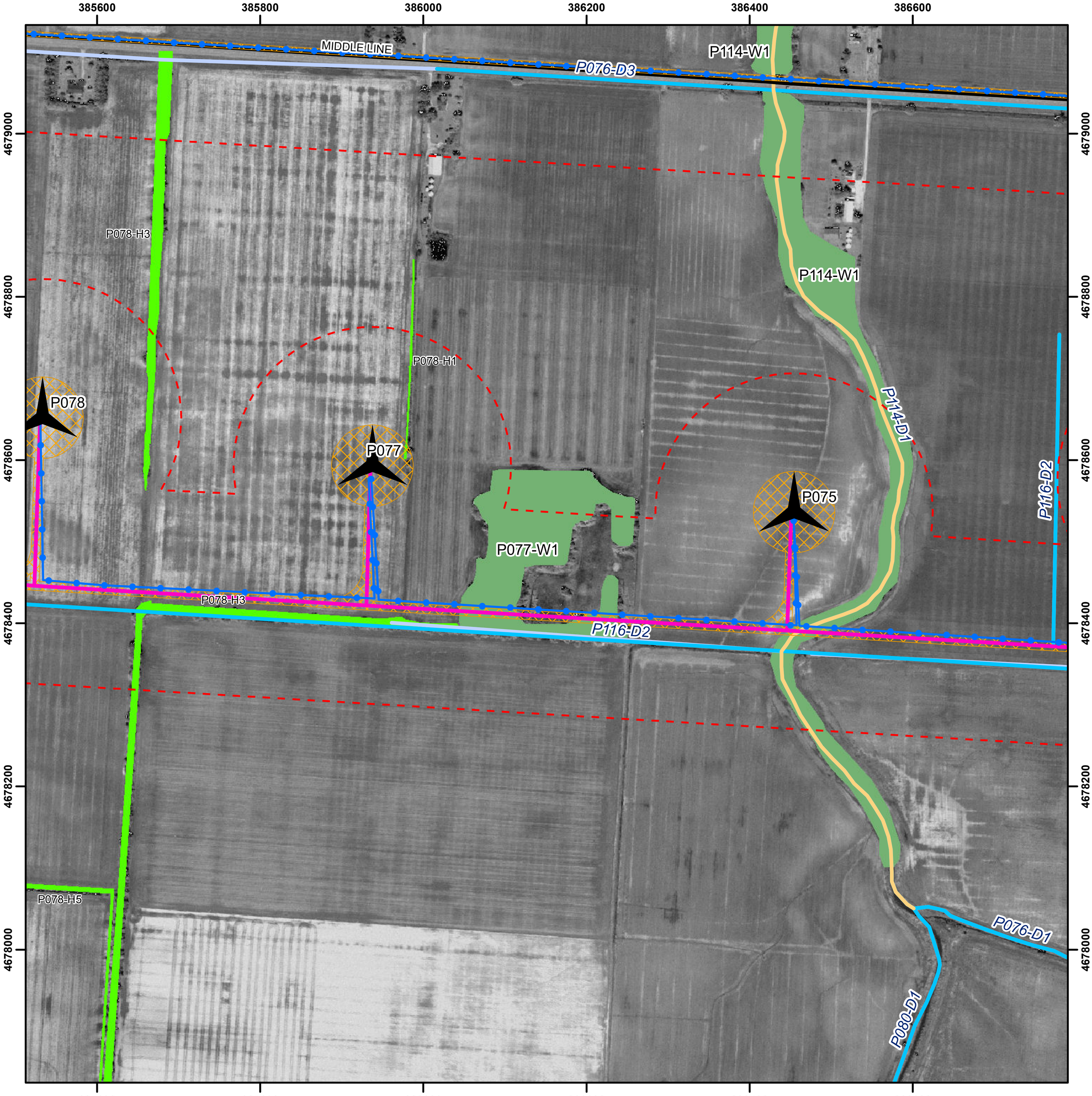
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P077-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

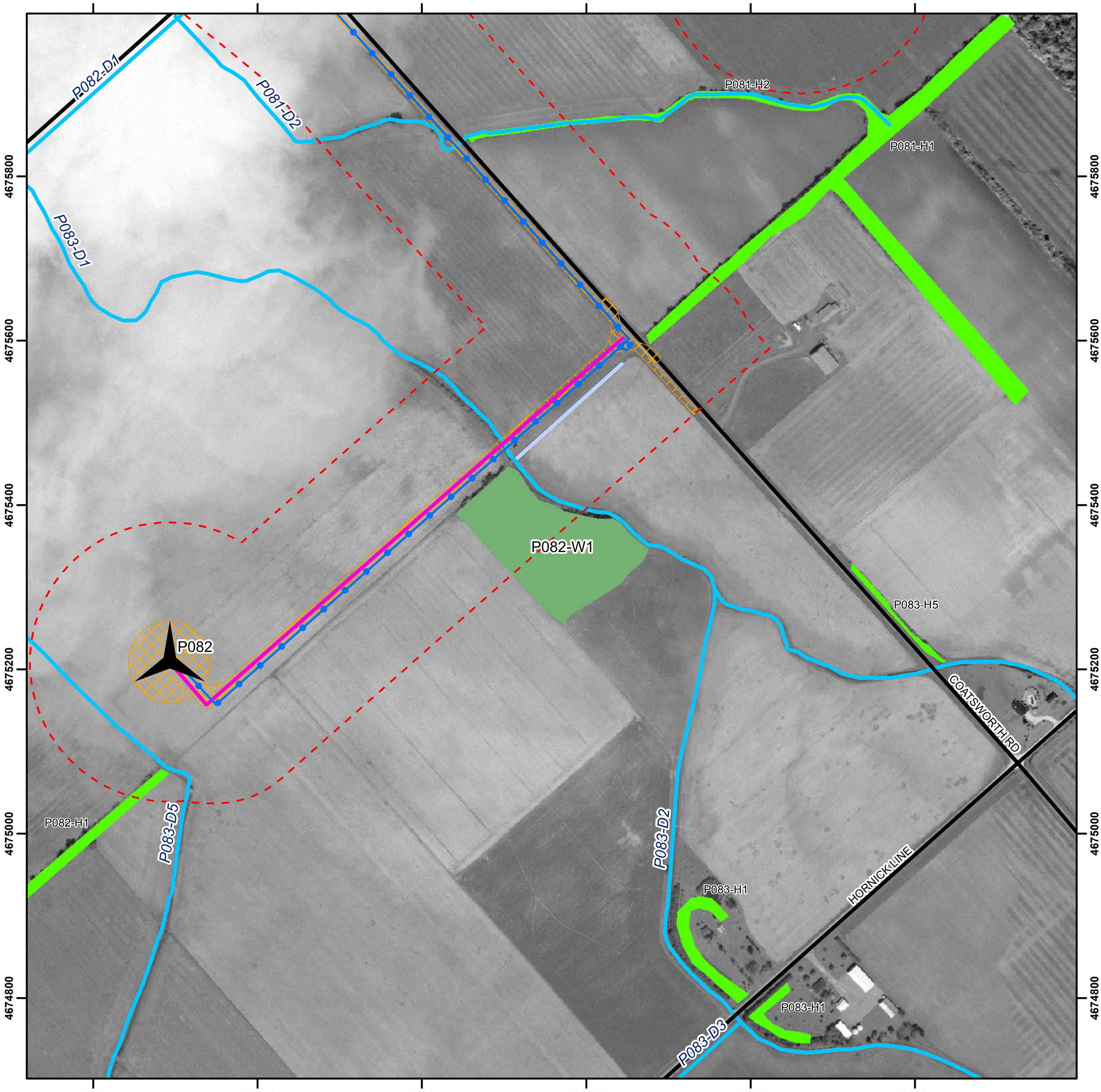
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P082-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

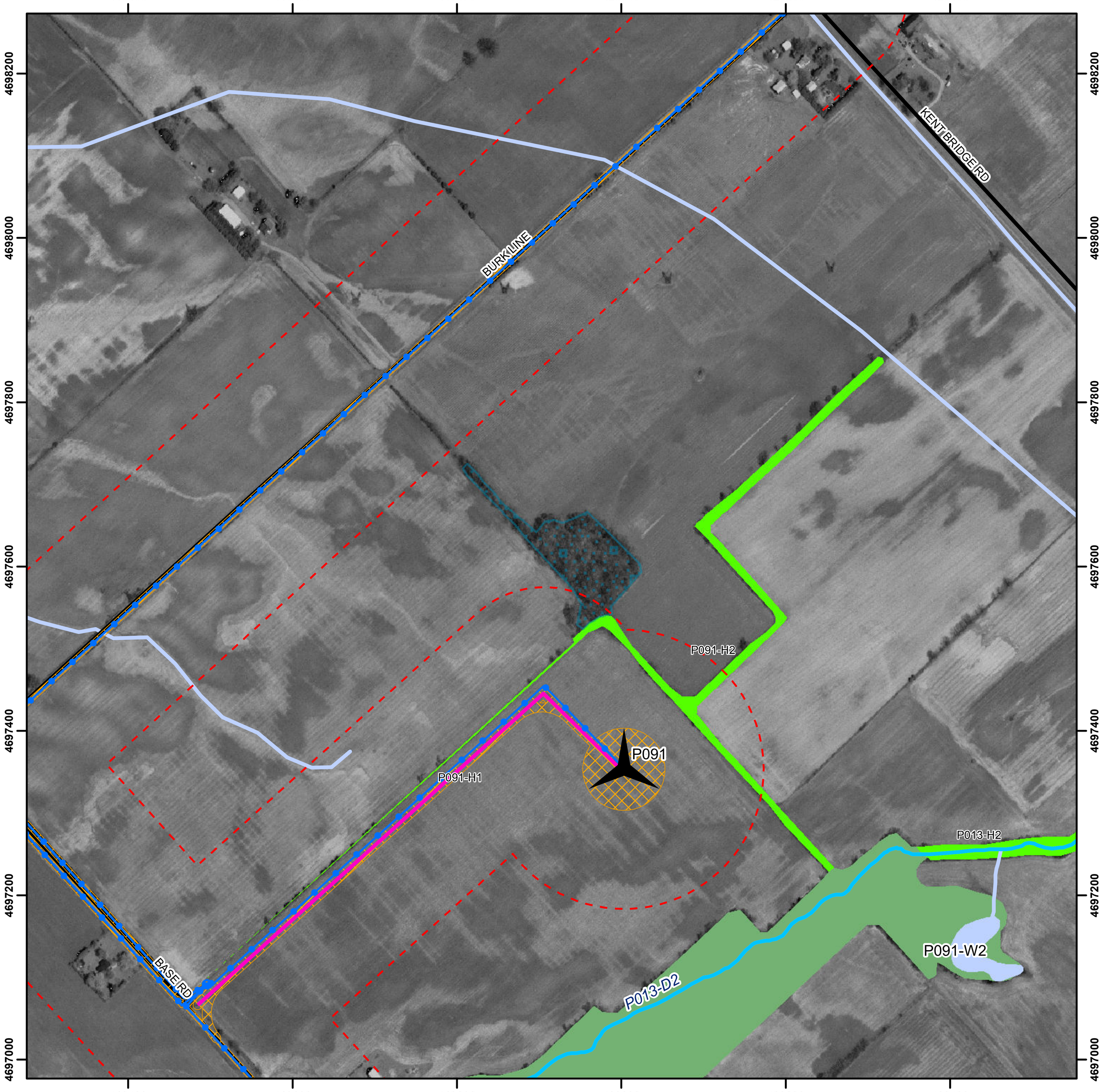
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P091-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

N

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P091-W2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

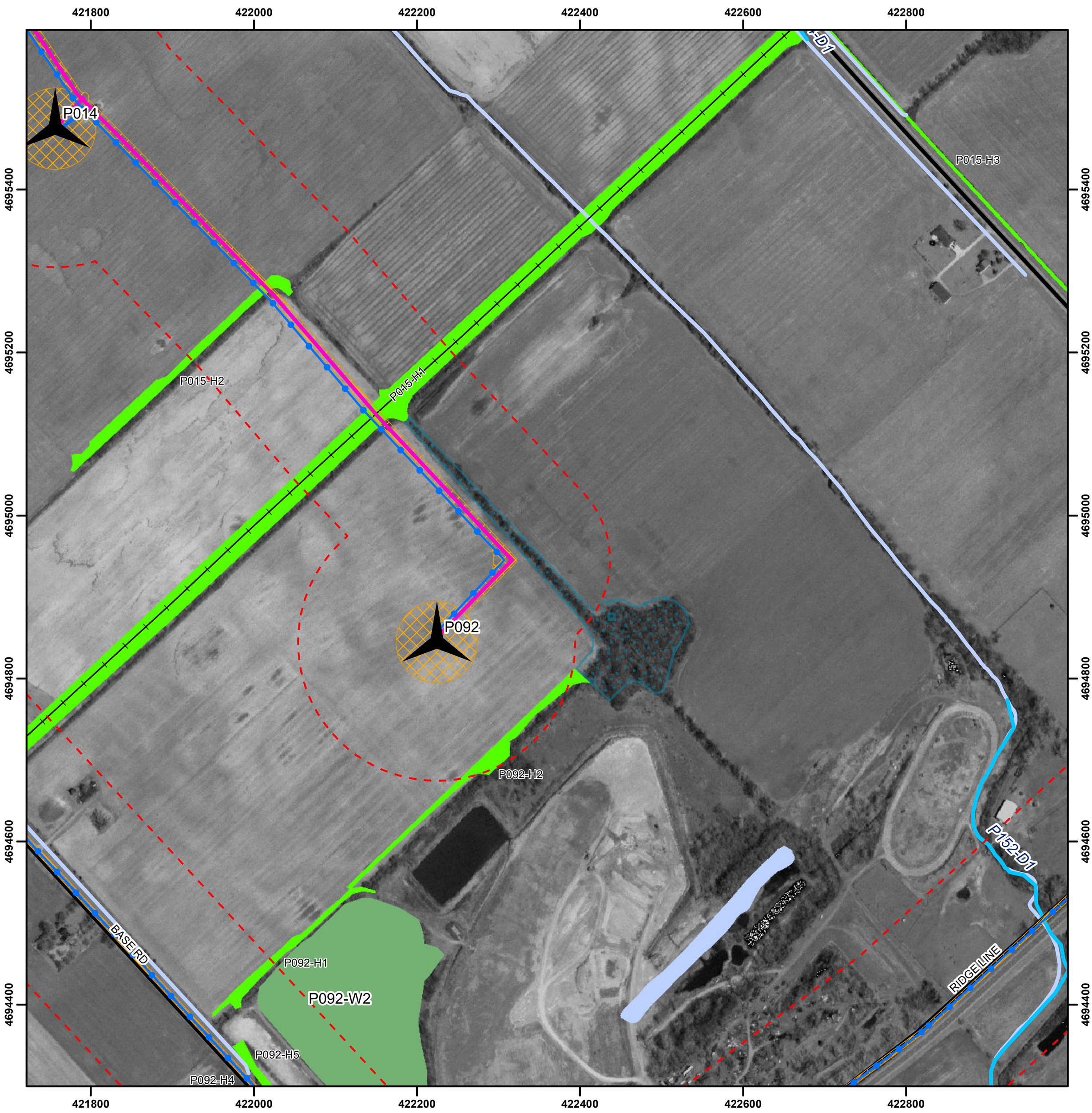
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P092-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

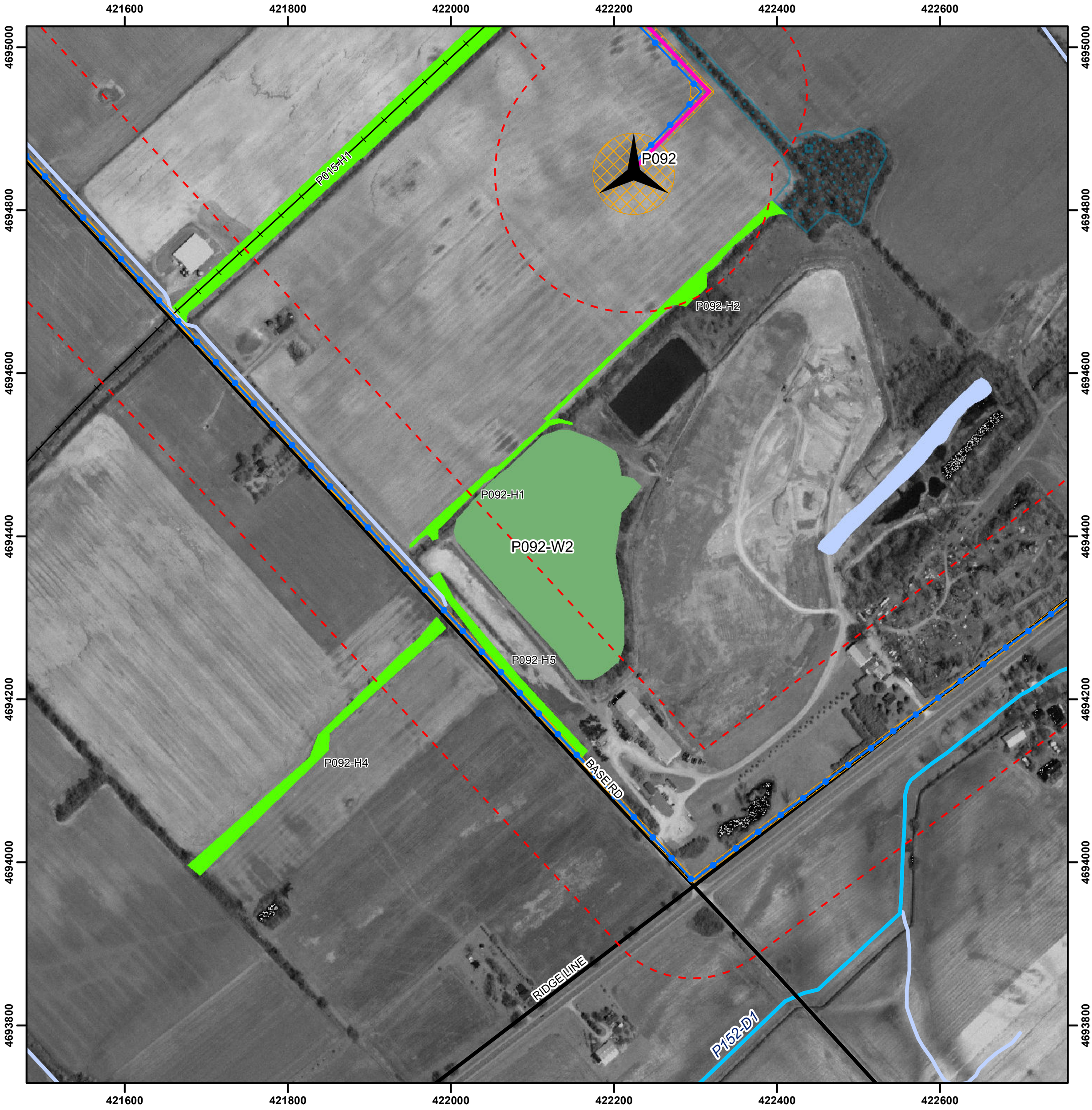
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P092-W2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

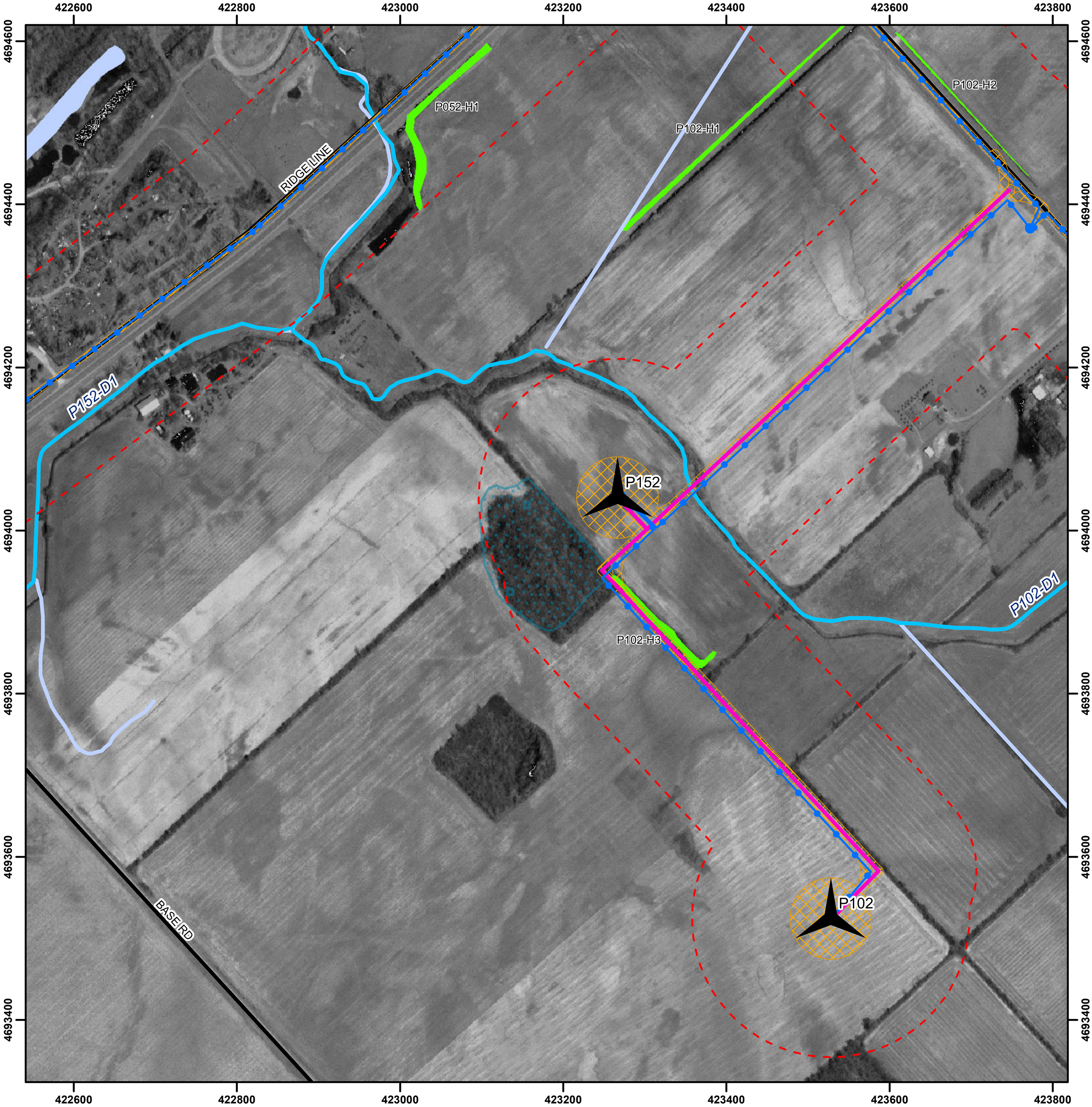
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P102-W2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

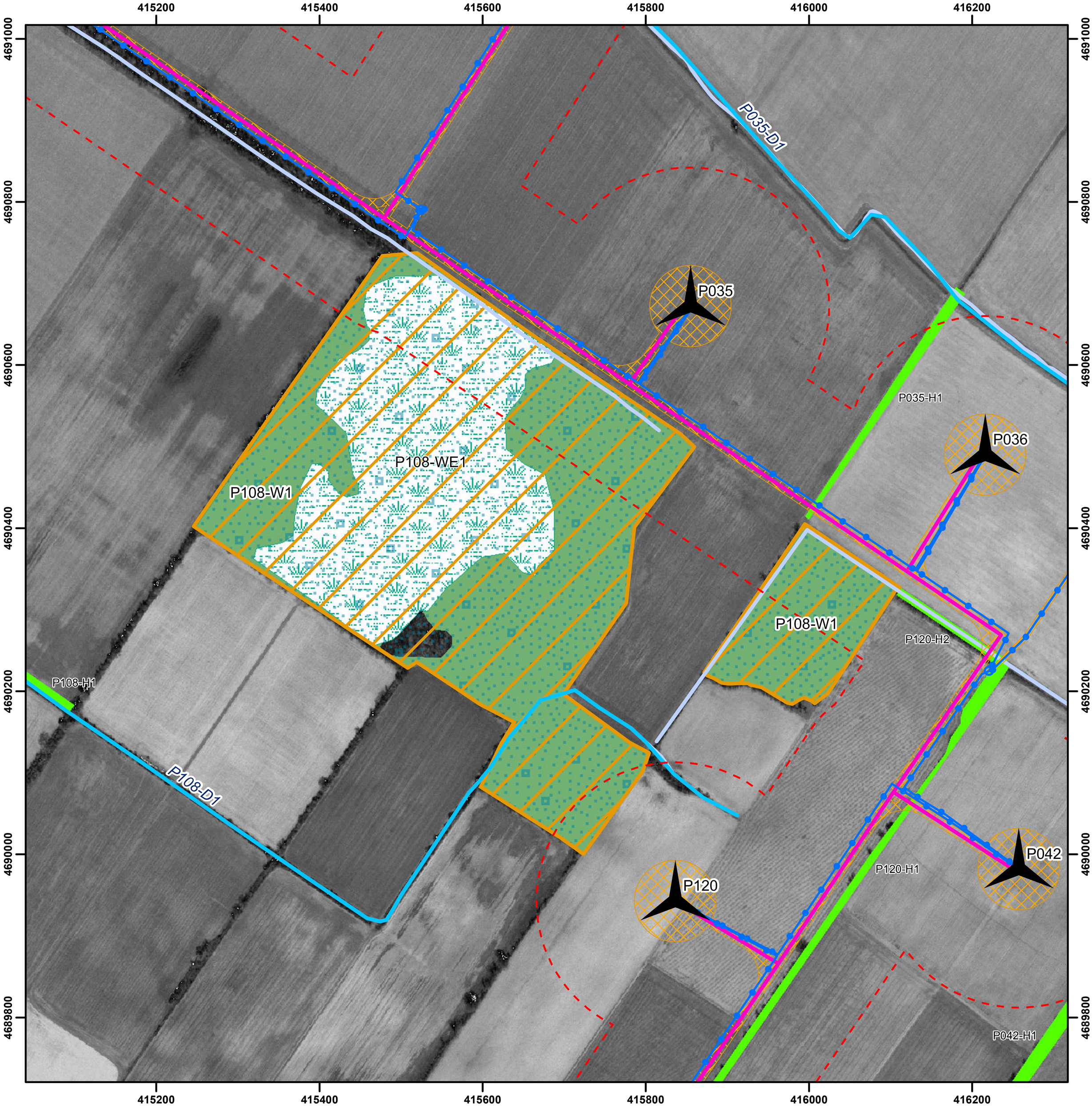
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P108-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

415000 415200 415400 415600 415800 416000

4691000 4690800 4690600 4690400 4690200 4690000

P035-D1

P035

P035-H1

P108-W1

P108-WE1

P108-H1

P120-H2

P108-W1

P108-D1

P120

P120-H1

South Kent Wind Project

P108-WE1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

N

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

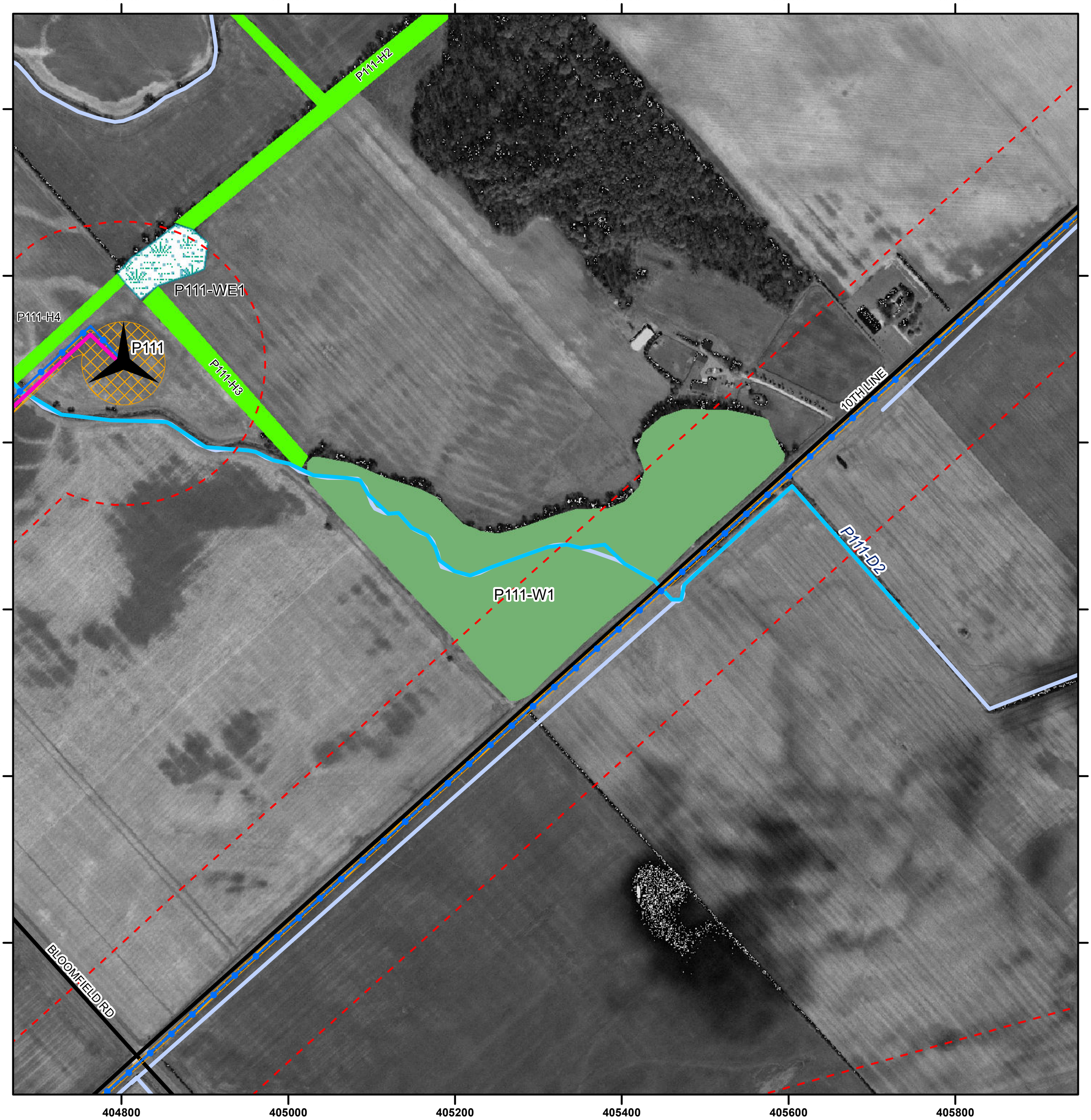
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P111-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P111-WE1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P114-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P117-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

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4691200 4691000 4690800 4690600 4690400 4690200 4690000

P105-D1

P118-W1

P118

P118-H1

P106-D2

P105-H3

P105-H1

P105-H1

South Kent Wind Project

P118-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

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4688200 4688000 4687800 4687600 4687400 4687200

P139-H1
P139-H2
MULL RD
P139-W1
P139-D1
P139-H2
P139-D2
SINCLAIR LINE
P139-H5
P139-H4
P139-H6

South Kent Wind Project

P139-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
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- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

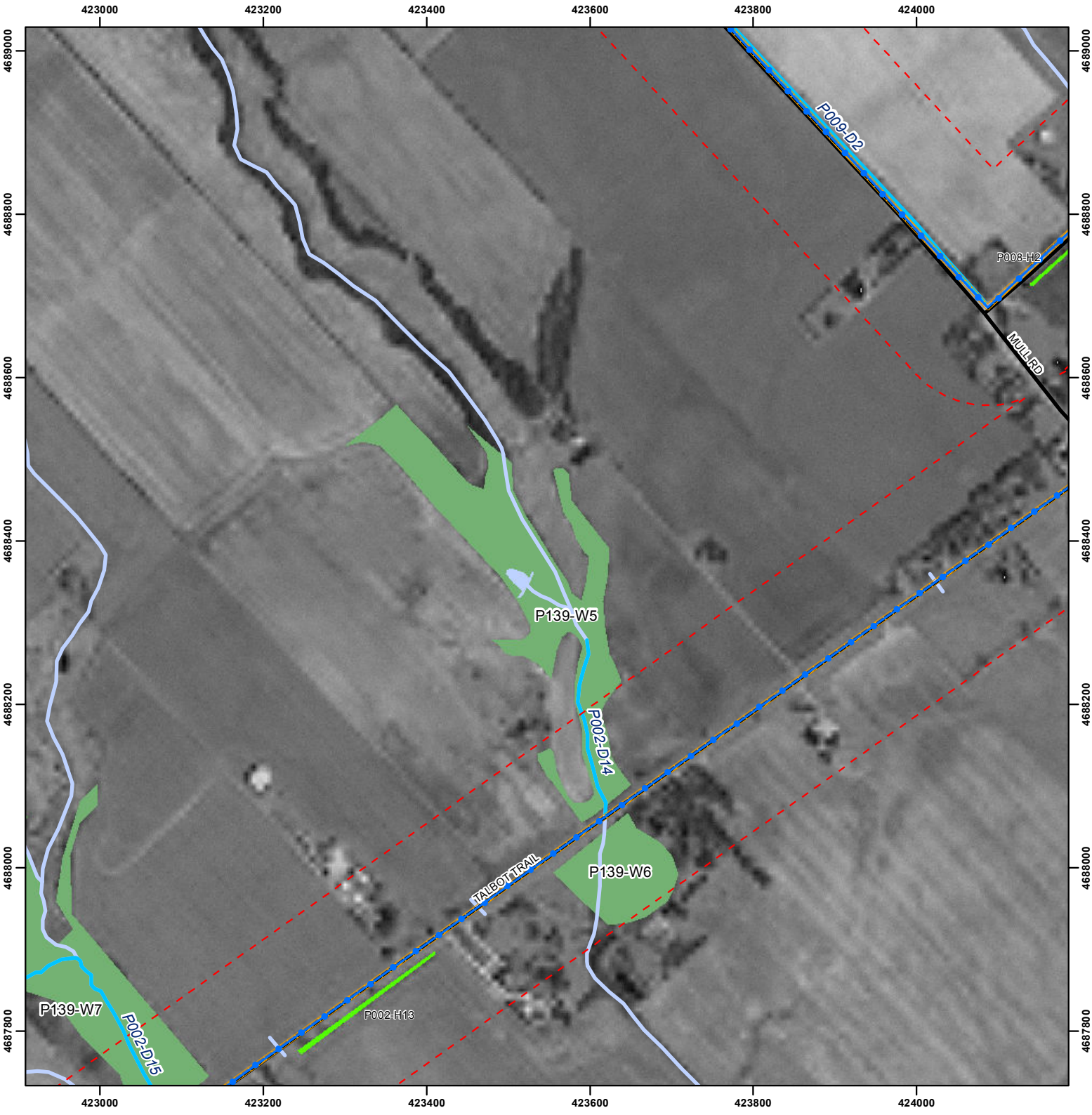
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P139-W5, P139-W6

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

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4688400 4688200 4688000 4687800 4687600 4687400

P139-W5

P139-W7

P002-D15

P002-H13

P002-H15

P002-H14

TALBOT TRAIL

P139-D3

P002-H16

South Kent Wind Project

P139-W7

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

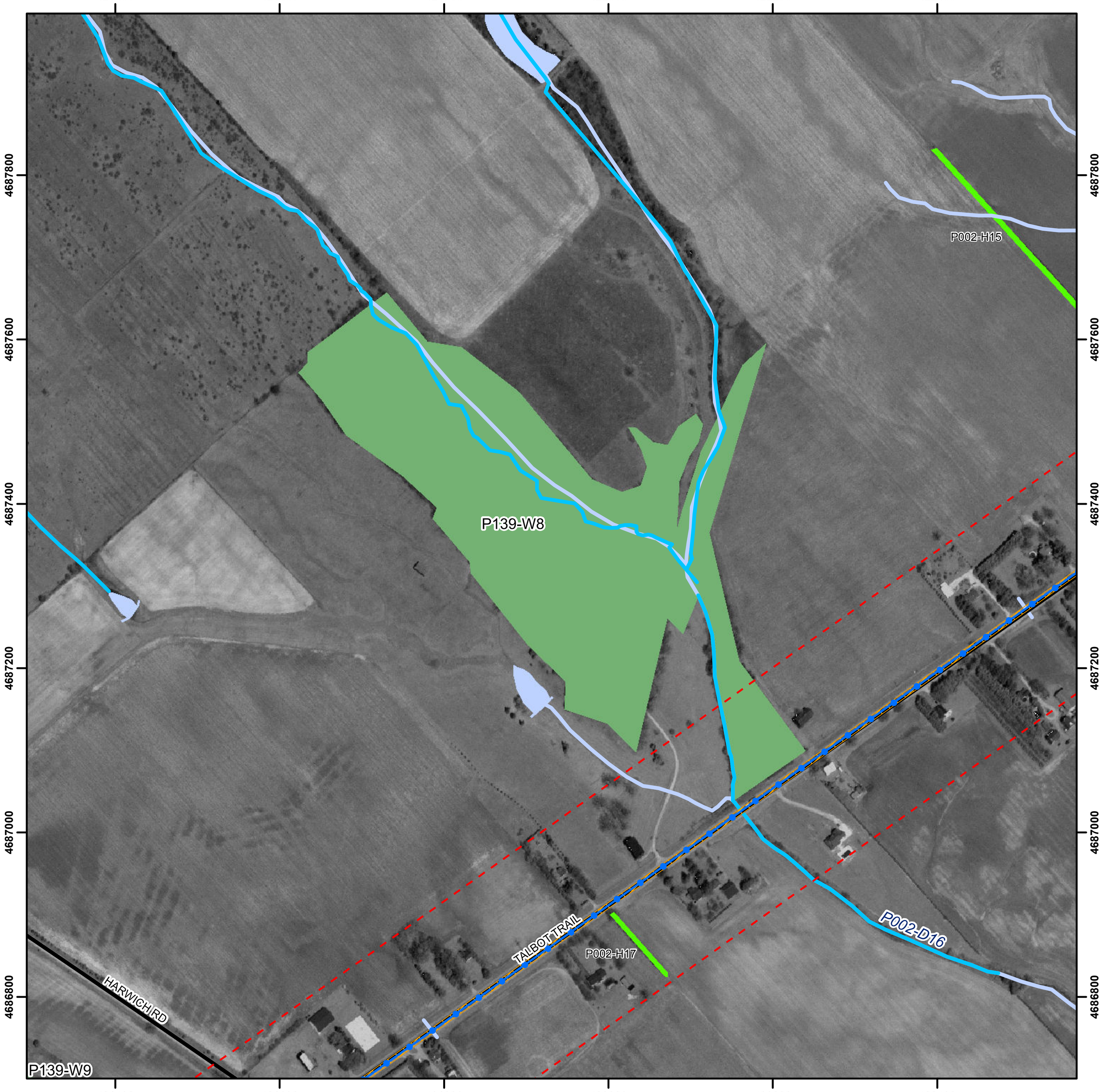
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P139-W8

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

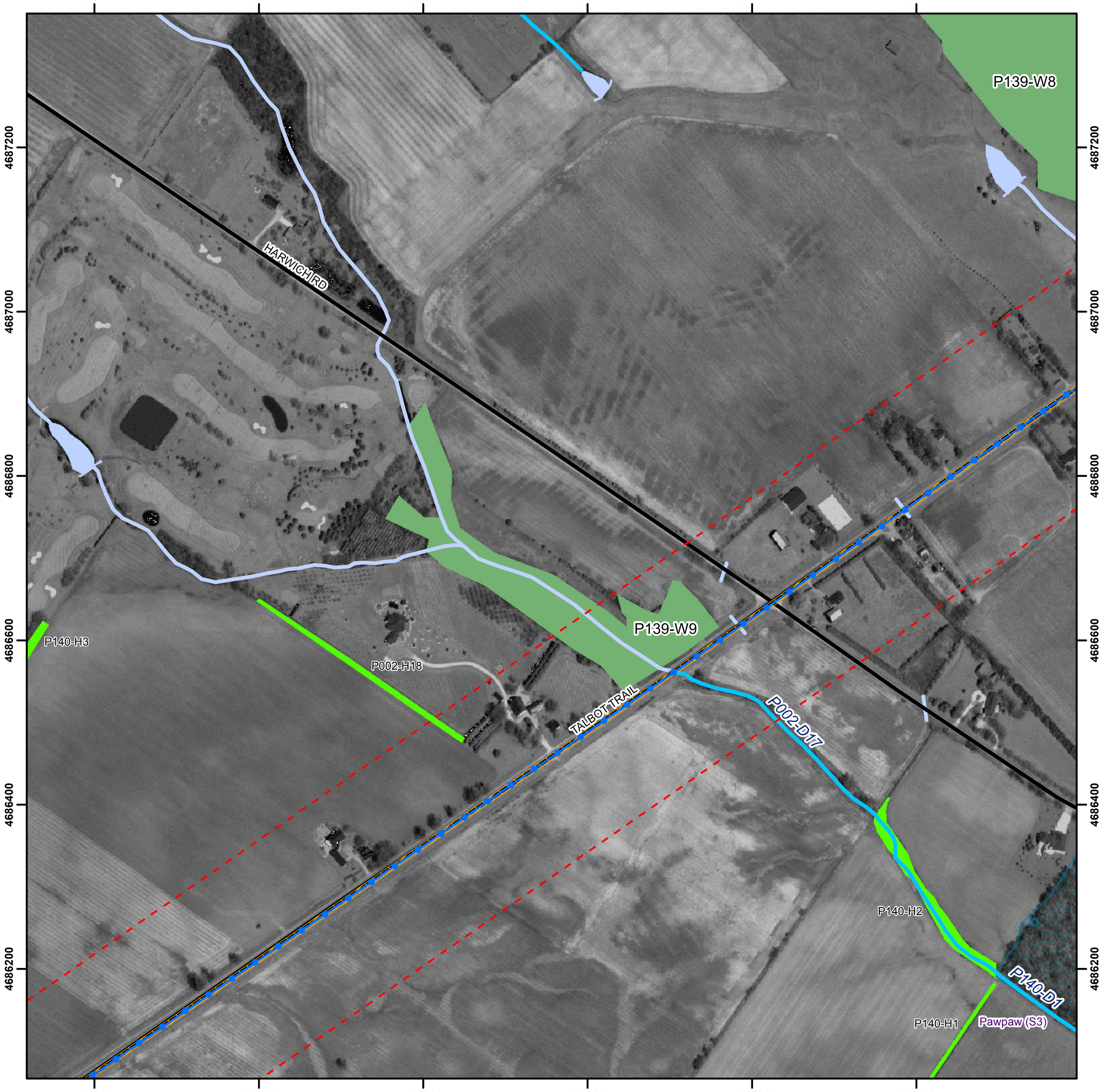
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P139-W9

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

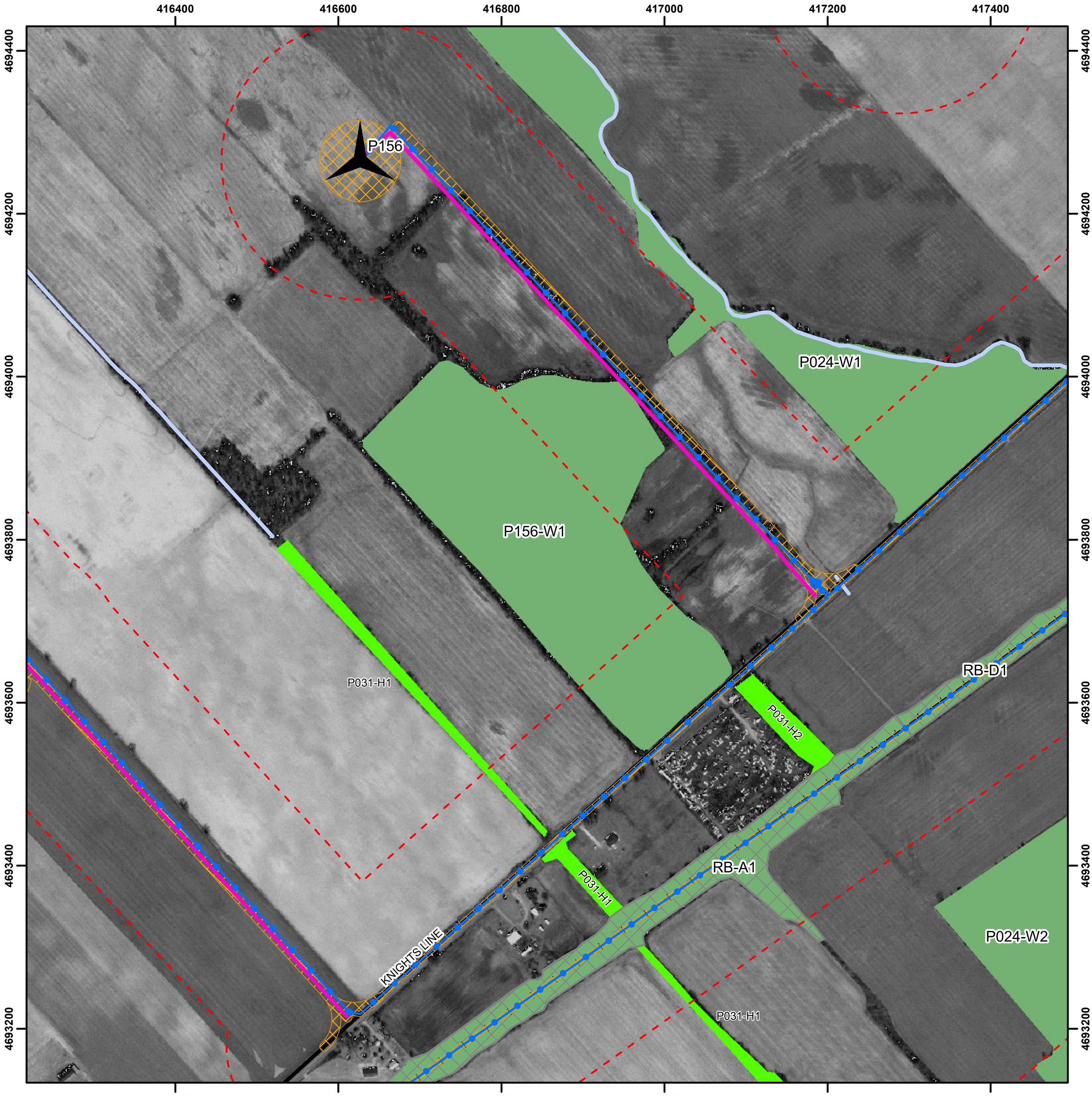
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P156-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

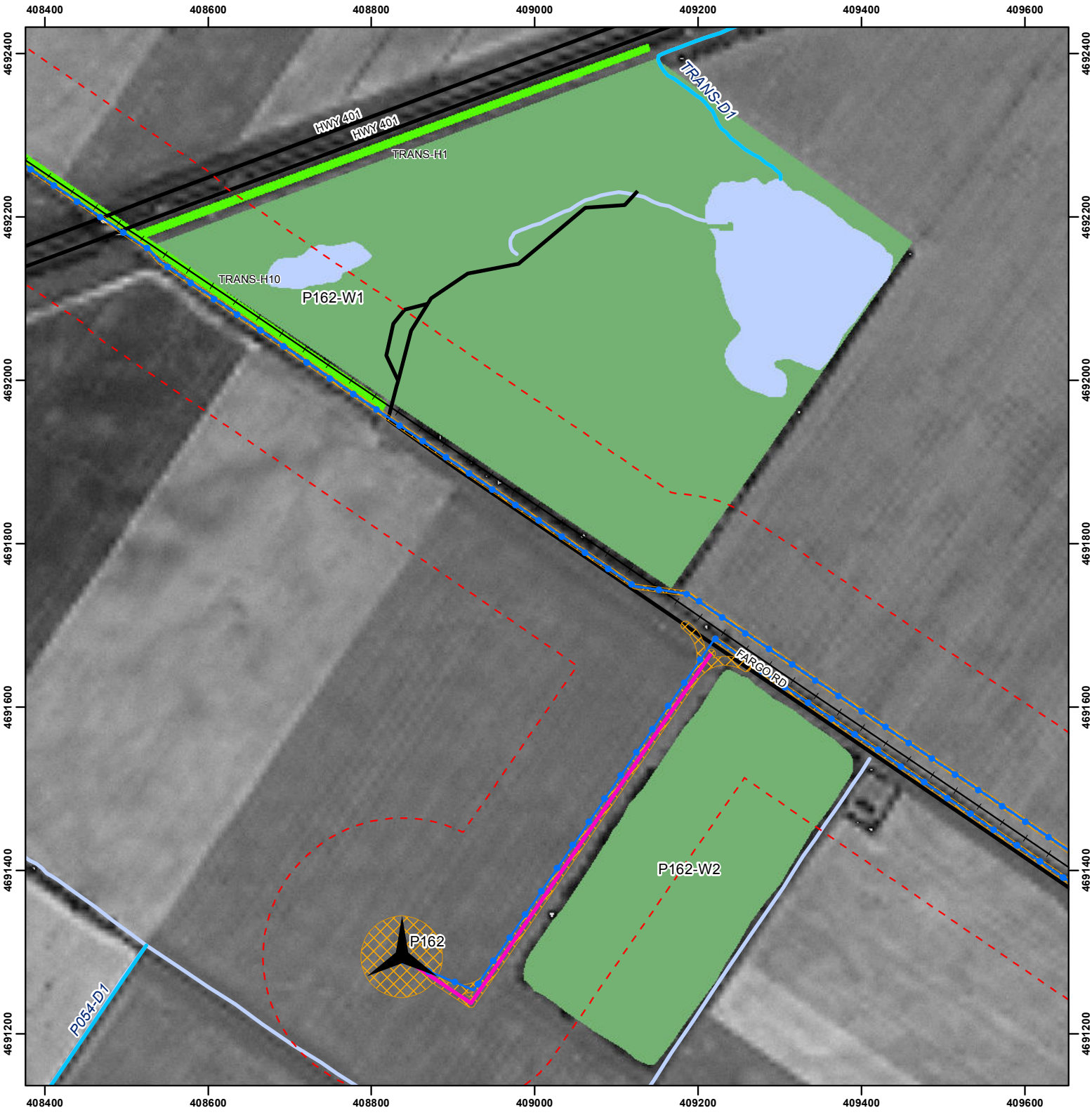
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P162-W1, P162-W2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

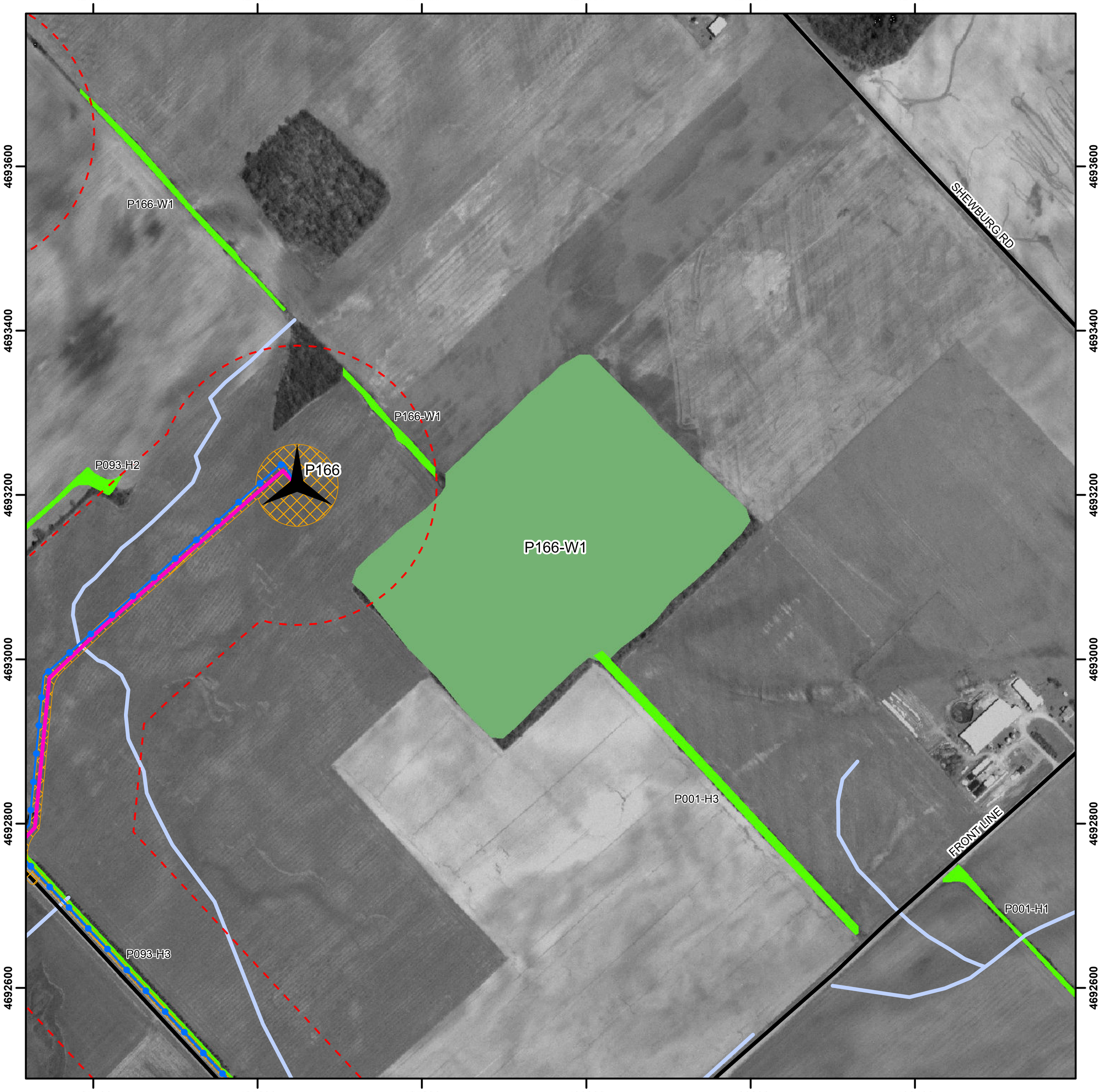
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P166-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

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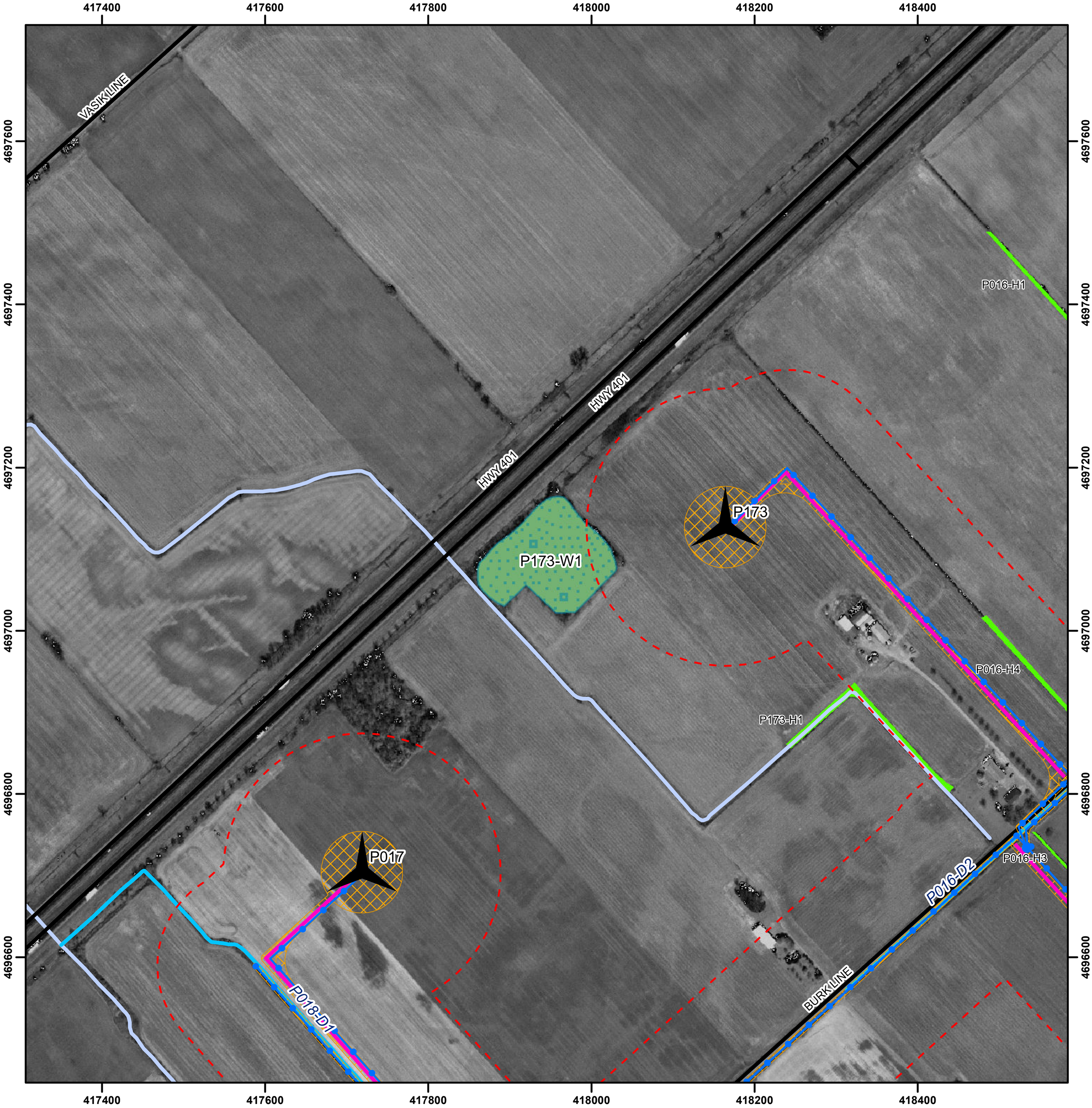


South Kent Wind Project

P173-W1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

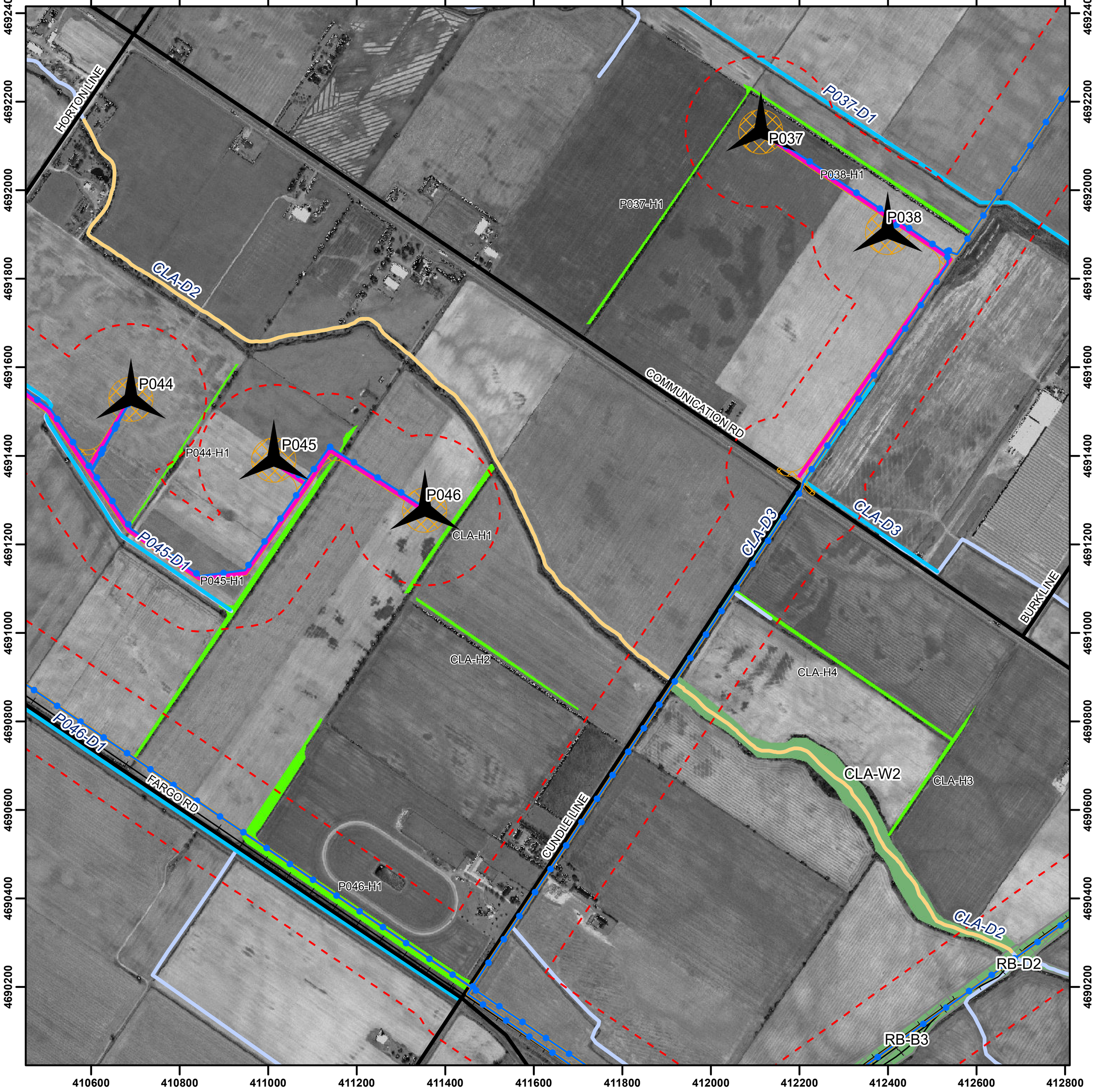
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

CLA-D2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 2550 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P002-D2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

N

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Road
- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

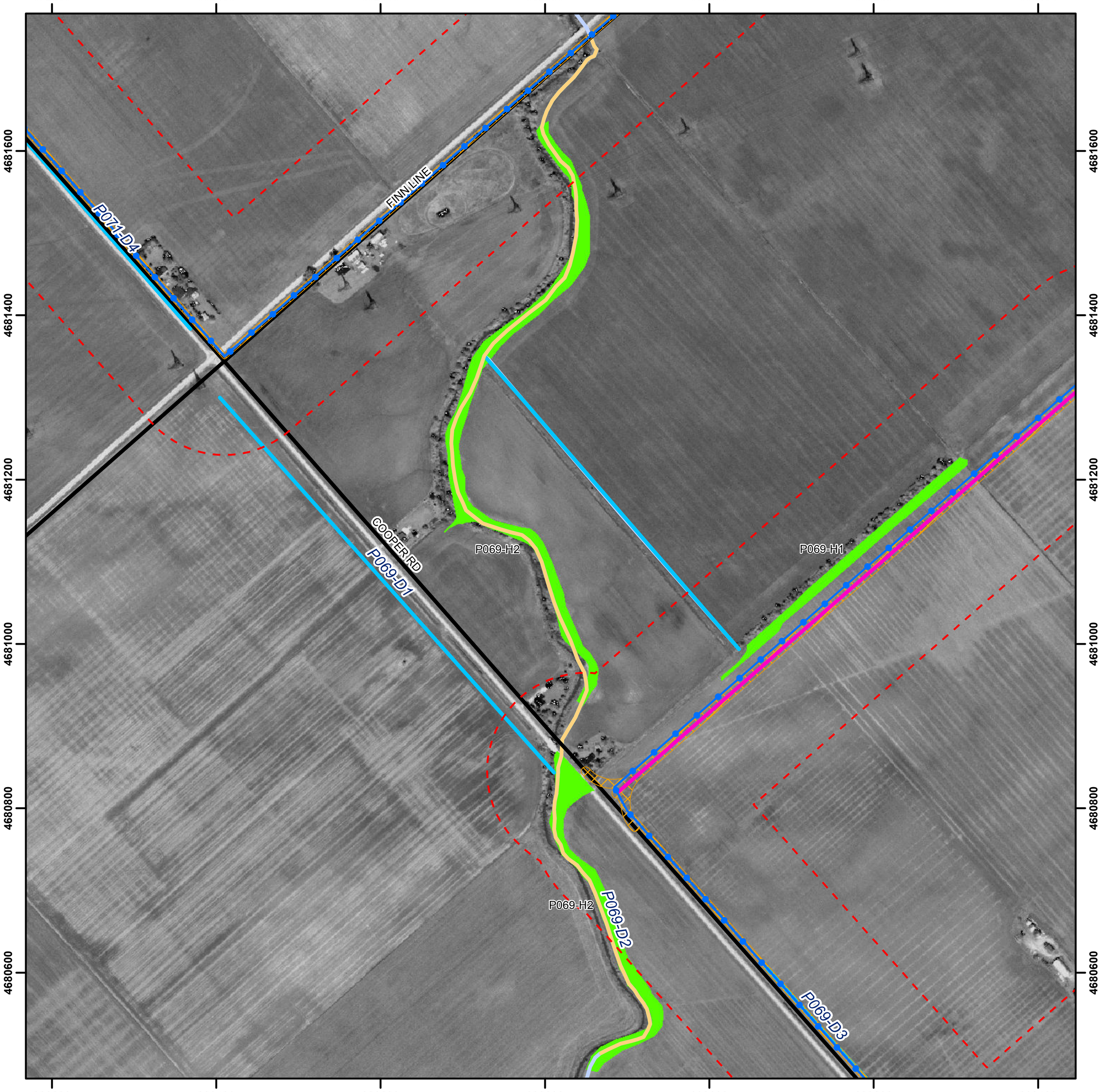
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P069-D2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
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- Watercourse (Permanent)
- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

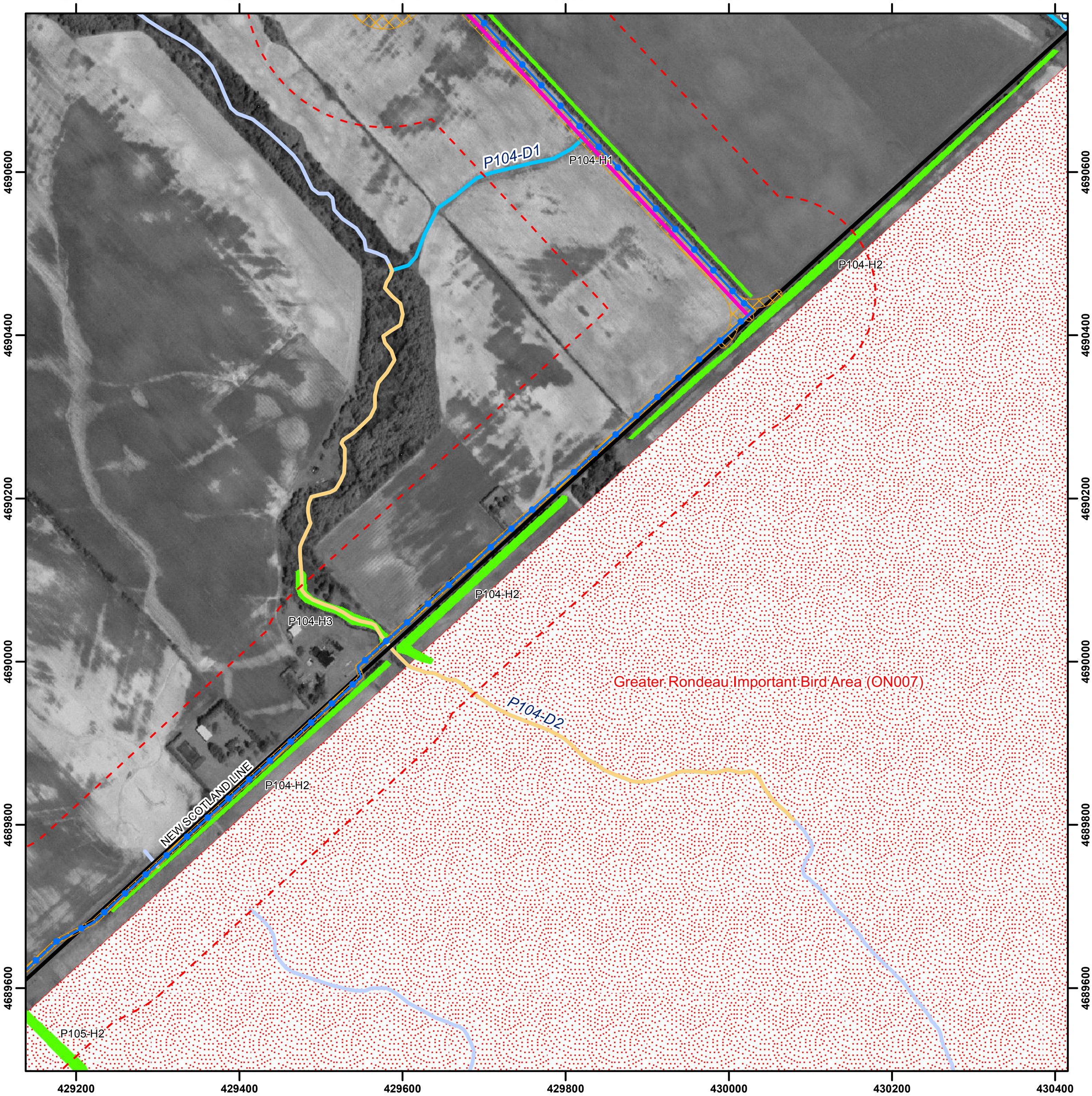
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P104-D2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
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- Watercourse (NRSI)
- Waterbody
- Hedgerow
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P105-D1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
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- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

South Kent Wind Project

P114-D1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

N

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
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- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

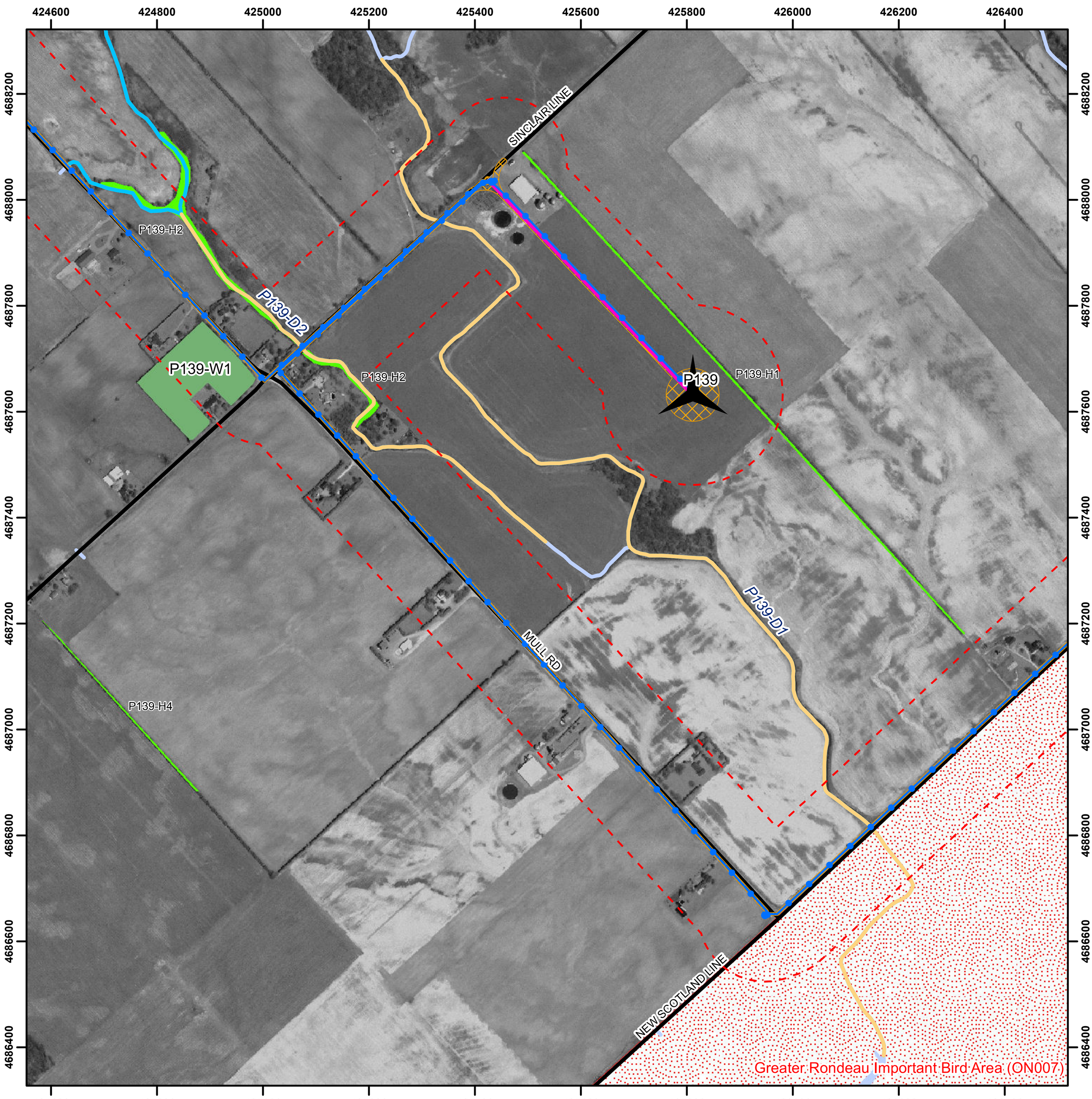
Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd



South Kent Wind Project

P139-D1

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

N

Date: 30/04/2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:6,500 (at 8.5 X 11")

0 25 50 100 150 200 m

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
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- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

- Open Country Bird Breeding Habitat
- Area Sensitive Bird Breeding Habitat
- Habitat for Species Ranked S1-S3

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_MicrositesMaps_SIGNIFICANT_FEATURES_5K_2012_04_24_SWM.mxd

Figure 1

South Kent Wind Project

Significant Wildlife Habitat - Railbed Corridor

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.1 0.2 0.4 km

April 24, 2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:15,000 (at 11x17")

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
- Cabling
- Access Road
- Railway
- Highway
- Primary Road
- Secondary Road
- Watercourse (Permanent)
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- Waterbody
- Wetland Area (NRSI)
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas
- Bat Maternity Roost

Habitat of Species of Conservation Concern
- Open Country Bird Breeding Habitat
- Habitat for Species Ranked S1-S3
- Area Sensitive Bird Breeding Habitat

Animal Movement Corridor
- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-8_Railbed_SignificantMaps_15K_2012_04_24_ELF.mxd

Figure 2

South Kent Wind Project

Significant Wildlife Habitat - Railbed Corridor

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.1 0.2 0.4 km

April 24, 2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:15,000 (at 11x17")

Legend

- Project Area (April 20th, 2012)
- Constructible Area
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- Primary Road
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- Waterbody
- Wetland Area (NRSI)
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas
- Bat Maternity Roost

Habitat of Species of Conservation Concern
- Open Country Bird Breeding Habitat
- Habitat for Species Ranked S1-S3
- Area Sensitive Bird Breeding Habitat

Animal Movement Corridor
- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-8_Railbed_SignificantMaps_15K_2012_04_24_ELF.mxd

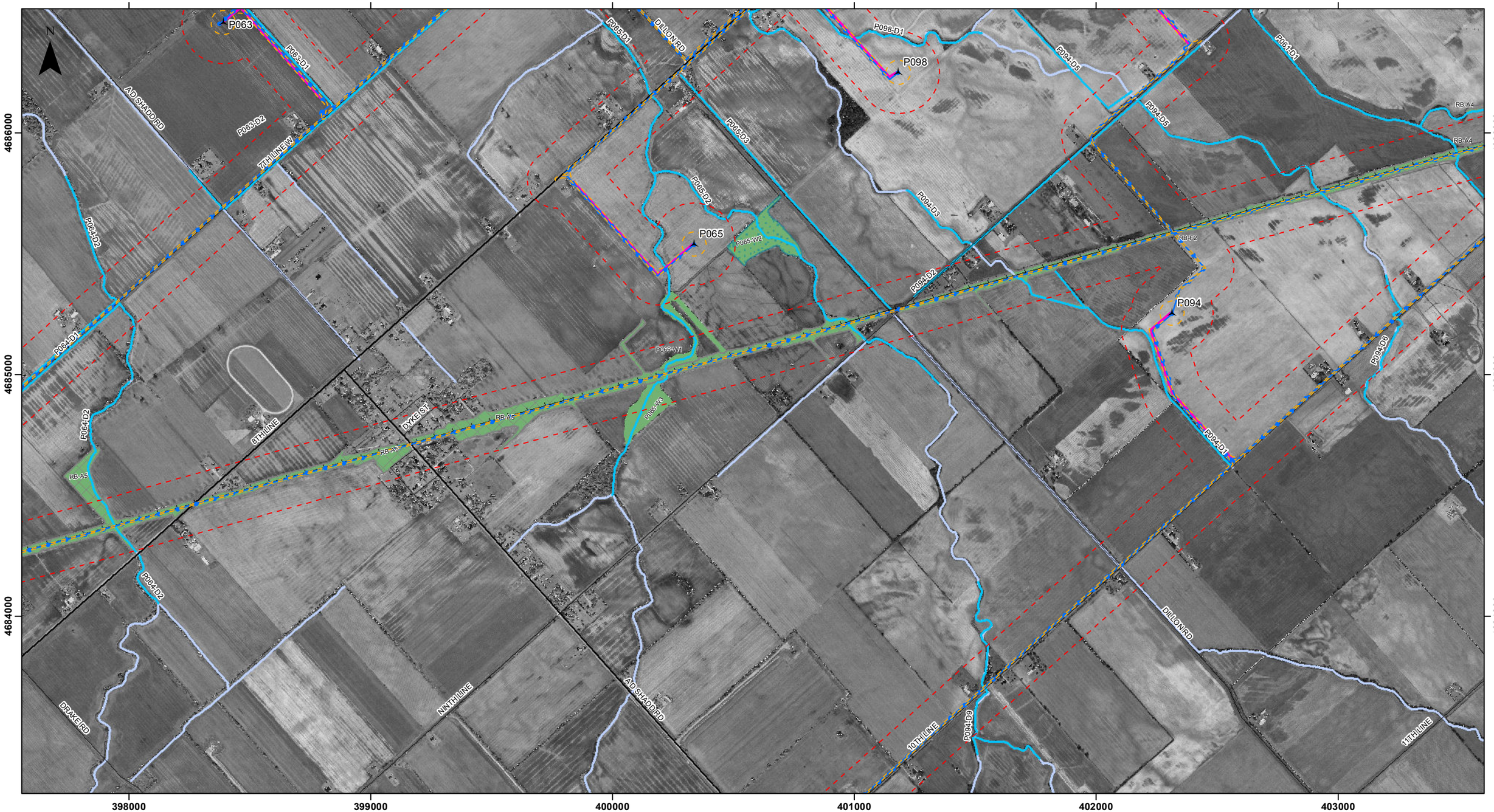

Figure 3

South Kent Wind Project

Significant Wildlife Habitat - Railbed Corridor

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.1 0.2 0.4 km

April 24, 2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:15,000 (at 11x17")

Legend

- Project Area (April 20th, 2012)
- Constructible Area
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- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas
- Bat Maternity Roost

Habitat of Species of Conservation Concern
- Open Country Bird Breeding Habitat
- Habitat for Species Ranked S1-S3
- Area Sensitive Bird Breeding Habitat

Animal Movement Corridor
- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-8_Railbed_SignificantMaps_15K_2012_04_24_ELF.mxd

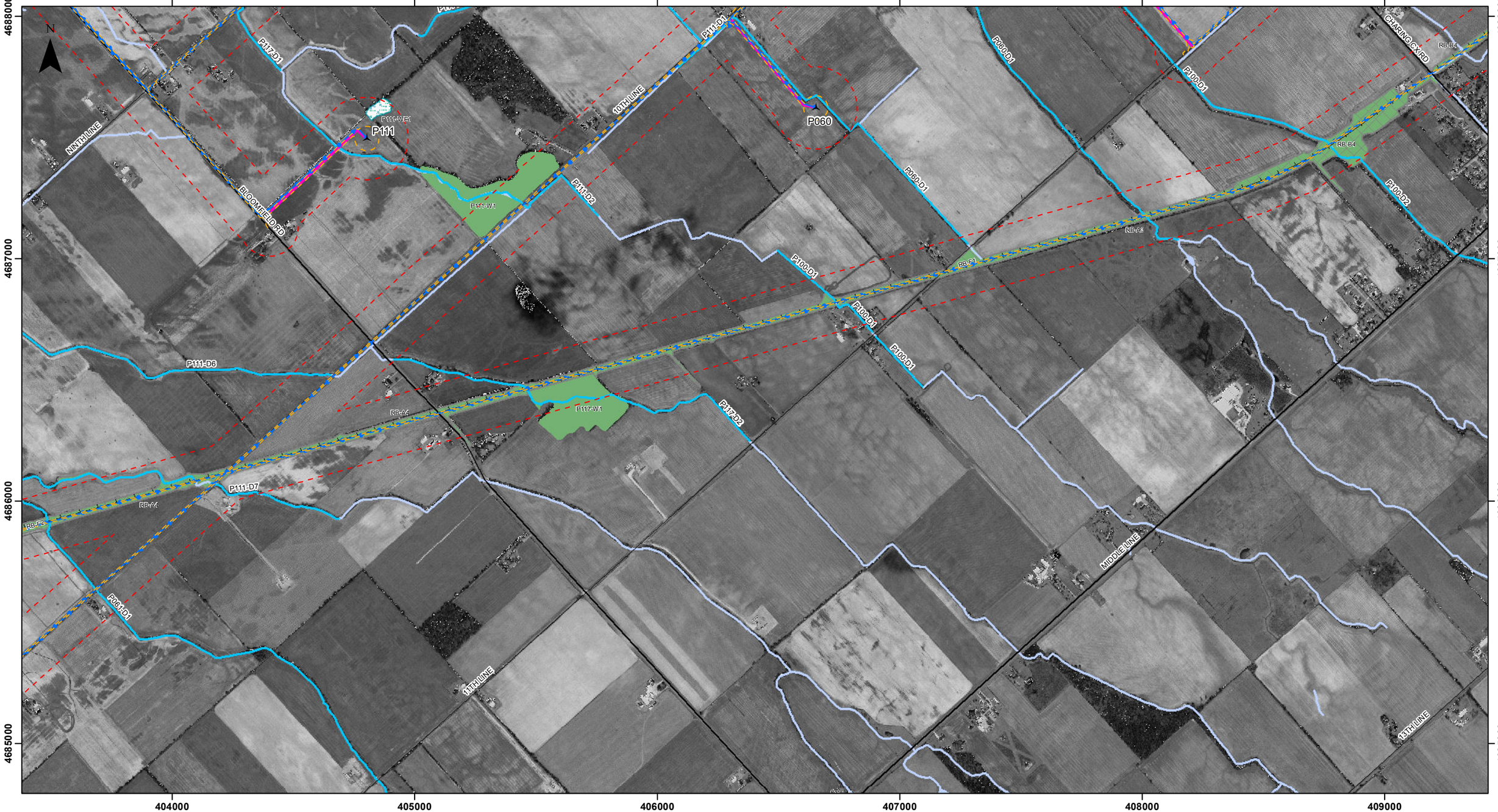

Figure 4

South Kent Wind Project

Significant Wildlife Habitat - Railbed Corridor

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.1 0.2 0.4 km

April 24, 2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:15,000 (at 11x17")

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
- Substation
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- Secondary Road
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- Waterbody
- Wetland Area (NRSI)
- Woodland (NRSI)
- Important Bird Area

Seasonal Concentration Areas
- Bat Maternity Roost

Habitat of Species of Conservation Concern
- Open Country Bird Breeding Habitat
- Habitat for Species Ranked S1-S3
- Area Sensitive Bird Breeding Habitat

Animal Movement Corridor
- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-8_Railbed_SignificantMaps_15K_2012_04_24_ELF.mxd

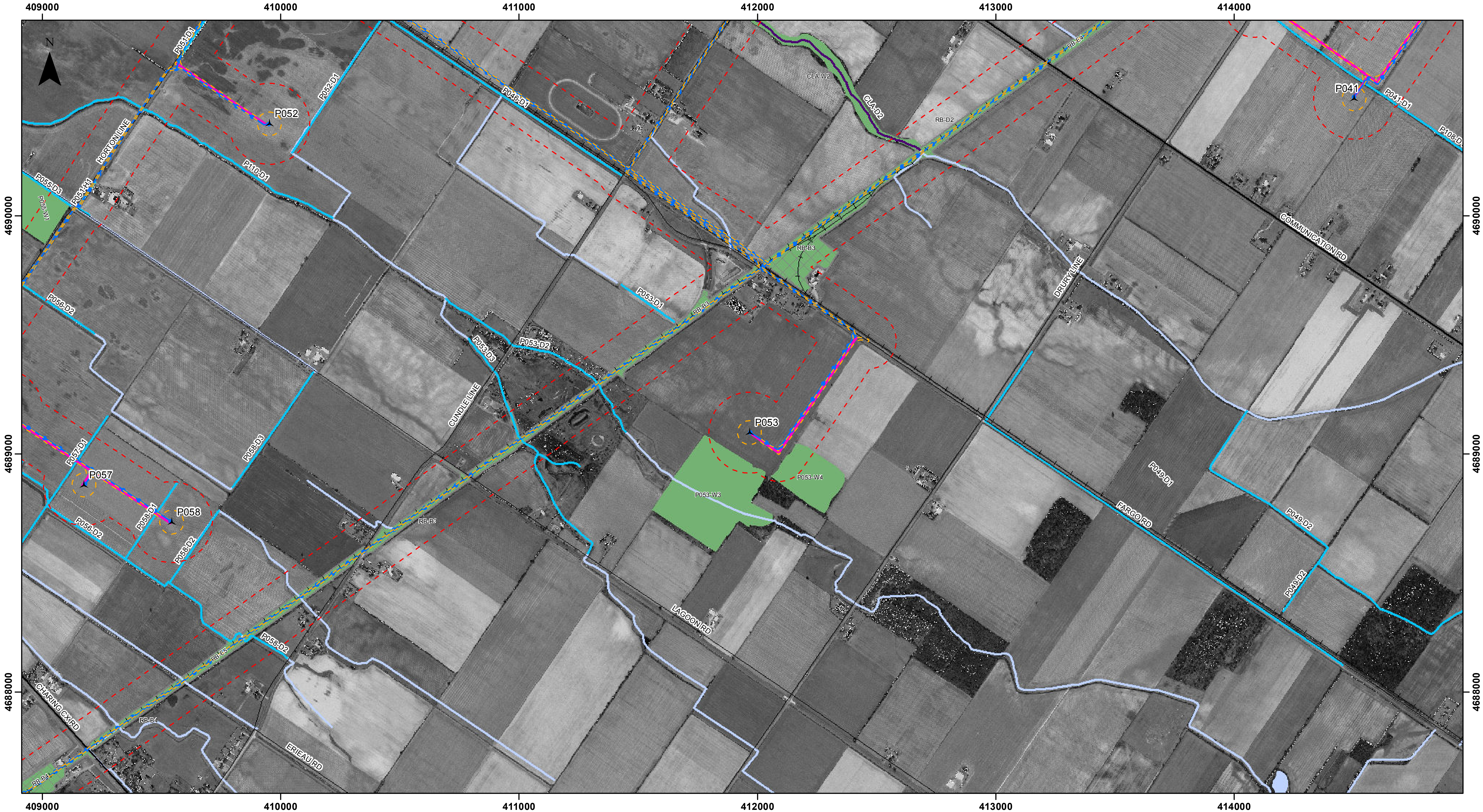

Figure 5

South Kent Wind Project

Significant Wildlife Habitat - Railbed Corridor

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

0 0.1 0.2 0.4 km

April 24, 2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:15,000 (at 11x17")

Legend

- Project Area (April 20th, 2012)
- Constructible Area
- Proposed Turbine (L20)
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Seasonal Concentration Areas

- Bat Maternity Roost

Habitat of Species of Conservation Concern

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- Habitat for Species Ranked S1-S3
- Area Sensitive Bird Breeding Habitat

Animal Movement Corridor

- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-8_Railbed_SignificantMaps_15K_2012_04_24_ELF.mxd

413000 414000 415000 416000 417000 418000

4693000

4692000

4691000

HWY 401
P032
P033
P034
P155
P031
P135
P026
P029
P028
P039
P040
P108
P030
P035
P033-D1
P032-D1
P034-D2
P034-D1
P031-D1
P034-D4
P034-W1
HARWICH RD
KNIGHTS LINE
P024-W1
RB-D1
P156-W1
P024-W2
P024-W3
P026-D1
BURK LINE
P040-D2
DRURY LINE
P034-D3
HUFFMAN RD
P039-D1
RB-B3
P035-D1
WELCH LINE
P135-D2
P029-W1
P030-D1
P029-D1
P036-D1
CAMPBELL LINE
RB-A2
P041-D1
COMMUNICATION RD
RB-B1
RB-B2
P108-W1
P108-WE1

413000 414000 415000 416000 417000 418000

Figure 6

South Kent Wind Project

Significant Wildlife Habitat - Railbed Corridor

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.1 0.2 0.4 km

April 24, 2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:15,000 (at 11x17")

Legend

- Project Area (April 20th, 2012)
- Constructible Area
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- Waterbody
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- Woodland (NRSI)
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Seasonal Concentration Areas
- Bat Maternity Roost

Habitat of Species of Conservation Concern
- Open Country Bird Breeding Habitat
- Habitat for Species Ranked S1-S3
- Area Sensitive Bird Breeding Habitat

Animal Movement Corridor
- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-8_Railbed_SignificantMaps_15K_2012_04_24_ELF.mxd

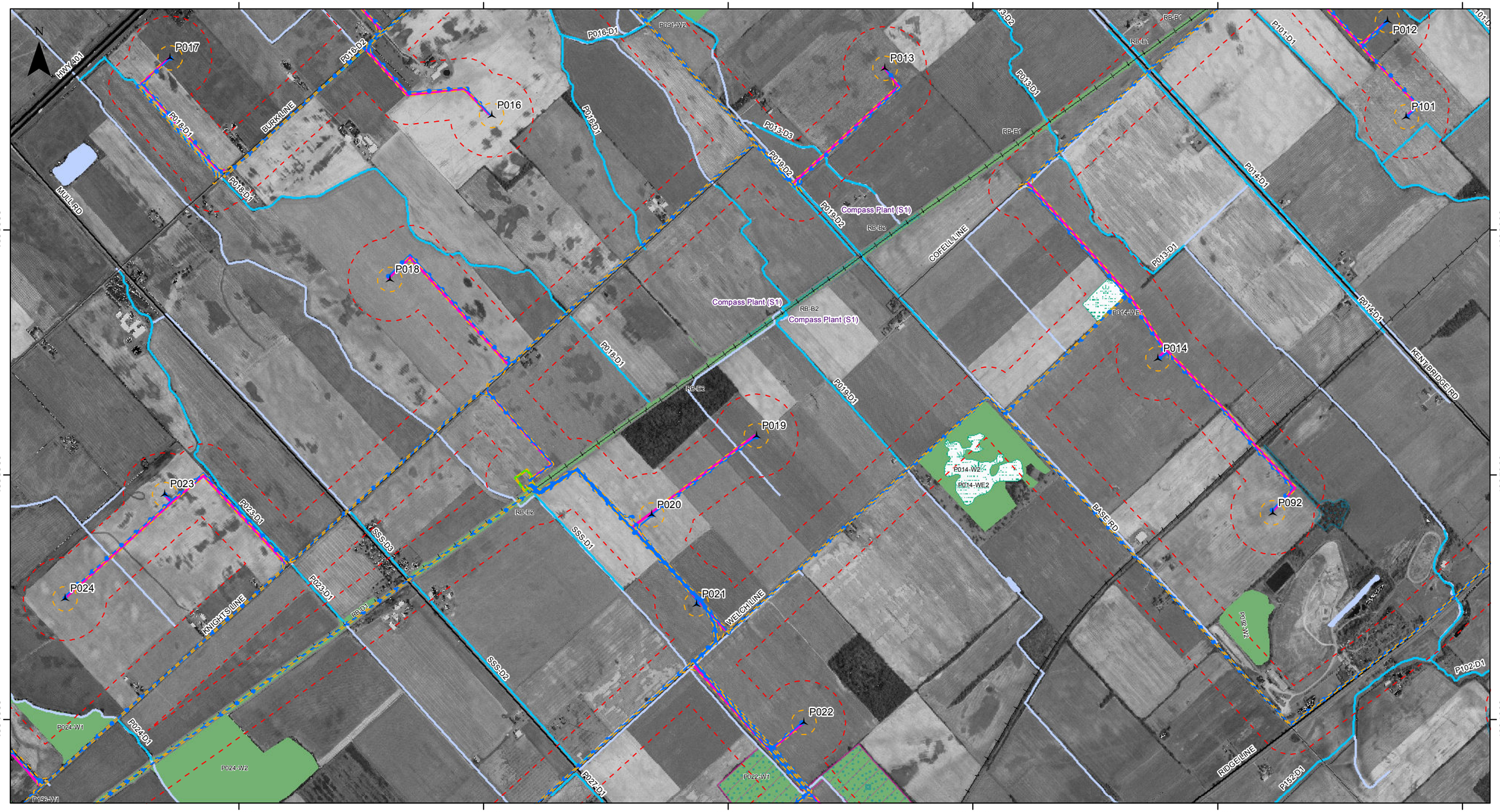

Figure 7

South Kent Wind Project

Significant Wildlife Habitat - Railbed Corridor

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.1 0.2 0.4 km

April 24, 2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:15,000 (at 11x17")

Legend

- Project Area (April 20th, 2012)
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- Important Bird Area

Seasonal Concentration Areas
- Bat Maternity Roost

Habitat of Species of Conservation Concern
- Open Country Bird Breeding Habitat
- Habitat for Species Ranked S1-S3
- Area Sensitive Bird Breeding Habitat

Animal Movement Corridor
- Vegetated Drain Corridor
- Railbed Corridor

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-8_Railbed_SignificantMaps_15K_2012_04_24_ELF.mxd

421000 422000 423000 424000 425000 426000

4699000 4698000 4697000

N

BEECHWOOD LINE
P010
P010-D1
ONEILL LINE
P168
P011-D1
P101-D2
P101-WA
P101-W2
KENT BRIDGE RD
P013-D2
RB-E1
P012
P101-D1
SHEWBURG RD
P013
P013-D1
COFELL LINE
P014-D1
P101
P013-D3
P013-D1
MITTON LINE
SCANE RD
MAIN ST W
RIDGE LINE
GOLF CRSE LINE

421000 422000 423000 424000 425000 426000

Figure 8

South Kent Wind Project

Significant Wildlife Habitat - Railbed Corridor

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.1 0.2 0.4 km

April 24, 2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:15,000 (at 11x17")

Legend

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Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-8_Railbed_SignificantMaps_15K_2012_04_24_ELF.mxd

Appendix B

Bat Habitat Assessment and Acoustic Bat Monitoring Methods

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Memo

Project No. 1184

To: **Heather Riddell**

From: **Tara Lessard**

Date: **April 12, 2012**

Re: **South Kent Wind Project**
Bat Habitat Assessment and Acoustic Bat Monitoring Survey Methods

---

As part of the monitoring commitments in the Natural Heritage Environmental Impact Study (EIS) for the South Kent Wind Project, Natural Resource Solutions Inc. (NRSI) will be conducting bat habitat assessments and acoustic bat monitoring surveys to assess potential bat maternity roost and s-ranked bat habitats. These surveys will be completed for the purpose of determining significance under the Renewable Energy Approval (REA) process. These surveys are being completed as part of the EIS component of the Natural Heritage Assessment (NHA) submission for the South Kent Wind Project.

To ensure a standardized and repeatable approach between each visit, bat habitat assessments will adhere to the following standardized methods.

Assessment Locations

Four (4) candidate bat maternity roost habitats and nine (9) candidate s-ranked bat habitats have been identified within the project area. These mixedwood/deciduous forests will be assessed in order to determine the density of snags/cavity trees ≥ 25 cm diameter at breast height (dbh) within the forest site.

- Random plots (12.6m radius) will be selected across the represented area of the ELC plot
- The number of snags/cavity trees ≥ 25 cm dbh will be measured in each plot
- Using the formula πr^2, the number of snags per hectare will be calculated
- Surveys will be conducted during leaf-off period so that the view of tree cavities and crevices is not obscured by foliage

During the bat habitat assessments, good candidate trees for acoustic monitoring will be marked using a GPS. The best trees will be used for the acoustic monitoring surveys.

To ensure a standardized and repeatable approach between each visit, acoustic bat surveys will adhere to the following standardized methods.

Monitoring Locations

Bat exit surveys will be conducted at tree cavity openings in each of the identified candidate bat maternity roost and s-ranked bat habitats. The level of effort required for each candidate habitat is determined according to the following factors:

- A minimum of 10 snags/cavity trees will be surveyed for areas ≥ 10 hectares;
- One snag/cavity tree for each hectare for areas ≤ 30 hectares; and
- A maximum of 30 snags/cavity trees for areas ≥ 30 hectares

Monitoring Frequency and Timing

NRSI will monitor each candidate roost tree once in the month of June 2012, following the Bats and Bat Habitat Guidelines (OMNR 2011). Surveys will be carried out between 30 minutes after dusk until 60 minutes after dusk.

Survey Methods

Candidate roost trees will be monitored through exit surveys as follows:

- Observers will choose viewing stations with a clear aspect of the cavity opening or crevice
- A bat detector will be used in conjunction with visual surveys to determine species
- Where appropriate, observers may instead use infrared/night vision cameras in place of in-person surveys

Evaluation of Significance and Reporting

At the completion of the monitoring program in July 2012, NRSI will review all data collected for the candidate bat maternity colony habitats during the monitoring period and compare it to provincial standards for significant bat maternity colonies. These standards, as observed in the SWH 7E Ecoregion Criteria, include confirmed use of the habitat by the following species:

- more than 20 northern long-eared bats
- more than 10 big brown bats
- more than 20 little brown bats
- more than 5 adult female silver-haired bats

NRSI will also review the data collected at the candidate s-ranked bat habitats and will determine if s-ranked species have been observed in these locations.

Following the review of the data collected during the acoustic bat monitoring field studies, NRSI will prepare a detailed memo that describes the specific methods employed and details the results of the 2012 acoustic bat monitoring surveys. This memo will be prepared in a way that is consistent with appropriate provincial guidelines and recommendations relating to renewable energy projects, including specific details relating to the evaluation of significance of each feature. For each feature, NRSI will also outline any potential impacts and appropriate mitigation measures (if necessary), as related back to the Natural Heritage EIS. Other appropriate information, including habitat descriptions, photos, field notes, and detailed habitat mapping, will also be included as part of the memo submission, as deemed necessary. This memo will be provided to the MNR for review and comment prior to the onset of construction activities at the South Kent Wind Project.

Appendix C

Open Country Bird Methods

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Memo

Project No. 1184

To: **Heather Riddell**

From: **Tara Lessard**

Date: **April 12, 2012**

Re: **South Kent Wind Project**
Open Country Breeding Bird Habitat Survey Methods

As part of the monitoring commitments in the Natural Heritage Environmental Impact Study (EIS) for the South Kent Wind Project, Natural Resource Solutions Inc. (NRSI) will be conducting open country breeding bird habitat surveys to assess potential breeding habitats for open country birds. These surveys will be completed for the purpose of determining significance under the Renewable Energy Approval (REA) process. These surveys are being completed as part of the EIS component of the Natural Heritage Assessment (NHA) submission for the South Kent Wind Project.

Following available MNR guidelines, these surveys have been identified as being required in large grassland, meadow, or perennial cover crop areas, according to the Significant Wildlife Habitat Technical Guide (SWHTG) (OMNR 2000). To ensure a standardized and repeatable approach between each visit, surveys will adhere to the following standardized methods.

Monitoring Locations

One candidate open country bird breeding habitat has been identified in the following location: one fallow agricultural field (overlapping the access road to turbines P029 and P030).

The number of point count stations required depends on the size and habitat diversity at each location. The one (1) candidate open country bird breeding habitat is 42 hectares in size and measures approximately 1400m x 320m. Six (6) point count stations will be placed throughout the habitat, and will be located no closer than 250m from each other. A standardized transect survey will also be conducted between point count sites.

Monitoring Frequency and Timing

NRSI will conduct three open country breeding bird point count surveys at each location in June and early July 2012, each no less than ten days apart, following the Birds and Bird Habitat Guidelines (OMNR 2011). Surveys will be carried out between dawn (one half hour before sunrise) and three hours after sunrise.

Survey Methods

NRSI biologists will conduct point counts within the habitat at the best vantage point, following the guidelines outlined in the Birds and Bird Habitats guidelines (OMNR 2011).

These surveys will be conducted for 10 minutes with binoculars to allow enough time to thoroughly scan the area for indication of open country breeding birds. Optimal weather conditions for these surveys are clear, calm, sunny days with little to no precipitation.

Following the Birds and Bird Habitats guidelines, NRSI will record the following information during each survey:

- Level of effort (including date, start and end time, time spent, etc.),
- Weather conditions (wind speed, temperature, cloud cover, precipitation, etc.),
- Name of observer(s) conducting field work,
- Complete list of all bird species observed with highest breeding evidence,
- Complete list of all other wildlife species observed,
- Description of general behaviour at time of observation,
- Description of habitats or areas scanned during the survey,
- A GPS point of the survey location will be documented on the first visit to be mapped for consistency between visits.

Evaluation of Significance and Reporting

At the completion of the monitoring program in July 2012, NRSI will review all data collected during the monitoring period and compare it to provincial standards for significant open country breeding bird areas. These standards, as observed in the SWH 7E Ecoregion Criteria, include the presence of nesting or breeding of two or more of the following indicator species:

- upland sandpiper
- grasshopper sparrow
- vesper sparrow

and at least one of the following common species:

- American kestrel
- northern harrier
- savannah sparrow.

Or a field with one or more breeding short-eared owls.

Following the review of the data collected during the open country breeding bird habitat field studies, NRSI will prepare a detailed memo that describes the specific methods employed and details the results of the 2012 open country breeding bird habitat surveys. This memo will be prepared in a way that is consistent with appropriate provincial guidelines and recommendations relating to renewable energy projects, including specific details relating to the evaluation of significance of each feature. NRSI will also outline any potential impacts and appropriate mitigation measures (if necessary), as related back to the Natural Heritage EIS. Other appropriate information, including habitat descriptions, photos, field notes, and detailed habitat mapping, will also be included as part of the memo submission, as deemed necessary. This memo will be provided to the MNR for review and comment prior to the onset of construction activities at the South Kent Wind Project.

Appendix D

Area Sensitive Bird Methods

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Memo

Project No. 1184

To: **Heather Riddell**

From: **Tara Lessard**

Date: **April 12, 2012**

Re: **South Kent Wind Project**
Area Sensitive Breeding Bird Habitat Survey Methods

As part of the monitoring commitments in the Natural Heritage Environmental Impact Study (EIS) for the South Kent Wind Project, Natural Resource Solutions Inc. (NRSI) will be conducting area sensitive breeding bird habitat surveys to assess potential breeding habitats for area sensitive birds. These surveys will be completed for the purpose of determining significance under the Renewable Energy Approval (REA) process. These surveys are being completed as part of the EIS component of the Natural Heritage Assessment (NHA) submission for the South Kent Wind Project.

Following available MNR guidelines, these surveys have been identified as being required in large mature forest stands or woodlots, according to the Significant Wildlife Habitat Technical Guide (SWHTG) (OMNR 2000). To ensure a standardized and repeatable approach between each visit, all surveys will adhere to the following standardized methods.

Monitoring Locations
One woodland, P002-W1, has been identified as a candidate area sensitive breeding bird habitat.

The number of point count stations required depends on the size and habitat diversity at each location. The one (1) candidate area sensitive breeding bird habitat is 13.6 hectares in size and measures approximately 430m x 620m in total. Three (3) point count stations will be placed throughout the habitat, and will be located no closer than 250m from each other. A standardized transect will also be conducted between point count sites.

Monitoring Frequency and Timing
NRSI will conduct three area sensitive breeding bird point county surveys at each location in June and early July 2012, each no less than ten days apart, following the Birds and Bird Habitat Guidelines (OMNR 2011). Surveys will be carried out between dawn (one half hour before sunrise) and three hours after sunrise.

Survey Methods
NRSI biologists will conduct point counts within the habitat at the best vantage point, following the guidelines outlined in the Birds and Bird Habitats guidelines (OMNR 2011).

These surveys will be conducted for 10 minutes with binoculars to allow enough time to thoroughly scan the area for indication of area sensitive breeding birds. Optimal weather conditions for these surveys are clear, calm, sunny days with little to no precipitation.

Following the Birds and Bird Habitats guidelines, NRSI will record the following information during each survey:

- Level of effort (including date, start and end time, time spent, etc.),
- Weather conditions (wind speed, temperature, cloud cover, precipitation, etc.),
- Name of observer(s) conducting field work,
- Complete list of all bird species observed with highest breeding evidence,
- Complete list of all other wildlife species observed,
- Description of general behaviour at time of observation,
- Description of habitats or areas scanned during the survey,
- A GPS point of the survey location will be documented on the first visit to be mapped for consistency between visits.

Evaluation of Significance and Reporting

At the completion of the monitoring program in July 2012, NRSI will review all data collected during the monitoring period and compare it to provincial standards for significant area sensitive breeding bird areas. These standards, as observed in the SWH 7E Ecoregion Criteria, include the presence of nesting or breeding pairs of three or more of the following listed species:

- yellow-bellied sapsucker
- red-breasted nuthatch
- veery
- blue-headed vireo
- northern parula
- black-throated green warbler
- blackburnian warbler
- black-throated blue warbler
- ovenbird
- scarlet tanager
- winter wren
- pileated woodpecker

Or a site with one or more breeding cerulean warblers or Canada warblers.

Following the review of the data collected during the area sensitive breeding bird habitat field studies, NRSI will prepare a detailed memo that describes the specific methods employed and details the results of the 2012 area sensitive breeding bird habitat surveys. This memo will be prepared in a way that is consistent with appropriate provincial guidelines and recommendations relating to renewable energy projects, including specific details relating to the evaluation of significance of each feature. NRSI will also outline any potential impacts and appropriate mitigation measures (if necessary), as related back to the Natural Heritage EIS. Other appropriate information, including habitat descriptions, photos, field notes, and detailed habitat mapping, will also be included as part of the memo submission, as deemed necessary. This memo will be provided to the MNR for review and comment prior to the onset of construction activities at the South Kent Wind Project.