Grand Bend Wind Farm

Natural Heritage Assessment

Records Review Draft Report

Grand Bend Wind Limited Partnership,

c/o Northland Power Inc.

NORTHLAND POWER

NEEGAN BURNSIDE

August 2012

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Natural Heritage Assessment
Records Review Draft Report

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Prepared for:

Grand Bend Wind Limited Partnership

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Record of Revisions

Revision	Date	Description
0	March 14, 2012	Initial Submission to the Ministry of Natural Resources
1	May 30, 2012	Submission of Revised Report Addressing MNR Initial Comments
2	June 7, 2012	Submission of Revised Report Addressing Additional MNR Comments
3	August 14, 2012	Updated to include MNR Confirmation Letter
3	August 27, 2012	Initial Draft Submission to Municipal and Aboriginal Communities as well as Selected Government Agencies

Executive Summary

Grand Bend Wind Limited Partnership, c/o Northland Power Inc. ("Northland") is proposing to develop, construct and operate a 100 MW wind facility located north of Grand Bend, Ontario. An application for approval is being prepared under Ontario Regulation 359/09 of the *Environmental Protection Act*. The project is classified as a Class 4 Wind facility under the Regulation. The Grand Bend Wind Farm ("the Project") is located in Huron County, spanning the lower-tier municipalities of Bluewater and South Huron. Portions of the transmission line also traverse the municipality of Huron East and municipality of West Perth in Perth County.

The basic project components will include approximately 48 turbines (Siemens SWT-2.3-113 direct drive wind turbine generators with a total name plate capacity of 100 MW), turbine access roads, a 36 kV electrical collection system, substation, a new transmission line within municipal road right-of ways ("ROWs") along Rodgerville Road, Line 17 and Road 183 with connection to the provincial power grid at the 230 kV transmission line south of the Seaforth Transformer Station. An alternative transmission line connection to the grid is also under consideration west of Mitchell. During construction temporary components will include crane pads and work/storage areas at the turbine locations and construction of the transmission connections.

Under O.Reg. 359/09, a Natural Heritage Assessment is a required component of a REA Application for a Class 4 Wind Facility. The Natural Heritage Assessment is to be completed in four stages as follows:

- Stage 1: Records Review;
- Stage 2: Site Investigation;
- Stage 3: Evaluation of Significance (if required); and,
- Stage 4: Environmental Impact Study (if required).

This report presents the findings of the Stage 1 Records Review and includes a detailed compilation of available background information from a variety of sources, including:

- Government agency files;
- Policy documents and mapping;
- Online and published resources; and,
- Aerial photography.

Through a search of these sources, of a number of significant or potentially significant features within 120 m of the Project Location were identified. These include:

- Provincially Significant and unevaluated wetlands;
- Woodlands;
- Candidate Significant Wildlife Habitat, including:
  - Confirmed deer yarding areas (mapped by MNR);
  - Candidate bat hibernacula (mapped karst topography/sinkholes); and,
  - Candidate habitat for area-sensitive species (woodland mapping available).

In addition, a number of potentially significant features could not be ruled out as being potentially present in the study area, although no specific records or mapped locations were identified. These include

- Valleylands; and,
- Candidate Significant Wildlife Habitat, including:

Seasonal Concentration Areas of Animals:

- Waterfowl stopover and staging areas (terrestrial and aquatic);
- Shorebird migratory stopover areas;
- Raptor wintering area;
- Bat maternity colonies;
- Turtle wintering areas;
- Snake hibernaculum; and,
- Colonially-nesting bird breeding habitat (banks/cliffs, trees/shrubs, ground);

Rare Vegetation Communities:

- Sand Barren;
- Cliffs and talus slopes;
- Alvar;
- Old growth forest;
- Savannah;
- Tallgrass Prairie; and,
- Other Rare Vegetation;

Specialized Habitat for Wildlife:

- Waterfowl nesting area;
- Bald Eagle and Osprey nesting, foraging and perching habitat;
- Woodland raptor nesting habitat;
- Turtle nesting areas;

- Seeps and springs; and,
- Amphibian breeding habitat (woodland and wetlands);

Habitat for Species of Conservation Concern:

- Marsh bird breeding habitat;
- Woodland area-sensitive bird breeding habitat;
- Open country bird breeding habitat;
- Shrub/early successional bird breeding habitat;
- Terrestrial crayfish; and,
- Special concern and rare wildlife species;

Animal Movement Corridors:

- Amphibian movement corridors; and,
- Deer movement corridors.

All of these features will be brought forward to the Site Investigation for further study and confirmation of their presence within 120 m of the Project Location.

Under Section 28 of O.Reg. 359/09, the Ministry of Natural Resources ("MNR") must review the Records Review Report and confirm that it was completed in accordance with criteria and procedures accepted by that Ministry. This Records Review Report was reviewed and confirmation was received from the MNR on June 14, 2012.

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1.0 Introduction

1.1 Project Overview

Grand Bend Wind Limited Partnership, c/o Northland Power Inc. ("Northland") is proposing to develop, construct and operate a 100 MW wind facility located north of Grand Bend, Ontario. An application for approval is being prepared under Ontario Regulation 359/09 of the *Environmental Protection Act*. The project is classified as a Class 4 Wind facility under the Regulation. The Grand Bend Wind Farm ("the Project") is located in Huron County, spanning the lower-tier municipalities of Bluewater and South Huron. Portions of the transmission line also traverse the municipality of Huron East and municipality of West Perth in Perth County. The project location and study area is provided in **Appendix A, Figure 1**.

The basic project components will include approximately 48 turbines (Siemens SWT-2.3-113 direct drive wind turbine generators with a total name plate capacity of 100 MW), turbine access roads, a 36 kV electrical collection system, substation, a new transmission line within municipal road right-of ways ("ROWs") along Rodgerville Road, Line 17 and Road 183 with connection to the provincial power grid at the 230 kV transmission line south of the Seaforth Transformer Station. An alternative transmission line connection to the grid is also under consideration west of Mitchell. During construction temporary components will include crane pads and work/storage areas at the turbine locations and construction of the transmission connections.

Under O.Reg. 359/09, a Natural Heritage Assessment is a required component of a REA Application for a Class 4 Wind Facility. The Natural Heritage Assessment is to be completed in four stages as follows:

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- Online and published resources; and,
- Aerial photography.

1.2 Project Location

The proposed Project is located in Huron County, spanning the lower-tier municipalities of Bluewater and South Huron as well as a portion of Huron East and the municipality of West Perth in Perth County. The Project Location, shown in **Appendix A, Figure 1**, is roughly bounded by:

- The Bluewater Highway (Highway 21) to the west;
- Main Street East/Grand Bend Line to the south;
- Blackbush and Shipka Lines with a small section of the study area in the central section of the project extending to Bronson Line and to the east; and,
- Staffa Road to the north.

The preferred transmission line route is along Sararas/Rodgerville Road to Line 17, Road 183 and connecting to the 230 kV Hydro One transmission line just south of the Seaforth Transformer Station ("TS"). The second alternative route would follow Dashwood Road, Thames Road, Highway 23 and connect to the 230 kV Hydro One Transmission line east of Mitchell. Alternative potential transformer locations and storage building areas are indicated as well. It is of note that the study team is currently reviewing the potential to move the storage building into one of the existing urban areas.

O.Reg. 359/09 defines the Project Location as:

> "*a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person in engaging in or proposes to engage in the project*".

For the purposes of this Project, the Project Location includes the footprint of the facility components, plus any temporary work and storage locations. The boundary of the Project Location is used for defining setback and site investigation distances according to O.Reg. 359/09. The buildable area, which includes the footprint of the facility components, plus any temporary work and storage locations, will be staked on private lands. All construction and installation activities will be conducted within these designated areas; this includes construction vehicles and personnel. Similarly, all installation activities related to collector lines within the municipal road allowance will be contained within the boundaries of the road allowance.

1.3 Study Area

The Records Review focused on features within a Study Area around the Project Location. The Study Area was identified by first considering all areas within 550 m from the Project Location and then extending the boundaries to the closest lot and concession, as shown in **Appendix A, Figure 1.** Significant records which were identified through the study and which fall outside of the Study Area are also noted in this report; however the majority of the work focused on records within the Study Area.

1.4 Site Ecoregion

Vegetation communities in Ontario have been classified in a hierarchical framework. Ecoregions represent the highest level (coarsest resolution) of the classification system.

The Project Location is in close proximity to the boundary between Ecoregions 6E and 7E. The Ministry of Natural Resources was consulted and it was confirmed that portions of the project are located within Ecoregion 6E, known as the Lake Simcoe-Rideau Region or the Great Lakes-St. Lawrence Forest Region and 7E, known as the Lakes Erie-Ontario Site Region. More specifically, the project is within Ecodistricts 6E-2 and 7E--2. These Ecoregions and Ecodistricts will serve as the basis for further vegetation classification and wildlife habitat assessments for this study.

2.0 Records Review Methodology

2.1 Scope of the Review

The Records Review was conducted in accordance with O.Reg. 359/09 and the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011).

Information was collected on all features with the potential to be identified as:

- Provincial Parks and Conservation Reserves;
- Significant Areas of Natural and Scientific Interest;
- Significant wetlands;
- Significant woodlands;
- Significant valleylands; and,
- Significant wildlife habitat.

As part of this project, Neegan Burnside also considered all aspects relating to provincially Threatened and Endangered species. However, since these species are addressed as part of the *Endangered Species Act* (2007), they have not been included in this report. These species will be addressed in full detail, including a description and results of field assessments, potential impacts, and recommended mitigation measures, as part of a separate *Approval and Permitting Requirements Document ("APRD")* to be submitted to the MNR under a separate cover, where necessary.

2.2 Publicly Available Data Sources

A summary of information sources reviewed for records of potentially significant natural heritage features is provided in **Table 2.1**.

Table 2.1 Publicly Available Data Sources Reviewed

Data Source	Information Provided	Reference
Policy Documents		
County of Huron Official Plan	• Natural Heritage Features	http://www.huroncounty.ca/plandev/officialplan.php
Municipality of Bluewater Official Plan	• Natural Heritage Features	http://www.town.bluewater.on.ca/innerpage.aspx?x=Ls%2br0pdZgZIsIJ8Tz%2bz1DzNrJJrRYLtgyp9xQd167M2wO384%2bNQ8V0hUDc5Hf9XC
Municipality of South Huron Official Plan	• Natural Heritage Features	http://southhuron.iwebez.com/siteengine/ActivePage.asp?PageID=242
Municipality of Huron East Official Plan	• Natural Heritage Features	http://www.huroneast.com/index.php?sltb=plan

Data Source	Information Provided	Reference
Perth County Official Plan	• Natural Heritage Features	http://www.perthcounty.ca/page/County_of_Perth_Official_Plan
Interactive Mapping Sites		
Ministry of Natural Resources' Renewable Energy Atlas	• Wetlands • Known bat hibernacula	http://www.mnr.gov.on.ca/en/Business/Renewable/2ColumnSubPage/276957.html
Natural Heritage Information Center, Biodiversity Explorer	• Natural areas • Evaluated wetlands • ANSIs • Species at Risk records	https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/main.jsp
Ausable Bayfield Conservation Authority interactive mapping site	• Natural Heritage Features	http://www.camaps.ca/Geocortex/Essentials/Web/Viewer.aspx?Site=ABCAPubBing
County of Huron interactive mapping site	• Natural Heritage Features	http://gis.huroncounty.ca/imf/imf.jsp?site=Huron_County
Important Bird Areas database	• Significant Bird Habitat	http://www.bsc-eoc.org/iba/mapviewer.jsp
Ontario Breeding Bird Atlas	• Species of Breeding Birds observed in the vicinity of the Study Area	http://www.birdsontario.org/atlas/index.jsp?lang=en
Department of Fisheries and Oceans and Conservation Ontario Aquatic Species at Risk mapping	• Potential aquatic species at risk in the vicinity of the Study Area	http://www.conservation-ontario.on.ca/projects/DFO.html
Karst mapping	• Karst topography • Sinkholes • Inferred karst	http://www.mndm.gov.on.ca/mines/ogs_earth_e.asp
Land Information Ontario ("LIO") publicly available datasets	• Drain classifications	http://www.mnr.gov.on.ca/en/Business/LIO/index.html
Other Reports and Background Documents		
Ausable Bayfield Conservation Authority, South Gullies Watershed Report Card	• Natural Heritage Features	http://www.abca.on.ca/downloads/reportcard/South_Gullies.pdf

2.2.1 Requests for Information and Records

Letters were sent to a number of federal, provincial, municipal and other agencies and organizations in order to request additional information and records not publicly available through web searches. In addition, several phone calls and follow-up emails were completed. A copy of all correspondence with agencies is provided in **Appendix B** and is summarized in **Table 2.2.**

Table 2.2 Summary of Agencies Contacted, Records Requested and Records Received

Source and Contact Information	Records Requested	Agency Response/Records Reviewed
Source: Huron County **Contact:** Mike Burroughs, GIS Technician **Dates Contacted:** April 4, 2011	• Aerial photography.	• 2006 orthorectified aerial photography. • 2010 orthorectified aerial photography.
Source: Environment Canada **Contact:** Rob Dobos, Manager, Environmental Assessment Section **Dates Contacted:** Letter sent October 24, 2011	• Federal species at risk records. • Federally significant habitats.	• No response provided.
Source: Environment Canada-Canadian Wildlife Service **Contact:** John Fischer, Environmental Assessment Coordinator **Dates Contacted:** December 16, 2011	• Federal species at risk records. • Federally significant habitats.	• Email Jan 3, 2012 indicated that CWS does not maintain spatial database of records. • Told to refer to publicly available data on NHIC, OBBA and SARA Registry for further info.
Source: Fisheries and Oceans Canada Southern Ontario District Office **Contact:** Rick Kiriluk, Fish Habitat Biologist **Dates Contacted:** December 16, 2011	• Fish habitat information. • Aquatic species at risk records.	• Informed that information could be provided at a later date once project details were known. • Told to send watercourse crossing locations by mail to Referrals Coordinator at the Harvester Road office.

Source and Contact Information	Records Requested	Agency Response/Records Reviewed
Source: Ministry of Natural Resources **Contact:** Christine Bolton, Information Access Analyst **Dates Contacted:** August 29, 2011	• LIO/NRVIS data layers including: o Wetlands; – ANSIs; – Deer wintering areas; – Provincial Parks and Conservation Reserves.	• LIO data layers provided including: – Wetlands; – Woodlands; – Provincial Parks; – ANSIs; and, – Deer wintering areas.
Source: Ministry of Northern Development, Mines and Forestry **Contact:** Jennifer Lillie-Paetz, Environmental Assessment Coordinator **Dates Contacted:** October 24, 2011	• Karst mapping.	• Letter describing approximate location of known karst and sinkholes- no mapping provided. • Written description that Project Study Area contains inferred karst- no mapping provided.
Source: Huron County **Contact:** Claire Dodds, County Planner **Dates Contacted:** October 24, 2011	• General records of known natural heritage features.	• No response provided; meeting arranged to discuss municipal concerns and interests.
Source: Huron County **Contact:** Craig Metzger, Senior Planner **Dates Contacted:** October 24, 2011	• General records of known natural heritage features.	• No records of natural heritage features provided. • Provided copy of Municipality of Bluewater's zoning bylaw for commercial scale wind turbines.
Source: Municipality of South Huron **Contact:** Dwayne McNab, Manager of Building and Development **Dates Contacted:** October 24, 2011	• General records of known natural heritage features.	• No response provided; meeting arranged to discuss municipal concerns and interests.
Source: Municipality of Bluewater **Contact:** Arlene Parker, Planning Coordinator **Dates Contacted:** October 24, 2011	• General records of known natural heritage features.	• Letter received from Lori Wolfe, CAO. Directed to contact ABCA for natural heritage data.

Source and Contact Information	Records Requested	Agency Response/Records Reviewed
Source: Ausable Bayfield Conservation Authority **Contact:** Geoff Cade, Supervisor of Water and Planning; Tracy Boitsen, GIS Technician **Dates Contacted:** April 19, 2011; October 24, 2011; November 24, 2011; December 15, 2011; February 22, 2012	• General records of known natural heritage features. • Regulation Limit and valleyland mapping; • Aquatic habitat mapping; • Aquatic species at risk records.	• Regulation Limit; • Significant Valleylands; • Environmentally Significant Areas; • Records of species at risk.
Source: Upper Thames River Conservation Authority **Contact:** Karen Winfield, Land Use Regulations Officer; Phil Simm, GIS Technician **Dates Contacted:** February 7, 2012	• General records of known natural heritage features. • Regulation Limit and valleyland mapping; • Drain Classifications; • Aquatic habitat mapping; • Aquatic species at risk records.	• Regulation Limit mapping; • Natural heritage features mapping; • Drinking water source protection features (highly vulnerable aquifers and groundwater recharge areas).
Source: Huron Fringe Field Naturalists **Contact:** Catherine Hogg, President **Dates Contacted:** October 24, 2011	• Records of significant bird species • Known habitats of significance.	• No response received.
Source: York University **Contact:** Dr. Laurence Parker, Professor **Dates Contacted:** December 16, 2011	• Records of rare species in Project Study Area.	• Indicated that surveys had not been undertaken in Study Area and recommended surveys as part of Site Investigation.
Source: Aamjiwnaang First Nation **Contact:** Chief Christopher Plain **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.
Source: Bkejwanong Territory (Walpole Island First Nation) **Contact:** Chief Joseph Gilbert **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.

Source and Contact Information	Records Requested	Agency Response/Records Reviewed
Source: Chippewas of Kettle & Stony Point **Contact:** Chief Elizabeth Cloud **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.
Source: Delaware Nation, Moravian of the Thames **Contact:** Chief Gregory Peters **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.
Source: Chippewas of the Thames First Nation **Contact:** Chief Richard Miskokomon **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.
Source: Caldwell First Nation **Contact:** Chief Louise Hillier **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.
Source: Muncee-Delaware First Nation **Contact:** Dan Miskokomon, Band Manager **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.
Source: Six Nations of the Grand Territory **Contact:** Chief William Montour **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.
Source: Grand River Community Metis Council **Contact:** Cora Bunn, President **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.
Source: Windsor-Essex-Kent Metis Council **Contact:** Robert Leboeuf, President **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.

Source and Contact Information	Records Requested	Agency Response/Records Reviewed
Source: Metis Nation of Ontario **Contact:** Melanie Paradis, Director **Dates Contacted:** February 21, 2012	• General records of known natural heritage features. • Aboriginal Traditional Knowledge.	• No response received.

2.2.2 Agency Meetings

In-person meetings were held with a number of agencies to obtain additional information, records and to review areas of concern requiring additional study during the Site Investigation. Meetings are summarized in **Table 2.3.**

Table 2.3 Summary of Agency Meetings

Agency	Date	Location	Topic of Discussion
Ministry of Natural Resources, Renewable Energy Provincial Field Program Staff	August 16, 2011	Conference Call	• Review of NHA process and field work requirements.
Ministry of Natural Resources, Renewable Energy Provincial Field Program Staff	August 25, 2011	Neegan Burnside Guelph Office	• Review results of MNR's records review; • Discussion regarding significant features and species; • Review of protocols for surveying and identifying features of significance.
Ausable Bayfield Conservation Authority	March 1, 2012	ABCA Office	• Discussion of hazard land features, including valleylands.
Perth County, West Perth, Huron East, South Huron	February 13, 2012	West Perth Office in Mitchell	• Discussion of municipal concerns; • Request made for natural heritage feature data.
Huron County, South Huron	February 27, 2012	South Huron Office in Exeter	• Discussion of municipal concerns; • Request made for natural heritage feature data.
Huron County	March 2, 2012	Huron County Office in Goderich	• Discussion of municipal concerns; • Request made for natural heritage feature data.

Agency	Date	Location	Topic of Discussion
Municipality of Bluewater	March 15, 2012	Municipal Office in Zurich	• Discussion of municipal concerns; • Request made for natural heritage feature data.

3.0 Records Review Results

Based on our review of existing information, agency records and in-person meetings with agency staff, a number of natural heritage features are present, or may be present within 120 m of the Project Location. A detailed description of these features is presented in the following sections and summarized in **Appendix C**. Feature locations are shown on **Figures 2** and **3 a-m** in **Appendix A.**

3.1.1 Habitat of Endangered and Threatened Species

Species designated as Endangered and Threatened under the *Ontario Endangered Species Act* may be present in the Study Area. In accordance with MNR guidelines and policies, species names and locations are being kept confidential. Detailed reporting will be provided to the MNR under separate cover.

3.1.2 Provincial Parks and Conservation Reserve

There are no Provincial Parks or Conservation Reserves in, or within 120 m of, the project location. The Pinery Provincial Park is located approximately 4.9 km to the south of the project location. No further study of Provincial Parks or Conservation Reserves will be undertaken.

3.1.3 Natural Features in Specified Provincial Plan Areas

The Project is not located within the Niagara Escarpment Plan Area, the Oak Ridges Moraine Conservation Plan Area or the Greenbelt Plan's Protected Countryside Area.

3.1.4 Wetlands

Northern Wetlands
There are no northern wetlands located in the vicinity of the project location. Therefore this type of natural feature will not be carried forward to site investigation.

Coastal Wetlands
There are no coastal wetlands located in the vicinity of the project location. Therefore this type of natural feature will not be carried forward to site investigation.

Southern Provincially Significant Wetlands
The Hay Swamp Provincially Significant Wetland is bisected by Sararas/Rodgerville Road and Dashwood Road. Transmission line options A and B run within the right-of-ways of these two roads, respectively, and thus both options will be within 120 m of the wetland. At this time, the northern route is the preferred option. It is noted that the northern route crosses a smaller portion of the wetland than the southern route.

The Hay Swamp Complex consists of fifteen extensively forested individual wetlands, situated along the upper drainage of the Ausable River and its tributary, Black Creek. Hay Swamp is situated at the northern limit of the Carolinian Biotic Province and is categorized as consisting of 98% swamp and 2% marshland. Hay Swamp is an important regional habitat for bird, fish and wildlife populations as well as several species at risk. The swamp also has an important water quantity, flood control and water quality function. Due to its proximity to the project, the Hay Swamp will be brought forward for further investigation.

Evaluated Southern Non-Provincially Significant Wetlands

The Datars-Miller Swamp is located within 120 m of the Project Location. It was evaluated by the Ausable Bayfield Conservation Authority using the Ministry of Natural Resources' Wetland Evaluation System. According to the wetland evaluation record, the wetland scored a total of 386 points with 55 points for Special Features. For a wetland to be considered Provincially Significant it must score a total of 600 points or score at least 200 points for Special Features. The Datars-Miller Swamp was therefore classified as non-Provincially Significant. This wetland feature will be carried forward to site investigation and the boundary of the wetland will be verified in the field.

Keller Swamp has been evaluated in accordance with the MNR Wetland Evaluation System and was found to be non-provincially significant. The swamp is located greater than 120 m from the Project Location. As such, this feature will not be brought forward for further study as part of the Site Investigation.

Unevaluated Southern Wetlands

Fourteen unevaluated wetlands were identified within the Study Area. Of those, four were located within 120 m of the Project Location and ranged in size from 2.8 ha to 18.6 ha. The four unevaluated wetlands will be brought forward for further investigation to determine their significance. In addition, field studies will be undertaken to confirm whether any additional undocumented wetlands exist in the area.

3.1.5 Provincially Significant ANSI (Life Science)

There are no Provincially Significant Life Science Areas of Natural and Scientific Interest ("ANSI") within the vicinity of the project location.

The Hay Swamp Regional Life Science ANSI is located directly adjacent to both road right-of-ways ("ROWs") within which the northern and southern transmission line options are located. As this ANSI has previously been evaluated as being non-provincially significant, no further study will be undertaken.

Bayfield South Regional ANSI and Khiva Conservation Forests Regional ANSI are both located over 120 km from the Project Location. Neither will be brought forward for further investigation.

3.1.6 Provincially Significant ANSI (Earth Science)

The Dashwood Regional ANSI is located south of the proposed transmission line routes. It is over 50 m from any component of the project and will not be studied in further detail during the Site Investigation.

The St. Joseph Till Regional Earth Science ANSI is located along the Lake Huron shoreline over 50 m from the Project Location and will thus not be brought forward for further study.

Two sinkholes, known as the Chiselhurst Sinkhole and Ausable River Sinkhole Earth Science ANSIs are located within the karst formations in the vicinity of the proposed transmission line routes. Neither sinkhole is provincially significant nor is either within 50 m of the Project Location. No further study will be undertaken.

Four provincially significant Earth Science ANSIs are present within the vicinity of the project as follows:

- Staffa Kame Complex;
- Staffa-Dublin Moraine;
- North Thames River; and,
- Fullarton Moraine.

None of these ANSIs are located within 50m of the Project Location. As such, there will be no further study of Earth Science ANSIs as part of the Natural Heritage Assessment.

3.1.7 Significant Valleylands

According to the Ausable Bayfield Conservation Authority (February 21, 2012), there are two Significant Valleylands in the vicinity of the Project Location. One, known as the Pergel Gully, runs from approximately Lots 12 and 13 LRE Conc. in the former Township of Hay to the outlet at Lake Huron. The other is located along the Ausable River valley and is in the vicinity of the proposed transmission line routes.

Neither of these valleylands is within 120 m of the Project Location and neither will be brought forward for further study.

Field studies will be undertaken to confirm whether any additional undocumented valleylands exist in or within 120 m of the Project Location.

3.1.8 Significant Woodlands

There are 217 woodlands in the Study Area of which 52 are within 120 m of the Project Location. Woodlands vary in size between 0.2 ha to 261 ha.

Significant Woodlands have not been mapped by Huron County. According to the Municipality of South Huron Official Plan, significant woodlands in the municipality are considered to be any woodland greater than 2 ha in size.

The Municipality of Bayfield Official Plan does not directly identify significant woodlands. There is an indirect reference that any development adjacent to woodlots that are greater than 4 ha in size should be reviewed for ecological impacts. Craig Metzger, Huron County Planner for the Municipality of Bluewater indicated that the municipality relies on the Ausable Bayfield Conservation Authority ("ABCA") to identify significant woodlands on a case by case basis (personal correspondence, May 5, 2001).

As significance has not formally been confirmed for any of the woodlands, all will be brought forward for further study during the Site Investigation. Field studies will be undertaken to confirm whether any additional undocumented woodlands exist in or within 120 m of the Project Location.

3.1.9 Significant Wildlife Habitat

According to the Draft Significant Wildlife Habitat Ecoregion 6E Criterion Schedule (MNR, 2012), Significant Wildlife Habitat includes:

- Seasonal concentration areas of animals;
- Rare vegetation communities or specialized habitat for wildlife;
- Habitats for species of conservation concern; and,
- Animal movement corridors.

Each of these types of habitats is discussed in detail below.

3.1.9.1 Seasonal Concentration Areas

Seasonal concentration areas are areas where animals occur in relatively high densities for the species at specific periods in their life cycles and/or in particular seasons. Seasonal concentration areas tend to be localized and relatively small in relation to the area of habitat used at other times of the year.

Waterfowl Stopover and Staging Areas (Terrestrial and Aquatic)
There are two types of waterfowl stopover and staging habitat to consider: 1) terrestrial and 2) aquatic. Terrestrial habitat consists of fields with sheet water during spring (mid-March to May). This includes seasonally flooded agricultural fields with waste grains for Tundra Swans in areas within Ecoregion 7E.

The aquatic habitat consists of ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration that have an abundance of food supply (mostly aquatic invertebrates and vegetation in shallow water).

The Thedford Flats Important Bird Area ("IBA") is located approximately 5.6 km southwest of the Project and is designated as a Globally Significant area for congregatory species. This designation is due to significant populations of migrating Tundra Swans that congregate during spring migration. In 1994, 16,356 birds congregated at the Thedford Flat site during late March. The site is also designated as Nationally Significant due to its use by large concentrations of waterfowl.

The Thedford Flats IBA is a significant distance from the Project Location and is separated from it by extensive developed areas within the Town of Grand Bend. No further study of the site will be undertaken.

It is unclear whether additional waterfowl stopover and staging areas are present. Further study during the Site Investigation will confirm the presence or absence of this type of habitat.

Shorebird Migratory Stopover Areas
Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded shorelines can provide migratory stopover areas for shorebirds. The Project Location is within close proximity to several small watercourses and the Lake Huron shoreline. As such, the potential presence of this type of habitat will be assessed further during the Site Investigation.

Raptor Wintering Area
A review of the Ontario Breeding Bird Atlas indicated that a number of raptor species have been observed in the vicinity of the project. Observations were during the spring breeding period and thus it is unclear whether winter habitat is present. Wintering habitat typically includes a combination of fields and woodlands >20 ha in size (with a minimum 15 ha consisting of upland habitat). This type of habitat will be brought forward for further investigation during the Site Investigation.

Bat Hibernacula

A review of the Renewable Energy Atlas did not identify any known or documented significant bat habitat, such as roosts, maternity sites or caves in the study area.

Caves, karst topography, sinkholes and abandoned mines can provide hibernation habitat for bats. Two areas of karst topography and two sinkholes have been identified by the Ministry of Northern Development, Mines and Forestry. All formations are in the vicinity of the proposed transmission line routes; however, only the southern-most feature is within 120 m of the Project Location, as shown in **Appendix A, Figure 2**.

The potential presence of bat hibernacula within the karst formation will be brought forward for further investigation during the Site Investigation.

Bat Maternity Colonies

Maternal colonies are found in tree cavities within deciduous and mixed mature forest areas. A review of the Renewable Energy Atlas did not identify any known or documented significant bat habitat, such as roosts, maternity sites or caves in the study area. It is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Turtle Wintering Areas

Swamps, marshes, open water, shallow water, fens and bogs along with deeper rivers or streams and lakes with current provide habitat for a variety of turtle species and the wintering areas are in the same general area as their core habitat. Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate dissolved oxygen that are deep enough not freeze with soft substrates. No known turtle wintering areas were identified during records review and it is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Snake Hibernacula

Hibernation takes place in sites located below frost line in burrows, rock crevices, and other natural locations. Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. Other features such as old wells, rock and log piles, old building foundations, retaining walls, ground hog burrows and crayfish burrows are examples of hibernation sites. There are no records of hibernation sites; however, there is some potential for them to occur. This feature will be brought forward for further study in the Site Investigation.

Colonially- Nesting Bird Breeding Habitat (Bank/Cliff, Tree/Shrub and Ground)

There are three types of colonial bird nesting habitat that need to be considered: 1) bank and cliff, 2) trees and shrubs, and 3) ground. These types of habitats provide nesting

sites for species that nest in large colonies, including swallows, herons, terns and gulls. For the bank and cliff habitat type, habitat includes exposed soil banks which have been undisturbed or left to naturally erode. For the trees and shrub habitat type, the habitat consists of swamps and treed fens where nests may be found in live or dead standing trees. For the ground habitat type, habitat consists of any rocky island or peninsula (natural or artificial) within a lake or large river; Brewer's Blackbird habitat consists of habitat with low bushes in close proximity to streams and irrigation ditches within farmlands. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Migratory Butterfly Stopover Areas
Significant habitats are only present within 5 km of the Lake Erie and Lake Ontario shorelines. This type of habitat is therefore not present within the vicinity of the Project and will not be carried forward for further investigation.

Landbird Migratory Stopover Areas
Significant habitats are only present within 5 km of the Lake Erie and Lake Ontario shorelines. This type of habitat is therefore not present within the vicinity of the Project and will not be carried forward for further investigation.

Deer Yarding Areas
Deer yarding areas are areas deer move to in response to the onset of winter snow and cold. Deer yarding areas have been mapped by the Ministry of Natural Resources, as shown on **Appendix A, Figure 2**. A winter deer yard has been identified in association with the Hay Swamp Regional Life Science ANSI. The deer yard has been identified as Stratum 2 deer wintering habitat by the MNR. The deer yarding area is considered significant wildlife habitat and will be carried forward.

Deer Winter Congregation Areas
Deer movement during winter is not constrained by snow depth in the southern areas of Ecoregion 6E, however deer will annually congregate in large numbers in suitable woodlands (>100 ha) to reduce or avoid the impacts of winter conditions. During the records review no deer winter congregation areas were identified by the MNR and therefore, this will not be carried forward for further investigation.

3.1.9.2 Rare Vegetation Communities

Rare vegetation communities often contain rare species, particularly plants and small invertebrates, which depend on such habitats for their survival and cannot readily move to or find alternative habitats. These communities include areas that contain a provincially rare vegetation community and areas that contain a vegetation community that is rare within the planning area, these communities in Ontario include the following:

Cliffs and Talus Slopes

A cliff is a vertical to near vertical bedrock >3 m in height. A talus slope is rock rubble at the base of a cliff made up of coarse rocky debris. Most cliffs and talus slopes occur along the Niagara Escarpment. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Sand Barren

Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Sand barrens are usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Alvar

An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto-and zoogeographically diverse, supporting many uncommon or relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Old Growth Forest

Old-growth forests tend to be relatively undisturbed, structurally complex and contain a wide variety of trees and shrubs in various age classes. These habitats usually support a high diversity of wildlife species. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Savannah

A savannah is a tallgrass prairie habitat that has tree cover between 25 to 60%. Tallgrass prairie and savannah were historically common in the near shore areas of the Great Lakes. In Ecoregion 7E known tallgrass prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline , in Brantford and in the Toronto area (north of Lake Ontario). It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Tallgrass Prairies
A tallgrass prairie has ground cover dominated by prairied grasses. An open Tallgrass Prairie habitat has <25% tree cover. Tallgrass prairie and savannah were historically common in the near shore areas of the Great Lakes. In Ecoregions 7E and 6E known tallgrass prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario). It is unknown whether this type of habitat is present and therefore, it will be brought forward for further consideration in the Site Investigation.

Other Rare Vegetation Communities
Rare vegetation communities may include beaches, fens, forest, marsh, barrens, dunes and swamps. According to the MNR, Forest Resource Inventory ("FRI") mapping from 1978 indicates the presence of rare forest communities. Due to the historic nature of the mapping, rare communities may no longer be present. The Site Investigation will confirm the presence of this type of habitat along with the other rare vegetation communities listed above.

3.1.9.3 Specialized Habitat for Wildlife

Specialized wildlife habitat includes areas that support wildlife species that have highly specific habitat requirements, areas with exceptionally high species diversity or community diversity and areas that provide habitat that greatly enhances species' survival.

Waterfowl Nesting Area
For nesting, waterfowl typically require wetlands greater than 0.5 ha in size with adjacent upland areas that are at least 120 m wide to provide protection from predators such as raccoons, skunks and foxes. In addition, species such as hooded merganser and wood duck nest in cavities of large diameter trees (>40 cm dbh). It is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Bald Eagle and Osprey Nesting, Foraging and Perching Habitat
Bald eagle nests are typically in the super canopy trees in a notch within the tree's canopy. Osprey nests are generally found directly adjacent to riparian areas, rivers, lakes, ponds and wetlands. Nests are usually at the top of large, often dead trees. Given the close proximity of the project to the Lake Huron shoreline, this feature will be brought forward for further investigation.

Woodland Raptor Nesting Habitat
Raptors typically nest in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. All natural or conifer plantation

woodland/forest stands >30 ha with >10 ha of interior habitat (interior habitat determined with a 200 m buffer) could provide this habitat type. The presence or absence of this type of habitat will be confirmed during the Site Investigation.

Turtle Nesting Areas

Best nesting habitat must be close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. For an area to function as a turtle-nesting area, it must provide sand and/or gravel that turtles are able to dig in and must be close to water. These sites are often south to south west facing and have maximum exposure to sunlight. Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. The presence or absence of this type of habitat will be confirmed during the Site Investigation.

Seeps and Springs

Seeps and springs are areas where ground water comes to the surface and are often found within headwater areas within forested habitats. It is unknown whether seeps and springs are present in or within the Project Location. Confirmation will be provided during the Site Investigation.

Amphibian Breeding Habitat (Woodland and Wetland)

Wetlands and pools within or adjacent to wooded areas are important for many amphibian species. Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.

Wetlands and pools isolated from woodlands, supporting high species diversity are significant and the presence of shrubs and logs increase significance of pond for some species due to the available structure for calling, foraging, escape and concealment from predators. Bullfrogs require permanent water bodies with abundant emergent vegetation.

It is unknown whether these habitats exist in or within the Project Location so further studies will be undertaken during the Site Investigation.

3.1.9.4 Habitat for Species of Conservation Concern

Habitats for Species of Conservation Concern include wildlife species that are listed as Special Concern or rare, that are declining or are featured species in the province but does not include those species listed as Threatened or Endangered.

Marsh Breeding Bird Habitat

Marsh breeding habitat for birds may be present where there are wetlands with shallow standing water and emergent aquatic vegetation. It is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Woodland Area-Sensitive Breeding Bird Habitat

Woodland area-sensitive species require large mature (>60 yrs old) forest stands or woodlots >30 ha, providing interior habitat away from an edge where they may be more vulnerable to predation. Mature natural (non-plantation) forests that are greater than 30 ha in size and having at least 4 ha of interior habitat (interior forest habitat is at least 200m from forest edge habitat) are considered to provide significant habitat for woodland area-sensitive bird species. Based on existing woodlands mapping (NRVIS), there are several large woodlands within 120 m of the Project Location which likely meet the size criteria. The actual size, woodland boundaries, forest maturity and natural vs. plantation status will be confirmed during the Site Investigation.

A review of the Ontario Breeding Bird Atlas (Bird Studies Canada, n.d. b) identified a number of area-sensitive bird species in the vicinity of the project. A list of area-sensitive forest species observed from within three 10 km x 10 km squares that cover the Project Location and its broader vicinity is provided in **Table 3.1**. The Site Investigation will confirm if this habitat is present in or within the 120 m Project Location.

Table 3.1 Forest Area-Sensitive Species in the Vicinity of the Project

Common Name	Scientific Name
Broad-winged Hawk	*Buteo platypterus*
Pileated Woodpecker	*Dryocopus pileatus*
Hairy Woodpecker	*Picoides villosus*
Yellow-bellied Sapsucker	*Sphyrapicus varius*
Least Flycatcher	*Empidonax minimus*
Red-breasted Nuthatch	*Sitta canadensis*
White-breasted Nuthatch	*Sitta carolinensis*
Winter Wren	*Troglodytes troglodytes*
Blue-gray Gnatcatcher	*Polioptila caerulea*
Veery	*Catharus fuscescens*
Pine Warbler	*Dendroica pinus*
Ovenbird	*Seiurus aurocapillus*
American Redstart	*Setophaga ruticilla*
Sharp-shinned Hawk	*Accipiter striatus*
Cooper's Hawk	*Accipiter cooperii*
Red-shouldered Hawk	*Buteo lineatus*
Yellow-throated Vireo	*Vireo flavifrons*
Scarlet Tanager	*Piranga olivacea*
Brown Creeper	*Certhia Americana*
Magnolia Warbler	*Dendroica magnolia*
Black-throated Green Warbler	*Dendroica virens*
Canada Warbler	*Wilsonia Canadensis*

Open Country Bird Breeding Habitat

This type of habitat is characterized by large open grassland areas greater than 30 ha in size. It is unlikely that there are large natural grasslands present; however, the region is used extensively for farming and it is unclear whether abandoned fields, mature hayfields or pasturelands are present. Grasslands not class 1 or 2 agricultural lands, and not being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last 5 years, will be considered candidate habitat for open country breeding birds. Further study will be undertaken during the Site Investigation.

A review of the Ontario Breeding Bird Atlas identified a number of grassland bird species requiring large grassland habitats in the vicinity of the project. A list of species observed from within three 10 km x 10 km squares that cover the Project Location and its broader vicinity is provided in **Table 3.2**. Studies will be undertaken during the Evaluation of Significance to confirm the presence of these species if suitable habitat is found within 120 m of the Project.

Table 3.2 Grassland Bird Species in the Vicinity of the Project Location

Common Name	Scientific Name
Grasshopper Sparrow	*Ammodramus savannarum*
Savannah Sparrow	*Passerculus sandwichensis*
Upland Sandpiper	*Bartramia longicauda*
Northern Harrier*	*Circus cyaneus*
Short-eared Owl*	*Asio flammeus*

*species identified by MNR as possibly in the vicinity of the project location

Shrub/Early Successional Bird Breeding Habitat

This type of habitat is characterized by large old field areas >10 ha that are succeeding to shrub and thicket lands. The habitat type does not include Class 1 or 2 agricultural lands or lands that are actively used for farming (i.e. row cropping, haying or livestock pasturing in the last 5 years). Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. No records of shrub/early succession birds were identified through the Ontario Breeding Bird Atlas data; however, MNR records indicated the potential presence of yellow-breasted chat, *Icteria virens,*

It is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Terrestrial Crayfish Habitat

Meadow and edges of shallow marshes identified should be surveyed for terrestrial crayfish. Chimney Crayfish (*Fallicambarus fodiens*) are known to occur in the vicinity of the Project Location. This feature will be brought forward for further investigation.

Special Concern and Rare Wildlife Species

Based on a review of the Ontario Breeding Bird Atlas, Natural Heritage Information Centre Biodiversity Explorer and records provided by the MNR, the species listed in **Table 3.3** have the potential to be located in the vicinity of the Project. The presence of suitable habitat will be confirmed during the Site Investigation.

Table 3.3 Species of Conservation Concern

Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
Mammals	Little Brown bat	*Myotis lucifugus*	END (COSEWIC)	S5	This species will be carried forward to the Site Investigation Report and considered under Bat Hibernacula and Bat Maternity Colony.
	Northern Long-eared Bat	*Myotis septentrionalis*	END (COSEWIC)	S3?	This species will be carried forward to the Site Investigation Report and considered under Bat Hibernacula and Bat Maternity Colony.
	Tri-colored Bat	*Perimyotis subflavus*	END (COSEWIC)	S3?	This species will be carried forward to the Site Investigation Report and considered under Bat Hibernacula and Bat Maternity Colony.
Birds	Common Nighthawk	*Chordeiles minor*	SC	S4B	Generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops). This species will be carried forward to the Site Investigation Report and considered separately from all other habitat types.
	Red-headed Woodpecker	*Melanerpes erythrocephalus*	SC	S4B	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks. This species will be carried forward to the Site Investigation Report and considered separately from all other habitat types.
	Short-eared Owl	*Asio flammeus*	SC	S2N, S4B	Generally prefers a wide variety of large (<100 ha) open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and hay fields. This species will be considered in the site investigation report under Raptor Winter Feeding and Roosting Areas and Open Country Breeding Birds.
	Yellow-breasted Chat	*Icteria virens*	SC	S2B	Generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings. This species will be considered in the Site Investigation Report under Shrub/Early Successional Bird Breeding Habitat.
	Bald Eagle	*Haliaeetus leucocephalus*	SC	S1S2N,S4B	Prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers; They roost in super canopy trees such as Pine. This species will be considered in the Site Investigation report under Bald Eagle and Osprey Nesting, Perching

Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
					and Feeding Habitat.
Amphibians/ Reptiles	Snapping Turtle	*Chelydra serpentina*	SC	S3	Commonly found in shallow ponds, shallow lakes, or streams with muddy bottoms. They are known to bask on fallen logs in early spring. In shallow waters, they are known to travel overland to reach new habitat or to lay eggs in sandy soil, often some distance from the water. This species will be considered in the site investigation report under Turtle Nesting Areas and Turtle Wintering Area Habitat.
	Milksnake	*Lampropeltis triangulum*	SC	S3	This species lives in a wide range of habitats, including old fields and farm buildings where rodents are common. This species will be considered in the Site Investigation Report under Snake Hibernacula.
	Eastern Ribbonsnake	*Thamnophis sauritus*	SC	S3	Eastern Ribbonsnake's are usually found in wetlands and near the edges of ponds and streams. They are adaptable to being both in and out of water environments. This species will be considered in the Site Investigation Report under Snake Hibernacula.
Flora	Tuberous Indian-plantain	*Arnoglossum plantagineum*	SC	S3	These plants prefer open sunny areas in wet, calcareous meadows or shoreline fens (floating mats).
	Hill's Pond Weed	*Potamogeton hillii*	SC	S2	This species grows in clear, cold ponds and slow- moving streams where the water is alkaline.
	Green Dragon	*Arisaema dracontium*	SC	S3	The Green Dragon plant grows in wet forests along streams, and prefers Maple forest and forest dominated by Red Ash and White Elm.
	Harbinger-of-spring	*Erigenia bulbosa*	-	S3	rich, moist deciduous woods, open, wooded river floodplains and bottomlands; stream banks and limestone shingle shores
	Burning Bush	*Euonymus atropurpureus*	-	S3	Burning Bush grows in low meadows, open slopes, open woodland, stream banks and prairies, in moist soils, and is partial to thickets, valleys, and forest edges.
	Large Round-leaved Orchid	*Platanthera macrophylla*	-	S2	This species is found in moist or dry woodlands, typically deciduous as they prefer little ground cover and some leaf litter.
	Hairy Wood Mint	*Blephilia hirsuta*	-	S1	Habitats include mesic deciduous woodlands, areas along woodland paths, woodland borders, and thickets. Minor disturbance is desirable if it removes excessive shade from the overhead canopy.

Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
	Autumn Coral-root	*Corallorhiza odontorhiza*	-	S2	Autumn Coral-root can be found in a variety of forested upland habitats, although sites are typically mesic.
	Chinese Hemlock Parsley	*Conioselinum chinense*	-	S2	Calcareous cedar swamps; wet borders of streams and rivers; seepage slopes in wet coniferous woods, swampy thickets, moist clearings and damp roadsides – in northern Ontario in *Salix-Alnus* thickets; moist *Populus* stands, moist sandy shorelines
	Crowned Beggarticks	*Bidens trichosperma*	-	S2	*B. trichosperma* is found in moist, sandy meadows, marshes, stream banks and gravelly shores. This species was previously referred to as *B. coronata*.
	Eastern Green-violet	*Hybanthus concolor*	-	S2	It is found in moist, shady sites in ravines and on rocky slopes, also on floodplains, in rich, calcareous soils. Most of the Canadian populations are located along the Niagara Escarpment, as it is an area of prime habitat for the green-violet.
	Fogg's Goosefoot	*Chenopodium foggii*	-	S2	Found in sandy areas on limestone under oak or pine-oak forests.
	Rattlesnake Hawkweed	*Hieracium venosum*	-	S2	Common habitat includes open, dry sandy woods.
	Slender Knotweed	*Polygonum tenue*	-	S2	Species common in dry, sandy, open areas in deciduous (often oak woods), prairie meadows; and at the edges of sand pits.
	Slender Vulpia	*Vulpia octoflora*	-	S2	*V. octoflora* are found in dry, sandy meadows; canopy openings in dry sandy forests; and open, stabilized dunes.
	Slim-flowered Muhly	*Muhlenbergia tenuiflora*	-	S2	This species is commonly found in rich deciduous forest, often on rocky or sandy soils.
	Slim-spiked Three-awned Grass	*Aristida longespica var. longespica*	-	S2	Commonly located in dry to moist sandy fields and sandy openings in prairies.
	Stiff Gentian	*Gentianella quinquefolia*	-	S2	Located in moist soils, along roadsides, stream banks and edges of woods and prairies.
	Hairy Valerian	*Valeriana edulis*	-	S1	Habitats include swampy river flats and meadows; wet prairies; as well as wooded, rocky riverbanks.
	Woodland Pinedrops	*Pterospora andromedea*	-	S2	Commonly found in conifer woods, under pine trees.

Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
	Yellow Ladies'-tresses	*Spiranthes ochroleuca*	-	S2	Sandy meadows, prairies and roadsides are the common sites you will locate this species.
	Giant Ironweed	*Vernonia gigantea*	-	S1?	It is an adaptable plant and occurs in a wide variety of habitats. Often, it is found in mesic prairies, thickets, moist woods, roadsides and grassy meadows.
	American Gromwell	*Lithospermum latifolium*	-	S3	Can be located in river floodplains, woods and open areas near edges of woods.
	Carolina Whitlow-grass	*Draba reptans*	-	S3	Species habitats include dry sandy areas, dry open flats, and limestone pavements.
	Pillose Evening Primrose	*Oenothera pilosella*	-	S2	This species is located in the moist edges of woods and prairies.
	Hairy Bedstraw	*Galium pilosum*	-	S3	Hairy bedstraw inhabits dry, sandy woods and thickets; and is occasionally in dry sandy fields.
	False Tomentose Balsam Grounsel	*Packera paupercula var. pseudotomentosa*	-	S2S3	Commonly located in moist sandy or gravelly (limestone) shores, fens, cedar swamps, thin soil over limestone (alvar); and also in dry aspen, and oak savannah (especially in moist areas); meadows and marshy ground.
	Scarlet Beebalm	*Monarda didyma*	-	S3	Located in moist woods, swampy thickets and roadsides.
	Lizard's Tail	*Saururus cernuus*	-	S3	Habitat is restricted to shores and shallow water.
	Pawpaw	*Asimina triloba*	-	S3	This species is located in moist woods and along stream banks.
	Round-leaved Hawthorn	*Crataegus lumaria*	-	S3	The MNR consulted NatureServe and they list the habitat as "old fields, pastures, roadsides". It has a floristic coefficient of conservatism of 2, so it tends to favor disturbed habitats, which matches the habitats described above.
Butterflies/ Dragonflies	Monarch Butterfly	*Danaus plexippus*	SC	S2N,S4B	The Monarch can be found in a wide range of habitats such as fields, meadows, prairie remnants, urban and suburban parks, gardens, and roadsides. The habitat must provide an abundance of nectar producing plants, specifically milkweed. This species will be carried forward to Site Investigation and considered separately from other habitat types.

Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
	West Virginia White	*Pieris virginiensis*	SC	S3	This species is typically found in moist deciduous forests. This species will be carried forward to Site Investigation and considered separately from other habitat types.
	Tawny Emperor	*Asterocampa clyton*	-	S2S3	The Tawny Emperor butterfly may be seen flying near houses, gravel driveways, near water, muddy places, gardens, and woodlands. This species only host plant is hackberry trees. This species will be carried forward to Site Investigation and considered separately from other habitat types.
	Azure Bluet	*Enallagma aspersum*	-	S3	This dragonfly species can be found in shallow ponds, lakes, and bogs, which are usually fishless. This species will be carried forward to Site Investigation and considered separately from other habitat types.

*ESA Status- Species status under the Ontario Endangered Species Act

** S-Rank- a general classification indicating species rarity. Species with S-Ranks between S1 and S3 are considered to be rare in the province.

3.1.9.5 Animal Movement Corridors

Animal Movement Corridors are elongated areas used by wildlife to move from one habitat to another. They are important to ensure genetic diversity in populations, to allow seasonal migration of animals and to allow animals to move throughout their home range from feeding areas to cover areas.

Amphibian Movement Corridors
Amphibian corridors allow movement between breeding habitat and summer habitat. It is unknown whether amphibian corridors are present. Additional study will be undertaken during the Site Investigation.

Deer Movement Corridors
Corridors allow movement between summer and winter range. Corridors typically follow riparian areas, woodlots, and/or areas of physical geography (ravines or ridges). Stratum 2 deer wintering habitat has been identified by the MNR within the portion of the Project Location which is located within Ecoregion 6E. No MNR records or mapping identifying deer movement corridors in the area were located. This feature will be carried forward to site investigation to confirm whether any corridors are present.

3.1.9.6 Exceptions for Ecoregion 6E

Mast Producing Areas
This feature applies only to Ecodistrict 6E-14 within Ecoregion 6E. The project is located within 6E-2, thus this feature is not applicable and will not be carried forward for further study.

Sharp-tailed Grouse Leks
This feature applies only to Ecodistrict 6E-17 within Ecoregion 6E. The project is located within 6E-2, thus this feature is not applicable and will not be carried forward for further study.

4.0 Additional Records

The Port Franks Wetlands and Forests Important Bird Area is well known for providing habitat for a variety of rare bird species. According to Bird Studies Canada (n.d. a), "the area supports an exceptional concentration of provincially and nationally threatened vegetation communities, flora, and fauna." Species at risk will be address under separate cover; however, it is also noted that the area supports a variety of Special Concern and provincially rare species, including red-headed woodpecker, *Melanerpes erythrocephalus*, Louisiana waterthrush, *Parkesia motacila* and others. The Important Bird Area is located over 5 km from the Project Location and will not be brought forward for further study.

5.0 Summary of Natural Features Carried Forward to Site Investigation

5.1.1 Records Identified

The Records Review identified existing records of a number of significant or potentially significant features within 120 m of the Project Location which will be brought forward for further study in the Site Investigation. These include:

- Provincially Significant and unevaluated wetlands;
- Woodlands;
- Candidate Significant Wildlife Habitat, including:
  - Confirmed deer yarding areas (mapped by MNR);
  - Candidate bat hibernacula (mapped karst topography/sinkholes); and,
  - Candidate habitat for area-sensitive species (woodland mapping available).

Significant natural heritage features which are present, or may be present within 120 m of the Project Location and will be brought forward for further study in the Site Investigation are summarized in **Table C-1** in **Appendix C**.

5.1.2 Features Assumed Potentially Present

Although no specific records or mapped locations were identified, a number of potentially significant features could not be ruled out as being potentially present in the study area. These features will also be brought forward for further investigation. These include

- Valleylands; and,
- Candidate Significant Wildlife Habitat, including:

Seasonal Concentration Areas of Animals:

- Waterfowl stopover and staging areas (terrestrial and aquatic);
- Shorebird migratory stopover areas;
- Raptor wintering area;
- Bat maternity colonies;
- Turtle wintering areas;
- Snake hibernaculum; and,
- Colonially-nesting bird breeding habitat (banks/cliffs, trees/shrubs, ground);

Rare Vegetation Communities:

- Sand Barren;
- Cliffs and talus slopes;
- Alvar;
- Old growth forest;
- Savannah;
- Tallgrass Prairie; and,
- Other Rare Vegetation;

Specialized Habitat for Wildlife:

- Waterfowl nesting area;
- Bald Eagle and Osprey nesting, foraging and perching habitat;
- Woodland raptor nesting habitat;
- Turtle nesting areas;
- Seeps and springs; and,
- Amphibian breeding habitat (woodland and wetlands);

Habitat for Species of Conservation Concern:

- Marsh bird breeding habitat;
- Woodland area-sensitive bird breeding habitat;
- Open country bird breeding habitat;
- Shrub/early successional bird breeding habitat;
- Terrestrial crayfish; and,
- Special concern and rare wildlife species;

Animal Movement Corridors:

- Amphibian movement corridors; and,
- Deer movement corridors.

These types of habitats are summarized in **Table C-1** in **Appendix C**.

6.0 Confirmation from Ministry of Natural Resources

Under Section 28 of O.Reg. 359/09, the Ministry of Natural Resources ("MNR") must review the Records Review Report and confirm that it was completed in accordance with criteria and procedures accepted by that Ministry. This Records Review Report was reviewed and confirmation was received from the MNR on June 4, 2012. A copy of the MNR confirmation is provided in **Appendix D**.

7.0 Conclusions

The Grand Bend Wind Farm may be located within 120 m of a number of significant or potentially significant natural features. A Site Investigation will be undertaken in accordance with O.Reg. 359/09 to confirm the presence or absence of features identified in this report.

Written by:

Signature _____ Date August 2012

Tricia Radburn, M.Sc. (Pl), MCIP, RPP
Environmental Planner
R.J. Burnside & Associates Limited

Reviewed by:

Signature _____ Date August 2012

Lyle Parsons, P.Eng
Project Manager
R.J. Burnside & Associates Limited

Approved by:

Signature _____ Date August 2012

Jim Mulvale, P.Eng
Manager, Environment, Health And Safety
Northland Power Inc.

8.0 References

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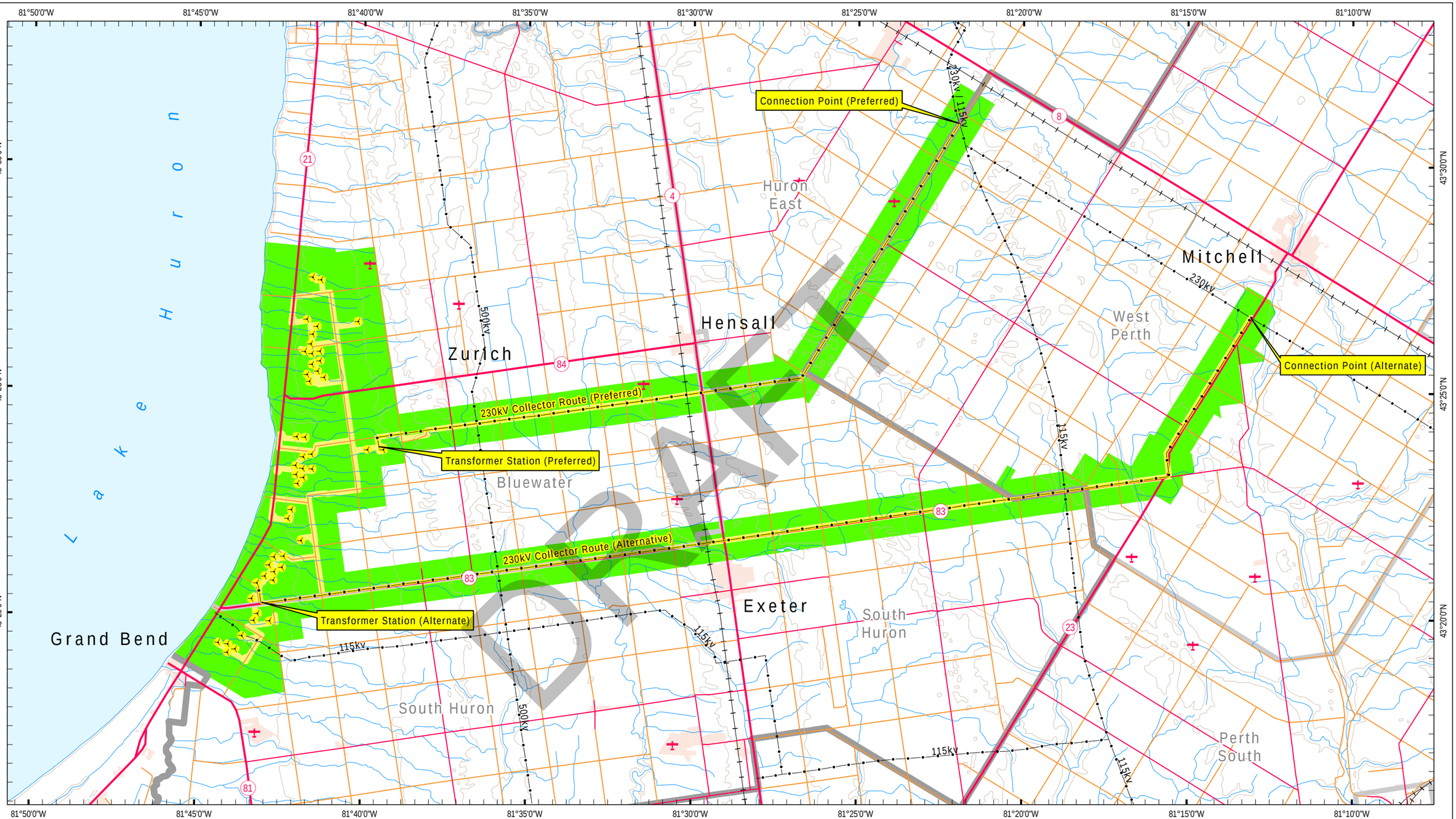
NEEGAN BURNSIDE

Appendix A
Figures



0 1 2 3 4 5 6 7 8
Kilometers

N

- Wind Turbine Location
- Collector Line in Municipal ROW (230kV)
- 120m From Project Location
- 550m+ Study Area

NEEGAN BURNSIDE

30 May 2012

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Study Area

Prepared	Checked	Map Number
P. Stubbert	T. Radburn	1
Scale	Project	
1:150,000	PIA019991	

81°50'0"W 81°45'0"W 81°40'0"W 81°35'0"W 81°30'0"W 81°25'0"W 81°20'0"W 81°15'0"W 81°10'0"W

43°30'0"N 43°25'0"N 43°20'0"N 43°15'0"N

Lake Huron

Grand Bend

Zurich

Hensall

Huron East

Mitchell

West Perth

Bluewater

Exeter

South Huron

Perth South

Bayfield South (Regional ANSI)

Bayfield South (Regional ANSI)

Karst Area (Potential Bat Habitat)

Chiselhurst Sinkhole (Regional ANSI)

Staffa Kame Complex (Provincial ANSI)

Karst Area (Potential Bat Habitat)

Deer Yarding Area

Deer Yarding Area

Deer Yarding Area

St. Joseph's Till (Regional ANSI)

Ausable River Sinkhole (Regional ANSI)

Staffa-Dublin Moraine (Provincial ANSI)

Valleyland

Hay Swamp (Regional ANSI)

Fullarton Moraine (Provincial ANSI)

Deer Yarding Area

North Thames River (Provincial ANSI)

Dashwood Area (Regional ANSI)

Valleyland

Deer Yarding Area

Hay Swamp (Regional ANSI)

Khiva Conservation Forest (Local ANSI)

Port Franks Wetlands & Forest Bird Santuary

The Pinery Prov. Pk.

Thedford Flats Bird Santuary

230kV

115kV

500kV

21 4 8 84 5 83 81 23

0 1 2 3 4 5 6 7 8
Kilometers

N

Wind Turbine Location
Collector Line in Municipal ROW (230kV)
120m From Project Location
Valleyland
ANSI Feature
Wildlife Habitat Feature

NEEGAN BURNSIDE

30 May 2012

Title
Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Project Vicinity

Prepared	Checked	Figure Number
P. Stubbert	T. Radburne	2
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43°30'0"N 43°25'0"N 43°20'0"N

Lake Huron

Grand Bend

Zurich

Hensall

Huron East

Mitchell

West Perth

Bluewater

Exeter

South Huron

Perth South

Figure 3a
Figure 3b
Figure 3c
Figure 3d
Figure 3e
Figure 3f
Figure 3g
Figure 3h
Figure 3i
Figure 3j
Figure 3k
Figure 3l
Figure 3m

500kv
230kv
115kv

21 4 8 84 83 23 81

0 1 2 3 4 5 6 7 8
Kilometers

N

Wind Turbine Location
Collector Line in Municipal ROW (230kV)
120m From Project Location
550m+ Study Area

NEEGAN BURNSIDE

30 May 2012

Title
Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	3 - Key Map
Scale	Project	
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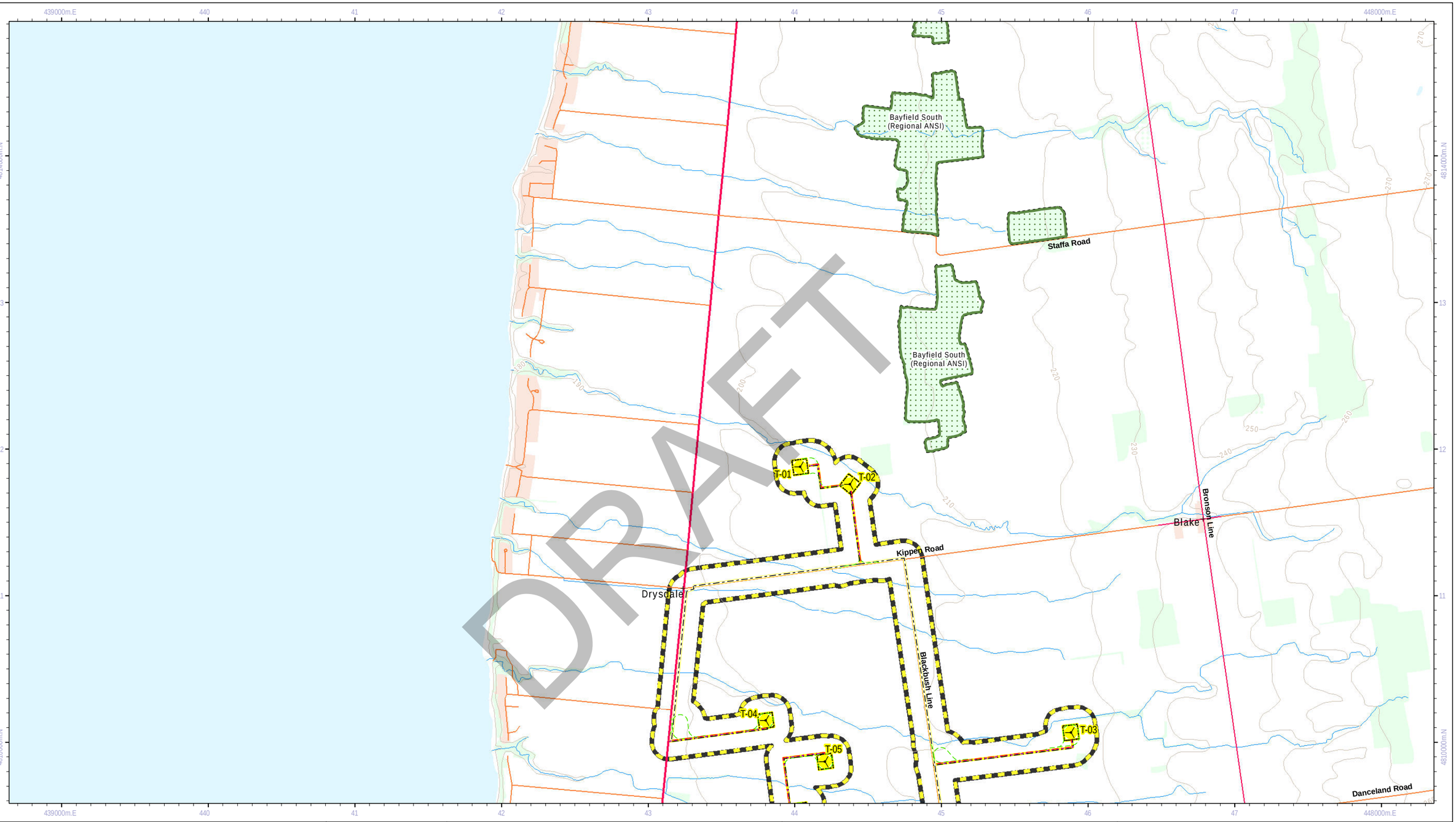
Date: 30 May 2012



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Meters

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NEEGAN BURNSIDE

- Wind Turbine Location
- Transformer Station (Proposed)
- Study Area Boundary (120m Buffer)
- Access Road & Underground Collector Line
- Collector Line in Municipal ROW (230kV)
- Access Road: Permanent
- Participating Property
- Access Road: For Construction: Temporary
- Assembly Site Area Boundary
- Collector Line: Underground
- ANSI: Earth Science
- ANSI: Life Science
- Valleyland
- Wetland
- Deer Yarding Areas
- Karst Area (Potential Bat Habitat)

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	3a
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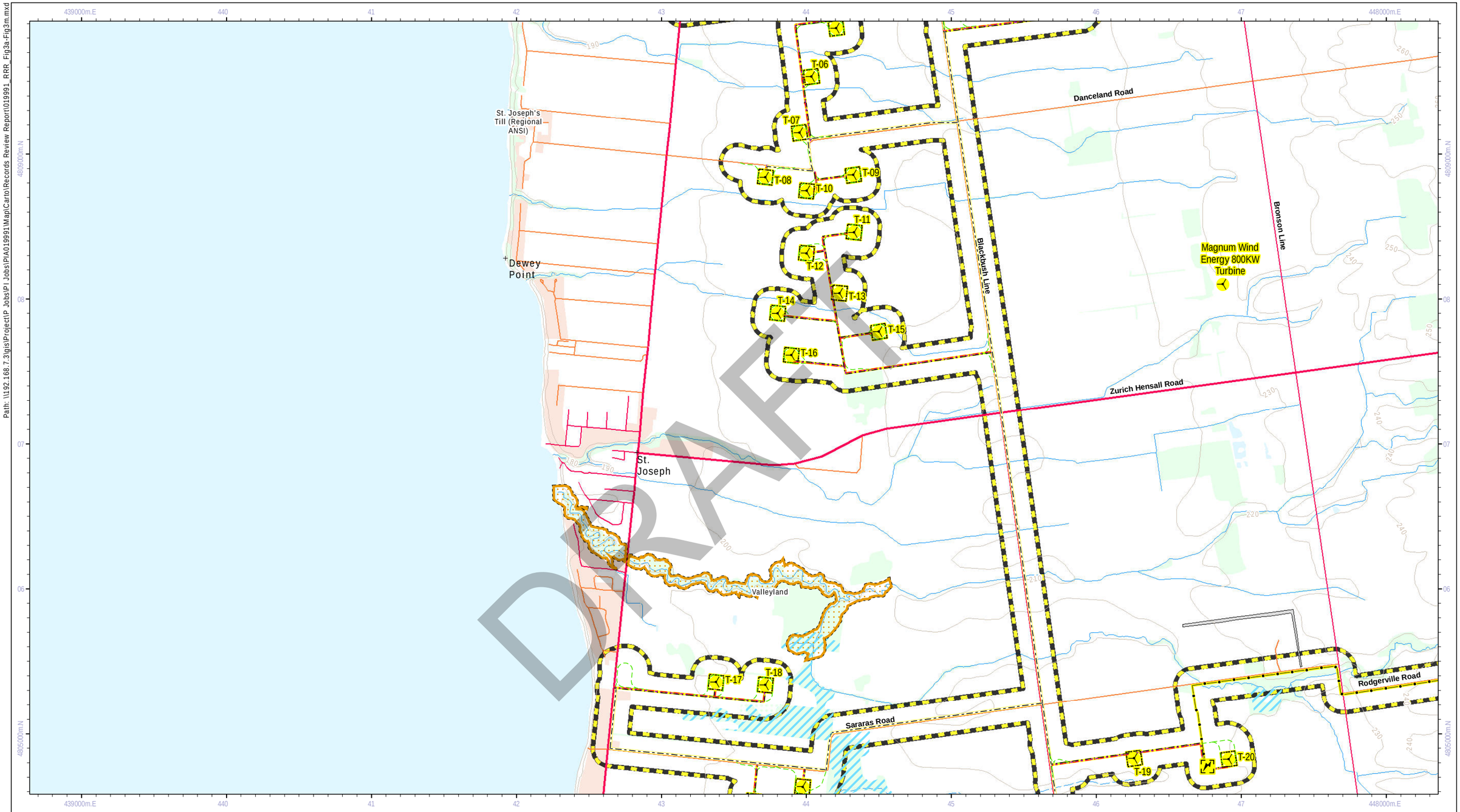

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NEEGAN BURNSIDE

Date: 30 May 2012

- Wind Turbine Location
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- Study Area Boundary (120m Buffer)
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Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	3b
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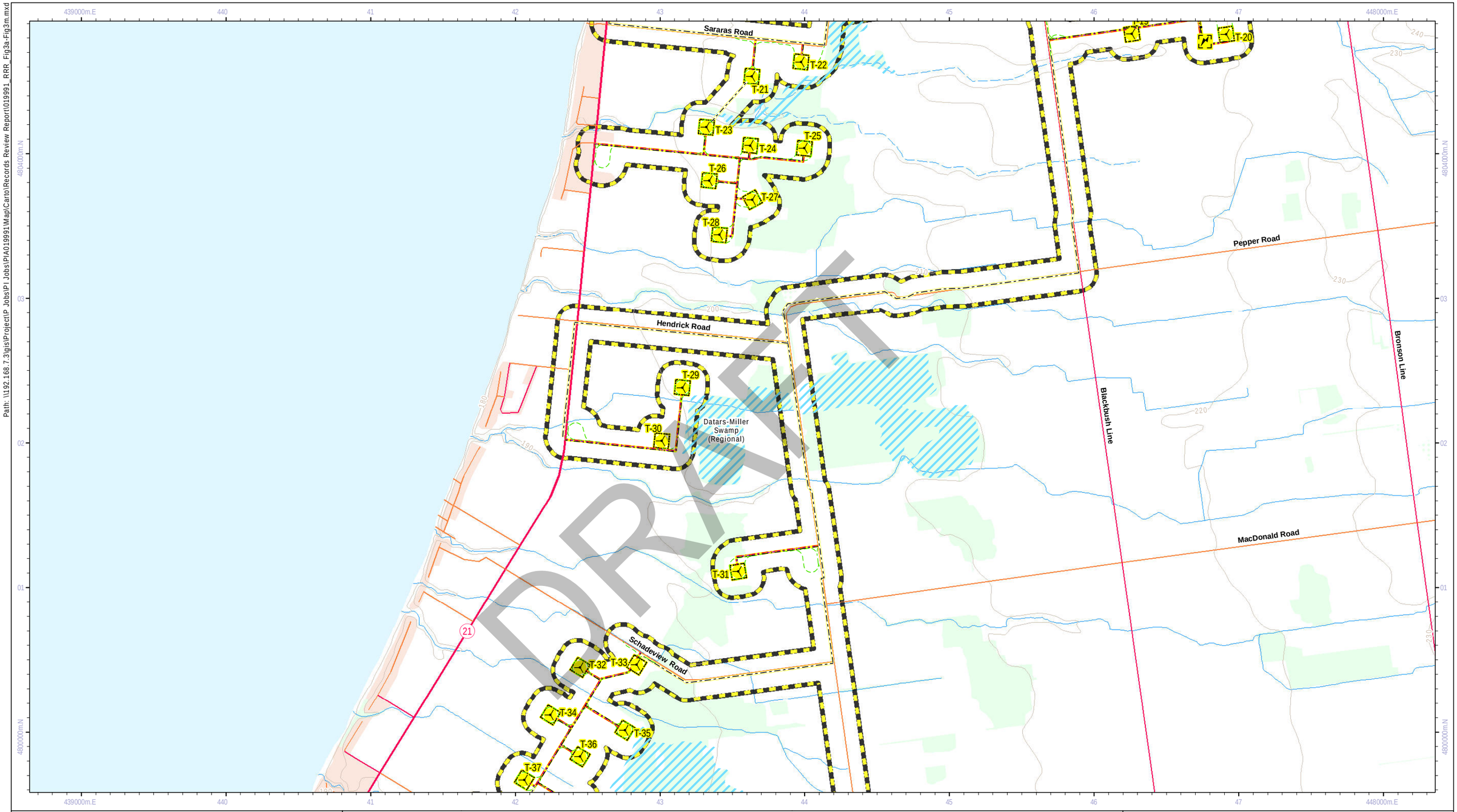

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Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

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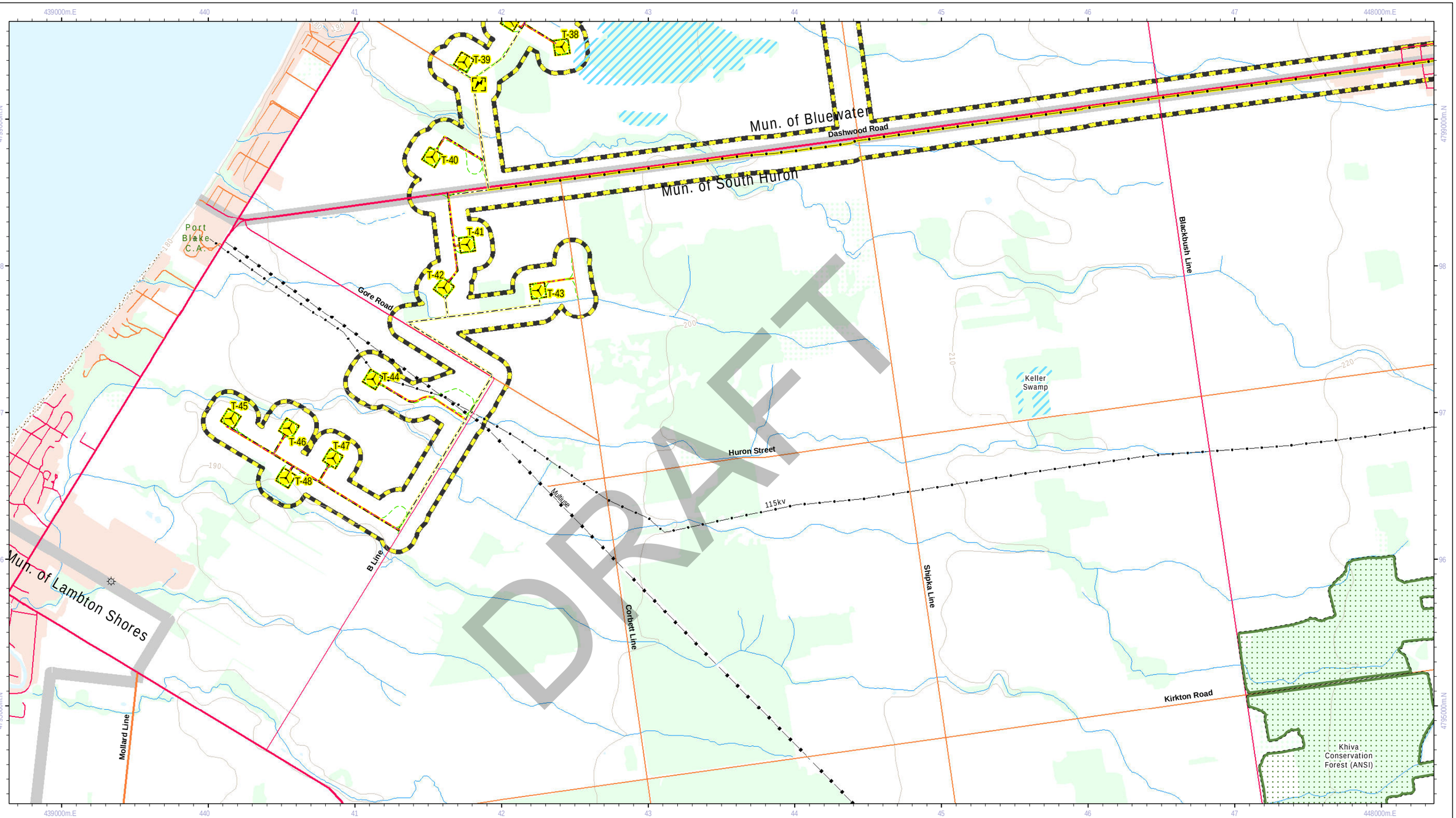

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Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

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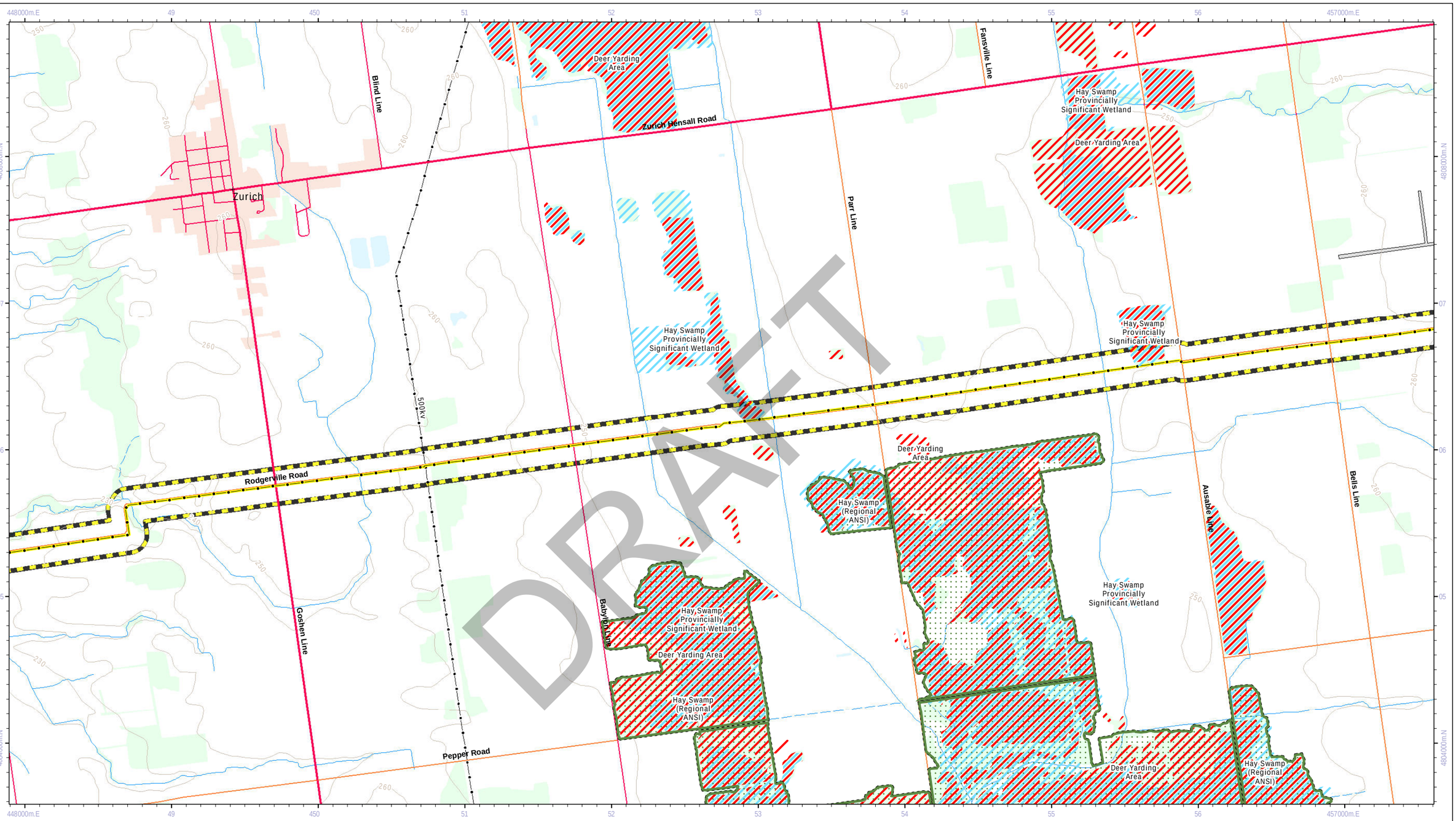

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Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

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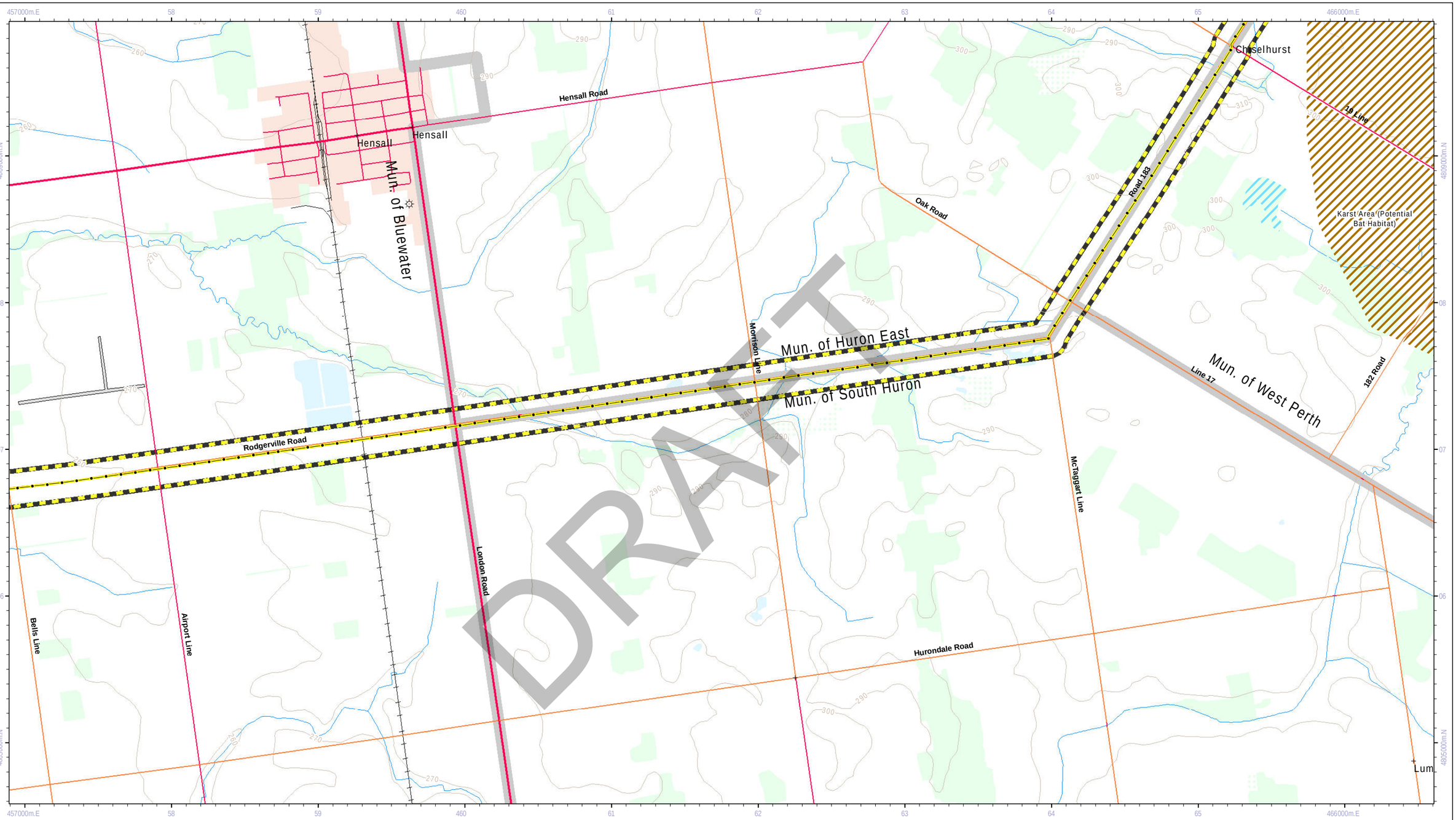

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Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

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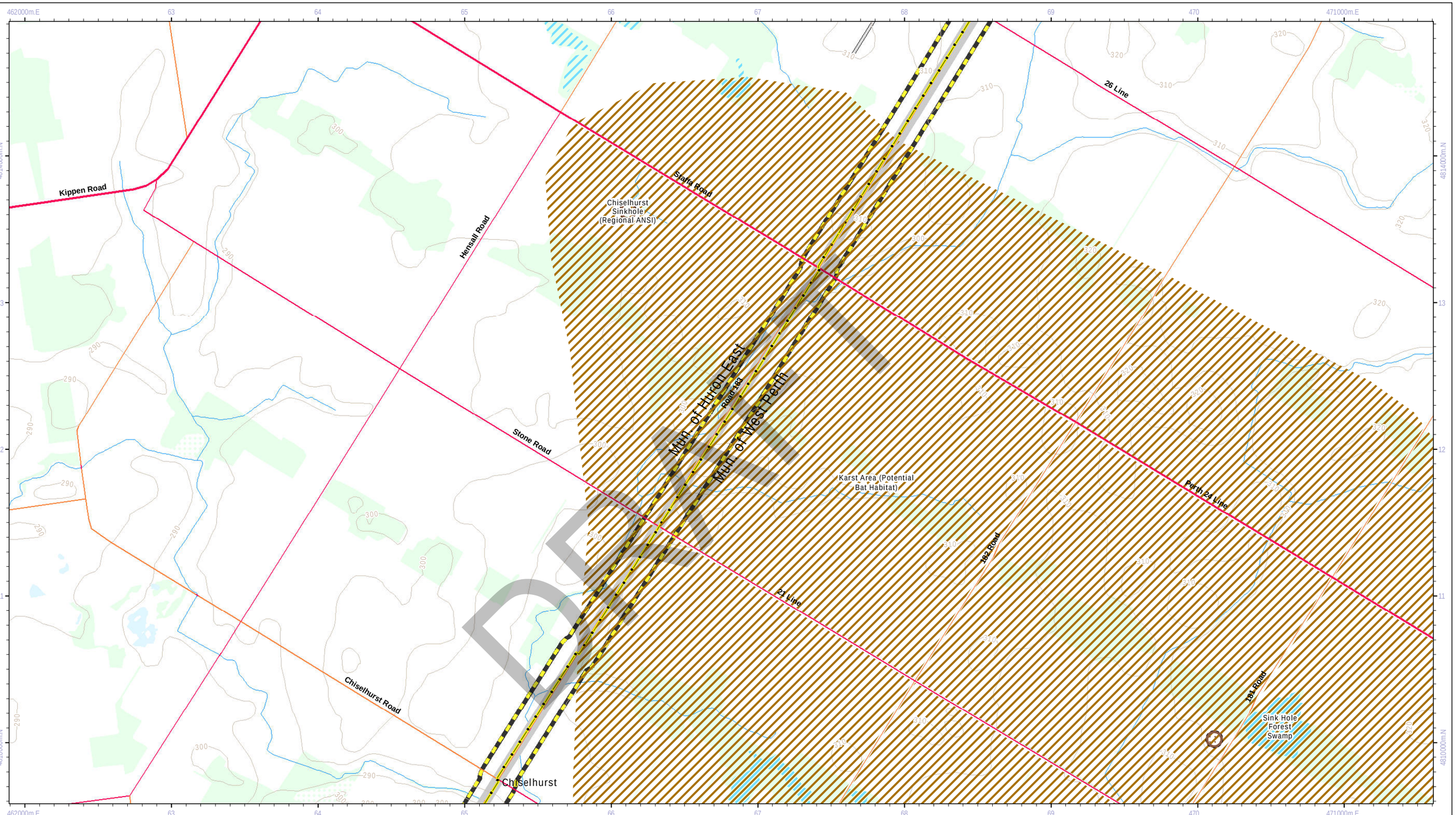

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Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

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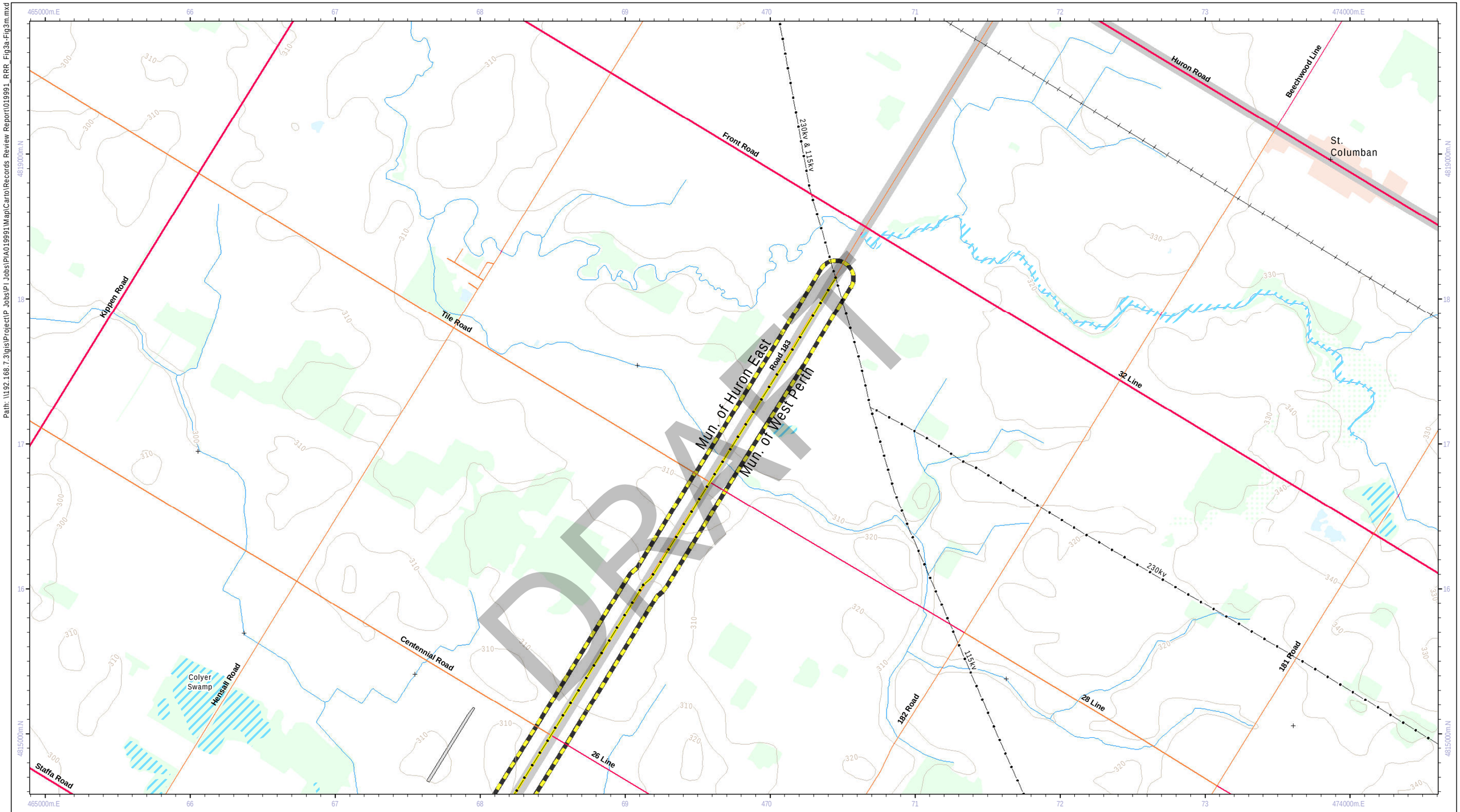

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NEEGAN BURNSIDE

Date: 30 May 2012

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Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

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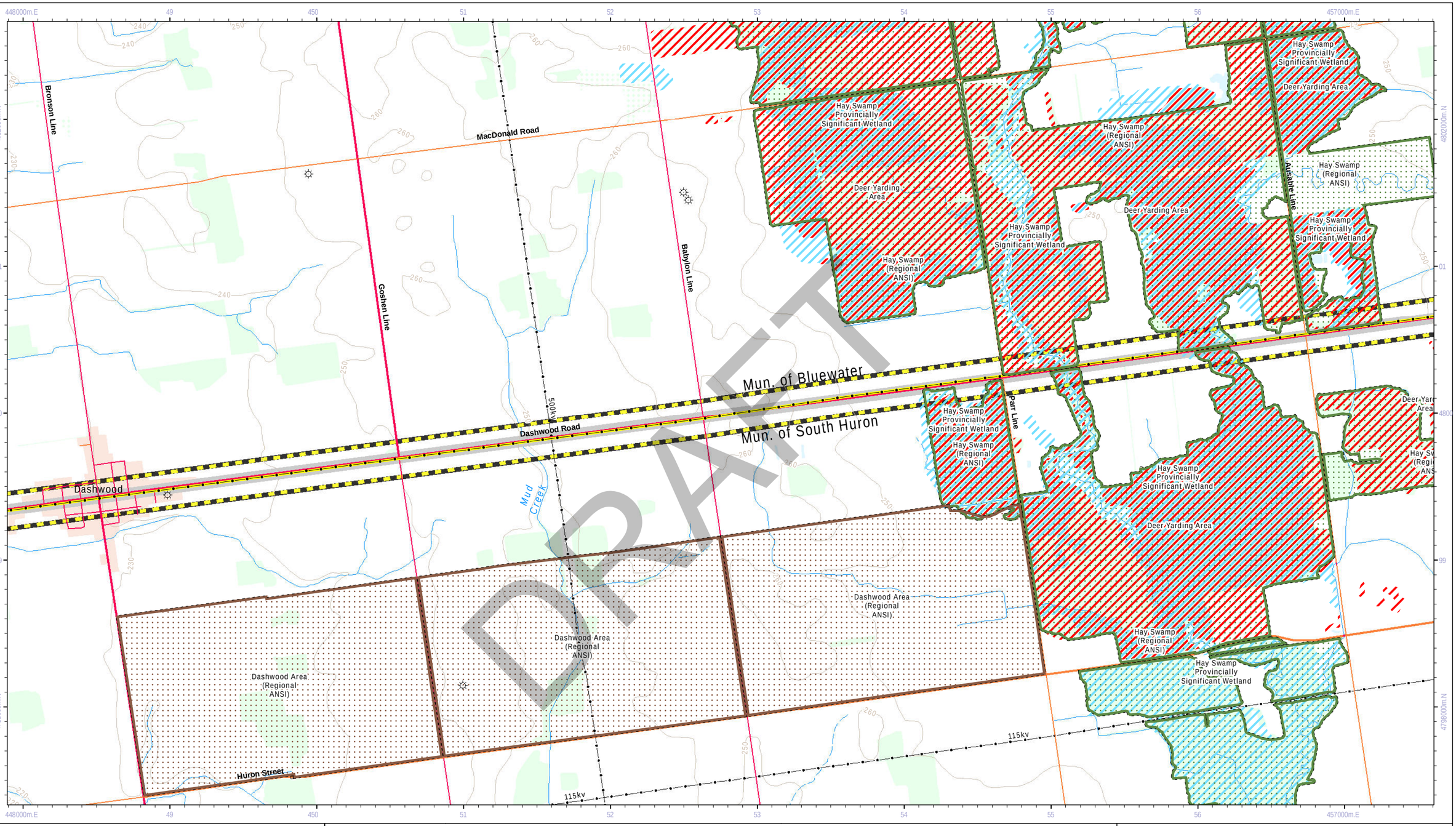

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NEEGAN BURNSIDE

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Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

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P. Stubbert	T. Radburn	3i
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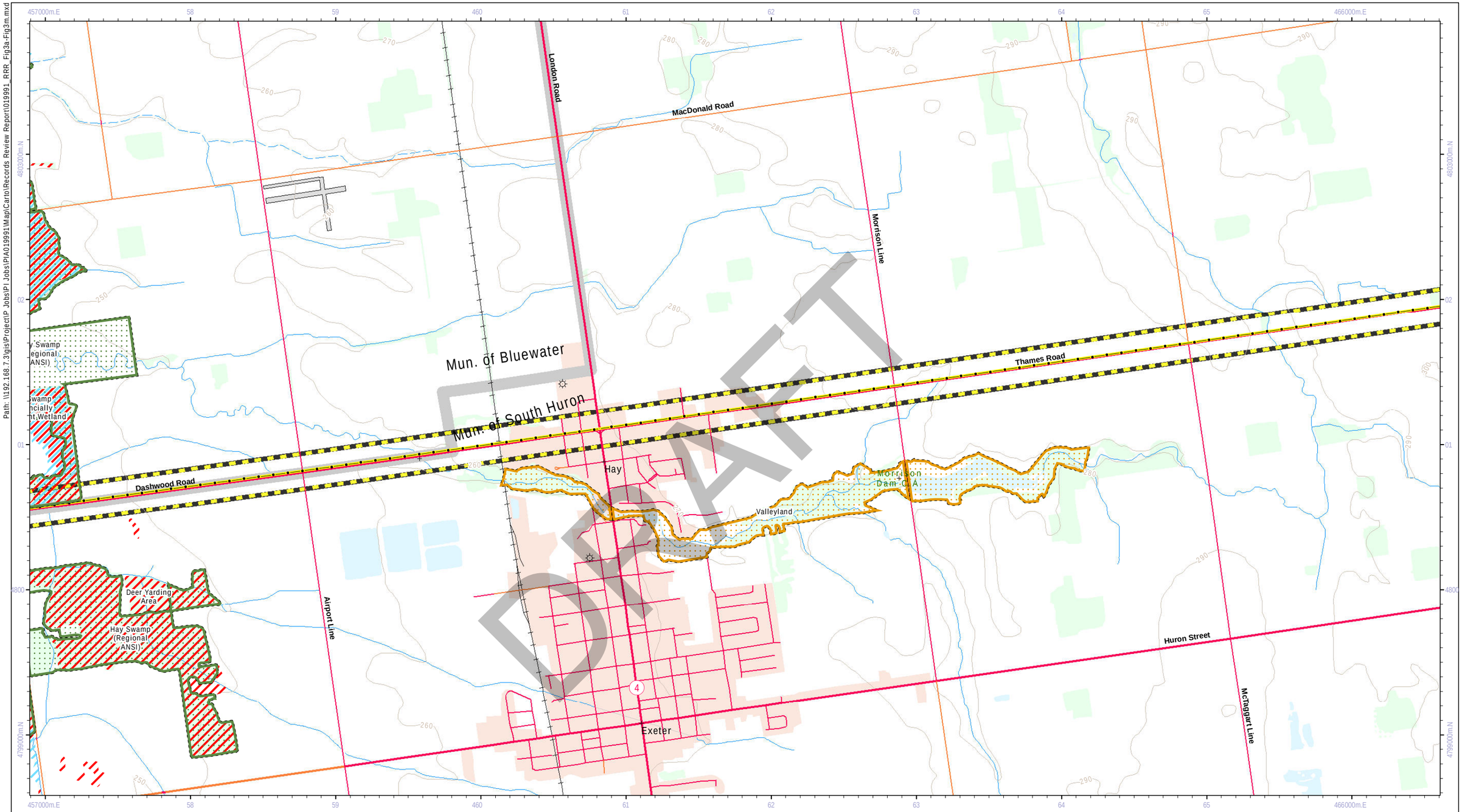

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NEEGAN BURNSIDE

Date: 30 May 2012

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- Karst Area (Potential Bat Habitat)

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

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P. Stubbert	T. Radburn	3j
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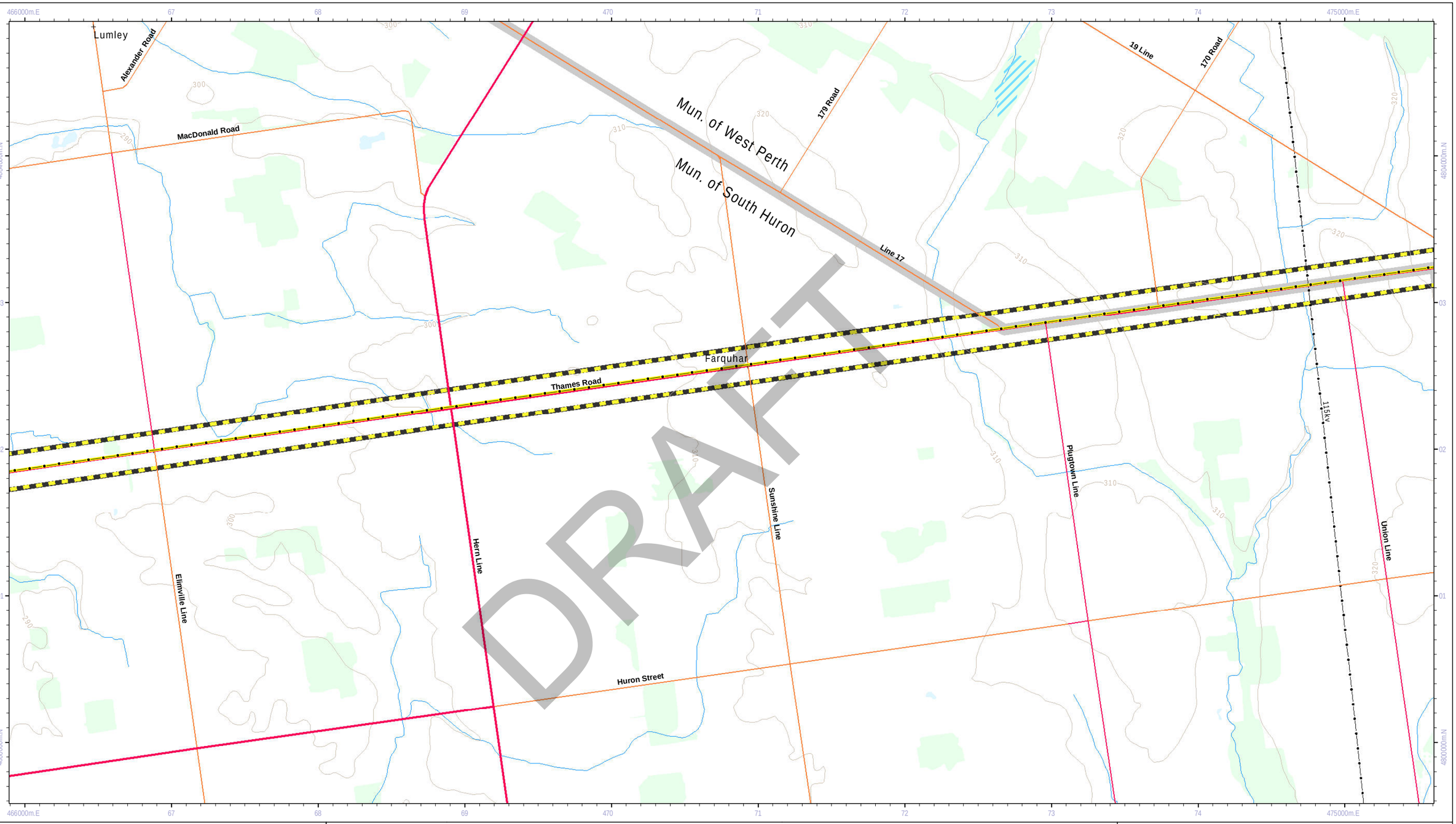

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Meters

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NEEGAN BURNSIDE

Date: 30 May 2012

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- Study Area Boundary (120m Buffer)
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- Karst Area (Potential Bat Habitat)

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	3k
Scale	Project	
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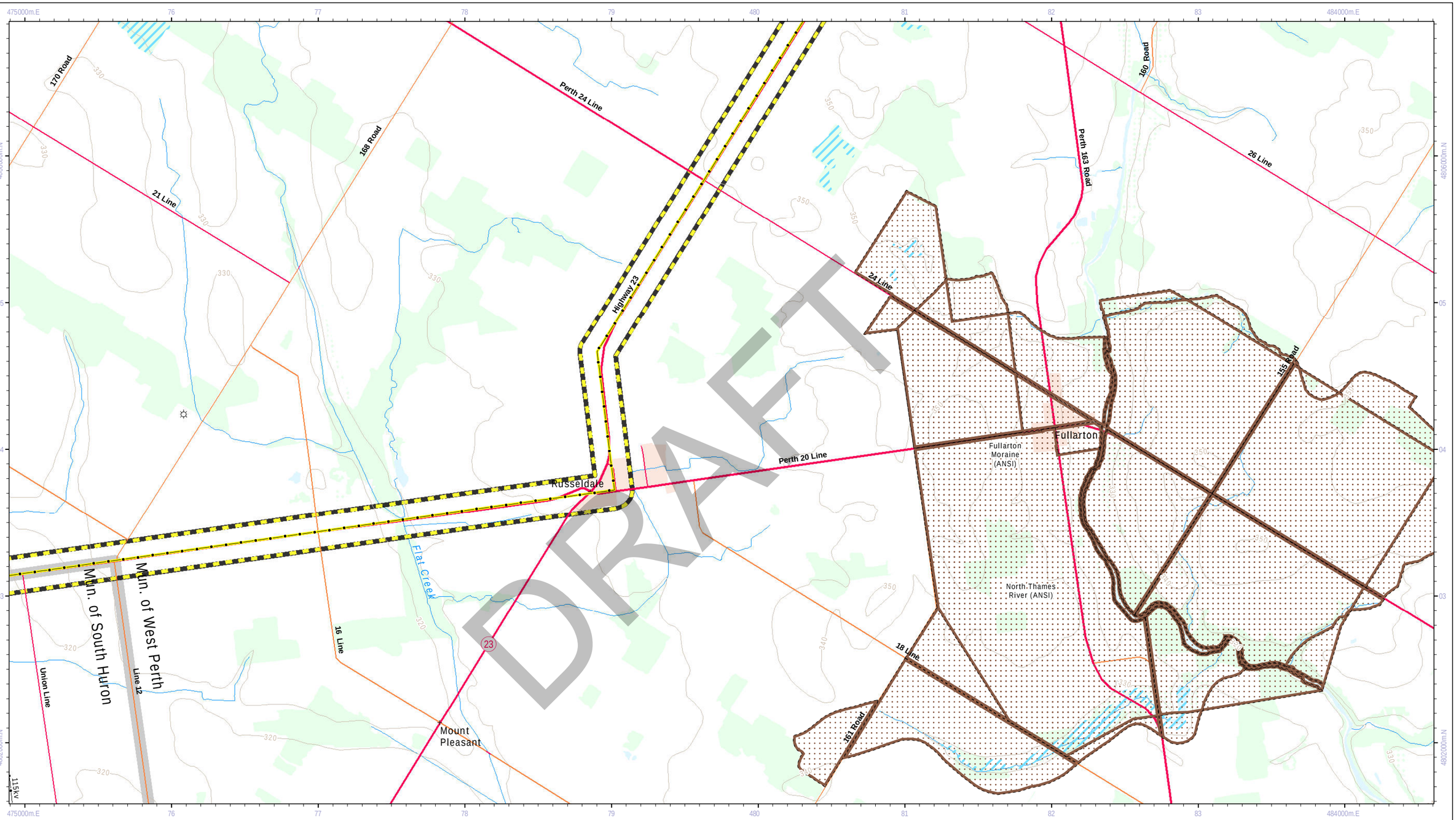

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Meters

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NEEGAN BURNSIDE

Date: 30 May 2012

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- Study Area Boundary (120m Buffer)
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Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	3I
Scale	Project	
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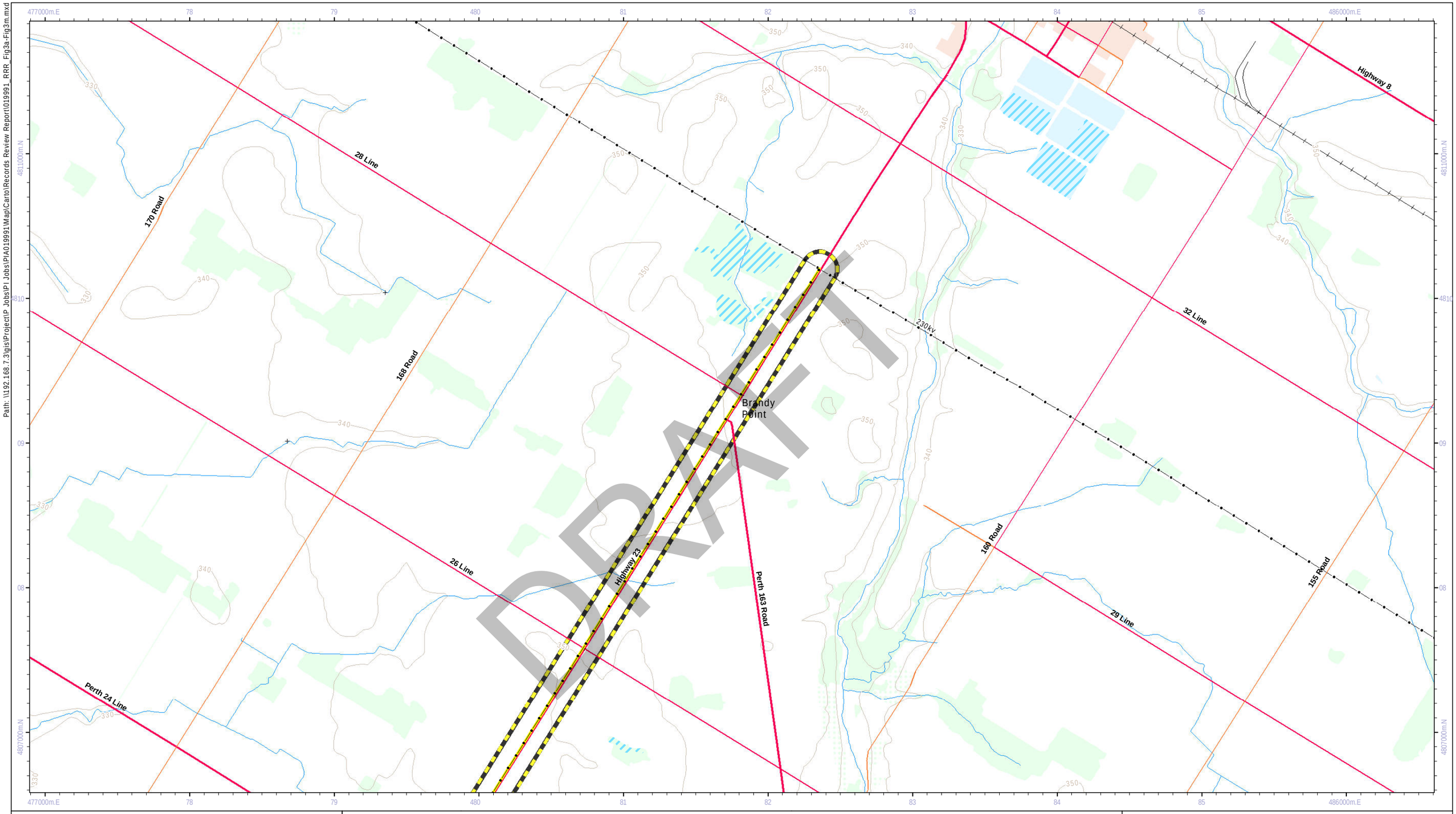

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Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Wetlands, ANSI's & Wildlife Habitat

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	3m
Scale	Project	
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81°50'0"W 81°45'0"W 81°40'0"W 81°35'0"W 81°30'0"W 81°25'0"W 81°20'0"W 81°15'0"W 81°10'0"W

43°30'0"N
43°25'0"N
43°20'0"N

Lake Huron

Grand Bend

Zurich

Hensall

Huron East

Mitchell

West Perth

Bluewater

Exeter

South Huron

Perth South

Figure 4a
Figure 4b
Figure 4c
Figure 4d
Figure 4e
Figure 4f
Figure 4g
Figure 4h
Figure 4i
Figure 4j
Figure 4k
Figure 4l
Figure 4m

500kv
230kv
115kv

21 4 8 84 83 23 81

0 1 2 3 4 5 6 7 8
Kilometers

N

Wind Turbine Location
Collector Line in Municipal ROW (230kV)
120m From Project Location
550m+ Study Area

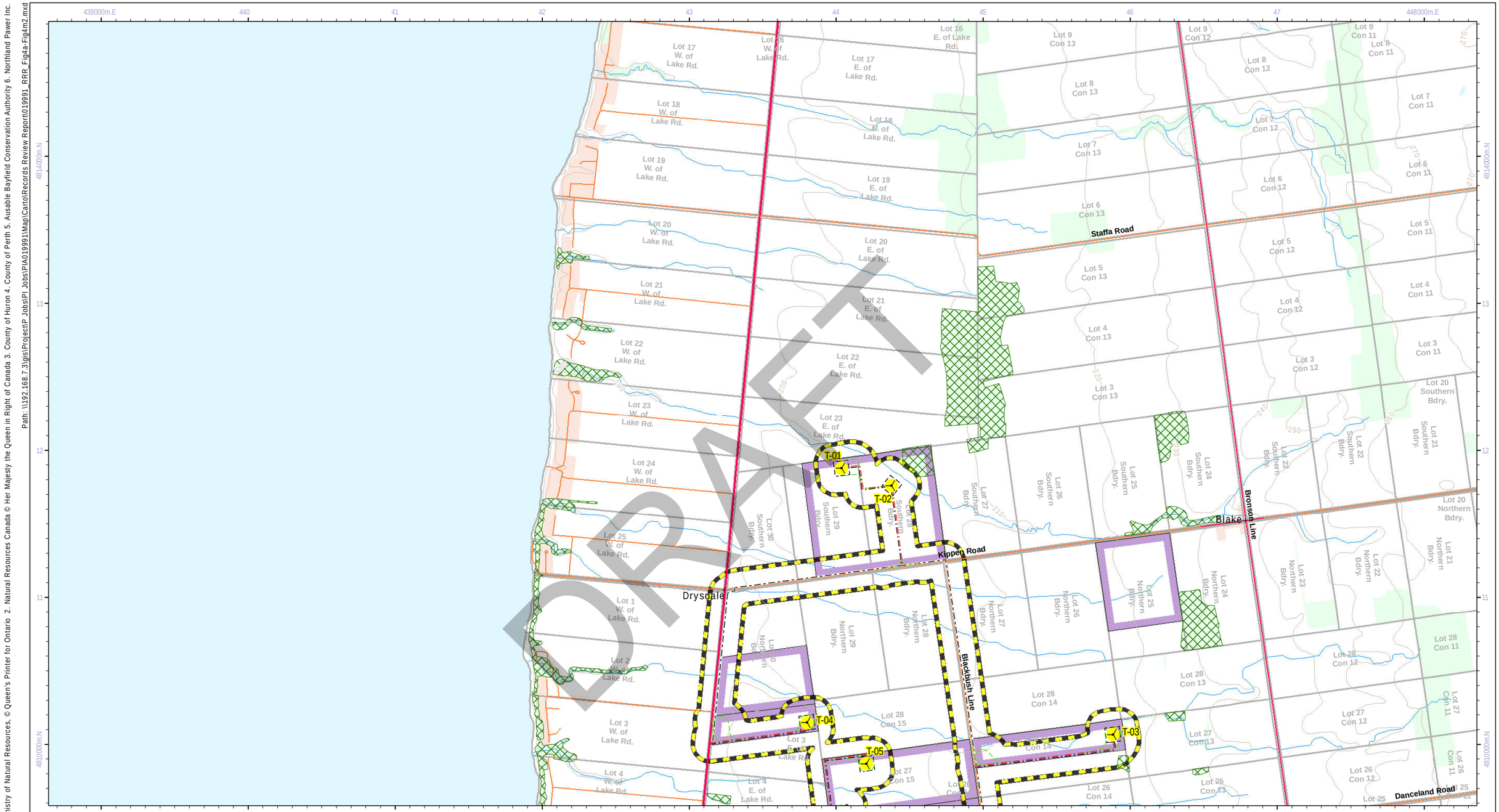
NEEGAN BURNSIDE

30 May 2012

Title
Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	4 - Key Map
Scale	Project	
1:150,000	PIA019991	



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Date: 30 May 2012

0 500 1,000 1,500

Meters

N

NEEGAN BURNSIDE

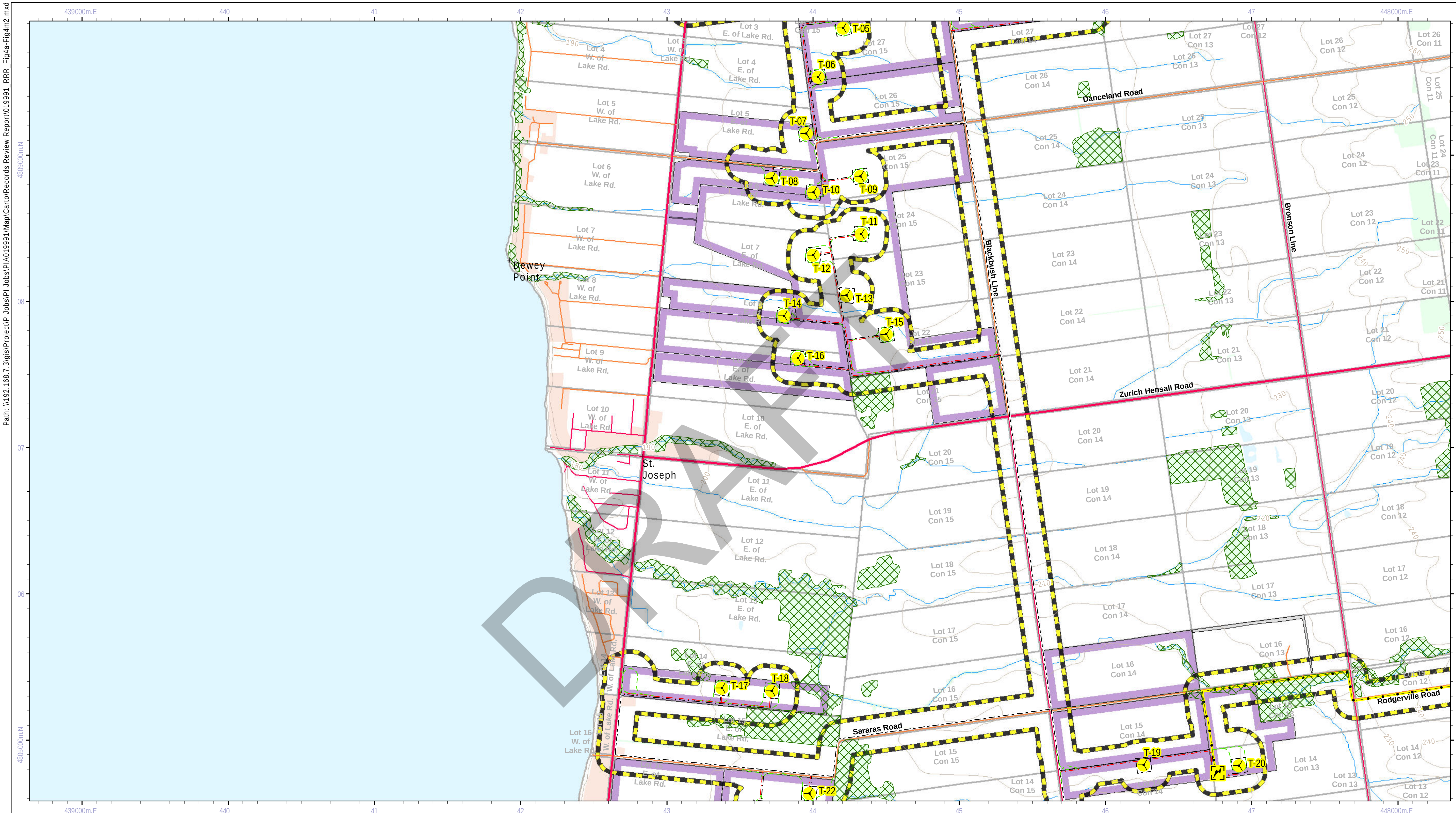
- Wind Turbine Location
- Study Area Boundary (120m Buffer)
- Collector Line in Municipal ROW (230kV)
- Participating Property
- Assembly Site Area Boundary
- Transformer Station (Proposed)
- Access Road & Underground Collector Line
- Access Road: Permanent
- Access Road: For Construction: Temporary
- Collector Line: Underground
- Woodland

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4a
Scale	Project	
1:25,000	PIA019991	



Wind Turbine Location	Transformer Station (Proposed)
Study Area Boundary (120m Buffer)	Access Road & Underground Collector Line
Collector Line in Municipal ROW (230kV)	Access Road: Permanent
Participating Property	Access Road: For Construction: Temporary
Assembly Site Area Boundary	Collector Line: Underground
Woodland	

0 500 1,000 1,500

Meters

N

NEEGAN BURNSIDE

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4b
Scale: 1:25,000	Project: PIA019991	

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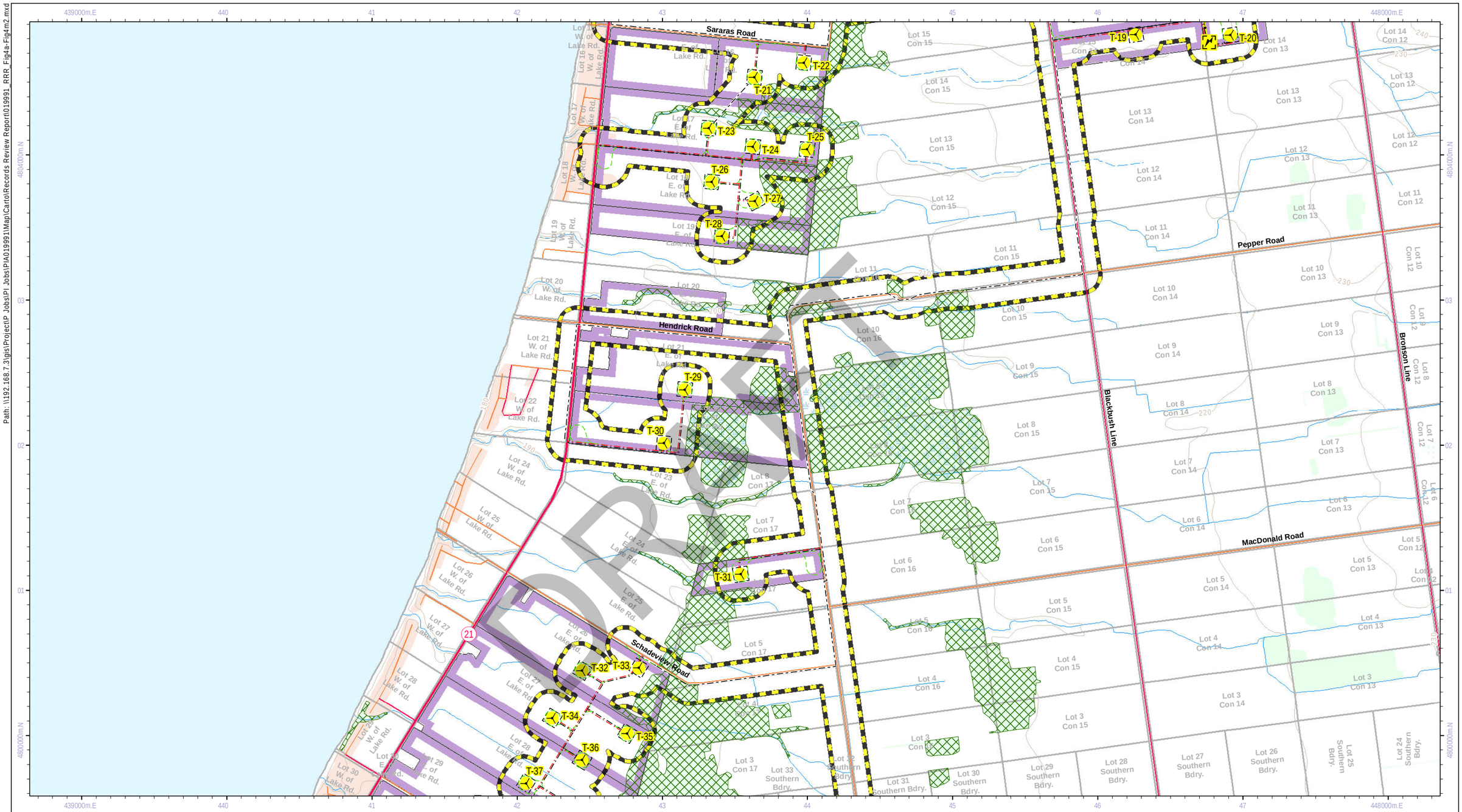
Date: 30 May 2012



0 500 1,000 1,500
Meters

N

NEEGAN BURNSIDE

Date: 30 May 2012

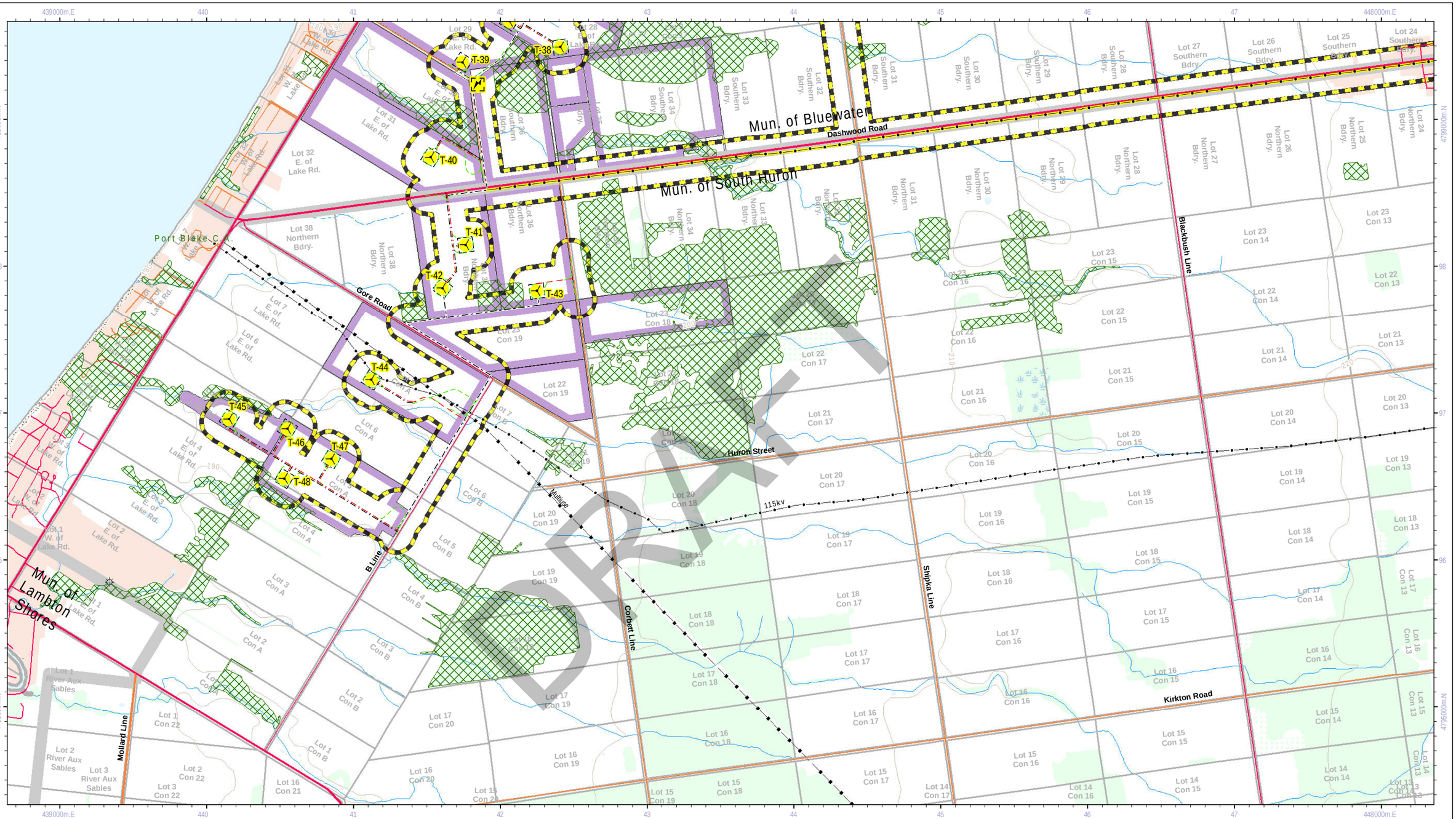
- Wind Turbine Location
- Study Area Boundary (120m Buffer)
- Collector Line in Municipal ROW (230kV)
- Participating Property
- Assembly Site Area Boundary
- Transformer Station (Proposed)
- Access Road & Underground Collector Line
- Access Road: Permanent
- Access Road: For Construction: Temporary
- Collector Line: Underground
- Woodland

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4c
Scale	Project	
1:25,000	PIA019991	



NEEGAN BURNSIDE

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4d
Scale	Project	
1:25,000	PIA019991	

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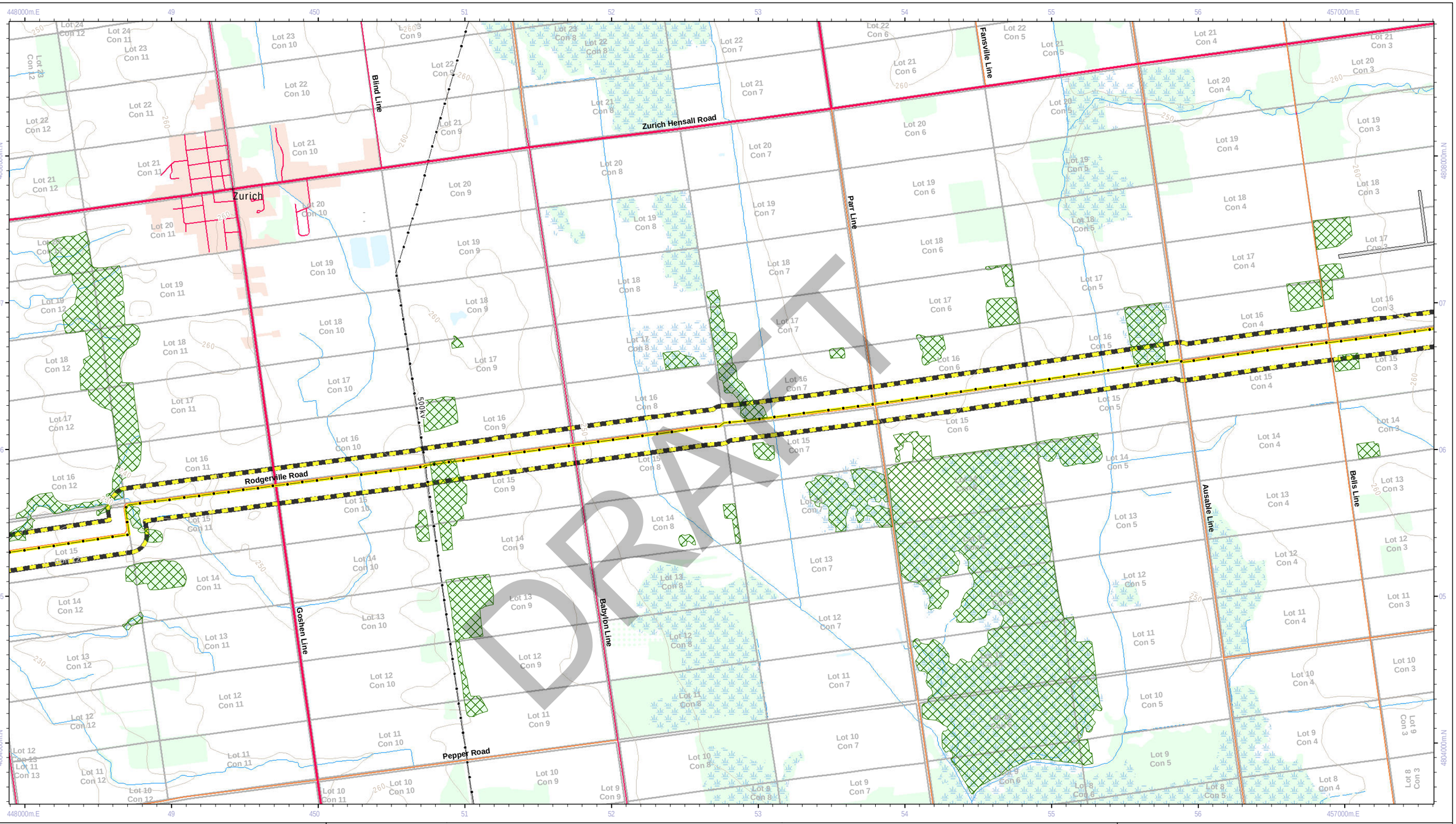


0 500 1,000 1,500

Meters

N

Date: 30 May 2012

NEEGAN BURNSIDE

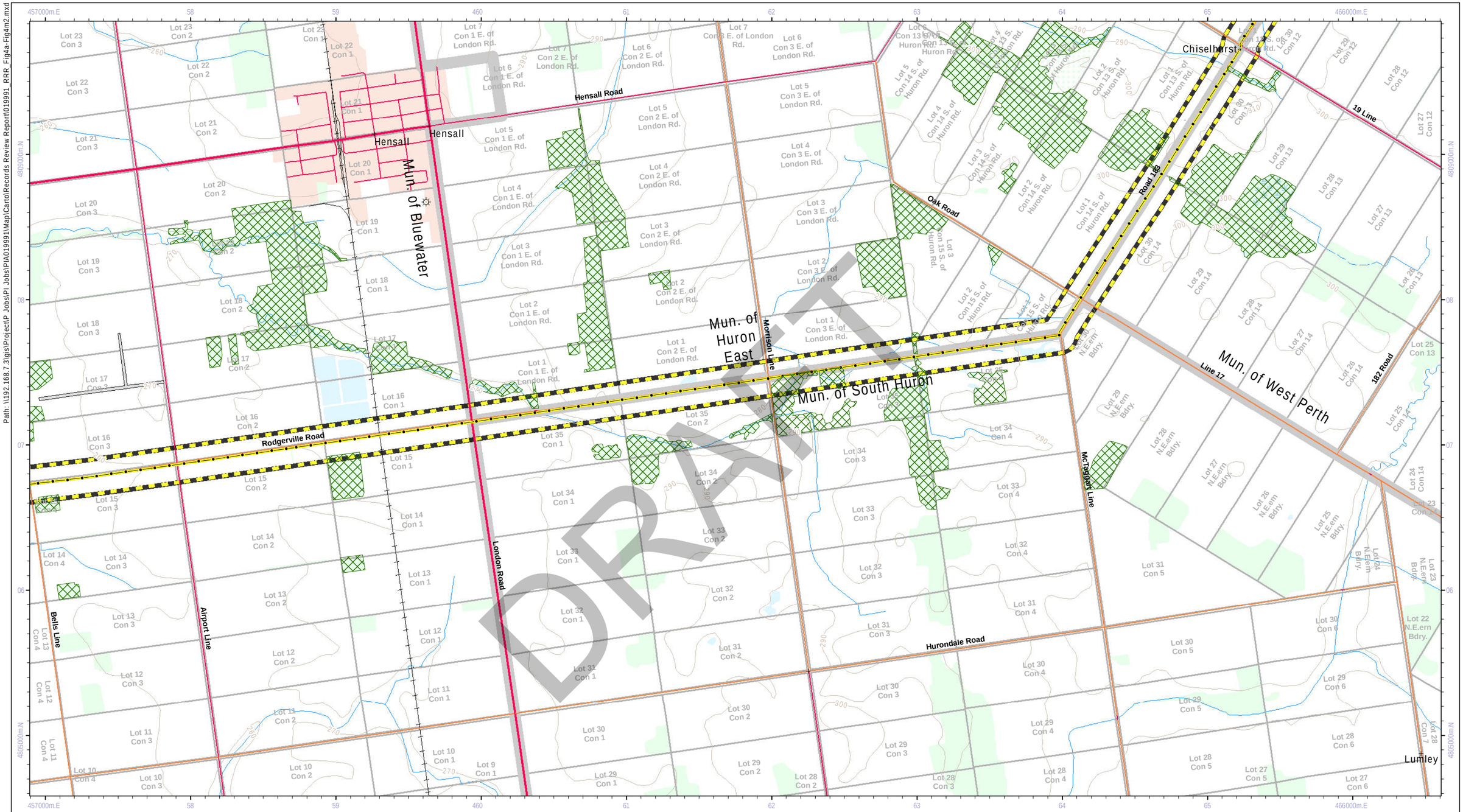
- Wind Turbine Location
- Transformer Station (Proposed)
- Woodland
- Study Area Boundary (120m Buffer)
- Access Road & Underground Collector Line
- Collector Line in Municipal ROW (230kV)
- Access Road: Permanent
- Participating Property
- Access Road: For Construction: Temporary
- Assembly Site Area Boundary
- Collector Line: Underground

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4e
Scale	Project	
1:25,000	PIA019991	



0 500 1,000 1,500
Meters

N

Wind Turbine Location
Transformer Station (Proposed)
Woodland
Study Area Boundary (120m Buffer)
Access Road & Underground Collector Line
Collector Line in Municipal ROW (230kV)
Access Road: Permanent
Participating Property
Access Road: For Construction: Temporary
Assembly Site Area Boundary
Collector Line: Underground

NEEGAN BURNSIDE

Date: 30 May 2012

Title
Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4f
Scale	Project	
1:25,000	PIA019991	

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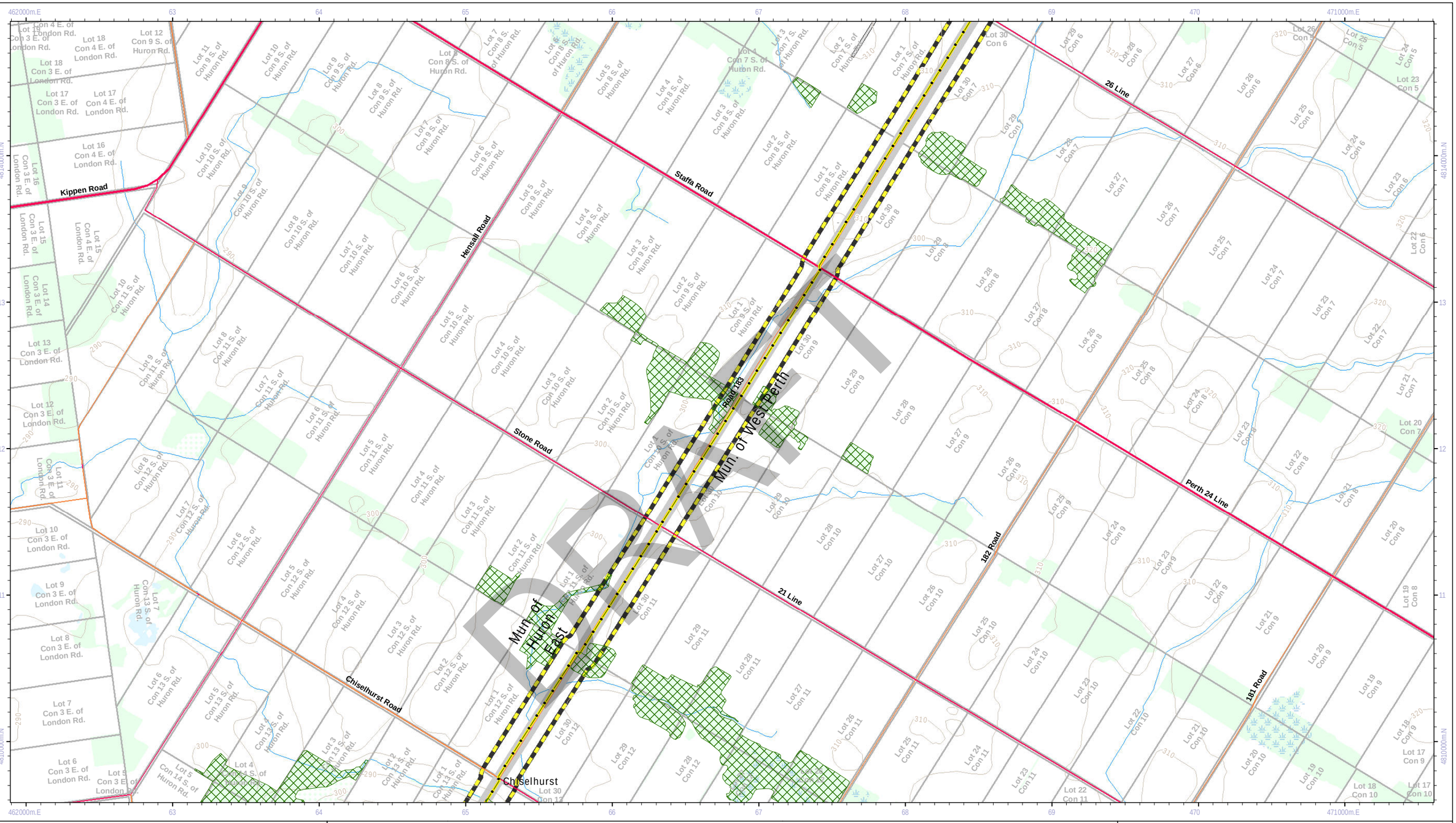
Date: 30 May 2012



0 500 1,000 1,500

Meters

N

NEEGAN BURNSIDE

- Wind Turbine Location
- Study Area Boundary (120m Buffer)
- Collector Line in Municipal ROW (230kV)
- Participating Property
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Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4g
Scale	Project	
1:25,000	PIA019991	

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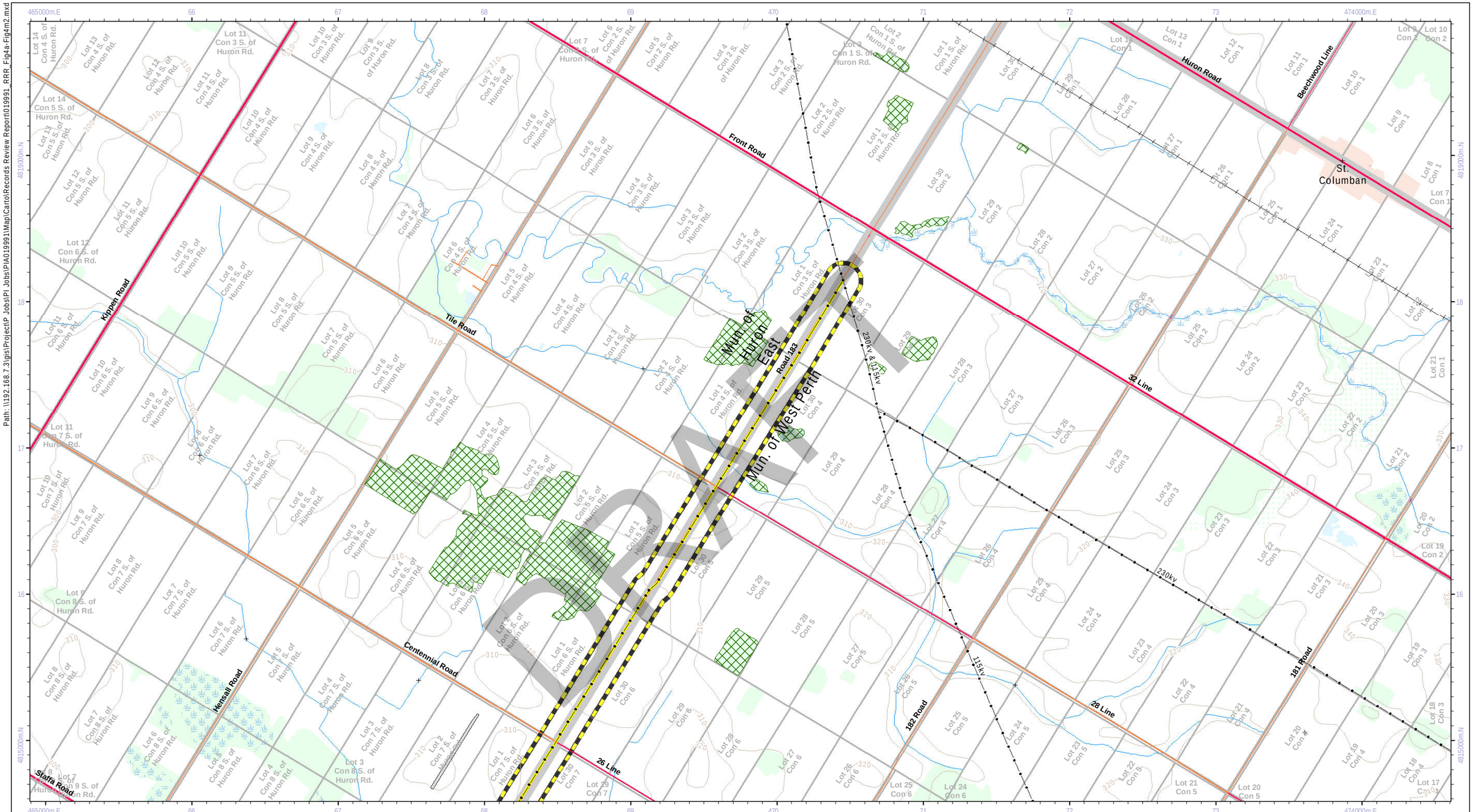


0 500 1,000 1,500

Meters

N

Wind Turbine Location	Transformer Station (Proposed)	Woodland
Study Area Boundary (120m Buffer)	Access Road & Underground Collector Line	
Collector Line in Municipal ROW (230kV)	Access Road: Permanent	
Participating Property	Access Road: For Construction: Temporary	
Assembly Site Area Boundary	Collector Line: Underground	

NEEGAN BURNSIDE

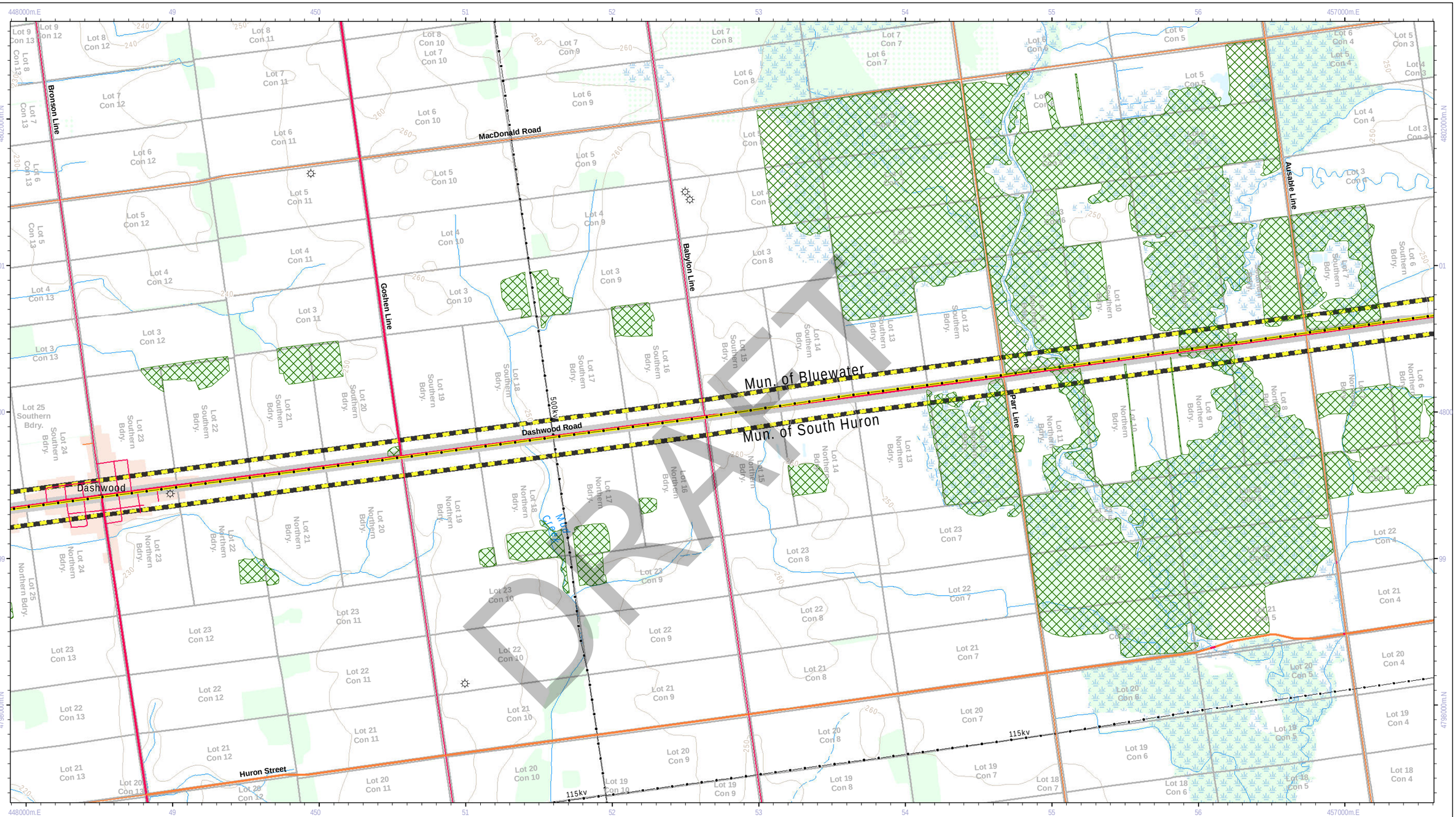
Date: 30 May 2012

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4h
Scale	Project	
1:25,000	PIA019991	



0 500 1,000 1,500

Meters

N

Wind Turbine Location
Study Area Boundary (120m Buffer)
Collector Line in Municipal ROW (230kV)
Participating Property
Assembly Site Area Boundary
Transformer Station (Proposed)
Access Road & Underground Collector Line
Access Road: Permanent
Access Road: For Construction: Temporary
Collector Line: Underground
Woodland

NEEGAN BURNSIDE

Date: 30 May 2012

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4i
Scale	Project	
1:25,000	PIA019991	

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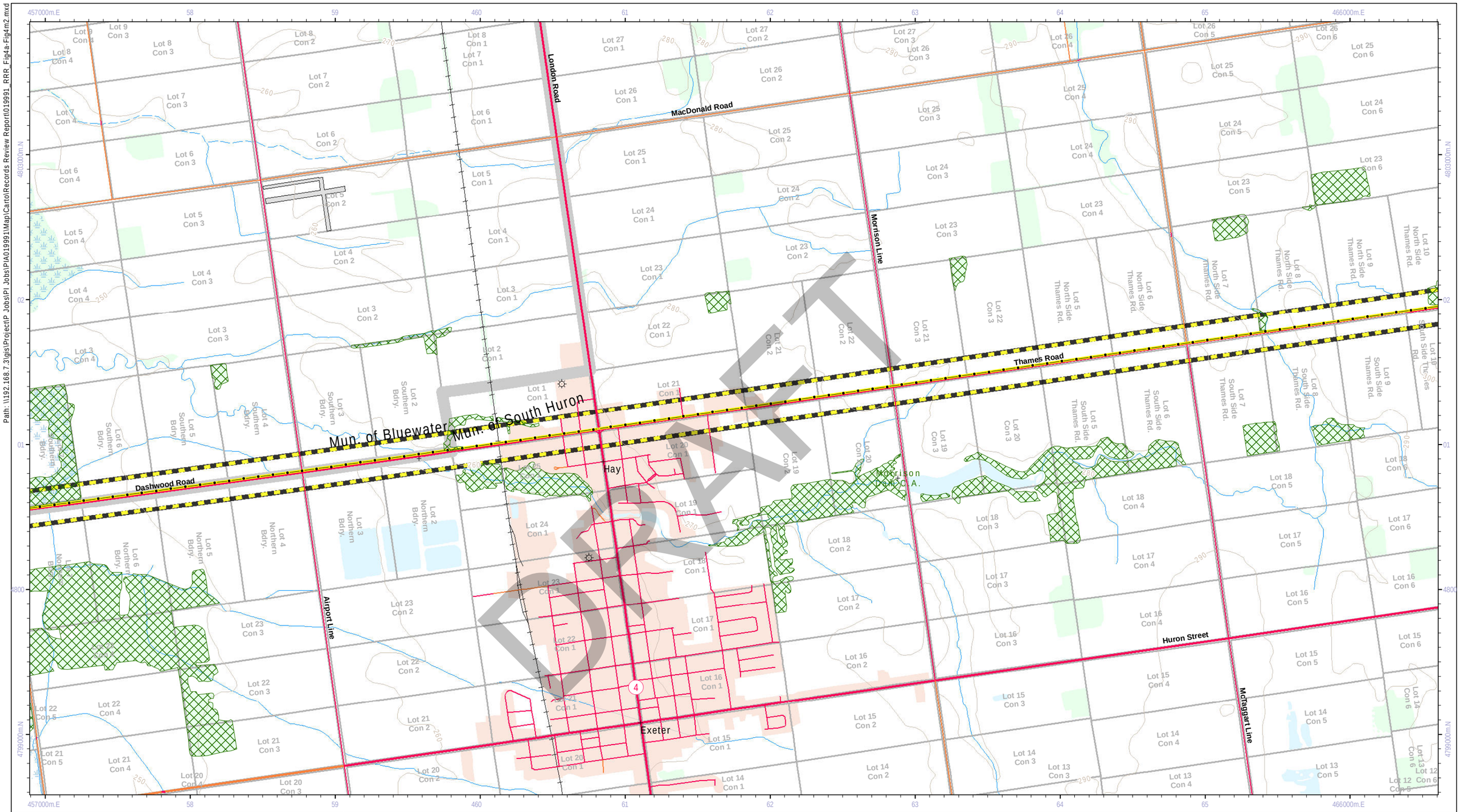

0 500 1,000 1,500

Meters

N

NEEGAN BURNSIDE

Date: 30 May 2012

- Wind Turbine Location
- Study Area Boundary (120m Buffer)
- Collector Line in Municipal ROW (230kV)
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Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4j
Scale	Project	
1:25,000	PIA019991	

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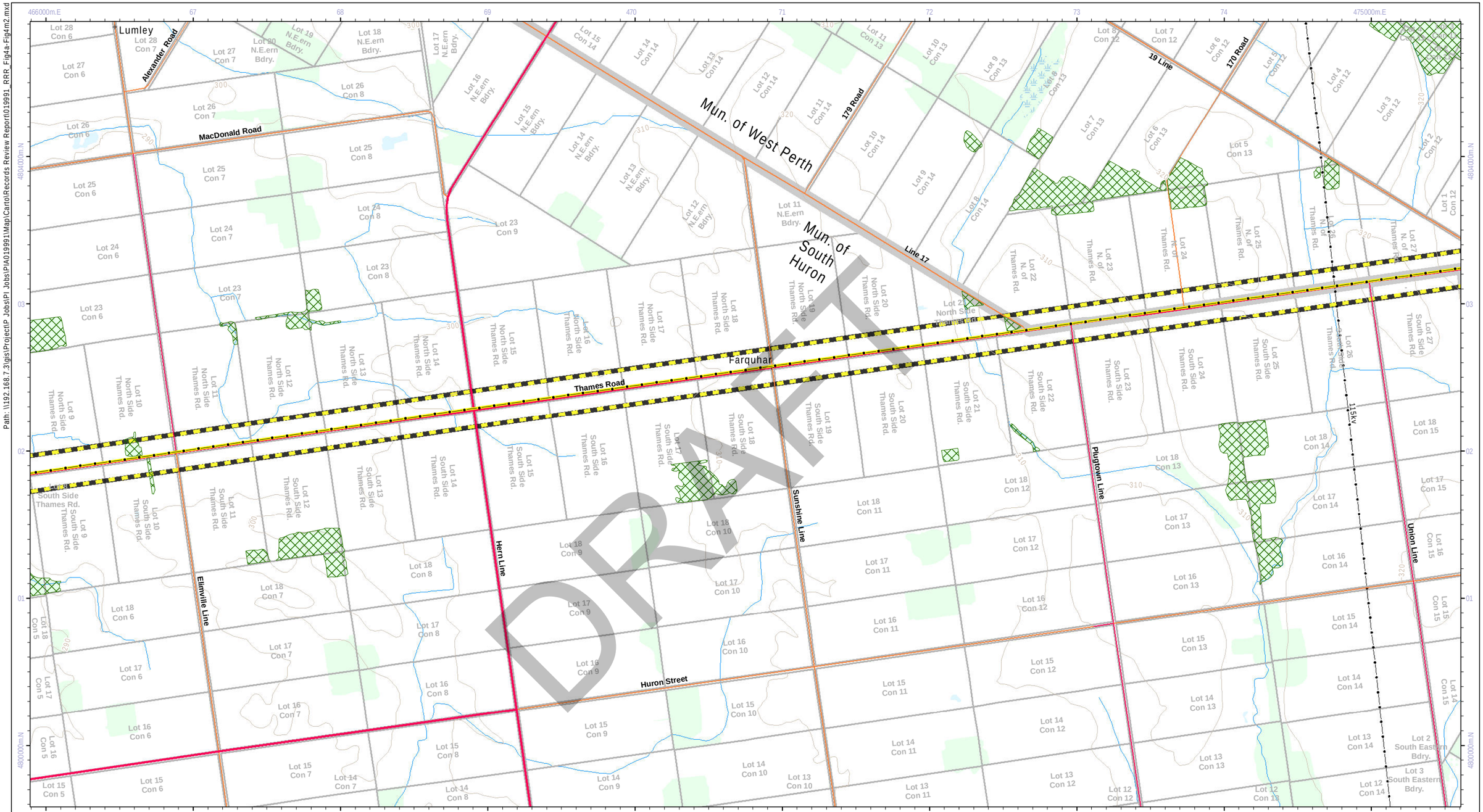
Date: 30 May, 2012



0 500 1,000 1,500

Meters

N

Wind Turbine Location

Study Area Boundary (120m Buffer)

Collector Line in Municipal ROW (230kV)

Participating Property

Assembly Site Area Boundary

Transformer Station (Proposed)

Access Road & Underground Collector Line

Access Road: Permanent

Access Road: For Construction: Temporary

Collector Line: Underground

Woodland

NEEGAN BURNSIDE

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4k
Scale	Project	
1:25,000	PIA019991	

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0 500 1,000 1,500

Meters

N

NEEGAN BURNSIDE

Date: 30 May 2012

- Wind Turbine Location
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Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4I
Scale	Project	
1:25,000	PIA019991	

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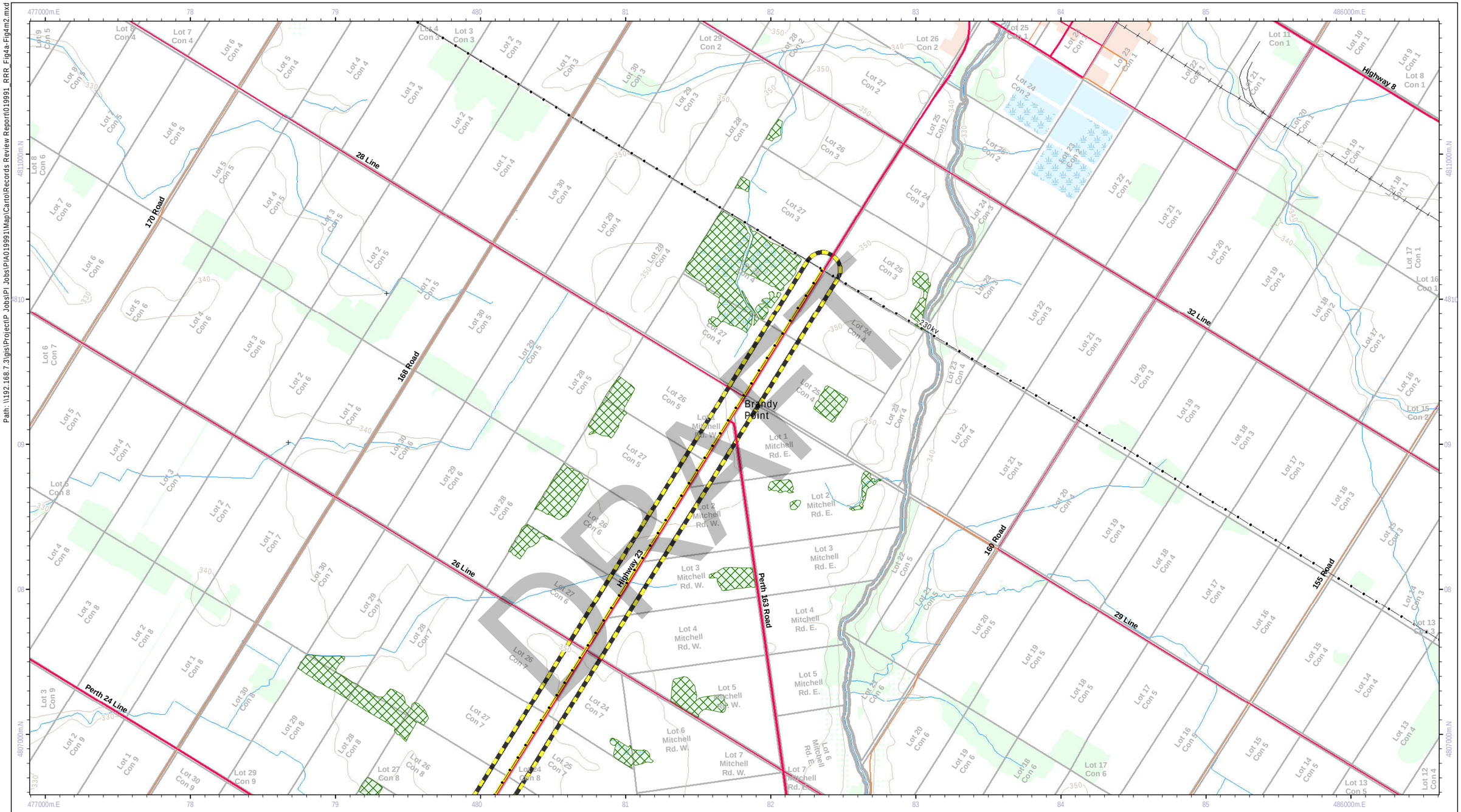

0 500 1,000 1,500

Meters

N

Wind Turbine Location	Transformer Station (Proposed)	Woodland
Study Area Boundary (120m Buffer)	Access Road & Underground Collector Line	
Collector Line in Municipal ROW (230kV)	Access Road: Permanent	
Participating Property	Access Road: For Construction: Temporary	
Assembly Site Area Boundary	Collector Line: Underground	

NEEGAN BURNSIDE

Date: 30 May 2012

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Woodlands

Prepared	Checked	Figure
P. Stubbert	T. Radburn	4m
Scale	Project	
1:25,000	PIA019991	

81°50'0"W 81°45'0"W 81°40'0"W 81°35'0"W 81°30'0"W 81°25'0"W 81°20'0"W 81°15'0"W 81°10'0"W

43°30'0"N

43°25'0"N

43°20'0"N

Lake Huron

Grand Bend

Zurich

Bluewater

Hensall

Huron East

Exeter

South Huron

Mitchell

West Perth

Perth South

Figure 5a

Figure 5b

Figure 5c

Figure 5d

Figure 5e

Figure 5f

Figure 5g

Figure 5h

Figure 5i

Figure 5j

Figure 5k

Figure 5l

Figure 5m

500kv

230kv

115kv

21 4 8 84 83 23 81

0 1 2 3 4 5 6 7 8

Kilometers

N

Wind Turbine Location

Collector Line in Municipal ROW (230kV)

120m From Project Location

550m+ Study Area

NEEGAN BURNSIDE

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership

Other Natural Heritage Features

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	5 - Key Map
Scale	Project	
1:150,000	PIA019991	

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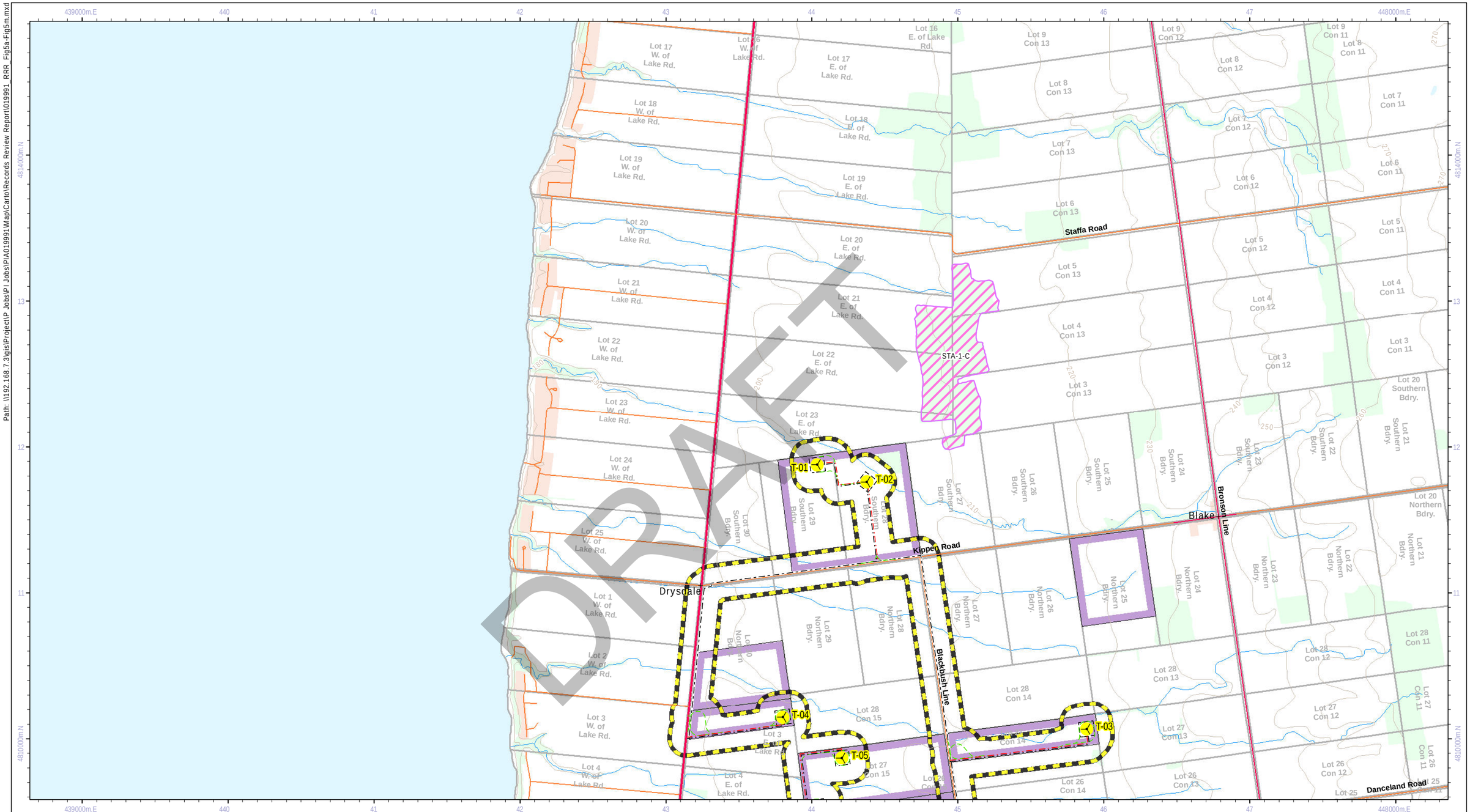

0 500 1,000 1,500

Meters

N

- Wind Turbine Location
- Study Area Boundary (120m Buffer)
- Collector Line in Municipal ROW (230kV)
- Participating Property
- Assembly Site Area Boundary
- Transformer Station (Proposed)
- Access Road & Underground Collector Line
- Access Road: Permanent
- Access Road: For Construction: Temporary
- Collector Line: Underground
- Regional ANSI: Earth Science
- Regional ANSI: Life Science
- Environmentally Sensitive Area
- Non-Provincially Significant Wetlands

NEEGAN BURNSIDE

Date: 30 May 2012

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership
Natural Heritage Features of Local and Regional Significance

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	5a
Scale	Project	
1:25,000	PIA019991	

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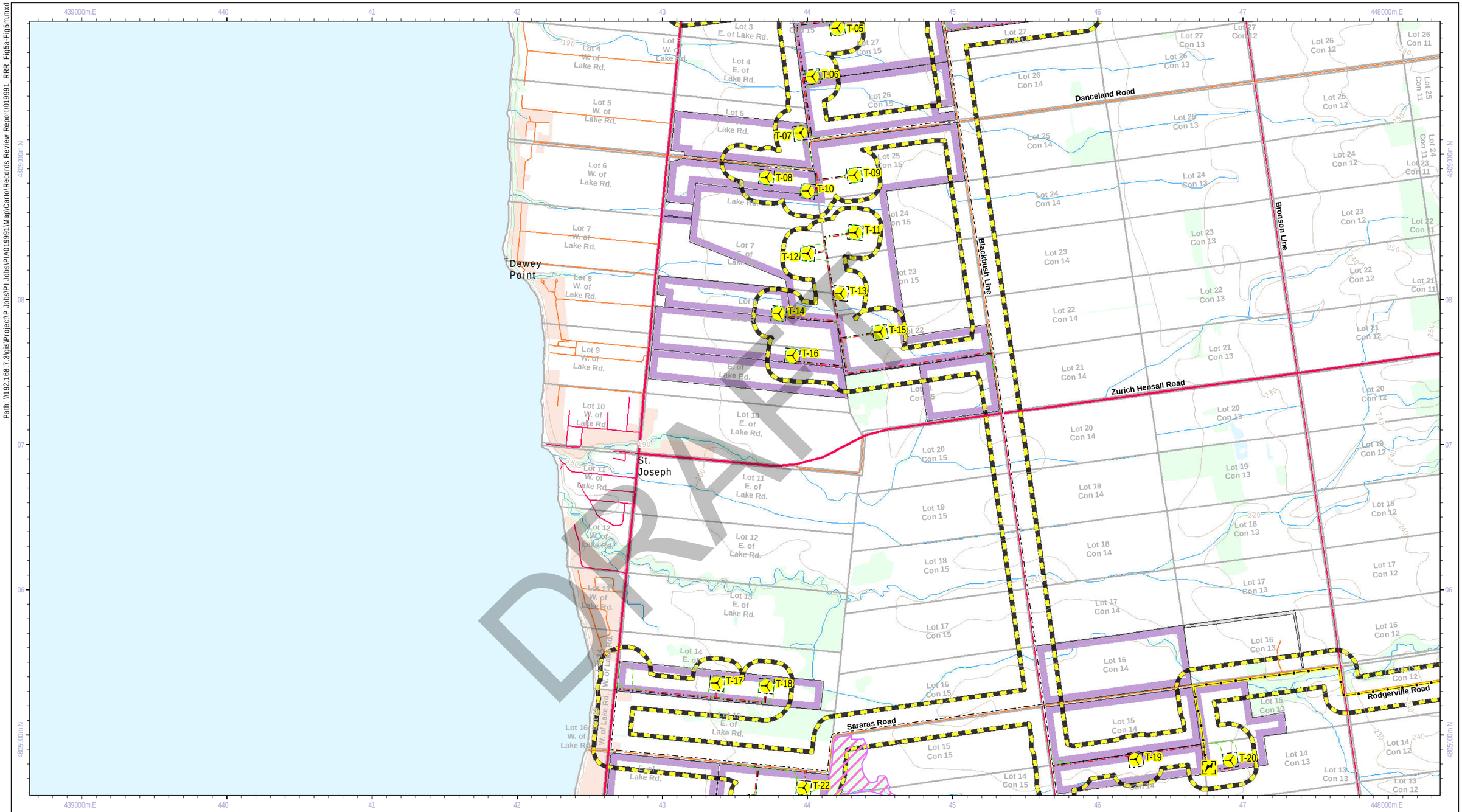
Date: 30 May 2012



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Meters

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NEEGAN BURNSIDE

- Wind Turbine Location
- Study Area Boundary (120m Buffer)
- Collector Line in Municipal ROW (230kV)
- Participating Property
- Assembly Site Area Boundary
- Transformer Station (Proposed)
- Access Road & Underground Collector Line
- Access Road: Permanent
- Access Road: For Construction: Temporary
- Collector Line: Underground
- Regional ANSI: Earth Science
- Regional ANSI: Life Science
- Environmentally Sensitive Area
- Non-Provincially Significant Wetlands

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership
Natural Heritage Features of Local and Regional Significance

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	5b
Scale	Project	
1:25,000	PIA019991	

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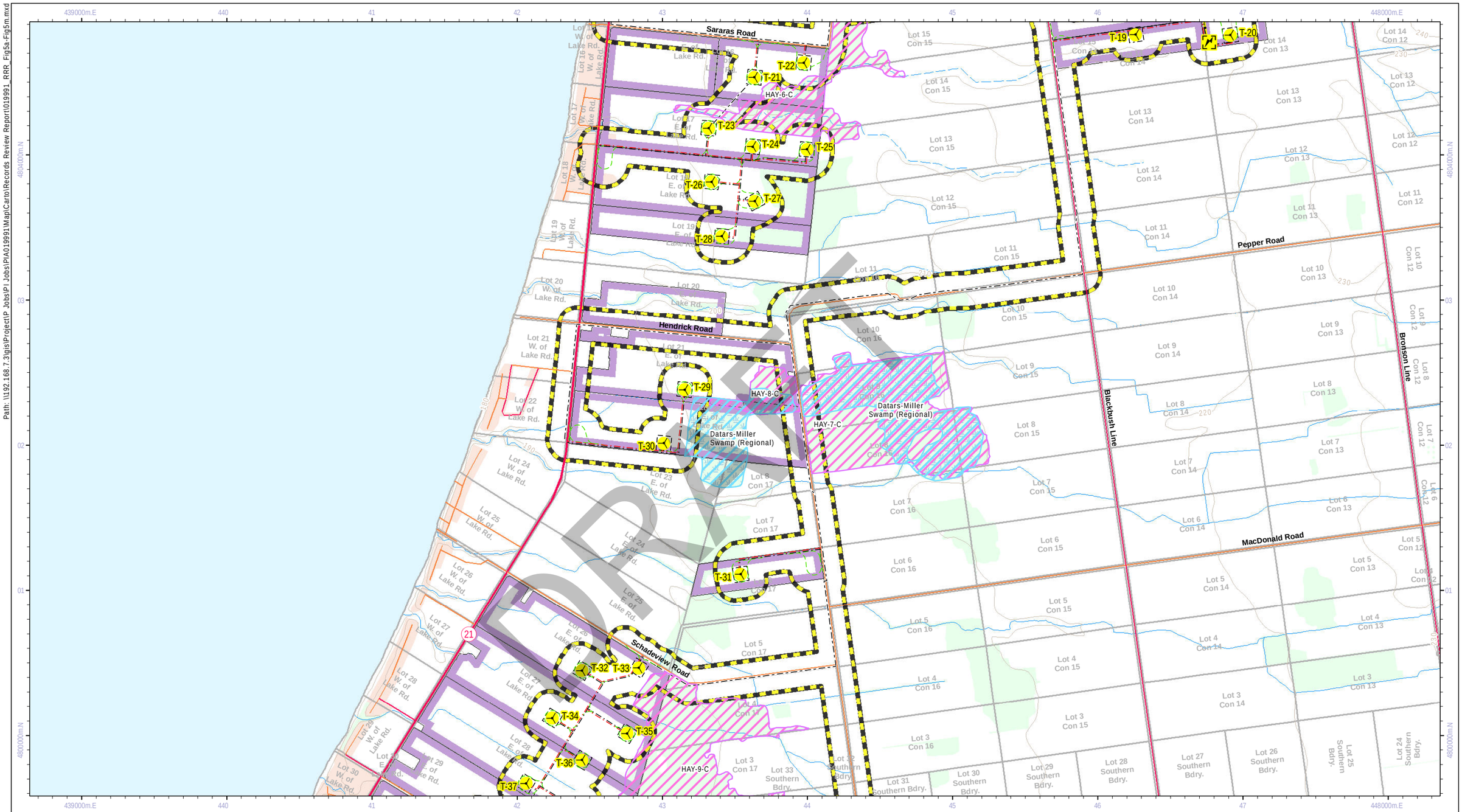
Date: 30 May 2012



0 500 1,000 1,500

Meters

N

NEEGAN BURNSIDE

- Wind Turbine Location
- Study Area Boundary (120m Buffer)
- Collector Line in Municipal ROW (230kV)
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- Assembly Site Area Boundary
- Transformer Station (Proposed)
- Access Road & Underground Collector Line
- Access Road: Permanent
- Access Road: For Construction: Temporary
- Collector Line: Underground
- Regional ANSI: Earth Science
- Regional ANSI: Life Science
- Environmentally Sensitive Area
- Non-Provincially Significant Wetlands

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership
Natural Heritage Features of Local and Regional Significance

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	5c
Scale	Project	
1:25,000	PIA019991	

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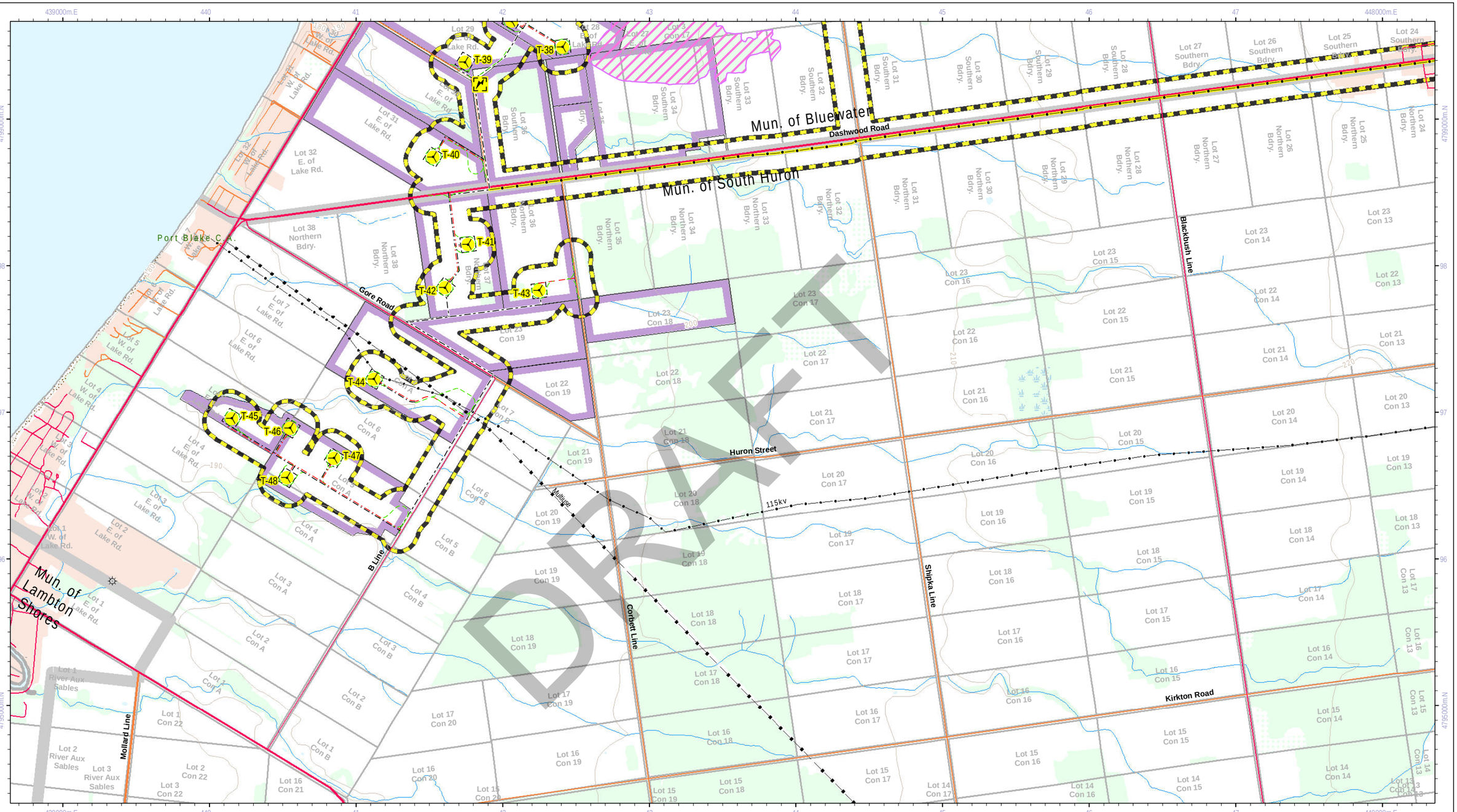
Date: 30 May 2012



0 500 1,000 1,500

Meters

N

NEEGAN BURNSIDE

- Wind Turbine Location
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- Regional ANSI: Life Science
- Environmentally Sensitive Area
- Non-Provincially Significant Wetlands

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership
Natural Heritage Features of Local and Regional Significance

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	5d
Scale	Project	
1:25,000	PIA019991	

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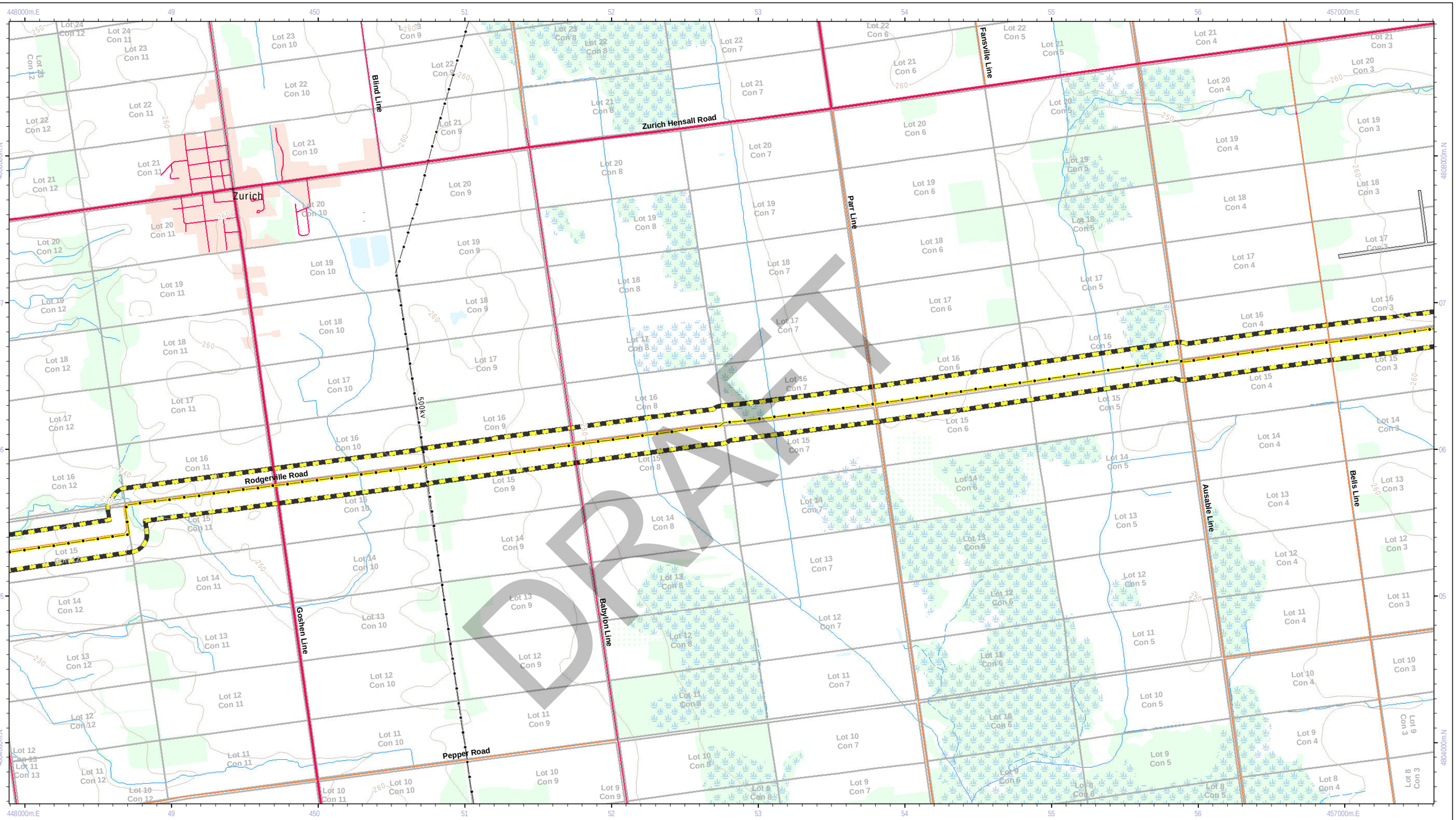

0 500 1,000 1,500

Meters

N

NEEGAN BURNSIDE

Date: 30 May 2012

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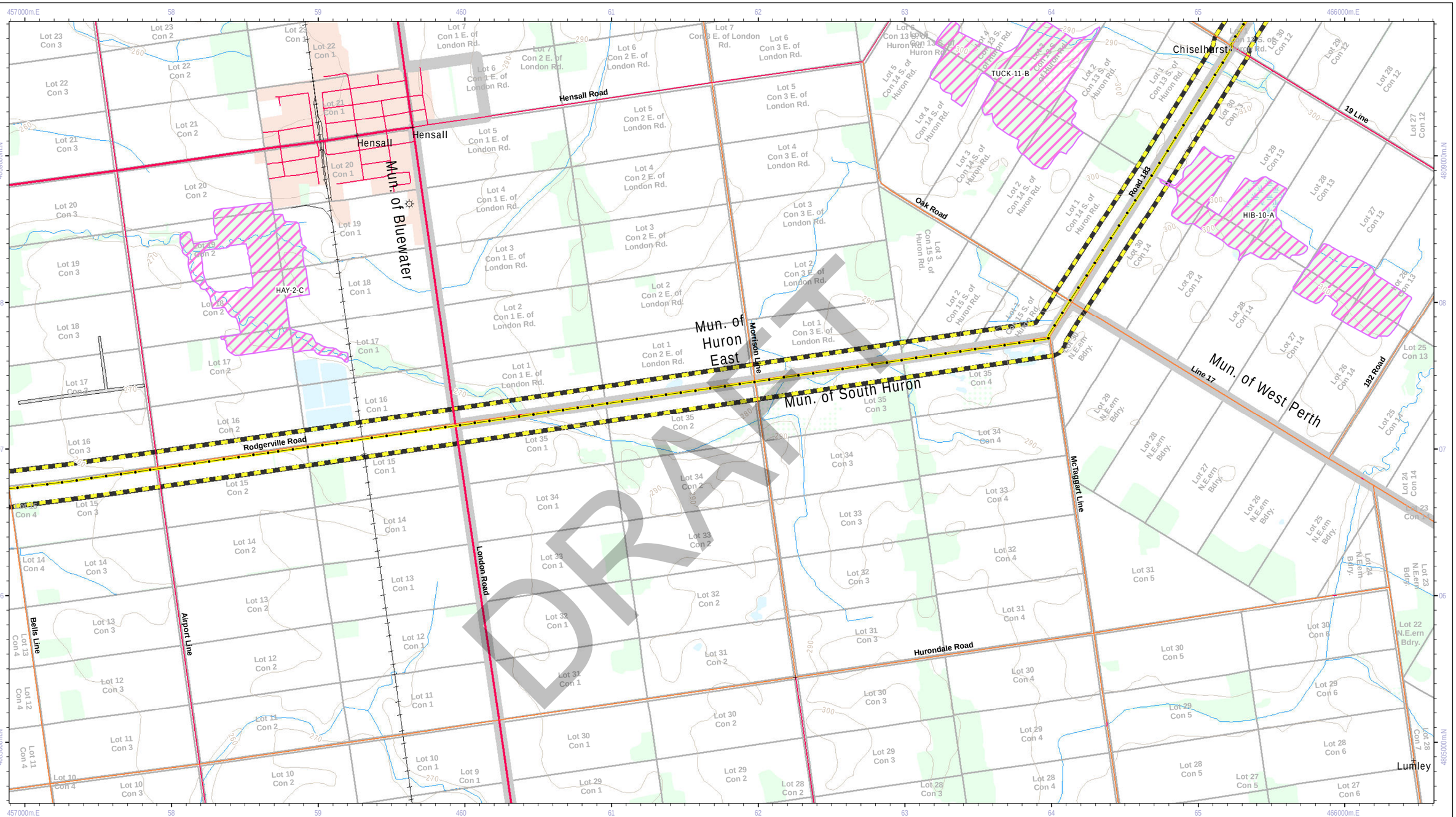
Grand Bend Wind Farm
Grand Bend Wind Limited Partnership
Natural Heritage Features of Local and Regional Significance

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	5e
Scale	Project	
1:25,000	PIA019991	



0 500 1,000 1,500
Meters

N

Wind Turbine Location
Study Area Boundary (120m Buffer)
Collector Line in Municipal ROW (230kV)
Participating Property
Assembly Site Area Boundary
Transformer Station (Proposed)
Access Road & Underground Collector Line
Access Road: Permanent
Access Road: For Construction: Temporary
Collector Line: Underground
Regional ANSI: Earth Science
Regional ANSI: Life Science
Environmentally Sensitive Area
Non-Provincially Significant Wetlands

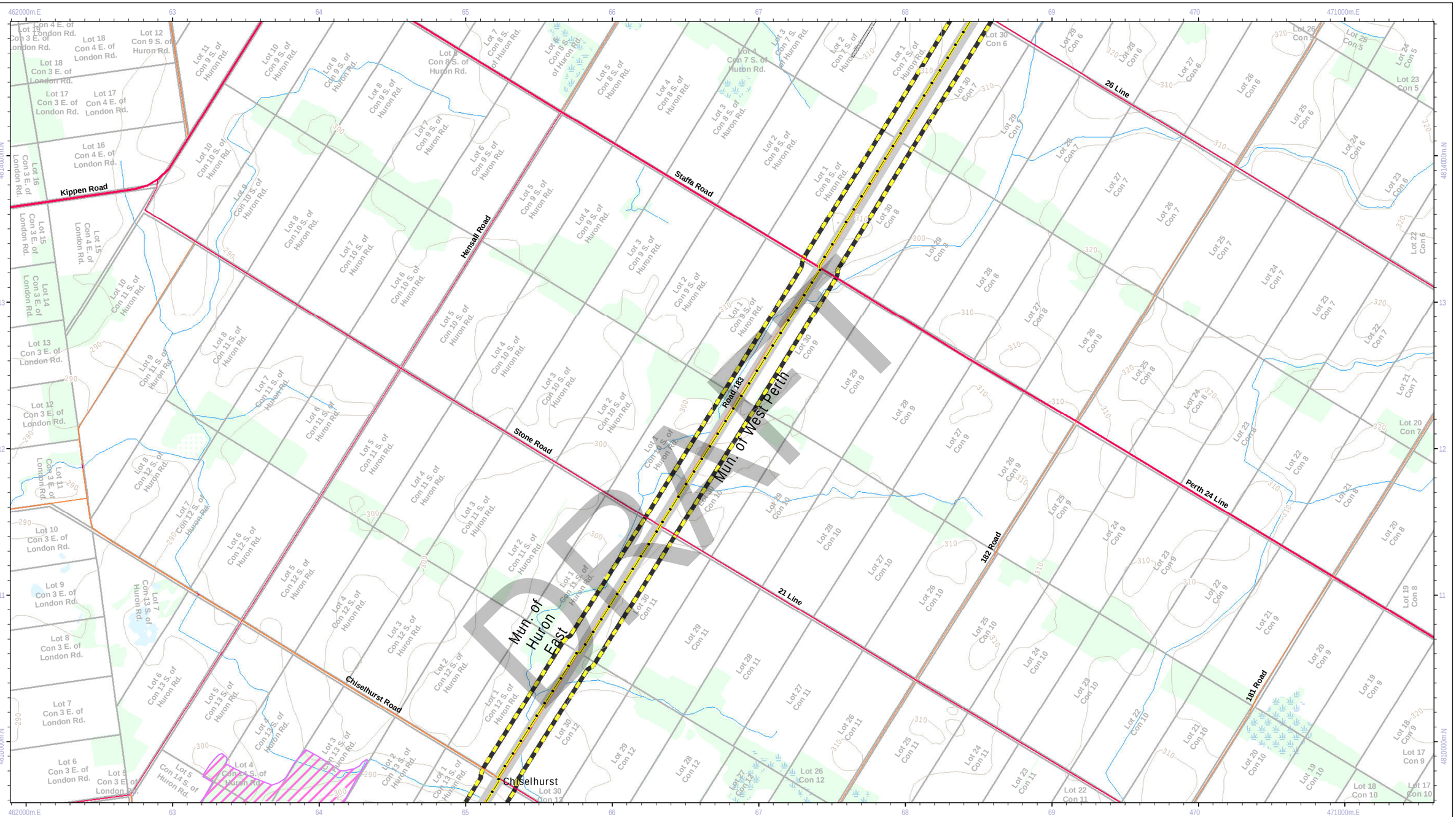
NEEGAN BURNSIDE

Date: 30 May 2012

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership
Natural Heritage Features of Local and Regional Significance

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	5f
Scale	Project	
1:25,000	PIA019991	



0 500 1,000 1,500

Meters

N

Wind Turbine Location	Transformer Station (Proposed)	Regional ANSI: Earth Science
Study Area Boundary (120m Buffer)	Access Road & Underground Collector Line	Regional ANSI: Life Science
Collector Line in Municipal ROW (230kV)	Access Road: Permanent	Environmentally Sensitive Area
Participating Property	Access Road: For Construction: Temporary	Non-Provincially Significant Wetlands
Assembly Site Area Boundary	Collector Line: Underground	

NEEGAN BURNSIDE

Date: 30 May 2012

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership
Natural Heritage Features of Local and Regional Significance

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	5g
Scale	Project	
1:25,000	PIA019991	

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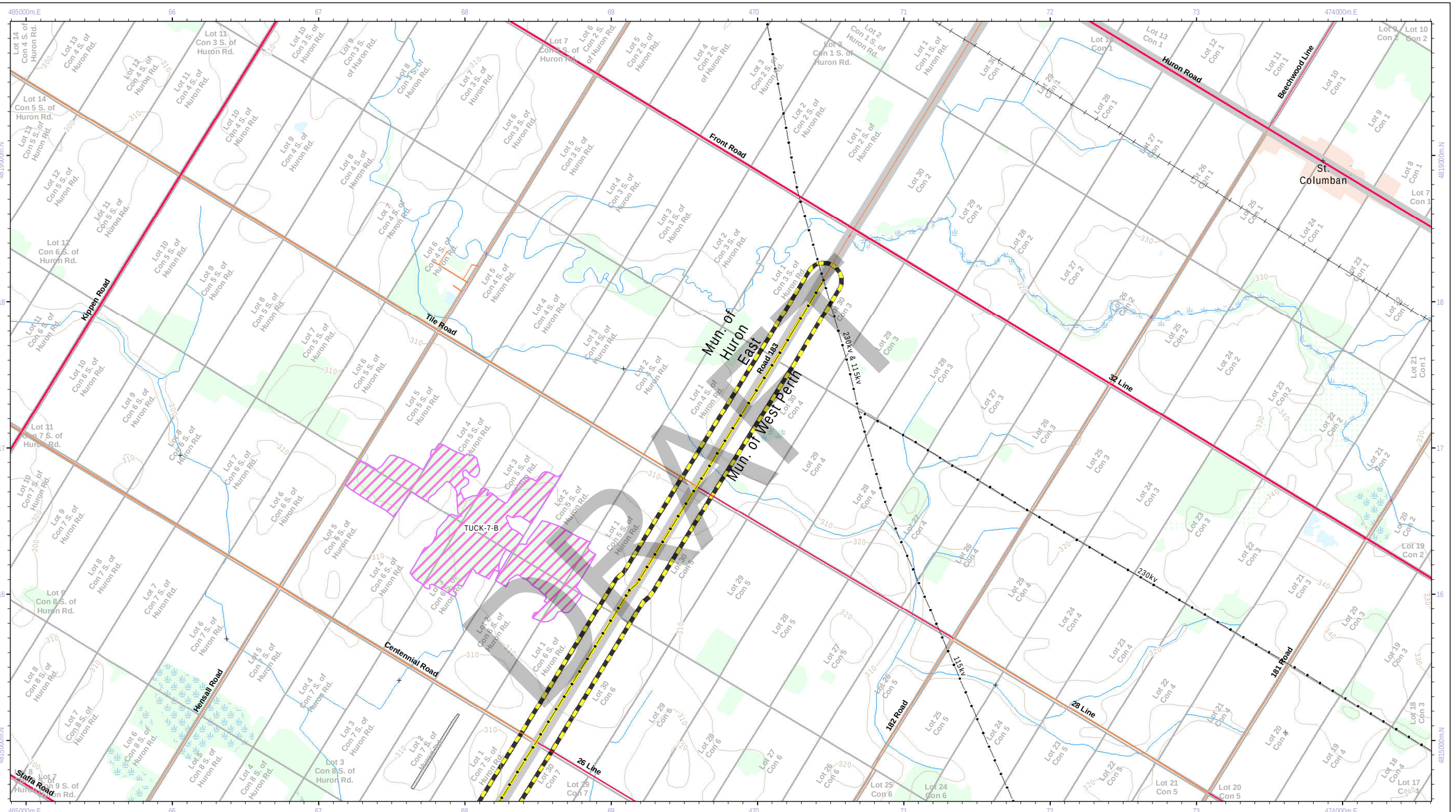
Date: 30 May 2012



0 500 1,000 1,500

Meters

N

NEEGAN BURNSIDE

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- Regional ANSI: Earth Science
- Regional ANSI: Life Science
- Environmentally Sensitive Area
- Non-Provincially Significant Wetlands

Title

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership
Natural Heritage Features of Local and Regional Significance

Prepared	Checked	Figure Number
P. Stubbert	T. Radburn	5h
Scale	Project	
1:25,000	PIA019991	

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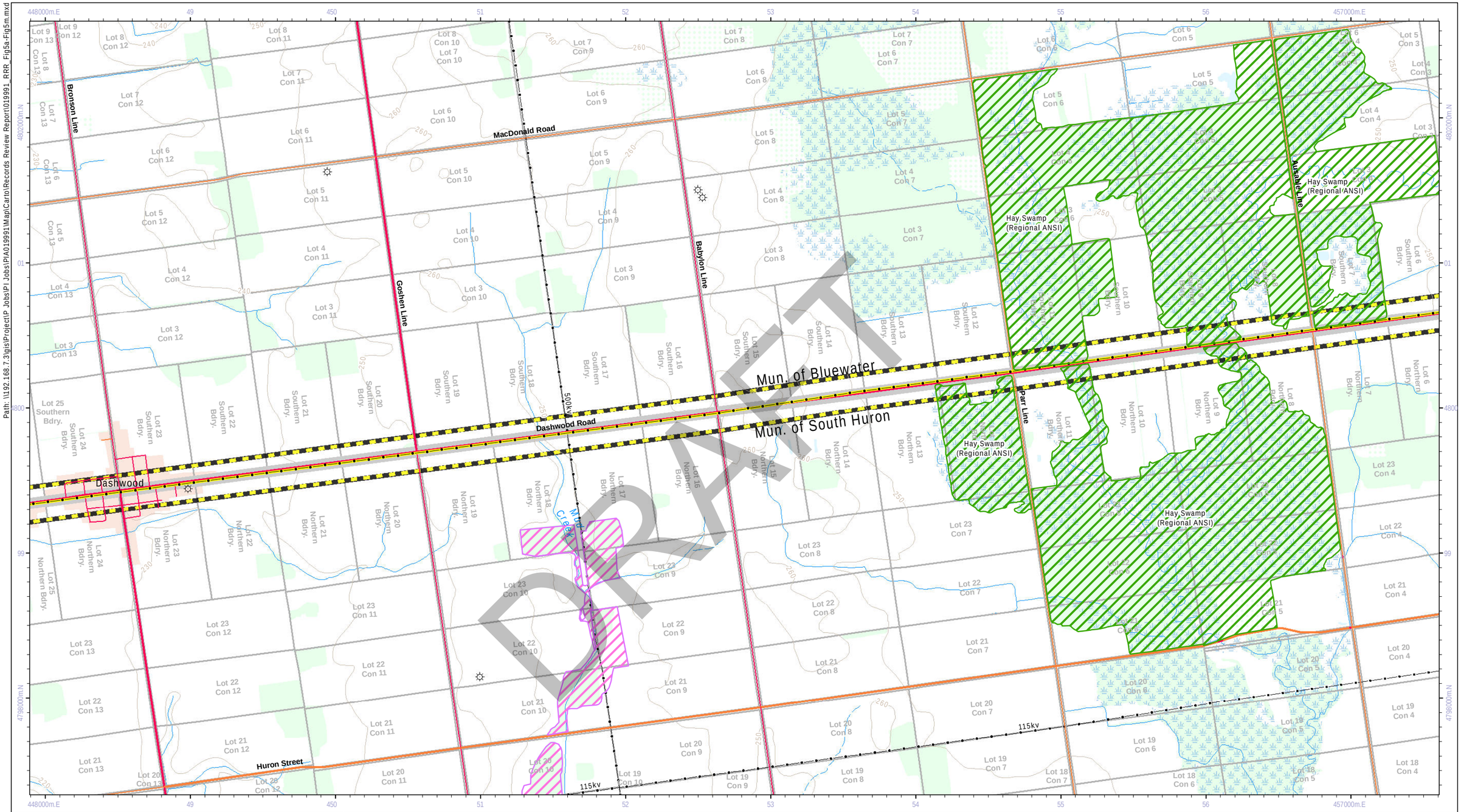

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Meters

N

NEEGAN BURNSIDE

Date: 30 May 2012

- Wind Turbine Location
- Study Area Boundary (120m Buffer)
- Collector Line in Municipal ROW (230kV)
- Participating Property
- Assembly Site Area Boundary
- Transformer Station (Proposed)
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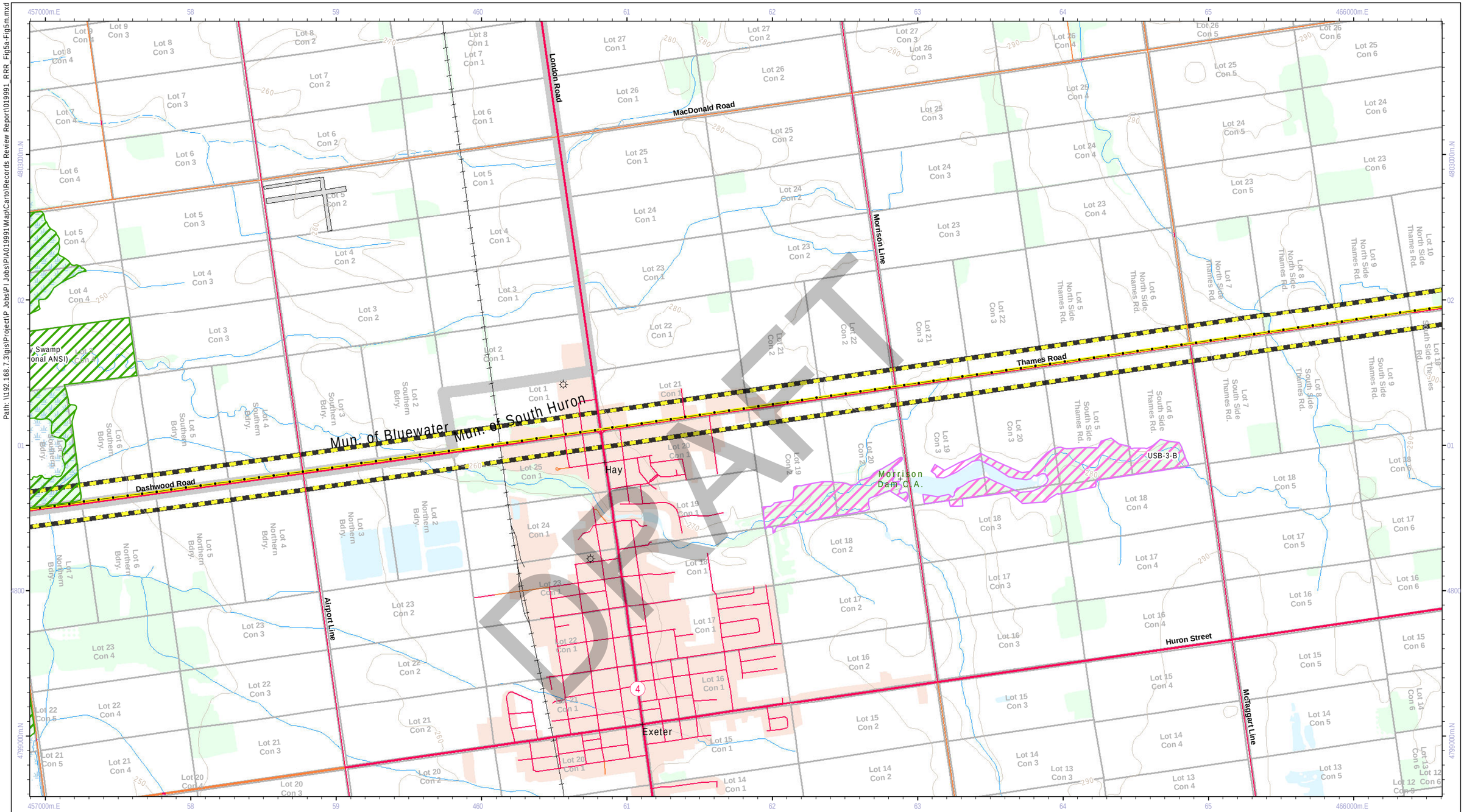

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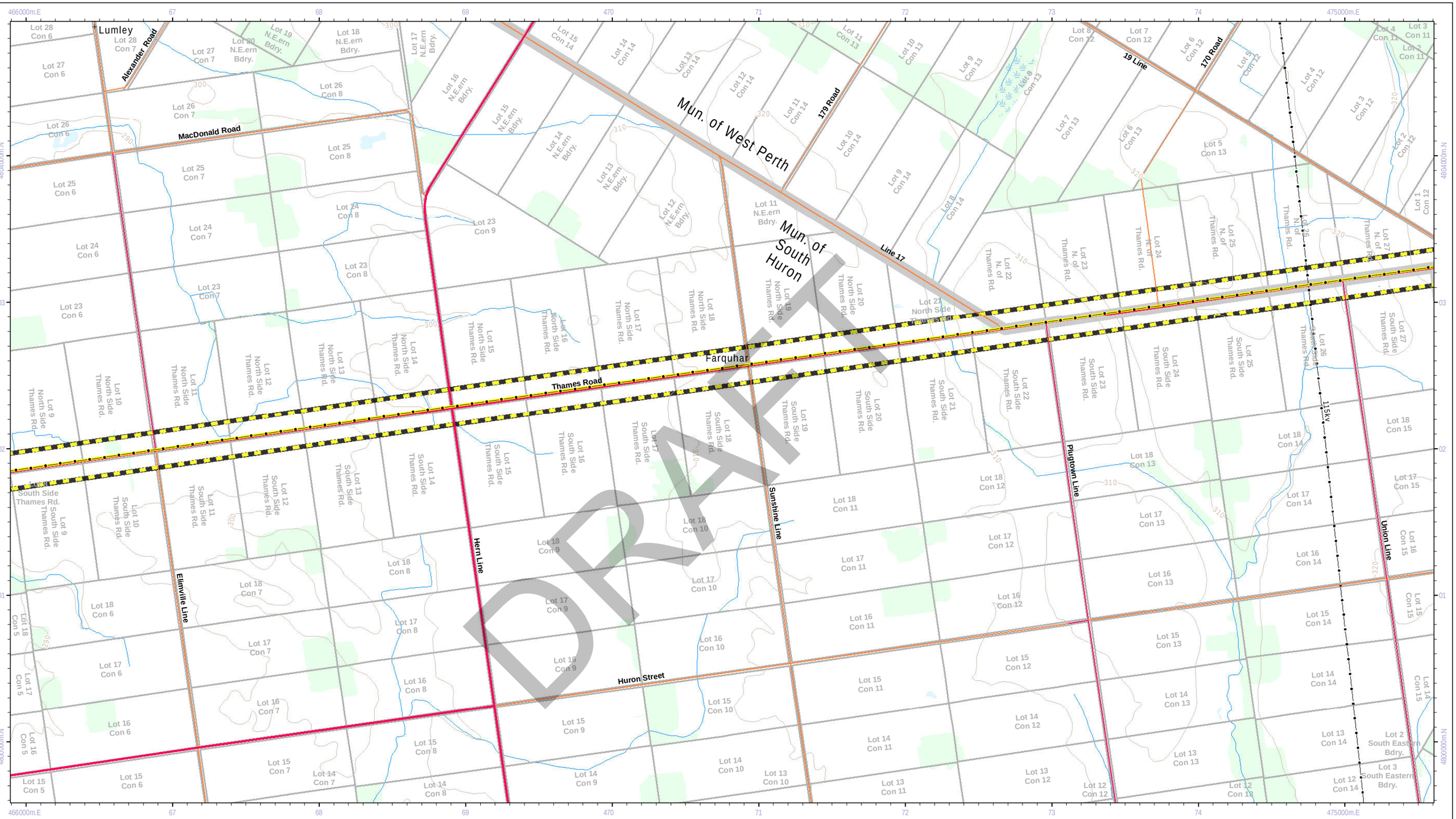

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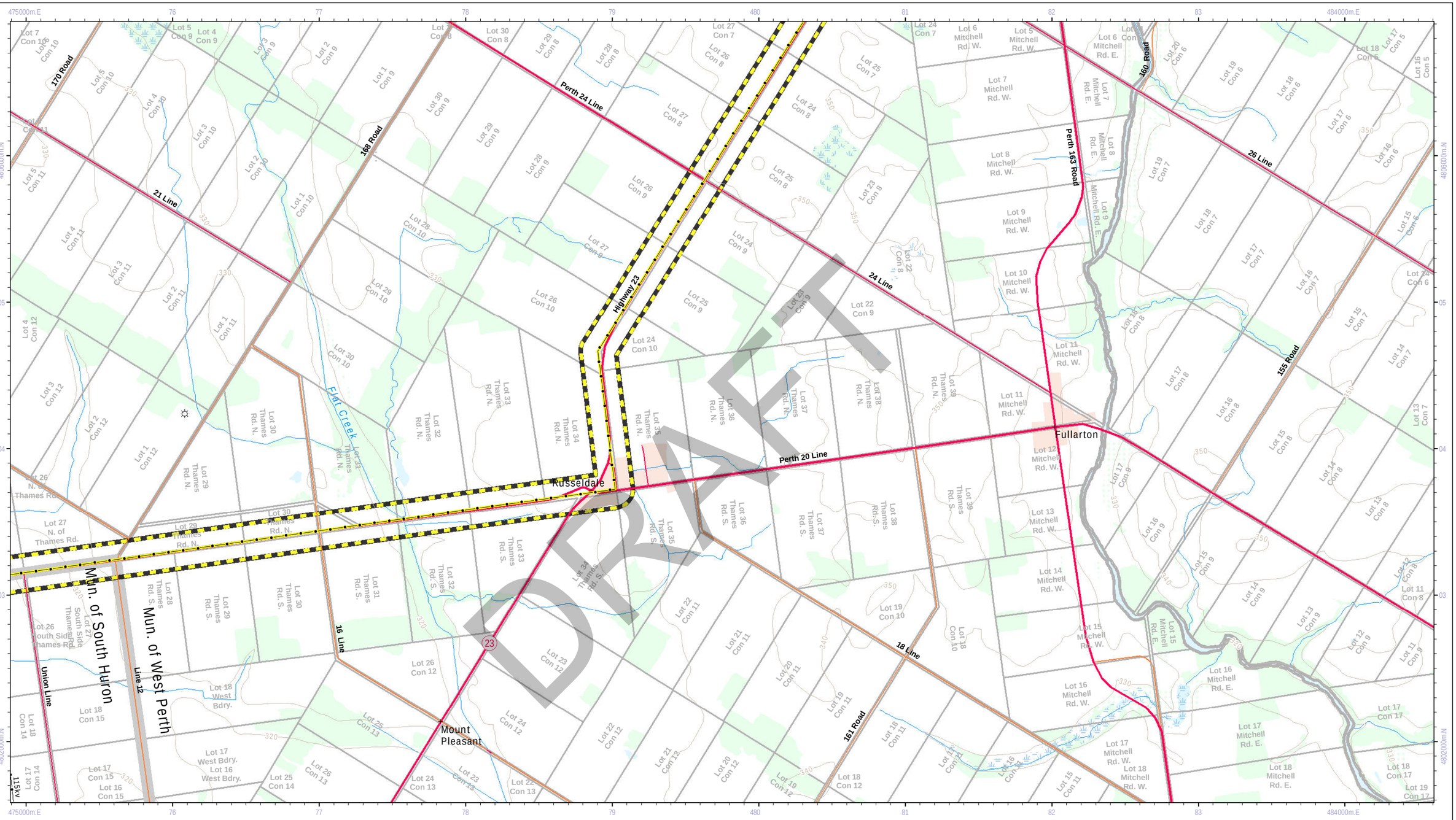

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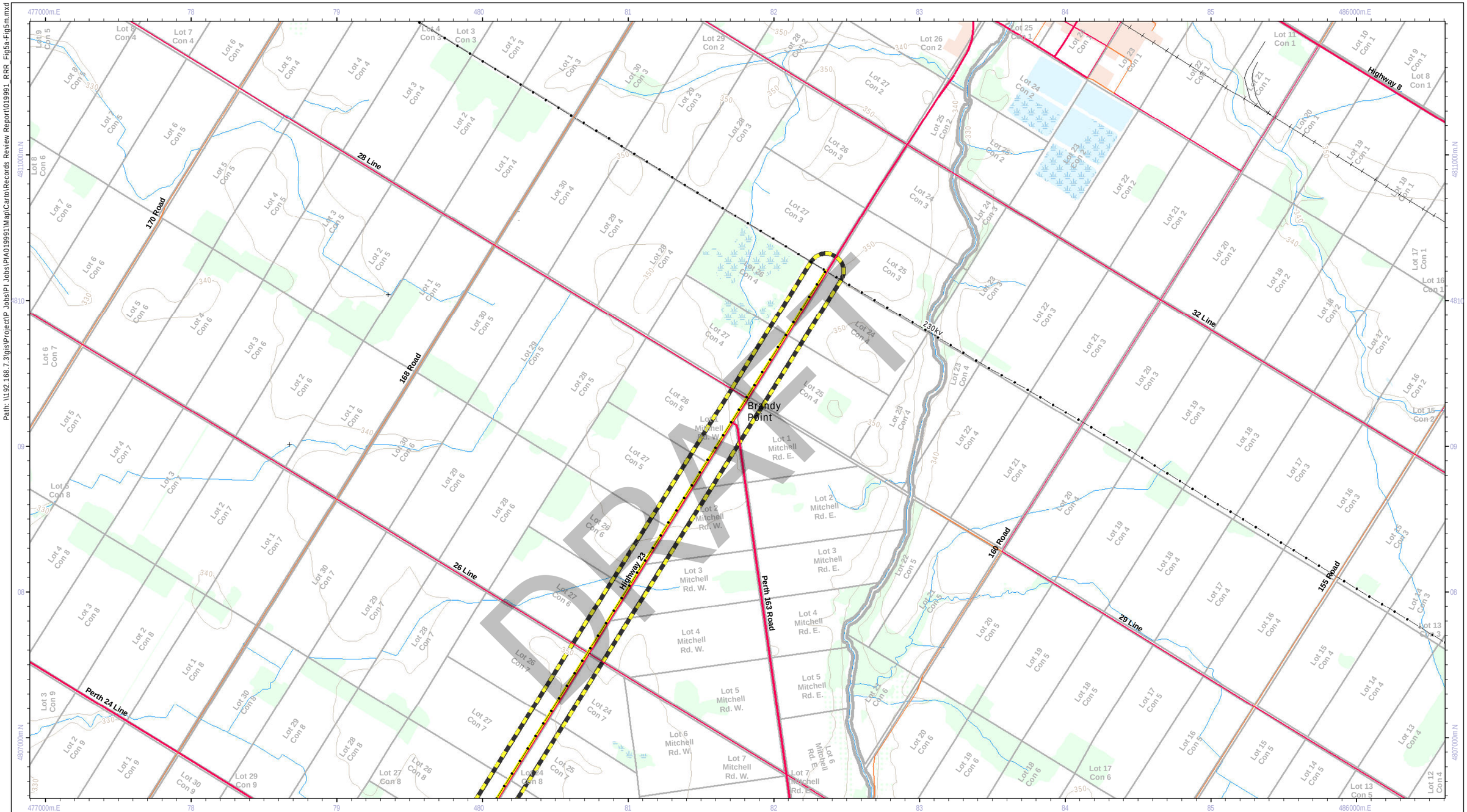

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Scale	Project	
1:25,000	PIA019991	

NEEGAN BURNSIDE

Appendix B
Correspondence

Northland Power Grand Bend Wind Farm
Records Review Contact List
Project No. PIA 019991

Agency/Organization	Title	First Name	Last Name	Position	Address	Contact Information
Environment Canada Ontario Region	Mr.	Rob	Dobos	Manager, Environmental Assessment Section	P.O. Box 5050 867 Lakeshore Road Burlington ON L7R 4A6	Tel: Fax: E-mail:
Environment Canada- Canadian Wildlife Service	Mr.	John	Fischer	Environmental Assessment Coordinator	867 Lakeshore Road Burlington ON L7R 4A6	Telephone : 905-336-4961
Fisheries and Oceans Canada Southern Ontario District Office	Sir / Madam			Regional Environmental Assessment Analyst	3027 Harvester Road, Unit 304 Burlington ON L7R 4K3	Tel: Fax: E-mail:
Fisheries and Oceans Canada Southern Ontario District Office	Mr.	Rick	Kiriluk	Fish Habitat Biologist	3027 Harvester Road Unit 304 Burlington, Ontario L7R 4K3	Telephone : 905-639-6378
Ministry of Northern Development, Mines and Forestry	Ms.	Jennifer	Lillie-Paetz	Environmental Assessment Coordinator	Willet Green Miller Ctr Level B6 933 Ramsey Lake Rd Sudbury, ON P3E 6B5	Tel: 705-670-5918 Fax: E-mail: Jennifer.lillie-paetz@ontario.ca
Ministry of Northern Development, Mines and Forestry	Mr.	Marc	Leroux	Manager, Information Services	Willet Green Miller Ctr Level B6 933 Ramsey Lake Rd Sudbury, ON P3E 6B5	Tel: 705-670-5869 Fax: E-mail: marc.leroux@ontario.ca
County of Huron	Ms.	Claire	Dodds	County Planner	1 Courthouse Sq. Goderich, ON N7A 1M2	Tel: (519) 235-0310 x238 Fax:

Agency/Organization	Title	First Name	Last Name	Position	Address	Contact Information
						E-mail: cdodds@huroncounty.ca
County of Huron	Mr.	Craig	Metzger	Senior Planner	1 Courthouse Sq. Goderich, ON N7A 1M2	Tel: (519-524-8394 x235 Fax: E-mail: cmetzger@huroncounty.ca
Municipality of South Huron	Mr.	Dwayne	McNab	Manager of Building & Development	1 Courthouse Sq. Goderich, ON N7A 1M2	Tel: (519) 235-0310 x237 Fax: E-mail: d.mcnab@southhuron.ca
Municipality of Bluewater	Ms.	Arlene	Parker	Planning Coordinator	Box 250 14 Mill Ave. Zurich, ON N0M 2T0	Tel: (519) 236-4351 x235 Fax: E-mail: planninginfo@town.bluewater.on.ca
Ausable Bayfield Conservation Authority	Mr.	Geoff	Cade	Supervisor of Water and Planning	71108 Morrison Line, RR#3 Exeter, ON N0M 1S5	Tel: (519) 235-2610 Fax: (519) 235-1963 E-mail: gcade@abca.on.ca
Huron Fringe Field	Ms.	Catherin	Hogg	President	Box 143	

Agency/Organization	Title	First Name	Last Name	Position	Address	Contact Information
Naturalists		e			Kincardine, ON	
York University	Dr.	Laurence	Parker	Professor	Rm 209A Lumbers Building York University 4700 Keele Street Toronto, Ontario. M3J 1P3	Phone: 416-736-2100 ext. 22663 xeromelissa@mail.com

Neegan Burnside Ltd. 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 Canada
telephone (519) 823-4995 **fax** (519) 836-5477 **web** www.neeganburnside.com

NEEGAN BURNSIDE

October 24, 2011

Via: Mail

«Title» «First_Name» «Last_Name»
«Position»
«AgencyOrganization»
«Address»

Dear «Title» «Last_Name»:

Re: Northland Power Grand Bend Wind Farm
Request for Information: Records Review
File No.: PIA 019991

Northland Power Inc. has retained Neegan Burnside Ltd. (Neegan Burnside) to prepare an application for a Renewable Energy Approval, under Ontario Regulation 359/09 of the *Environmental Protection Act* for a proposed 100 MW wind power project near Grand Bend, ON. The proposed project is categorized as a Class 4 Wind Facility and is located within the project study area presented in Figure 1, attached.

At this stage, Neegan Burnside is conducting a Records Review, as required as part of the Natural Heritage Assessment. The Records Review includes a review of existing data sources to confirm the potential presence of significant natural features.

Neegan Burnside is requesting that your agency/organization provide us with any data or records that you may have relating to the natural environment so that we can include these in our assessment of potential impacts.

Burnside is seeking information, including:

- Records of significant natural features, including species at risk, wildlife habitats, aquatic habitat, etc;
- Geological information including the presence of karst topography/caves etc. that could provide bat hibernacula;
- Other background information that is pertinent to the compilation of an environmental inventory of the general area of study; and,
- Any preliminary comments or concerns that your agency has on the proposed project.

It is essential to the success of this project that the concerns of your agency, and other stakeholders, are identified early in the planning process, such that the appropriate environmental protection measures are incorporated into the overall project design. Your input and questions are encouraged.

To provide the study team with your comments or for further information please contact Tricia Radburn, Environmental Planner at 519-823-4995 x479 or by email at tradburn@neeganburnside.com.

Please indicate to us your interest in providing input to this project by responding to this letter. All interested stakeholders will be kept up-to-date on project status by means of future mailings, or inclusion in project meeting, as deemed appropriate.

Your participation in this Renewable Energy Approval process is much appreciated.

Yours truly,

Neegan Burnside Ltd.

Lyle Parsons, B.E.S.
Project Manager

019991_Records Review Letter.doc
24/10/2011 1:45 PM

Northland Power Grand Bend Wind Farm
Craig Metzger
to:
tradburn
10/31/2011 11:37 AM
Cc:
planninginfo
Show Details

History: This message has been forwarded.

2 Attachments

R15.06 By-law No. 07-2009.pdf D15BLU Northland Power - 20111024 Parsons.pdf

Dear Ms. Radburn,
I recently received the attached correspondence from Lyle Parsons of your firm requesting preliminary comments and other information for Northland Power's proposed wind energy facility (the Grand Bend Wind Farm). In response and as a first step, I believe it would be helpful for your firm and/or Northland Power to meet with Bluewater Municipal staff (including myself) to discuss your project. Sometime after that meeting, a presentation by your firm and/or Northland Power to Bluewater's Planning Committee (a Committee of Council composed of all Bluewater Councillors) to provide a brief overview of the project and Northland Power would also be appropriate.

From the size of your study area and the nameplate capacity of the proposed project it appears the project will be among the largest in Bluewater. Consequently, it's important that the Municipality (both Council and staff) be fully briefed on the project so they're better able to respond to requests from the proponent as well as questions from the public.

The contact person at the Municipality of Bluewater for arranging both the meeting with staff and appearing as a delegation at the Bluewater Planning Committee is Arlene Parker, Planning Coordinator (planninginfo@town.bluewater.on.ca or 519-236-4351).

I've also attached Municipality of Bluewater By-law 7 of 2009 which amended the local zoning by-laws to include requirements related to wind energy facilities. Although this by-law was appealed to the Ontario Municipal Board (a hearing has not been held) and the Green Energy and Green Economy Act invalidates a large portion of it, nevertheless it does represent the Municipality's clearly expressed intentions for wind energy facilities at a broad level. There will likely be an expectation that the project will demonstrate how it has considered this by-law.

Sincerely,

Craig

Craig Metzger
Senior Planner
Huron County Planning & Development Department
57 Napier Street
Goderich, ON N7A 1W2
519-524-8394, ext. 235 (Goderich)
519-236-4351, ext. 228 (Zurich)
519-524-5677 (fax)

MUNICIPALITY OF
BLUEWATER
BAYFIELD - HAY - HENSALL - STANLEY - ZURICH
2001

October 27, 2011

Neegan Burnside Ltd.
Unit 20, 292 Speedvale Avenue West
Guelph, ON N1H 1C4

Attn: Lyle Parsons, B.E.S., Project Manager

Re: Request for Information: Records Review Your File No.: PIA019991

Dear Lyle Parsons:

We received your letter today wherein you requested extensive information/records relating to the Northland Power Grand Bend Wind Farm. The information you provided was not sufficiently detailed enough for us to effectively address your request and we would, therefore, request that representatives from Northland Power schedule a meeting with us. We would be interested in knowing more information about the proposed project so we may analyze and evaluate what issues may be of concern to us. In particular we need a draft site plan so we may assess the physical and safety aspects, other technical issues and resident impacts that are within the jurisdiction of the municipality.

Respecting the information you requested regarding natural features, species at risk, wildlife and aquatic habitat, geological information and environmental inventory, please direct your request to the following agencies:

Ausable Bayfield Conservation Authority, RR 3, Exeter, ON N0M 1S6
Ontario Ministry of Natural Resources
Ontario Ministry of Tourism and Culture

You may access our Official Plan at:
https://bluewater.civicweb.net/Documents/DocumentList.aspx?ID=2450.

The Municipality of Bluewater would request that a copy of all draft reports be provided to us when they are complete.

The Corporation of the Municipality of Bluewater
P.O. Box 250, 14 Mill Ave. Zurich, ON N0M 1G0
Ph: (519) 236-4351 F: (519) 236-4329

Please consider this letter as our official notice that we will have specific comments and concerns and require that additional information be provided to us so that we may analyze and articulate these concerns.

Sincerely,

Lori Wolfe, CAO
(519) 236-4351 x226

The Corporation of the Municipality of Bluewater
P.O. Box 250, 14 Mill Ave. Zurich, ON N0M 1G0
Ph: (519) 236-4351 F: (519) 236-4329

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telephone (519) 823-4995 **fax** (519) 836-5477 **web** www.neeganburnside.com

NEEGAN BURNSIDE

December 15, 2011

Via: Email (hard copy to follow)

Mr. Geoff Cade
Supervisor of Water and Planning
Ausable Bayfield Conservation Authority
71108 Morrison Line, RR #3
Exeter, ON N0M 1S5

Dear Mr. Cade:

Re: Follow-up to Our October 24, 2011 Letter Requesting a Records Review, Northland Power Grand Bend Wind Farm, Grand Bend, ON
File No.: PIA 019991

Thank you for your phone call on November 24, 2011. Neegan Burnside Ltd. (Neegan Burnside) and Northland Power Inc. appreciate the difficulties your organization faces when reviewing a large number of complex wind farm projects. We hope to make your review of our application as easy as possible. As such, this letter is intended to provide you with additional details about our project, where we are in the Renewable Energy Approval process and how we hope to coordinate with the Ausable Bayfield Conservation Authority ("ABCA") with respect to the ongoing review and approval of this project.

Data Request

Neegan Burnside has been retained by Northland Power Inc. to prepare a Renewable Energy Approval application under O.Reg. 359/09. We are currently in the early stages of project development and are focused on preparing the Natural Heritage Assessment component of the REA application in accordance with the *Natural Heritage Assessment Guide for Renewable Energy Projects* (MNR, 2011)[1].

[1] http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@renewable/documents/document/stdprod_088157.pdf

According to the Guide, the Natural Heritage Evaluation must be undertaken in four stages as follows:

- Stage 1: Records Review;
- Stage 2: Site Investigation;
- Stage 3: Evaluation of Significance; and,
- Stage 4: Environmental Impact Study Report.

We are currently at the Records Review stage. At this stage, we are required to contact agencies and organizations who may have records of known and previously documented natural heritage features in the vicinity of our Study Area. Based on the results of the findings, we will tailor our field investigations to confirm the presence and significance of potential features.

We are, therefore, only requesting information associated with the Records Review at this time. The type of information we are seeking is, for example:

- Records of species at risk or known habitats (specifically including whether you have any records of redside dace or black redhorse in the area);
- The findings of any fish sampling that the ABCA may have completed within the watercourses traversing our Study Area;
- Any known permanent vs. intermittent stream classifications;
- Any valleylands in the Study Area;
- Seepage areas; or,
- Any other relevant records relating to significant natural features in the area that we should be aware of.

The specific layout and design of our project will reflect the findings of the Records Review and subsequent field investigations.

Please note that we conducted a Preliminary Constraints Analysis for Northland last spring. This was outside of the REA process and was intended to provide Northland with a general description of the type environmental constraints in the area so they could make a decision as to whether or not to pursue the project. At that time, we obtained the following information:

- a shapefile of the ABCA's Regulation Limit (only included the outer limit, not individual regulated features such as valleylands); and,
- drain classifications.

We do not wish to duplicate your efforts, so please do not re-issue this information.

Attached is a figure showing our Study Area and the Records Review that we obtained from the MNR. There is no need to duplicate any records that have previously been provided to us from the MNR. We are seeking any additional information to further supplement their data.

We have begun some ecological field studies associated with the Stage 2, Site Investigation portion of the Natural Heritage Assessment so as to avoid missing any

significant timing windows. However, we are aware that some additional studies or more detailed investigations may need to be undertaken depending on the information that you provide.

Timing of Permitting

We have contacted the Ministry of the Environment's Renewable Energy Office regarding our discussion about permitting under the *Conservation Authorities Act*.

According to Maryanna Lewyckyj, Senior Project Advisor, Conservation Authority permits are outside of the Renewable Energy Approval process and are not required prior to submission of the REA application. If you have any questions you may contact Ms. Lewyckyj at (416) 212-7723. We anticipate that we will need to obtain permits from the ABCA but we are not sufficiently far along in the development of the project to submit an application to you at this time.

We anticipate that we will contact ABCA at a number of stages in the REA process and beyond as follows:

- Records Review request (current);
- Issuance of the draft Project Description Report (anticipated to be available early 2012);
- Issuance of draft application documents (anticipated for completion summer 2012); these include a minimum 90 day review period for municipalities and CA's under municipal agreements; and,
- Subsequent to REA approval, during the permitting process in order to obtain permits associated with access road and underground electrical cabling water crossings.

We also hope to meet with you in the new year to discuss the project, present the findings of our fieldwork to date and review any early concerns that you may have. We will contact you shortly to schedule a meeting time.

ABCA Review Fees

We understand that the ABCA will be billing renewable energy proponents to cover costs associated with:

- Compiling Records Review information;
- Reviewing REA application documents in accordance with any agreements you have with local municipalities; and,
- Reviewing and issue any necessary permits under the *Conservation Authorities Act*.

We also understand that you will bill proponents on a fee and expense basis and are unable to provide a cost estimate for your review at this time. We would appreciate being kept up-to-date on any decisions that the ABCA makes with respect to changes to your fee structure for the review of renewable energy projects and any cost estimates you may be able to provide.

Please address your invoice for review work to:

Lyle Parsons, BES
Project Manager
15 Townline
Orangeville, ON L9W 3R4

We hope that this provides you with the information you need to assist in your review of our renewable energy approval application. If you have any suggestions or requests to make your review easier, please do not hesitate to contact us.

Yours truly,

Neegan Burnside Ltd.

Tricia Radburn, M.Sc.(Pl), MCIP, RPP
Environmental Planner

Cc Lyle Parsons, Neegan Burnside, Project Manager
Gordon Potts, Northland Power Inc.

Enc. Figure 1. Study Area
MNR Records Review
Shapefile of Study Area (by email only)

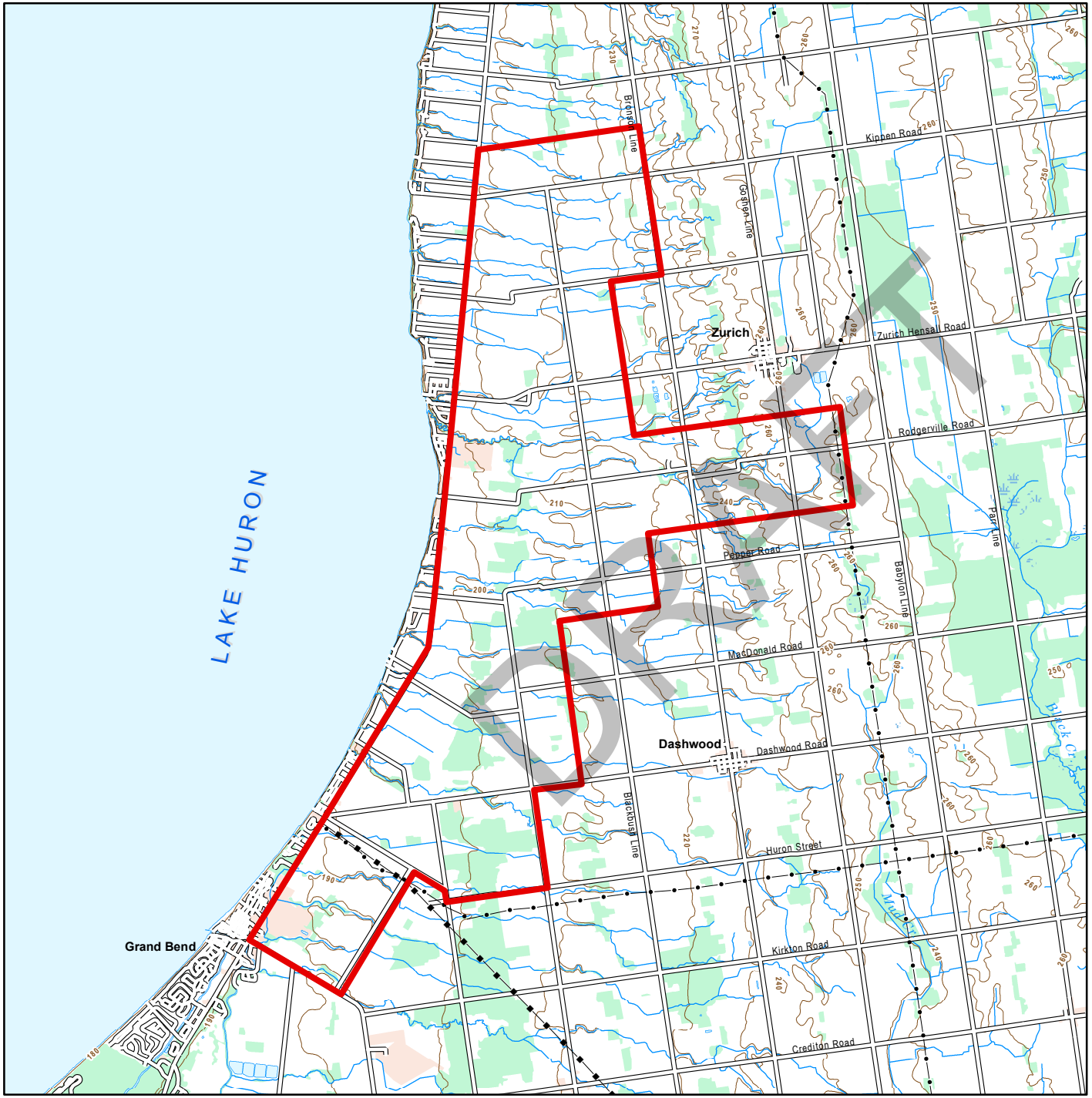

FIGURE 1

NORTHLAND POWER INC.
GRAND BEND WIND FARM

STUDY AREA EXTENT

LEGEND

- Study Area Boundary
- Power Transmission Line
- Petroleum Pipeline
- Railway

Water Course

- Permanent
- Intermittent
- Contour (masl)
- Waterbody: Permanent
- Wetland
- Wooded Area
- Built-Up Area

DATA SOURCES:

1. Ministry of Natural Resources, © Queen's Printer for Ontario
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada

DISCLAIMER:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). The data represented on this map may be subject to updates and future reproductions may not be identical.

N

Scale: 1:120,000
October, 2011
Project Number: PIA019991

Projection: UTM Zone 17
Datum: NAD 83

Prepared By: Z. Nevar

Verified By: T. Radburn

NEEGAN BURNSIDE

E:\Project\P Jobs\PI Jobs\PIA019991\Map\Working\019991_LETTER_TOPO.mxd

REOT

District NHA Records Review Template for Renewable Energy Projects

Northland: Grand Bend Wind Farm

Wind, Solar, Biomass

Ministry of Natural Resources

Renewable Energy Operation Team

August 29, 2011

NHA Records Review

Project Name:	**Grand Bend Wind Farm**		
Project Location:	**MNR District** Guelph	**Municipality** Bluewater and South Huron	**Geo.Twp, Lot(s) & Con(s)** see map
Applicant:	Grand Bend Wind LP (Northland Power) (contact: Gordon Potts Gordon.potts@northlandpower.ca)	**Phone #:** 647-288-1223 **Address:** 30 St.Clair Avenue West, 17th Floor Toronto, ON M4V 3A1	
Consultant:	R.J. Burnside & Associates Limited (contact: Lyle Parsons lyle.parsons@rjburnside.com) Subcontracted Activa Environmental Inc for bird studies	**Phone #:** 519-925-1790 **Address:** 15 Townline Orangeville, ON L9W 3R4	
Generation type:	☒ wind onshore	☐ wind offshore	☐ solar ☐ biomass/biogas
Nameplate Capacity:	100 **MW**		
Name of MNR Records Reviewer:	Erin Harkins, Graham Buck, Chris Godwin, Terry Schwan, Donald Kirk		
Date Records Compiled:	August 16, 2011 and Revised August 26, 2011		
What Ecodistrict is the project located in?	6E-2, 7E-2		

Feature Type	**Present within 120m of project location** (yes, no, unknown, N/A)	**Present within project location** (yes, no, unknown, N/A)	**MNR Comments** (comments may expand on information provided and/or may include relevant records within the vicinity that were not within project location or 120m of project area)	**Information Source** (NHIC, district staff, etc. Include the data layer name where possible)
Provincial Park	No	No	Roughly 4km north of Pinery Provincial Park Indicate in Records Review report that this feature is not present. No need to do any additional work.	NRVIS – PP/CR layer
Conservation Reserve	No	No	Indicate in Records Review report that this feature is not present. No need to do any additional work.	NRVIS – PP/CR layer
Earth Science ANSI*	No	No	Roughly 5km west of Dashwood Regional ANSI Dashwood Area Moraine ANSI contains Late Wisconsinan, Port Huron Stadial, Wyoming Moraine, St. Joseph Till, meltwater channel and Lake Warren beach. This site is representative of the Wyoming Moraine in the Grand Bend-Parkhill area. The glacial features were deposited by the Huron ice lobe. [Earth Science Database, 1998] Roughly 1.5km west of St. Joseph Till Regional ANSI St. Joseph Till ANSI exhibits Late Wisconsinan, Port Huron Stadial, St. Joseph Till. Due to the temporary nature of exposures along Lake Huron, a Type Area rather than a Type Section was proposed. The St. Joseph Till forms the surface till on the Wyoming Kame Moraine. Both are Huron ice lobe deposits. [Earth Science Database, 1998] Indicate in Records Review report that this feature is not present. No need to do any additional work.	NRVIS – ANSI layer NHIC Biodiversity Explorer
Life Science ANSI	No	Yes (Regional Life Science ANSI)	Appears to be within 120m of Bayfield South Regional ANSI Series of upland woodlots running parallel to Lake Huron approximately 6 km south of Bayfield. Dissected by several concession roads. Woodlots vary from young sugar maple with ash to mature ash-beech with hemlock-sugar maple. One woodlot contains an actively used cabin. [Hanna 1984]	NRVIS – ANSI layer NHIC Biodiversity Explorer
Wetland	Unknown	Unknown	Datars-Miller Swamp (evaluation from 1987); approx. 7km from Hay Swamp PSW. Wetlands should be carried forward to site investigation to determine	

					presence/absence on the landscape.	
Woodland			Yes	Unknown	Woodlands range in size from small hedge rows to large woodlands up to 1 200ha in size. Need to carry woodlands forward to site investigation to confirm boundaries and presence/absence.	NRVIS – Wooded areas layer
Valleyland			Unknown	Unknown	Need to carry valleylands forward to site investigation to confirm presence/absence	
Significant Wildlife Habitat	**Habitats of Seasonal Concentrations of Animals**	Winter deer yards	No	No	Stratum 2 Wintering area 4km east of turbine locations (approximate Hay Swamp PSW). MNR is responsible for identifying significant winter deer yards. Indicate in records review that this feature is not present and do not carry forward to site investigation.	NRVIS – Wintering areas layer
		Colonial bird nesting sites	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Waterfowl stopover and staging areas	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Waterfowl nesting	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Shorebird migratory stopover areas	Unknown	Unknown	Within 5 km of a Great Lake shoreline (Lake Huron). Carry this feature forward to site investigation to determine if present/absent.	SWHTG
		Landbird migratory stopover areas	Does not apply to project location		Not within 5 km of Lake Erie/Ontario shoreline.	SWHTG/6E and 7E working draft Criteria schedules
		Raptor winter feeding and roosting areas	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Wild turkey winter range	Does not apply to project location		Wild turkey habitat does not need to be considered for this project location. Include this information in the records review report and do not carry forward to site investigation.	SWHTG/6E and 7E working draft Criteria schedules
		Turkey vulture summer roosting areas	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Reptile hibernacula	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	

		Bat hibernacula	Unknown	Unknown	Contact MNDMF for mapping of karst topography and records of old mines/caves. MNDMF has an online database of abandoned mines that can be searched at this link: http://www.geologyontario.mndmf.gov.on.ca/gosportal/gos Records within 1120m of the project location must be considered. Carry forward to site investigation to determine present/absent.	
		Bat maternity colonies	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Bullfrog concentration Areas	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Amphibian breeding habitat (woodland)	Unknown	Unknown	Check the Ontario Herpetofaunal Summary website (http://nhic.mnr.gov.on.ca/herps/ohs.html) or for species range maps and sighting locations. Carry this feature forward to site investigation to determine if present/absent.	
		Amphibian breeding habitat (wetland)	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Migratory butterfly stopover areas	Does not apply to project location		Not within 5 km of a Lake Erie/Ontario shoreline	SWHTG
	Rare Vegetation Communities	**Alvars**	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Tall-grass prairies	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Savannahs	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Rare forest types	Unknown	Unknown	1978 FRI maps may indicate rare forest types. Only required for turbines and infrastructure within 120m of woodland. Maps available only in Clinton MNR office. Check with Ausable Bayfield CA. Carry this feature forward to site investigation to determine if present/absent.	
		Talus slopes	Unknown	Unknown	Carry this feature forward to site	

					investigation to determine if present/absent.	
		Rock barrens	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Sand barrens	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Great Lake dunes	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
	Specialized Habitats for Wildlife	**Habitat for Area Sensitive Species**	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Forests providing high diversity of habitats	Unknown	Unknown	1978 FRI maps will indicate larger forest areas with different forest types. Only required for turbines and infrastructure within 120m of woodland. Maps available only in Clinton MNR office. Check with Ausable Bayfield CA. Carry this feature forward to site investigation to determine if present/absent.	
		Old-growth or mature forest stands	Unknown	Unknown	1978FRI maps will indicate older stands. Only required for turbines and infrastructure within 120m of woodland. Maps available only in Clinton MNR office. Check with Ausable Bayfield CA. Carry this feature forward to site investigation to determine if present/absent.	
		Foraging areas with abundant mast	Does not apply in project location		This feature only applies to Ecodistrict 6E-14 within Ecoregion 6E. This project is located in 6E-2. Include this information in Records Review Report and do not carry forward to site investigation.	MNR 6E Criteria Schedule
		Amphibian woodland breeding ponds	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Turtle nesting habitat	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Turtle over-wintering habitat	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	

		Woodland raptor nesting habitat	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Osprey nesting, foraging and perching habitat	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Moose calving areas	Does not apply in project location		Moose calving areas are not present within the vicinity of the project location. Include this information in Records Review Report and do not carry forward to site investigation.	
		Moose aquatic feeding areas	Does not apply in project location		Moose aquatic feeding areas are not present within the vicinity of the project location. Include this information in Records Review Report and do not carry forward to site investigation.	
		Mineral licks	Does not apply in project location		Mineral licks are not present within the vicinity of the project location. Include this information in Records Review Report and do not carry forward to site investigation.	
		Mink, otter, marten, and fisher denning sites	Does not apply in project location		Mink, otter, marten and fisher denning sites do not need to be considered within the vicinity of the project location. Include this information in Records Review Report and do not carry forward to site investigation.	6E Criteria Schedule
		Highly diverse areas	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Cliffs	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Seeps and springs	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
	Animal Movement Corridors (list all that apply)	**Deer**	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	
		Amphibians	Unknown	Unknown	Carry this feature forward to site investigation to determine if present/absent.	

	Species of Conservation Concern (list all that apply)	**Marsh Bird Breeding Habitat**	Unknown	Unknown	Breeding bird information can be found on the Ontario breeding bird atlas website (http://www.birdsontario.org/atlas/index.jsp). Carry this feature forward to site investigation to determine if present/absent.	
		Area Sensitive Breeding Birds	Unknown	Unknown	Breeding bird information can be found on the Ontario breeding bird atlas website (http://www.birdsontario.org/atlas/index.jsp). Carry this feature forward to site investigation to determine if present/absent.	OBBA
		Open Country Breeding Bird Habitat	Unknown	Unknown	Breeding bird information can be found on the Ontario breeding bird atlas website (http://www.birdsontario.org/atlas/index.jsp).	OBBA
		Shrub/Early Successional Bird Breeding Habitat	Unknown	Unknown	Breeding bird information can be found on the Ontario breeding bird atlas website (http://www.birdsontario.org/atlas/index.jsp). Carry this feature forward to site investigation to determine if present/absent.	OBBA
		Terrestrial Crayfish	Unknown	Unknown	Chimney or Digger Crayfish (*Fallicambarus fodiens*) known to occur in area.	NHIC Biodiversity Explorer
		Special Concern Species			During site investigation the habitat requirements for **each species listed under species of conservation concern** should be determined present/absent. If the habitat is absent during site investigation no additional work required. If the habitat is present carry forward to Evaluation of Significance report.	
		Common Nighthawk (Special Concern)	Unknown	Unknown	Suspected to occur in the municipality (Lower Tier (LT)). Generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops) Also see species profile at: http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=986	Guelph District SAR Bio and Ontario Breeding Bird Atlas – http://www.birdsontario.org/atlas/maps.jsp?lang=en
		Red-headed Woodpecker (Special Concern)	Unknown	Unknown	Known to occur in the municipality (LT). Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks.	Guelph District SAR Bio and Ontario Breeding Bird Atlas – http://www.birdsonta

					Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=120&lang=en	rio.org/atlas/maps.jsp?lang=en
		Short Eared Owl(Special Concern)	Unknown	Unknown	Known from Huron (historically) and could occur in area. Generally prefers a wide variety of large (<100 ha) open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and hay fields. Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=119&lang=en	Guelph District SAR Bio and Ontario Breeding Bird Atlas – http://www.birdsontario.org/atlas/maps.jsp?lang=en
		Yellow Breasted Chat (Special Concern)	Unknown	Unknown	Generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings. Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=128&lang=en	Guelph District SAR Bio and Ontario Breeding Bird Atlas – http://www.birdsontario.org/atlas/maps.jsp?lang=en
		Bald Eagle (Special Concern)	Unknown	Unknown	Prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers; They roost in super canopy trees such as Pine. Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=107&lang=en	Guelph District SAR Bio
		Monarch Butterfly (Special Concern)	Unknown	Unknown	Exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces. Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=149&lang=en	Guelph District SAR Bio
		West Virginia White (Special Concern)	Unknown	Unknown	Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=55	Guelph District SAR Bio
		Green Dragon (Special Concern)	Unknown	Unknown	Generally grows in damp deciduous forests and along streams. Flowering occurs in May and June Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=4&lang=en	Guelph District SAR Bio

		Hill's Pond Weed (Special Concern)	Unknown	Unknown	Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=16&lang=en	Guelph District SAR Bio
		Eastern Ribbonsnake (Special Concern)	Unknown	Unknown	Generally occurs along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting. Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=295&lang=en	Guelph District SAR Bio
		Milksnake (Special Concern)	Unknown	Unknown	Generally occur in rural areas, where it is most frequently reported in and around buildings, especially old structures. It is also found in a wide variety of habitats, from prairies, pastures, and hayfields, to rocky hillsides and a wide variety of forest types. They must also be in proximity of water, and suitable locations for basking and egg-laying. Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=291&lang=en	Guelph District SAR Bio
		Snapping Turtle (Special Concern)	Unknown	Unknown	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits. Also see species profile at: http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=1033	Guelph District SAR Bio
		Tuberous Indian-plantain (Special Concern)	Unknown	Unknown	Generally requires wet, calcium-rich meadows or shoreline fens. Also see species profile at: http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=23&lang=en	Guelph District SAR Bio, NHIC Biodiversity Explorer
		S1-S3, SH Species and Communities				

		Tawny Emperor (S2S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Hairy Valerian (S1)	Unknown	Unknown		NHIC Biodiversity Explorer
		Hairy Wood Mint (S1)	Unknown	Unknown		NHIC Biodiversity Explorer
		Giant Ironweed (S1?)	Unknown	Unknown		NHIC Biodiversity Explorer
		Chinese Hemlock Parsley (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Crowned Beggarticks (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Eastern Green-violet (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Fogg's Goosefoot (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Pillose Evening Primrose (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Rattlesnake Hawkweed (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Slender Knotweed (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Stiff Gentian (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Woodland Pinedrops (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		False Tomentose Balsam Groundsel (S2S3)	Unknown	Unknown		NHIC Biodiversity Explorer

		American Gromwell (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Burning Bush (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Carolina Whitlow-grass (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Hairy Bedstraw (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Lizard's Tail (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Pawpaw (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Scarlet Beebalm (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Tuberous Indian-plantain (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Harbinger-of-spring (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Round-leaved Hawthorn (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Azure Bluet (S3)	Unknown	Unknown		NHIC Biodiversity Explorer
		Autumn Coral-root (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Large Round-leaved Orchid (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Slender Vulpia (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Slim-flowered	Unknown	Unknown		NHIC Biodiversity

		Muhly (S2)				Explorer
		Slim-spiked Three-awned Grass (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Yellow Ladies'-tresses (S2)	Unknown	Unknown		NHIC Biodiversity Explorer
		Barn Swallow	Unknown	Unknown	(Not listed Provincially, Listed as Threatened Federally)	NHIC Biodiversity Explorer
		Eastern Meadowlark	Unknown	Unknown	(Not listed Provincially, Listed as Threatened Federally)	NHIC Biodiversity Explorer

Is any portion of the project located within the Oak Ridges Moraine Plan Area? ☐Yes ☒No

If yes, are any of the following features known to be present on or within 120m of the project location?

☐ Sand Barrens
☐ Savannagh
☐ Tallgrass Prairie
☐ Unknown

Is the project location within the Protected Countryside (Greenbelt)? ☐Yes ☒No

If yes, are any of the following features known to be present on or within 120m of the project location?

☐ Sand Barrens
☐ Savannah
☐ Tallgrass Prairie
☐ Alvar
☐ Unknown

* Earth Science ANSI only needs to be considered if it is located within 50m of the project location

AUSABLE BAYFIELD CONSERVATION AUTHORITY

R. R. # 3, 71108 Morrison Line, Exeter, Ontario N0M 1S5
(519) 235-2610 Fax (519) 235-1963
e-mail: info@abca.on.ca www.abca.on.ca

February 21, 2012

Tricia Radburn
Neegan Burnside Limited
292 Speedvale Ave. W,
Guelph, ON N1H 1C4

Atten.: Tricia Radburn

Dear Ms. Radburn

Re: Information Request for Northland Power Grand Bend Wind Farm

We have completed the information request for the Grand Bend Wind Farm and have this to offer:

- The Ausable Bayfield Conservation Authority (ABCA) fished the creek crossing Turnbull Rd (downstream of Schroeder Drain) in 2011. The watercourse is classified as a permanent cold/cool water watercourse. Species caught include White Sucker - *Catostomus commersoni*, Creek Chub - *Semotilus atromaculatus* , and Blacknose Dace - *Rhinichthys atratulus*

- My records indicate there are numerous records for the Bobolink - *Dolichonyx oryzivorus* which is considered Threatened by COSEWIC. Please contact the Minstry of Natural Resources for more information.

- The 1995 ABCA "Appendix to: Environmentally Significant Areas Watershed Plan Report #2 (1984)" indicates there are 5 ABCA Environmentally Significant Areas (ESA). Attached is the information associated with each of the 5 ESA's.

- ABCA natural heritage mapping has identified the Pergel Gully from approximately Lots 12 and 13, LRE Con, Hay to the outlet of Lake Huron at St. Joseph as a Significant Valleyland.

An invoice for the amount of $220 plus tax will be forwarded to Lyle Parsons as requested by your Dec 15, 2011 letter to Geoff Cade.

Our Member Municipalities:

Adelaide Metcalfe

Bluewater

Central Huron

Huron East

Lambton Shores

Lucan Biddulph

Middlesex Centre

North Middlesex

Perth South

South Huron

Warwick

West Perth

Member of Conservation ONTARIO Natural Champions

AUSABLE BAYFIELD CONSERVATION AUTHORITY

R. R. # 3, 71108 Morrison Line, Exeter, Ontario N0M 1S5
(519) 235-2610 Fax (519) 235-1963
e-mail: info@abca.on.ca www.abca.on.ca

If you require any further information please do not hesitate to contact myself or Geoff Cade at this office.

Sincerely,

Tracy McPherson

Tracey McPherson GISP
GIS/CAD Information System Specialist
Ausable Bayfield Conservation Authority

Cc. Geoff Cade, Supervisor of Water & Planning
Ausable Bayfield Conservation Authoriy

Our Member Municipalities:

Adelaide Metcalfe

Bluewater

Central Huron

Huron East

Lambton Shores

Lucan Biddulph

Middlesex Centre

North Middlesex

Perth South

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R. R. # 3, 71108 Morrison Line, Exeter, Ontario N0M 1S5
(519) 235-2610 Fax (519) 235-1963
e-mail: info@abca.on.ca www.abca.on.ca

February 22, 2012

Tricia Radburn
Neegan Burnside Limited
292 Speedvale Ave. W,
Guelph, ON N1H 1C4

Atten.: Tricia Radburn

Dear Ms. Radburn

Re: Updated Information Request for Northland Power Grand Bend Wind Farm

We have completed the information request for boundary received from Paul Stubbert on Feb. 22. 2012 of the Grand Bend Wind Farm and have this to offer:

- A spreadsheet listing the ABCA fishing records including date fished, methods used, species names and numbers, and coordinates for the locations.

- My records indicate there are 2 species listed as Endangered by COSEWIC in your study area. They include a record for Blanding's Turtle - *Emydoidea blandingii.* in the vicinity of Rogerville Rd and Parr Line. Also the Ausable River from South of Dashwood Road to East of Airport Line is segment identified by the Department of Fisheries and Oceans as a known distribution segment for the Wavy-rayed Lampmussel - *Lampsilis fasciola.*

- My records indicate there are numerous records for the Bobolink - *Dolichonyx oryzivorus* which is considered Threatened by COSEWIC and COSSASRO. As well there are records for Dwarf Hackberry - *Celtis tenuifolia*, also Threatened, in the vicinity of Highway 21 and Indian Rd in the Municipality of South Huron.

- The 1995 ABCA "Appendix to: Environmentally Significant Areas Watershed Plan Report #2 (1984)" indicates there are 11 ABCA Environmentally Significant Areas (ESA) that your study area intersects. Attached is the information associated with each of the 11 ESA's. As well a shape file of their location and name will be provided.

- ABCA natural heritage mapping has identified the Pergel Gully from approximately Lots 12 and 13, LRE Con, Hay to the outlet of Lake Huron at St. Joseph as a Significant Valleyland. As well a section of the Ausable River has also be identified as a Significant Valleyland. A shape file of these areas are also being provided.

Our Member Municipalities:

Adelaide Metcalfe
Bluewater
Central Huron
Huron East
Lambton Shores
Lucan Biddulph
Middlesex Centre
North Middlesex
Perth South
South Huron
Warwick
West Perth

Member of
Conservation ONTARIO
Natural Champions

AUSABLE BAYFIELD CONSERVATION AUTHORITY
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(519) 235-2610 Fax (519) 235-1963
e-mail: info@abca.on.ca www.abca.on.ca

- The ABCA Regulation limit will be provided in shape file format.

An invoice for the amount of $550 plus tax will be forwarded to Lyle Parsons as requested by your Dec 15, 2011 letter to Geoff Cade.

If you require any further information please do not hesitate to contact myself or Geoff Cade at this office.

Sincerely,

Tracey McPherson GISP
GIS/CAD Information System Specialist
Ausable Bayfield Conservation Authority

Cc. Geoff Cade, Supervisor of Water & Planning
Ausable Bayfield Conservation Authoriy

Neegan Burnside Ltd. 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 Canada
telephone (519) 823-4995 **fax** (519) 836-5477 **web** www.neeganburnside.com

NEEGAN BURNSIDE

February 7, 2012

Via: Email (Hard copy to follow)

Mr. Jeff Brick, MCIP, RPP
Coordinator, Hydrology and Regulatory Services
Upper Thames River Conservation Authority
1424 Clarke Road
London ON N5V 5B9

Dear Mr. Brick:

Re: Grand Bend Wind Farm
Request for Information: Records Review
File No.: PIA 019991

Northland Power Inc., on behalf of the Grand Bend Wind Limited Partnership has retained Neegan Burnside Ltd. ("Neegan Burnside") to prepare an application for a Renewable Energy Approval, under Ontario Regulation 359/09 of the *Environmental Protection Act* for a proposed 100 MW wind power project near Grand Bend, ON. The proposed project is categorized as a Class 4 Wind Facility and is located within the project study area presented in Figure 1, attached.

At this stage, Neegan Burnside is conducting a Records Review, as required as part of the Natural Heritage Assessment. The Records Review includes a review of existing data sources to confirm the potential presence of significant natural features.

Neegan Burnside is requesting that your agency/organization provide us with any data or records that you may have relating to the natural environment so that we can include these in our assessment of potential impacts.

Burnside is seeking information, including:

- Records of significant natural features, including species at risk, wildlife habitats, aquatic habitat, etc;
- Other background information that is pertinent to the compilation of an environmental inventory of the general area of study; and,
- Any preliminary comments or concerns that your agency has on the proposed project.

It is essential to the success of this project that the concerns of your agency, and other stakeholders, are identified early in the planning process, such that the appropriate environmental protection measures are incorporated into the overall project design. Your input and questions are encouraged.

To provide the study team with your comments or for further information please contact Tricia Radburn, Environmental Planner at 519-823-4995 x479 or by email at tradburn@neeganburnside.com.

Please note that only a small portion of the study area, associated with the transmission line falls within the Upper Thames River watershed. The majority of the project, including all turbines and access roads falls within Ausable Bayfield Conservation Authority ("ABCA") jurisdiction. We have been in contact with the ABCA and have a meeting scheduled with them on March 1, 2012 at 1 pm. If you have an interest in this project, we may be able to coordinate a joint meeting at this time. Alternatively, we can meet with you separately to discuss your specific concerns if you so wish.

Please indicate to us your interest in providing input to this project by responding to this letter. All interested stakeholders will be kept up-to-date on project status by means of future mailings, or inclusion in project meeting, as deemed appropriate.

Your participation in this Renewable Energy Approval process is much appreciated.

Yours truly,

Neegan Burnside Ltd.

Tricia Radburn, M.Sc.(Pl), MCIP, RPP
Environmental Planner

For:

Lyle Parsons, B.E.S.
Project Manager

019991_UTRCA Records Review Letter.doc
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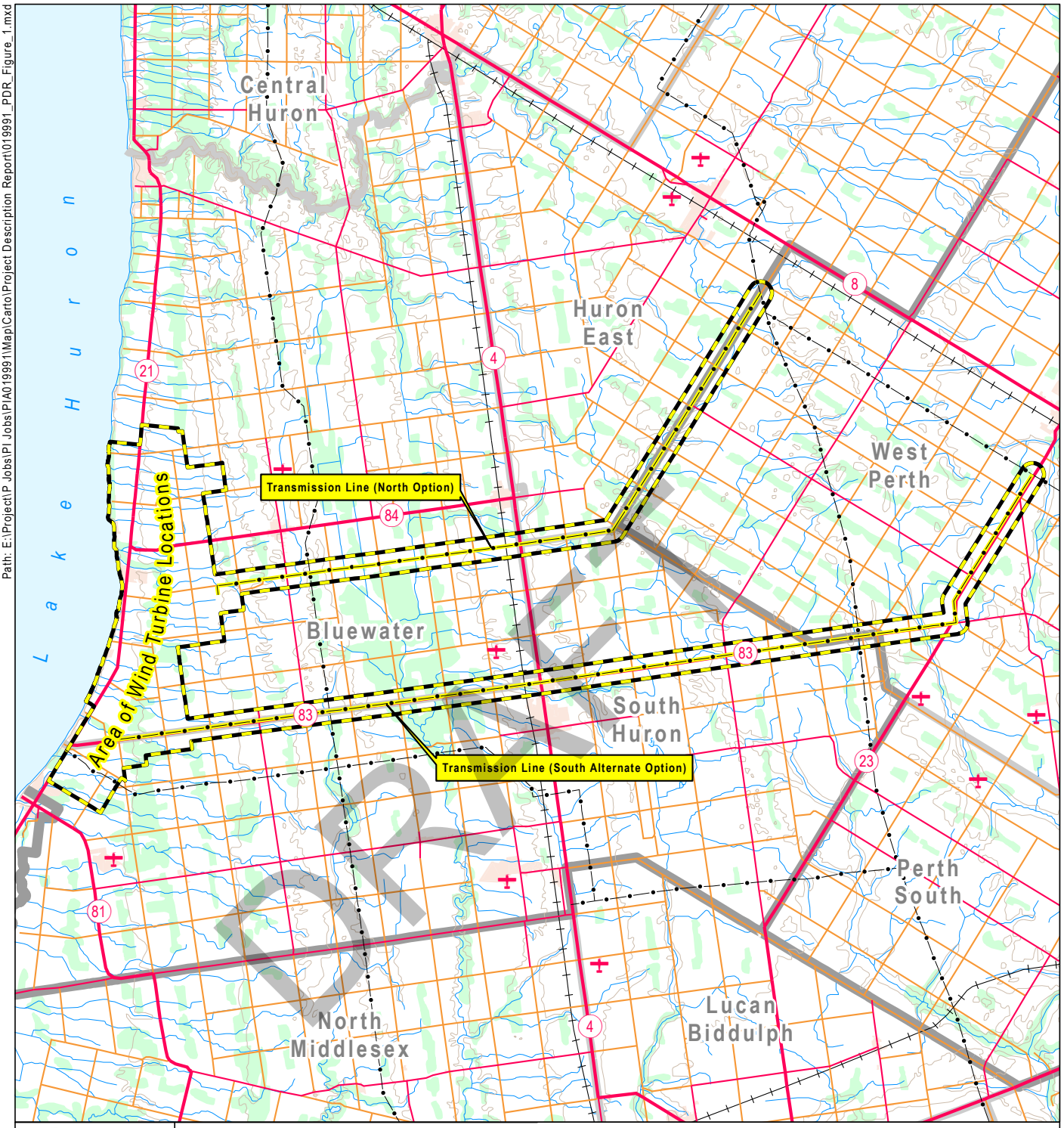

Study Area Boundary

Existing Transmission Line

Potential Overhead Transmission Line From Transformer Station to Existing Line

0 2.5 5 7.5 10 12.5

Kilometers

N

Grand Bend Wind Farm
Grand Bend Wind Limited Partnership
c/o Nortland Power Inc.

Project Location

NEEGAN BURNSIDE

Prepared	Checked	Figure Number
P. Stubbert	L. Parsons	1
Scale	Project	
1:250,000	PIA019991	

UPPER THAMES RIVER
CONSERVATION AUTHORITY
"Working in Partnership with the Community for a Healthy Watershed"

The Thames
A Canadian
Heritage River

February 9, 2012

Neegan Burnside Limited
292 Speedvale Avenue West, Unit #20
Guelph, Ontario
N1H 1C4

Attention: **Tricia Radburn** – (via e-mail: Tricia.Radburn@rjburnside.com)

Dear Ms. Radburn:

Re: **Grand Bend Wind Farm**
Request for Information: Records Review
Huron & Perth Counties

Upper Thames River Conservation Authority (UTRCA) staff are in receipt of your letter (dated February 7, 2012) and "Request for Information" regarding the proposed Grand Bend Wind Farm. Please be advised that we have not yet received enough information to provide detailed comments regarding the project. However, we appreciate being contacted early in the process and are always open to meeting with you to discuss and work through any concerns or complications along the way.

According to the enclosed project location mapping, the "North Option" Transmission Line would fall outside the watershed (and hence jurisdiction) of the UTRCA. Further west of our watershed boundary, the larger portion of the project will fall under the jurisdiction of the Ausable Bayfield Conservation Authority (ABCA). We are of the understanding that ABCA staff have already been contacted by Neegan Burnside Ltd. regarding this project.

According to the enclosed project location mapping, portions of the "South Alternative Option" Transmission Line may traverse though natural hazard and natural heritage areas regulated by the UTRCA. Depending on project specifics, Section 28 permits may be required for those portions of the works. The UTRCA regulates development within the Regulation Limit in accordance with Ontario Regulation 157/06 made pursuant to Section 28 of the *Conservation Authorities Act*. This regulation requires proponents to obtain written approval from the UTRCA prior to undertaking any works in the regulated area including filling, grading, construction, alteration to a watercourse and/or interference with a wetland.

Our staff can provide digital mapping which outlines the boundaries of the natural heritage and natural hazard features present within the study area. Ideally, these natural heritage and natural hazard features should be identified in the Renewable Energy Approval Documents and avoided as inappropriate places for development. Our natural heritage and natural hazard features digital

mapping may be obtained by contacting our GIS department (contact: Phil Simm, 519-451-2800 x 247). Generally the fee involved with obtaining digital mapping of our natural heritage and natural hazard features is $100.

Our data further indicates the potential presence of federally and/or provincially protected flora and fauna species at risk within the project study area. Our data does not indicate any currently documented Areas of Natural or Scientific Interest (ANSIs) located within the study area. However, the Ontario Ministry of Natural Resources would be the agency responsible for ANSI data and the one to contact directly regarding ANSIs, significant wetlands and provincial species at risk.

We are also providing Drinking Water Source Protection information for all projects occurring in areas identified as vulnerable. To that end, please review the attached Drinking Water Source Protection information (Appendix A).

We would appreciate receiving information and reports as they become available in order to ensure that we can meet the project deadlines with our comments.

If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,
UPPER THAMES RIVER CONSERVATION AUTHORITY

Karen M. Winfield

Karen M. Winfield
Land Use Regulations Officer

Encl. - Appendix A (Drinking Water Source Protection Information applicable to the Grand Bend Wind Farm Project, Huron & Perth Counties)
- UTRCA Regulation Limit mapping for the Grand Bend Wind Farm Project – Map 1 of 4 – Outlining Natural Hazard Features
- UTRCA Regulation Limit mapping for the Grand Bend Wind Farm Project – Map 2 of 4 – Outlining Natural Heritage Features
- UTRCA Regulation Limit mapping for the Grand Bend Wind Farm Project – Map 3 of 4 – Outlining Drinking Water Source Protection Features – Highly Vulnerable Aquifers
- UTRCA Regulation Limit mapping for the Grand Bend Wind Farm Project – Map 4 of 4 – Outlining Drinking Water Source Protection Features – Significant Groundwater Recharge Areas

(Please note: maps should be printed landscape on legal size (8 ½ x 14 inch) paper for scales to be accurate).

c.c. – Geoff Cade, ABCA – (via e-mail: gcade@abca.on.ca)
Andrew Bicknell, ABCA – (via e-mail: abicknell@abca.on.ca)

Appendix A – Drinking Water Source Protection Information applicable to the Grand Bend Wind Farm Project, Huron & Perth Counties

DRINKING WATER SOURCE PROTECTION

The *Clean Water Act* (CWA), 2006 is intended to protect existing and future sources of drinking water. The Act is part of the Ontario government's commitment to implement the recommendations of the Walkerton Inquiry as well as protecting and enhancing human health and the environment. The CWA sets out a framework for source protection planning on a watershed basis with Source Protection Areas established based on the watershed boundaries of Ontario's 36 Conservation Authorities. The Upper Thames River, Lower Thames Valley and St. Clair Region Conservation Authorities have entered into a partnership for The Thames-Sydenham Source Protection Region. Drinking Water Source Protection represents the first barrier for protecting drinking water including surface and ground water from becoming contaminated or overused thereby ensuring a sufficient, clean, safe supply now and for the future.

Assessment Reports:

The Thames-Sydenham Source Protection Region has prepared *Assessment Reports* which contain detailed scientific information that:

- identifies vulnerable areas associated with drinking water systems;
- assesses the level of vulnerability in these areas; and
- identifies activities within those vulnerable areas which pose threats to the drinking water systems, and assess the risk due to those threats.

The Assessment Report for the Upper Thames watershed delineates three types of vulnerable areas: Wellhead Protection Areas, Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas. We wish to advise that the subject property contains areas identified as being a Highly Vulnerable Aquifer and Significant Groundwater Recharge Area.

Mapping which shows these areas is available at:

Highly Vulnerable Aquifers:
http://www.sourcewaterprotection.on.ca/downloads/assessment_reports/UTRCA/Appendices/A1-Maps/Map4-3-2_Highly%20Vulnerable%20Aquifers.pdf

Significant Groundwater Recharge Areas
http://www.sourcewaterprotection.on.ca/downloads/assessment_reports/UTRCA/Appendices/A1-Maps/Map4-2-2%20SGRA%20Vulnerability.pdf

Source Protection Plans:

Using the information in the *Assessment Report*, a *Source Protection Plan* is being developed for the Upper Thames watershed. It is anticipated that this *Plan* will consist of a range of policies that together, will reduce the risks posed by the identified water quality and quantity threats in the vulnerable areas. These policies will include a range of voluntary and regulated approaches to manage or prohibit activities which pose a threat to drinking water. Activities that can lead to; low, medium and significant threats have been identified in Appendix 10 of the *Upper Thames River Source Protection Area Assessment Report*, dated September 2010. Available at:

http://www.sourcewaterprotection.on.ca/downloads/assessment_reports/UTRCA/Appendices/A10-Threats%20and%20Risk%20Assessment.pdf

AREA OF VULNERABILITY	VULNERABILITY SCORE	THREATS & CIRCUMSTANCES
Highly Vulnerable Aquifer (HVA)	6	Moderate and Low threats
Significant Groundwater Recharge Area (SGRA)	2, 4 & 6	Moderate & Low threats
Wellhead Protection Area (WHPA)	n/a	n/a

NOTE: Certain Activities within the study area may be considered *Moderate or Low* threats to drinking water.

As indicated, the *Source Protection Plan* is currently being developed and as such, the UTRCA cannot speculate what the *Plan* might dictate for such areas. Under the CWA, the Source Protection Committee has the authority to include policies in the *Source Protection Plan* that may prohibit or restrict activities identified as posing a *significant threat* to municipal drinking water supplies. Municipalities may also have or be developing policies that apply to vulnerable areas when reviewing development applications. Proponents considering land use changes, site alteration or construction in these areas need to be aware of this possibility.

information request for wind farm

Tricia Radburn to: marc.leroux 12/16/2011 02:06 PM

Mr. Leroux,

I am following up on a letter we sent on October 24, 2011. We are preparing an application for a wind farm near Grand Bend. When we met with the MNR we were told that we must contact MNDMF for information related to geology and any records of caves or karst (which could house bats) in our study area.

I have attached a pdf and shapefile showing our study area to assist you in providing this information. We would prefer if you could respond with information in a shapefile if possible. Otherwise, a hard copy would be fine.

If you are not the correct contact could you please forward this request to the appropriate person?

Thanks so much,

NEEGAN BURNSIDE

Tricia Radburn, M.Sc.(Pl), MCIP, RPP
Environmental Planner

Neegan Burnside Ltd.
292 Speedvale Ave. W, Guelph, ON N1H 1C4
tricia.radburn@neeganburnside.com
tel: (519) 823-4995 ext. 479
fax: (519) 836-5477
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information request for wind farm

Tricia Radburn to: marc.leroux 12/16/2011 02:06 PM

From: Tricia Radburn/RJB

To: marc.leroux@ontario.ca

Mr. Leroux,

I am following up on a letter we sent on October 24, 2011. We are preparing an application for a wind farm near Grand Bend. When we met with the MNR we were told that we must contact MNDMF for information related to geology and any records of caves or karst (which could house bats) in our study area.

I have attached a pdf and shapefile showing our study area to assist you in providing this information. We would prefer if you could respond with information in a shapefile if possible. Otherwise, a hard copy would be fine.

If you are not the correct contact could you please forward this request to the appropriate person?

Thanks so much,

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Ministry of
Northern Development and Mines

Mineral Development and Lands Branch

933 Ramsey Lake Road, B6
Sudbury ON P3E 6B5
Tel.: (705) 670-5918
Fax: (705) 670-5803
Toll Free: 1-888-415-9845, Ext 5918

Ministère du
Développement du Nord et des Mines

Direction de l'exploitation des minéraux et de la gestion des terrains miniers

933, chemin du lac Ramsey, étage B6
Sudbury ON P3E 6B5
Tél.: (705) 670-5918
Téléc.: (705) 670-5803
Sans frais : 1-888-415-9845, poste 5918

Ontario

December 22, 2011

Lyle Parsons
Project Manager
Neegan Burnside Ltd.
20-292 Speedvale Av W
Guelph ON N1H 1C4

Re: Northland Power Grand Bend Wind Farm, File No. PIA 019991

Dear Mr. Parsons,

Thank you for the opportunity to comment on the proposed wind farm project. I apologize for the delay in responding to you.

The Ministry of Northern Development and Mines' (MNDM) interest in this project stems from our mandate: to make Northern Ontario strong, healthy and prosperous by providing northerners with access to government programs and services; and by working across the Province to generate new wealth and benefits by supporting Ontario's mineral exploration, mining and geosciences sectors. Specific details on the responsibilities of MNDM can be found on the Ministry's website at http://www.mndm.gov.on.ca/.

MNDM has two divisions. I am including the responses of the Mines and Minerals Division. The Northern Development Division had no comments to make at this time.

MINES AND MINERALS DIVISION / MINE HAZARDS

There are no mine hazards within a 5 kilometre radius of the project site.

MINES AND MINERALS DIVISION / MINING LANDS

The proposed project site is subject to 35.1 (2) of the *Mining Act* and, as such, these lands are not open for mining claim staking. For land status within these townships, please contact the appropriate Land Registry Office.

MINES AND MINERALS DIVISION / RESIDENT GEOLOGIST PROGRAM

The Resident Geologist Program (RGP) of the Ontario Geologist Survey has done the following with regard to the above Request for Information:

1. Checked the Ministry's Mineral Deposit Inventory (MDI) for mineral occurrences: there are no known mineral occurrences within the proposed project area.

2. Checked the Ministry's Assessment File Report Inventory (AFRI) database to determine whether past mineral exploration activity has been reported for the area: there are no Assessment File Reports.

3. Used the GIS-based "Metallic Mineral Potential Estimation Tool" to get an estimation of the mineral potential of the proposed project area: low metallic mineral potential is estimated for this area (maximum value of 16.2).

4. Checked Bedrock Geology of Ontario (Miscellaneous Release – Data 126-Rev 1), Karst of Southern Ontario and Manitoulin Island (Groundwater Resources Study 5) and Surficial Geology of Southern Ontario (Miscellaneous Release – Data 128) for natural hazards, for example, karst topography, Leda clays: This area has inferred karst. Inferred karst areas represent those regions of predominantly carbonate rock where direct observations could not be made due to overburden cover or logistical challenges, but which possess rock units that are most susceptible to karstification processes and should display karst features. On Kippen Road, approximately 8km east of the proposed project area, is an area of known karst, as determined by OGS staff and/or from published reports. The karst features include sinkholes. There are no known Leda clays.

Published reports and Mineral Deposit Inventory and Abandoned Mines records are available for viewing or free download through the Geology Ontario portal using the following link: http://www.geologyontario.mndm.gov.on.ca/.

Thank you once again for the opportunity to comment. If you have any questions about MNDM's response, please feel free to contact me.

Sincerely,

Jenn Lillie-Paetz
Environmental Assessment Coordinator
Mineral Development and Lands Branch
Mines and Minerals Division

information request for wind farm

Tricia Radburn to: john.fischer 12/19/2011 09:15 AM

John,

Thank you for getting back to me regarding our information request with respect to a proposed wind farm near Grand Bend. As part of the Renewable Energy Approval process we must contact various agencies to identify any records of significant natural features, wildlife or habitats that could be of relevance to the proposed development.

I am therefore writing to request any such information from CWS. I have attached a pdf and shapefile showing our study area to assist you in providing this information. We would prefer if you could respond with information in a shapefile if possible. Otherwise, a hard copy would be fine.

Thanks so much,

NEEGAN BURNSIDE

Tricia Radburn, M.Sc.(Pl), MCIP, RPP
Environmental Planner

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RE: information request for wind farm
Fischer,John [Burlington]
to:
Tricia Radburn
01/03/2012 01:12 PM
Cc:
"Rezek,Elizabeth [Ontario]"
Show Details

1 Attachment

ATT3267599.gif

Hello Tricia,

This note is in response to your request below for information from CWS in relation to natural features and wildlife species in the study area of the proposed Grand Bend Wind Farm, located near Grand Bend. We understand that your request is based on a direction within Ontario's Renewable Energy Approvals (REA) process (Ontario Regulation 359/09) for proponents to consult with federal agencies including Environment Canada (EC) with respect to records relating to natural features and water bodies.

EC's Canadian Wildlife Service does not collect and maintain a comprehensive listing of publicly available records that relate to wildlife, natural features, or water bodies on private lands in Ontario, however, the Ontario Ministry of Natural Resources' (OMNR) Natural Heritage Information Centre (NHIC) is recognized as the authoritative source of data on wildlife species and species at risk (SAR) in Ontario. Therefore, we suggest you consult the NHIC (http://nhic.mnr.gov.on.ca/) for information on SAR which may be in the project area, as well as the local OMNR district office closest to the project area, for site-specific information on natural features and more common wildlife species.

The Ontario Breeding Bird Atlas is also a good source of information on bird species potentially breeding in your project area: http://www.birdsontario.org/atlas/index.jsp. The Species at Risk Public Registry (http://www.sararegistry.gc.ca) may also be useful to consult as it provides an updated list of Schedule 1 SAR listed under the federal *Species at Risk Act*, including profiles describing their habitat preferences and ranges. The registry also contains recovery strategies or action plans for these species which may identify critical habitat; this being the habitat that is necessary for the survival or recovery of a listed wildlife species.

Over time, critical habitat will be identified for all federally-listed endangered or threatened species, so it will be important to be aware of SAR occurrences and their habitats, especially critical habitat identified in proposed or final recovery documents, when planning wind energy projects. To date, critical habitat has been formally identified by EC in final federal recovery documents for Prothonotary Warbler, Spoon-leaved Moss, Horsetail Spikerush, Wood Poppy, Bashful Bulrush, Cucumber Tree, Hoary Mountain Mint and Small-whorled Pogonia. Critical habitat has been proposed for Piping Plover, Loggerhead Shrike (*migrans* subspecies), Acadian Flycatcher, Hooded Warbler, Boreal Woodland Caribou, Heart-leaved Plantain, Bluehearts, and Eastern Prairie Fringed-Orchid, and it will be formally identified for Blunt-lobed Woodsia in the near future. Critical habitat for additional SAR occurring in Ontario will also be identified in the near future. In addition, the Department of Fisheries and Oceans as well as the Parks Canada Agency have identified critical habitat in final and proposed federal recovery documents for aquatic SAR on all lands, and SAR on lands protected by Parks Canada, respectively. Additional information on SAR for which critical habitat has been identified can be found on the Species at Risk Public Registry (as above).

If requested by the OMNR or the Ontario Ministry of the Environment, EC may provide advice to the provincial agencies on its mandated areas of responsibility (e.g., migratory birds, species at risk, and water quality) as part of the agencies' regulatory review of wind energy projects. To date, EC has provided input to the OMNR on various provincial guidance documents related to the Renewable Energy Approval process requirements including: Bird and Bird Habitat Guidelines for Wind Power Projects, Bat and Bat Habitat Guidelines for Wind Power Projects, the Natural Heritage Assessment Guide for Renewable Energy Projects, and the Significant Wildlife Habitat Technical Guide.

Thank you for your inquiry.

John

John Fischer
Environmental Assessment Coordinator l Coordonnateur des evaluations environnementales
Canadian Wildlife Service l Service canadien de la faune
Environment Canada l Environement Canada
867 Lakeshore Road l 867, rue Lakeshore
Burlington (Ontario) L7R 4A6 john.fischer@ec.gc.ca
Telephone l Telephone 905-336-4961
Facsimile l Telecopieur 905-336-4906 Government of Canada l Gouvernement du Canada

---

From: Tricia Radburn [mailto:Tricia.Radburn@rjburnside.com]
Sent: Monday, December 19, 2011 9:15 AM
To: Fischer,John [Burlington]
Subject: information request for wind farm

John,

Thank you for getting back to me regarding our information request with respect to a proposed wind farm near Grand Bend. As part of the Renewable Energy Approval process we must contact various agencies to identify any records of significant natural features, wildlife or habitats that could be of relevance to the proposed development.

I am therefore writing to request any such information from CWS. I have attached a pdf and shapefile showing our study area to assist you in providing this information. We would prefer if you could respond with information in a shapefile if possible. Otherwise, a hard copy would be fine.

Thanks so much,

NEEGAN BURNSIDE

Tricia Radburn, M.Sc.(Pl), MCIP, RPP
Environmental Planner

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fax: (519) 836-5477
www.neeganburnside.com

Rusty-patched bumble bee and proximity to wind farm

Tricia Radburn to: xeromelissa 12/16/2011 01:43 PM

Dr. Packer,

Neegan Burnside is preparing an application for approval of a wind farm just north of Grand Bend. We have consulted with the MNR and we understand that there are records of the rusty-patched bumble bee (*Bombus affinus*) in the Pinery Provincial Park to the south of our Study Area.

I am writing to inquire about whether you may have additional records of the species in our Study Area, shown on the attached figure, or if you have any reason to suspect that they may be present in the area. I'm also wondering, aside from actual habitat loss due to construction, if you are aware of any impacts that a large scale wind farm could have on bumble bees?

Any information you could provide would be appreciated.

Kind Regards,

NEEGAN BURNSIDE

Tricia Radburn, M.Sc.(Pl), MCIP, RPP
Environmental Planner

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RE: Rusty-patched bumble bee and proximity to wind farm
Sheila Colla
to:
tricia.radburn
12/16/2011 02:27 PM
Show Details

1 Attachment

ATT00001

Hi,

The MNR has all of our records of this species (*Bombus affinis*). The specimens were detected in 2005 and 2009 at the Pinery. Before that the last detection was 2000 near lake Erie. Only the park has been surveyed in that region so it may be worth doing a few days of field work to look for the species on the potential site. There hasn't been any work done on the impacts of wind farms on bees,as far as I know. Let me know if you have any further questions.

Cheers,

Sheila R. Colla
Ph.D. Candidate, Biology Dept. York University
IUCN SSC Bumblebee Specialist Group, North American Co-Coordinator
Society for Conservation Biology, Toronto Chapter Vice-President
Website: www.savethebumblebees.com

Date: Fri, 16 Dec 2011 14:13:19 -0500
From: xeromelissa@mail.com
Subject: Fw: Rusty-patched bumble bee and proximity to wind farm
To: sheila_123@hotmail.com

Hi

I'll delegate this one to you,

cheers

laurence

> ----- Original Message -----
> From: Tricia Radburn
> Sent: 12/16/11 01:43 PM
> To: xeromelissa@mail.com
> Subject: Rusty-patched bumble bee and proximity to wind farm
>
> Dr. Packer,

Neegan Burnside is preparing an application for approval of a wind farm just north of Grand Bend. We have consulted with the MNR and we understand that there are records of the rusty-patched bumble bee (*Bombus affinus*) in the Pinery Provincial Park to the south of our Study Area.

I am writing to inquire about whether you may have additional records of the species in our Study Area, shown on the attached figure, or if you have any reason to suspect that they may be present in the area. I'm also wondering, aside from actual habitat loss due to construction, if you are aware of any impacts that a large scale wind farm could have on bumble bees?

Any information you could provide would be appreciated.

Kind Regards,

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Tricia Radburn, M.Sc.(PI), MCIP, RPP
Environmental Planner

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NEEGAN BURNSIDE

Appendix C
Records Review Summary

Appendix C
Table C-1 Records Review Summary

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
PROVINCIAL PARKS						
PP-01	Provincial Park	NRVIS	Pinery Provincial Park	Over 4.9 km from the Project Location	No	More than 120 m from the Project Location
WETLANDS						
WE-01	Wetland	NRVIS	Unevaluated	Within 120 m of the Project Location	Yes	
WE-02	Wetland	NRVIS	Unevaluated	Within 120 m of the Project Location	Yes	
WE-03	Wetland	NRVIS	Evaluated- Not Provincially Significant Part of Datars-Miller Swamp	Within 120m of the Project Location	No	Previously evaluated as non-PSW
WE-04	Wetland	NRVIS	Evaluated- Not Provincially Significant Part of Datars-Miller Swamp	Within 120 m of the Project Location	No	
WE-05	Wetland	NRVIS	Unevaluated	Within 120m of the Project Location	Yes	
WE-06	Wetland	NRVIS	Unevaluated	Over 135 m from the Project Location	No	More than 120 m from the Project Location
WE-07	Wetland	NRVIS	Evaluated- Not Provincially Significant. Part of Keller Swamp	Over 1.6 km from the Project Location	No	Previously evaluated as non-PSW; more than 120m from the Project Location
WE-08	Wetland	NRVIS	Evaluated- Not Provincially	Over 1.7 km from the Project Location	No	Previously evaluated as

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
			Significant. Part of Keller Swamp			non-PSW; more than 120m from the Project Location
WE-09	Wetland	NRVIS	Unevaluated	Within 120 m of the Project Location	Yes	
WE-10	Wetland	NRVIS	Evaluated-Provincially Significant. Part of Hay Swamp Wetland Complex	Within 120 m of the Project Location	Yes	
WE-11	Wetland	NRVIS	Evaluated-Provincially Significant. Part of Hay Swamp Wetland Complex	Within 120 m of the Project Location	Yes	
WE-12	Wetland	NRVIS	Evaluated-Provincially Significant. Part of Hay Swamp Wetland Complex	Within 120m of the Project Location	Yes	
WE-13	Wetland	NRVIS	Evaluated-Provincially Significant. Part of Hay Swamp Wetland Complex	Within 120m of the Project Location	Yes	
WE-14	Wetland	NRVIS	Evaluated-Provincially Significant. Part of Hay Swamp Wetland Complex	Within 120 m of the Project Location	Yes	

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
WE-15	Wetland	NRVIS	Evaluated-Provincially Significant. Part of Hay Swamp Wetland Complex	Within 120m of the Project Location	Yes	
WE-16	Wetland	NRVIS	Evaluated-Provincially Significant. Part of Hay Swamp Wetland Complex	Within 120m of the Project Location	Yes	
AREAS OF NATURAL AND SCIENTIFIC INTEREST						
ANSI-01	ANSI (Earth Science)	NRVIS	Not Provincially Significant. St. Joseph Till Earth Science ANSI	Over 1.2 km from the Project Location	No	Previously evaluated as non-provincially significant; more than 50 m from the Project Location
ANSI-02	ANSI (Earth Science)	NRVIS	Not Provincially Significant. Dashwood Regional Earth Science ANSI	Over 260m from the Project Location	No	Previously evaluated as non-provincially significant; more than 50m from the Project Location
ANSI-03	ANSI (Life Science)	NRVIS	Not Provincially Significant. Bayfield South Regional Life Science ANSI	Over 260m from the Project Location	No	Previously evaluated as non-provincially significant; more than 120m from the Project Location

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
ANSI-04	ANSI (Life Science)	NRVIS	Not Provincially Significant. Khiva Conservation Forest Regional Life Science ANSI	Over 3.1km from the Project Location	No	Previously evaluated as non-provincially significant; more than 120m from the Project Location
ANSI-05	ANSI (Life Science)	NRVIS	Not Provincially Significant. Hay Swamp Regional Life Science ANSI	Within 120m of the Project Location	No	Previously evaluated as non-provincially significant.
ANSI-06	ANSI (Earth Science)	NRVIS	Not Provincially Significant. Chiselhurst Sinkhole Regional Earth Science ANSI	Over 1.1km from the Project Location	No	Previously evaluated as non-provincially significant; more than 50m from the Project Location
ANSI-07	ANSI (Earth Science)	NRVIS	Not Provincially Significant. Ausable River Sinkhole Regional Earth Science ANSI	Over 3.8km from the Project Location	No	Previously evaluated as non-provincially significant; more than 50 m from the Project Location
ANSI-08	ANSI (Earth Science)	NRVIS	Provincially Significant. Staffa Kame Complex	Over 5.5 km from the Project Location	No	More than 50 m from the Project Location
ANSI-09	ANSI (Earth Science)	NRVIS	Provincially Significant. Staffa-Dublin Moraine ANSI	Over 4.4 km from the Project Location	No	More than 50 m from the Project Location

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
ANSI-10	ANSI (Earth Science)	NRVIS	Provincially Significant. North Thames River	Over 1.5 km from the Project Location	No	More than 50 m from the Project Location
ANSI-11	ANSI (Earth Science)	NRVIS	Provincially Significant. Fullarton Moraine	Over 1.0 km from the Project Location	No	More than 50 m from the Project Location
VALLEYLANDS						
V-01	Significant Valleyland	Ausable Bayfield Conservation Authority	Provincially Significant	Over 220 m from the Project Location	No	More than 120 m from the Project Location
V-02	Significant Valleyland	Ausable Bayfield Conservation Authority	Provincially Significant	Over 170m from the Project Location	No	More than 120m from the Project Location
WOODLANDS						
W-01	Woodland	SOLRIS	Unevaluated	Within 120 m of the Project Location	Yes	
W-02	Woodland	SOLRIS	Unevaluated	Within 120 m of the Project Location	Yes	
W-03	Woodland	SOLRIS	Unevaluated	Within 120 m of the Project Location	Yes	
W-04	Woodland	SOLRIS	Unevaluated	Within 120 m of the Project Location	Yes	
W-63	Woodland	SOLRIS	Unevaluated	Within 120m of the Project Location	Yes	
WILDLIFE HABITAT						
WDY-01	Wildlife Habitat (Winter Deer Yard)	NRVIS	Evaluated and Confirmed by MNR as Not Provincially Significant. Stratum 2 deer wintering habitat.	Within 120 m of the Project Location	No	Previously evaluated as non-provincially significant.

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
BH-01	Candidate Wildlife Habitat (Bat Hibernacula)	Digitized from MNDMF on-line mapping	Unevaluated-candidate only based on presence of karst and sinkholes.	Over 3.2 km from the Project Location	No	More than 120 m from the Project Location
BH-02	Candidate Wildlife Habitat (Bat Hibernacula)	Digitized from MNDMF on-line mapping	Unevaluated-candidate only based on presence of karst and sinkholes.	Within 120 m of the Project Location	Yes	
WFSS-01	Wildlife Habitat (Waterfowl Stopover and Staging Area)	Bird Studies Canada interactive mapping site	Thedford Flats Important Bird Area	Over 9.5 km from the Project Location	No	More than 120m from the Project Location
SCC-01	Wildlife Habitat (Habitat for Species of Conservation Concern)	Bird Studies Canada interactive mapping site	Port Franks Wetlands & Forest Important Bird Area	Over 4.9 km from the Project Location	No	More than 120m from the Project Location
HASS-01	Wildlife Habitat (Habitat for area-sensitive species)	Derived from SOLRIS woodlands layer	Unevaluated-Candidate only based on presence of interior forest habitat.	Within 120 m of the Project Location	Yes	
HASS-02	Wildlife Habitat (Habitat for area-sensitive species)	Derived from SOLRIS woodlands layer	Unevaluated-Candidate only based on presence of interior forest habitat.	Within 120 m of the Project Location	Yes	
HASS-03	Wildlife Habitat (Habitat for area-sensitive species)	Derived from SOLRIS woodlands layer	Unevaluated-Candidate only based on presence of interior forest habitat.	Within 120 m of the Project Location	Yes	

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
HASS-04	Wildlife Habitat (Habitat for area-sensitive species)	Derived from SOLRIS woodlands layer	Unevaluated-Candidate only based on presence of interior forest habitat.	Within 120 m of the Project Location	Yes	
HASS-05	Wildlife Habitat (Habitat for area-sensitive species)	Derived from SOLRIS woodlands layer	Unevaluated-Candidate only based on presence of interior forest habitat.	Within 120 m of the Project Location	Yes	
HASS-06	Wildlife Habitat (Habitat for area-sensitive species)	Derived from SOLRIS woodlands layer	Unevaluated-Candidate only based on presence of interior forest habitat.	Within 120m of the Project Location	Yes	
HASS-07	Wildlife Habitat (Habitat for area-sensitive species)	Derived from SOLRIS woodlands layer	Unevaluated-Candidate only based on presence of interior forest habitat.	Within 120 m of the Project Location	Yes	
HASS-08	Wildlife Habitat (Habitat for area-sensitive species)	Derived from SOLRIS woodlands layer	Unevaluated-Candidate only based on presence of interior forest habitat.	Within 120 m of the Project Location	Yes	
HASS-09	Wildlife Habitat (Habitat for area-sensitive species)	Derived from SOLRIS woodlands layer	Unevaluated-Candidate only based on presence of interior forest habitat.	Within 120 m of the Project Location	Yes	
ADDITIONAL UNMAPPED FEATURES						
N/A	Colonial bird nesting sites	Assumed potentially present	Unevaluated	Unknown	Yes	

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
N/A	Waterfowl stopover and staging areas	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Waterfowl nesting	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Shorebird migratory stopover areas	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Landbird migratory stopover areas	Not present	Not provincially significant- not within 5km of Lake Erie/Ontario shoreline	Not present	No	Does not apply to project location.
N/A	Raptor winter feeding and roosting areas	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Wild turkey winter range	Not present	Not provincially significant- does not apply to project location	Not present	No	Does not apply to project location.
N/A	Turkey vulture summer roosting areas	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Reptile hibernacula	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Bat hibernacula	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Bat maternity colonies	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Bullfrog concentration areas	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Migratory butterfly stopover areas	Not present	Not provincially significant- not within 5km of Lake Erie/Ontario shoreline	Not present	No	Does not apply to project location.

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
N/A	Rare vegetation communities	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Forests providing a high diversity of habitats	MNR FRI mapping (1978)	Unconfirmed- historical data based on 1978 FRI mapping.	Location Unknown	Yes	
N/A	Old growth or mature forest stands	MNR FRI mapping (1978)	Unconfirmed- historical data based on 1978 FRI mapping.	Location Unknown	Yes	
N/A	Foraging area with abundant mast	MNR FRI mapping (1978)	Not provincially significant- Not within Ecodistrict 6E-14	Location Unknown	No	Does not apply to project location
N/A	Amphibian woodland and wetland breeding ponds	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Turtle and overwintering nesting habitat	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Woodland raptor nesting habitat	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Osprey nesting, foraging and perching habitat	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Moose calving areas	Not present	Does not apply to project location	Not present	No	Does not apply to project location
N/A	Moose aquatic feeding areas	Not present	Does not apply to project location	Not present	No	Does not apply to project location
N/A	Mineral licks	Not present	Does not apply to project location	Not present	No	Does not apply to project location

ID	Feature Type	Data/Information Used to ID Feature	Evaluation of Significance Status	Feature Location in Relation to Project Location (see Figures in Appendix A)	Carried Forward to Site Investigation (yes/no)	Rationale
N/A	Mink, otter, marten, and fisher denning sites	Not present	Does not apply to project location	Not present	No	Does not apply to project location
N/A	Highly diverse areas	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Cliffs	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Seeps and springs	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Deer corridors	Not present	Unevaluated	Unknown	No	Not present based on presence of non-provincially significant wintering habitat only.
N/A	Amphibian corridors	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Marsh bird breeding habitat	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Habitat for area sensitive breeding birds	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Open country breeding bird habitat	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Shrub/early successional breeding bird habitat	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Terrestrial crayfish	Assumed potentially present	Unevaluated	Unknown	Yes	
N/A	Habitats for Special Concern and rare species	Assumed potentially present	Unevaluated	Unknown	Yes	

NEEGAN BURNSIDE

Appendix D
MNR Sign-Off

RE: Grand Bend Wind Farm Revised Records Review Report

Cameron, Amy (MNR) to: Tricia Radburn (via Thru) 06/14/2012 11:05 AM
Cc: "Cotnam, Erin (MNR)", "Halloran, Joe (MNR)"

History: This message has been replied to and forwarded.

Tricia,

The Records Review Report for the Grand Bend Wind Project has been deemed complete.

We look forward to receiving thie Site Investigation Report next.