

**The 2012 Heritage Assessment of the
Proposed Grand Bend Wind Farm,
FIT Contract # F-002178-WIN-130-601,
Municipalities of Bluewater, South Huron &
Huron East, Huron County, &
Municipality of West Perth, Perth County,
Ontario**



D.R. POULTON & ASSOCIATES INC.

**The 2012 Heritage Assessment of the
Proposed Grand Bend Wind Farm,
FIT Contract # F-002178-WIN-130-601,
Municipalities of Bluewater, South Huron &
Huron East, Huron County, &
Municipality of West Perth, Perth County,
Ontario**

Submitted to

**Neegan Burnside Ltd.,
292 Speedvale Avenue West, Unit 7,
Guelph, Ontario
N1H 1C4
Telephone – 519 823-4995
Facsimile – 519 836-5477**

and

The Ontario Ministry of Tourism, Culture and Sport

Prepared by

D.R. Poulton & Associates Inc.
69 Langarth Street West, London, Ontario, N6J 1P5
Telephone – 519 434-0319 Facsimile – 519 434-0517
E-mail - drpoulton@rogers.com

August 16, 2012

TABLE OF CONTENTS

Project Personnel	v
Acknowledgments	v
Executive Summary	vi
1.0 INTRODUCTION	1
2.0 LOCATION AND DESCRIPTION	4
3.0 CULTURAL SYNTHESIS	9
3.1 The Paleo-Indian Period (9500-7000 B.C.)	9
3.2 The Archaic Period (7700-500 B.C.)	9
3.3 The Woodland Period (1000 B.C. – 1650 A.D.)	11
3.4 The Historic Period (A.D. 1650 to Present)	14
4.0 SOURCES	17
5.0 BUILT HERITAGE RESOURCES	19
5.1 Definitions of Built Heritage Resources	19
5.2 Inventory of Built Heritage Resources	20
5.3 Evaluation of Built Heritage Resources	25
5.4 Impact Assessment	26
6.0 CULTURAL HERITAGE LANDSCAPES	28
6.1 Definitions of Cultural Heritage Landscapes	28
6.2 Inventory of Cultural Heritage Landscapes	30
6.3 Evaluation of Cultural Heritage Landscapes	30
6.4 Impact Assessment	31
7.0 RECOMMENDATIONS	33
8.0 REFERENCES CITED	34

List of Tables

Table 1	Summary Data on the Proposed Wind Turbines	7
Table 2	Cultural Chronology for Southwestern Ontario	10
Table 3	Summary Data on the Built Heritage Inventory in the Ten Properties	24
Table 4	Evaluation of the Cultural Heritage Landscape of the Proposed Wind Farm	30
Table 5	Evaluation of the Cultural Heritage Landscape of St. Joseph	31

List of Figures

Figure 1	Location of the Study Area for the Proposed Grand Bend Wind Farm	37
Figure 2	Western Portion of the Proposed 230 kV Transformer Line	38
Figure 3	Central Portion of the Proposed 230 kV Transformer Line	39
Figure 4	Eastern Portion of the Proposed 230 kV Transformer Line	40
Figure 5	1879 Historic Atlas Map of the Northern Part of the Proposed Wind Farm	41
Figure 6	1879 Historic Atlas Map of the Southern Part of the Proposed Wind Farm	42
Figure 7	1879 Historic Atlas Map of Hay Township	43
Figure 8	1879 Historic Atlas Map of Hay, Osborne, Hibbert and Tuckersmith Townships	44
Figure 9	1879 Historic Atlas Map of Hibbert and Tuckersmith Townships	45
Figure 10	Aerial Photograph of the North Part of the Proposed Wind Farm	46
Figure 11	Aerial Photograph of the South Part of the Proposed Wind Farm	47

List of Plates

Plate 1	Huron Country Playhouse, View Northwest	49
Plate 2	St. Joseph Memorial Park and Historical Walkway, View Northeast	49

List of Plates (continued)

Plate 3	Cantin House, View Southwest	49
Plate 4	Hessenland Country Inn, View West	49
Plate 5	St. Peter's Catholic Church, View Southeast	49
Plate 6	Former Schoolhouse on Blackbush Line, View West	49
Plate 7	Bluewater Highway in the Area of Drysdale, View South	50
Plate 8	Wind Turbine, View Southeast from Danceland Road East of Blackbush Line	50
Plate 9	Intersection of Shipka Line and Hendrick Road, View West	50
Plate 10	Shadeview Road West of Shipka Line, View West	50
Plate 11	Turnbull's Road, View Northwest	50
Plate 12	Proposed Access Road to Turbine 44, View Northwest	50

Appendices

Appendix A

Part 1: Built Heritage Assessment for Properties Containing Proposed Wind Turbines

Figure 1 Inventory of Heritage Resources in the North Part of the Proposed Wind Farm

Figure 2 Inventory of Heritage Resources in the South Part of the Proposed Wind Farm

Part 2: Heritage Resources within Abutting Properties

Appendix B

Select Communications Concerning the Heritage Assessment

Project Personnel

Project Manager	Dana R. Poulton
Built Heritage Specialist	André Scheinman, Heritage Preservation Consultant
Report Preparation	Dana R. Poulton Christine F. Dodd André Scheinman
Report Editor	Sherri H. Pearce
Photography	Christine F. Dodd Dana R. Poulton Lorelyn Giese Rob Danter
Draughting	Christine F. Dodd

Acknowledgments

This assessment was facilitated by the following individuals and their agencies:

- **Lyle Parsons**, Project Manager, Neegan Burnside Ltd.;
- **Chris Shilton**, P.Eng., LEED[®] AP, Project Engineer, Neegan Burnside Ltd.;
- **Claire Dodds**, Planner, MCIP, RPP, Planner, Huron County Planning and Development Department; and
- **Michael DiLullo**, South Huron Heritage Committee and Clerk, Municipality of South Huron;
- **Laura Hatcher**, Heritage Planner, Culture Services Unit, Programs and Services Branch, Ontario Ministry of Tourism, Culture and Sport;
- **Jeremy Collins**, Acquisitions Coordinator, Acquisitions and Conservations Services, Ontario Heritage Trust; and
- **Sean Fraser**, Manager, Acquisitions and Conservations Services, Ontario Heritage Trust.

Executive Summary

Grand Bend Wind Limited Partnership is proposing to develop, construct and operate a 100 MW wind facility located north of Grand Bend, Ontario. An application for approval for the proposed development is being prepared under Ontario Regulation 39/09 of the *Environmental Protection Act* (Government of Ontario 1990a). The project is classified as a Class 4 Wind facility under the Regulation. The proposed Grand Bend Wind Farm is subject to the Renewable Energy Approval (REA) process (O. Reg. 359/09) and to the provisions of the *Ontario Green Energy Act* (Government of Ontario 2009). It is designated OPA FIT Contract # R-002178-WIN-130-601.

The proposed wind farm is spread out over a number of lots and concessions within the southern portion of the County of Huron. The specific locational information for each turbine is presented in Section 2.0 and Table 1. The proposed wind farm spans portions of three geographic townships. From south to north, the proposed wind farm spans the northwest portion of Stephen Geographic Township, the west portion of Hay Geographic Township, and the southwest portion of Stanley Geographic Township. The proposed development now forms part of the Municipalities of South Huron and Bluewater. Figure 1 shows the location of the study area for the proposed wind farm.

The basic project components of the proposed wind farm will include up to 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 connection system, and a new transmission line within municipal road rights-of-way along Rodgerville Road and Road 183. The proposed transmission line will extend eastward from a proposed transformer station that will be located south of Sararas Road, in the extreme southwest corner of Lot 15, Concession 13, Hay Geographic Township. The proposed 230 kV Transmission Line will be located within municipal road rights-of-way along Rodgerville Road and Road 183. The transmission line will connect to the provincial power grid at the 230 kV Transmission Line south of the Seaforth Transformer Station, in the Municipality of Huron East. Figures 2, 3 and 4 illustrate the alignment of the proposed 230 kV Transmission Line.

In 2011, Neegan Burnside Ltd. contracted D.R. Poulton & Associates Inc. to conduct an assessment of potential concerns for standing heritage resources and cultural heritage landscapes that could be subject to possible impact from the proposed Grand Bend Wind Farm. This report details the rationale, methods and results of the heritage assessment.

As detailed in this report, the heritage assessment determined that only structure designated under Part IV of the *Ontario Heritage Act* is located within the study area for the proposed Grand Bend Wind Farm. It is the Huron Country Playhouse, which is located in the Municipality of South Huron. It does not abut any of the properties within which the proposed wind turbines are located.

The assessment also determined there are no designated cultural heritage landscapes or heritage easements within or in close proximity to the proposed Grand Bend Wind Farm. Similarly, the assessment also determined that the inventory of properties of national historic significance designated by the Historic Sites and Monuments Board of Canada and maintained by Parks

Canada does not include any properties within or in close proximity to the proposed Grand Bend Wind Farm.

The visual examination and the documentary research conducted as part of the assessment confirmed that there are ten buildings or building complexes within properties that contain proposed wind turbines. All but two contain or consist of structures with some inferred cultural heritage value. Eight of these buildings and building complexes are inferred to have some cultural heritage value or interest. However, none of them will be subject to potential impacts from the proposed Grand Bend Wind Farm.

Similarly, the assessment identified one cultural heritage landscape that is considered to have some cultural heritage value. It is what remains of the 19th century village of St. Joseph. However, the assessment determined that the proposed wind farm does not represent a potential impact to St. Joseph.

Given the lack of heritage features with cultural heritage value or interest that would be impacted by the proposed Grand Bend Wind Farm, it is recommended that the Ministry of Tourism, Culture and Sport issue a letter including a statement that the Ministry concurs with the findings that are presented in this report. In addition, it is requested that a copy of the letter be forwarded by e-mail to Lyle Parsons, Project Manager, Neegan Burnside Ltd. His e-mail address is Lyle.Parsons@neeganburnside.com.

1.0 INTRODUCTION

Grand Bend Wind Limited Partnership is proposing to develop, construct and operate a 100 MW wind facility located north of Grand Bend, Ontario. An application for approval for the proposed development is being prepared under Ontario Regulation 39/09 of the *Environmental Protection Act* (Government of Ontario 1990a). The project is classified as a Class 4 Wind facility under the Regulation. The proposed development has been designated FIT Contract # F-002178-WIN-130-601.

The proposed Grand Bend Wind Farm is located in the southern part of Huron County. It spans portions of the west halves of the lower tier municipalities of Bluewater and Huron South. Portions of the proposed 230 kV Transmission Line also traverse the Municipality of Huron East in Huron County and the Municipality of West Perth in Perth County.

In 2011, Neegan Burnside Ltd. contracted D.R. Poulton & Associates Inc. to conduct an assessment of potential concerns for standing heritage resources and cultural heritage landscapes that could be subject to possible impact from the proposed Grand Bend Wind Farm. This report details the rationale, methods and results of the heritage assessment.

The basic project components of the proposed wind farm will include up to 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 connection system, and a new transmission line within municipal road rights-of-way along Rodgerville Road and Road 183. The transmission line will connect to the provincial power grid at the 230 kV transmission line south of the Seaforth Transformer Station, in the Municipality of West Perth. During construction, temporary components will include access roads and work/storage areas at the turbine locations and transmission connections.

The actual footprint of each turbine will be 4.2 metres in diameter at the base, and each turbine will be centred on a square measuring 113 metres on each side. The concrete foundation for each turbine will be 18-22 metres in diameter and 3 metres deep, centred on the turbine tower. The hub height (the distance from the ground to the centre of the rotor) will be 99.5 metres and the rotor diameter will be 113 metres. The access roads will vary in width from 5 to 11 metres depending on crane crawling and passing lane requirements. As required by O. Reg. 359/09, each turbine will be located 550 metres or more from all non-participating noise receptors.

As defined in Subsection 4 of O. Reg. 359/09, the term “*noise receptor*” refers to the centre of a building that contains one or more dwellings, the centre of a building that is used for institutional purposes, the centre of a proposed building that meets the above two definitions, a location on a vacant lot that is zoned to permit a building that meets the first two definitions, and a portion of a property that is used as a campsite or campground for overnight accommodation.

The proposed wind farm is spread out over a number of lots and concessions within the southern portion of the County of Huron. The specific locational information for each turbine is presented in Section 2.0 and Table 1. The proposed wind farm spans portions of three geographic townships. From south to north, the proposed wind farm spans the northwest portion of Stephen Geographic Township, the west portion of Hay Geographic Township, and the southwest portion

of Stanley Geographic Township. The proposed development now forms part of the Municipalities of South Huron and Bluewater. Figure 1 shows the location of the study area for the proposed wind farm. The proposed 230 Transmission Line will extend from the wind farm eastward. It has an approximate length of 31 kilometres, follows existing road rights-of-way and terminates at the 230 kV Transmission Line south of the Seaforth Transformer Station in the Municipality of Huron East.

The proposed Grand Bend Wind Farm is subject to the Renewable Energy Approval (REA) process (O. Reg. 359/09) and to the provisions of the *Ontario Green Energy Act* (Government of Ontario 2009). It is designated OPA FIT Contract # R-002178-WIN-130-601. The assessment is also subject to recent changes in the *Environmental Protection Act* (Ontario Regulation 359/09, Renewable Energy Approvals Under Part V.0.1 of the Act).

Data on protected properties are laid out in the table in Section 19 of O. Reg. 359/09 (July 2012). Following Section 23 of O. Reg. 359/09, and subject to Sections 2 and 5, a heritage assessment consists of the following steps:

1. Conduct an investigation, including historical research and visual inspection, to determine i) whether there is a potential for the presence of a heritage resource at the project location on any part of the project location that is not on a property described in Column 1 of the Table and ii) any properties in Column 1 of the Table to Section 19 about the parcel of land on which the project location is situated.

2. If the determination under subparagraph 1i is that there is a potential for the presence of a heritage resource, confirm the presence or absence of a heritage resource by applying the criteria set out in Ontario Regulation 9/06 (Criteria for Determining Cultural Heritage Value or Interest) (CHVI) made under the *Ontario Heritage Act*.

3. Evaluate the impact of engaging in the renewable energy project on the heritage attributes of any heritage resources at the project location and on any abutting properties described in subparagraph 1ii and provide recommendations for measures to avoid, eliminate or mitigate the impact if i) the determination under subparagraph 1ii is that there are abutting properties as described in the subparagraph, or ii) if the presence of a heritage resource at the project location is confirmed under 2.0 Reg. 195/12, s. 15 (1).

This report was completed to satisfy the above requirements. It is being filed with the Ontario Ministry of Tourism, Culture and Sport.

The report is divided into seven sequential sections. The present section provides a general introduction to the assessment. The location and description of the proposed wind farm are detailed in Section 2.0 of the report. Section 3.0 is a cultural synthesis of the region within which the proposed Grand Bend Wind Farm is situated. Section 4.0 describes the sources that were consulted during the course of the assessment. Section 5.0 details concerns with respect to built heritage resources. Section 6.0 details concerns with respect to cultural heritage landscape resources. Section 7.0 details the recommendations that arose from the assessment. Finally, Section 8.0 presents the references that are cited in this report. Summary data on the Cultural Heritage Value or Interest for the individual properties are presented in the Appendix.

The heritage assessment of the proposed wind farm was managed by Dana Poulton of D.R. Poulton & Associates Inc. He has 36 years of experience in directing and managing archaeological resource assessments in Ontario. Dana received his Honours B.A. from Victoria College, University of Toronto in 1974 and his Master of Arts from the Institute of Archaeology, University of London, England in 1979. From 1976 to 1984 he served in a variety of capacities at the Museum of Indian Archaeology (now the Museum of Ontario Archaeology) in London, Ontario. Since 1984 he has been a private consultant. Dana managed the 2010 heritage assessment of the proposed Green Lane LFG Cogeneration Plant in the Municipality of Southwold, Elgin County, and the 2011 heritage assessment of the proposed Jacob Storage Pool in the Municipality of Chatham-Kent. His other past projects include the municipal master plans for the Town of Markham and the City of Vaughan, the first municipal archaeological master plan studies carried out in Ontario. One of Dana's ongoing projects is a long-term assessment of the history and archaeology of Victoria Park, London's oldest public park. The park is the site of a mid 19th century 4-hectare British infantry barracks and the assessment is being conducted on behalf of the City of London as part of the Victoria Park Restoration Master Plan. Another of his long-term projects is the assessment of cultural heritage resources in the 1,018 hectare (2,515 acre) former Camp Ipperwash in Lambton County (2005-2012). It is being conducted on behalf of the Department of National Defence. In the past, Dana's firm, D.R. Poulton & Associates Inc. has frequently worked on assessments in conjunction with André Scheinman.

André Scheinman, Heritage Preservation Consultant, has more than 30 years of experience in the planning for and preservation of historic sites, structures and cultural landscapes. He is a founding member of the Canadian Association of Professional Heritage Consultant and is a 30 year member of both the Association for Preservation Technology and the International Committee on Monuments and Sites (ICOMOS). In 1998 he was honoured by ICOMOS for his contributions to international conservation in reference to his involvement in the 1988 delegation to the then Soviet Union with regard to the conservation of the World Heritage Site at Kisi. André's past assessments include many notable properties and structures in Ontario. Among them are Fort Henry National Historic Site in the City of Kingston, the David Dunlap Memorial Observatory in the Town of Richmond Hill, the East Block of Parliament Hill in the City of Ottawa, and the Automotive Building at the Canadian National Exhibition in the City of Toronto. He also conducted the assessment of the heritage significance of 25 buildings in the Seaton Lands in the City of Pickering and Phases 1 and 3 of the Cultural Heritage Landscape Inventory of the Town of Caledon. In addition, he conducted restoration studies of numerous heritage buildings, including St. George's Cathedral in City of Kingston, Glanmore National Historic Site in the City of Belleville and Dundurn Battery National Historic Site in the City of Hamilton.

D.R. Poulton & Associates Inc. personnel were responsible for conducting the background research that was carried out as part of the heritage assessment, for conducting the visual assessment of the study area and of structures with possible cultural heritage value or interest, for evaluating the cultural heritage landscapes, and for preparing the draft and final reports on the same. Andre Scheinman was responsible for evaluating the possible cultural heritage value or interest of the built heritage structures, for providing comments on the cultural heritage landscapes, and for proving editorial comments on the draft report. Given their respective roles in the heritage assessment of the proposed Grand Bend Wind Farm, D.R. Poulton & Associates Inc. is responsible for any errors or omissions the report may contain.

2.0 LOCATION AND DESCRIPTION

As previously stated, the proposed Grand Bend Wind Farm is situated in the southern part of Lambton County, Ontario. It will involve the construction of up to 48 wind turbines, a transformer station, a transmission line and related access roads, collector lines, construction areas and turbine pads.

Figure 1 shows the location of the study area that contains the proposed Grand Bend Wind Farm. As illustrated, it is situated north of Grand Bend and east of the Lake Huron shoreline, approximately 8.9 kilometres south of Bayfield. The vast majority of the proposed wind farm is situated within the Municipality of Bluewater. The south end of the proposed wind farm is situated within the Municipality of South Huron.

The distributions of the proposed wind turbines span a north-south distance of 15 kilometres. The easternmost wind turbine site is located 4.25 kilometres east of the Lake Huron shoreline; the westernmost turbine is located 800 metres east of Lake Huron. All but a few of the proposed wind turbines are situated in the portion of the study area that is bounded to the west by Bluewater Highway. A few of the proposed wind turbines are located further east, between Blackbush Line and Bronson Line.

Eight of the proposed wind turbines are located in the northwest portion of the Municipality of South Huron, in Stephen Geographic Township. The other 40 proposed wind turbines are located in the western portion of the Municipality of Bluewater; of those, 40 are located in Hay Geographic Township and two are located to the north, in Stanley Geographic Township.

The power that is generated by the wind turbines will be transmitted via a series of proposed underground collector lines. They will follow segments of the following road rights-of-way: Gore Road; B Line; Dashwood Road; Turnbull Drive; Schadeview Road; Shipka Line, Hendrick Road, Pepper Road; Sararas Road, Blackbush Line, Danceland Road, Kippen Road and Bluewater Highway.

The power will be transmitted by a 230 kV Transmission Line. The start point for the transmission line will be a proposed transformer station. It will be located south of Sararas Road, in the extreme southwest corner of Lot 15, Concession 13, Hay Geographic Township. The proposed 230 kV Transmission Line will be located within municipal road rights-of-way along Rodgerville Road and Road 183. The transmission line will connect to the provincial power grid at the 230 kV Transmission Line south of the Seaforth Transformer Station, in the Municipality of Huron East. Figures 2, 3 and 4 illustrate the alignment of the proposed 230 kV Transmission Line.

The proposed alignment of the 230 kV Transmission Line passes through rural lands. There are no communities along this route, although the 19th century community of Rodgerville was located on the London Road (Highway 4) south of Rodgerville Road; it is no longer extant.

For most of the 31 kilometre length of the proposed 230 kV Transmission Line, the power will be transmitted through lines on overhead hydro poles. In some cases, existing poles will be used; in other cases, new hydro poles will be constructed. Shorter segments of the alignment of the

proposed 230 kV Transmission Line will have buried cables instead of overhead poles. Regardless of the specifics of the proposed construction, the alignment of the proposed 230 kV Transmission Line will be located within the edges of the pertinent municipal road rights-of-way.

Figures 5 and 6 illustrate the north and south parts of the proposed Grand Bend Wind Farm relative to the 1879 Historic Atlas maps of the area. Figures 7-9 inclusive illustrate the proposed 230 kV Transmission Line relative to the 1879 Historic Atlas maps of the geographic townships the alignment transects. Photographs embedded in Figures 7, 8 and 9 show existing conditions at select points on the proposed alignment of the 230 kV Transmission Line.

Finally, the aerials photographs presented as Figures 10 and 11 of the report illustrate the locations of the proposed wind turbines in north and south parts of the proposed Grand Bend Wind Farm, respectively. They also they show the location and direction of the photographs that are presented as Plates 1-12 of the report.

Plates 1-12 inclusive illustrate different elements of the study area. Plates 1-6 inclusive illustrate select built heritage resources. The structures illustrated in Plates 1-5 are cited where appropriate in this report. The 19th century schoolhouse illustrated in Plate 6 is on the west side of Blackbush Line north of Sararas Road. It is located in the southeast corner of Lot 18, concession 15, Hay Geographic Township, across the road from one of the segments of the proposed collector lines. The closest proposed turbine to this structure is Turbine 19; it is situated approximately 1300 metres to the southeast of the building. Plates 7 and 9-11 inclusive illustrate municipal road alignments in the study area that are followed by segments of the proposed collector lines. Plate 12 shows an existing farm lane that will be used as the proposed access road to Turbine 12. Finally, Plate 8 shows an existing wind turbine. It is located in the northeast part of the study road, north of Zurich Hensall Road and west of Bronson Line.

The land use in the study area is agricultural and few settlements are present within the area. Grand Bend is situated just outside the southwest edge of the study area, the hamlet of Blake just outside on the northeast edge, and the north end of the hamlet of St. Joseph is just inside the northwest edge. The crossroads hamlet of Drysdale is situated within the northern portion of the study area. The long-established and larger year-round communities of Zurich and Dashwood are situated to the east of the study area, on Zurich Hensall Road and Dashwood Road, respectively.

Along the west edge of the study area for the proposed wind farm there are several small cottage communities between Bluewater Highway and Lake Huron. From South to north, they are Kingsmere, Sunnyside, Elmwood, Greenwood, Turnbull's Gove, Norman Heights, Schade View, Cedar Bank, Lakeview Gardens and Bayview Subdivision. All are located south of St. Joseph.

The study area is drained by some 16 first and second order stream courses. The vast majority are unnamed. They are termed drains, are partly channelized and flow west into Lake Huron.

The proposed Grand Bend Wind Farm lies within the Huron Fringe and Huron Slope physiographic regions. The Huron Slope is located between the Algonquin shore cliff and the Wyoming Moraine. Chapman and Putnam describe the area as a clay plain modified by a narrow strip of sand (1984:161). The Huron Slope rises gently from 475 to 700 metres a.s.l. (ibid: 160). The Huron Fringe is a narrow fringe of land, approximately 125 kilometres long, along the eastern shore of Lake Huron from Sarnia to Tobermory. It comprises wave-cut terraces of

postglacial Lake Algonquin and Lake Nipissing and is characterized by boulders, gravel bars and sand dunes (Chapman and Putnam 1984:161).

Lakes Algonquin and Nipissing are the youngest of six postglacial lakes once present in the Lake Huron Basin. Both of these lakes maintained a level of approximately 185 metres above sea level. The relic shorelines of Lakes Algonquin and Nipissing can be traced from Sarnia to Grand Bend, but they are not evident between Grand Bend and Point Clark, which is located just south of Kincardine. This is the segment of the east shore of Lake Huron within which the proposed Grand Bend Wind Farm is situated. Chapman and Putnam (1984: 70) infer that the absence of the relic Lake Algonquin and Nipissing beach ridges in this area may mean they were undercut by the present lake.

Two other post-glacial lakes are situated within the study area. They are the twin beaches of Lake Warren and parallel the Wyoming Moraine. These twin beach ridges extend roughly north south, immediately west of Bronson Line. All of the proposed wind turbines are located between the Lake Huron shoreline and these two relic beach ridges.

The study area is flat to slightly undulating except where stream courses and drains have dissected the landscape. Land use in the study area is agricultural. Four different soil types are represented in the 48 turbine sites under consideration.

Nineteen of the turbine sites are located on Berrien sandy loam (Turbines 1, 2, 4-17 inclusive and Turbines 31-33 inclusive). Part of Turbine 19 is also located on this soil. Berrien sandy loam is part of the Grey-Brown Podzolic Group (Hoffman et al. 1952, South Sheet). The drainage is imperfect, the soil materials of this soil consist of sandy outwash over fine textured till and the soil profile consists of six inches (15 centimetres) of dark brown sandy loam over slightly mottled sand horizons which are usually fairly well defined (Ibid). In this soil type heavy clay usually occurs at depths of three feet (92 centimetres) or less (Ibid).

A further 17 turbine sites are located on Brady sandy loam (Turbines 18, 21-30 inclusive and Turbines 34-39 inclusive). Brady sandy loam is part of the Azonal Alluvial Group (Hoffman et al. 1952, South Sheet). The soil materials of this soil consist of well sorted sandy outwash and the soil profile consists of six inches (15 centimetres) of dark grey sandy loam over slightly mottled sandy loam; the drainage is imperfect (Ibid).

Nine other turbine sites are located on Brookston clay loam (Turbines 40-48 inclusive). This soil is part of the Dark Grey Gleisolic Group (Hoffman et al. 1952, South Sheet). The soil materials of this soil consist of fine-textured till and the soil profile consists of seven inches (17 centimetres) of dark grey to very dark grey clay loam, silt loam or silty clay loam; the drainage is poor (Ibid).

A portion of the Turbine 19 site is located on another soil: Perth clay loam. It is part of the Grey-Brown Podzolic Group (Hoffman et al. 1952, South Sheet). The soil materials of this soil consist of fine-textured till and the soil profile consists of six inches (15 centimetres) of dark grey to very dark grey clay loam, silt loam or silty clay loam; the drainage is poor (Ibid).

Three-quarters of the proposed wind turbines (36 of 48) are located on sandy loam soils that are prone to wind deflation. In part for that reason, and in part because of soil conservation practices,

almost all of the farmers who work the lands that are involved in 48 proposed wind turbines practice no till agriculture.

Further to the above, three-quarters of the proposed wind turbines (36 of 48) are located on soils that are characterized as having imperfect drainage. Nine others are located on soils that are characterized as having poor drainage and one other turbine site is located on soils that are partly characterized as having imperfect drainage and partly characterized as having poor drainage. The nature of these soils suggests that much of the study area was poorly drained prior to Euro-Canadian settlement in the mid 19th century. In order for the lands to be farmed, the drainage had to be improved. In consequence, most if not all of the lands within which the proposed turbine sites are located have drainage tiles. Locational data on the locations of the 48 proposed wind turbines are presented in Table 1.

Table 1 Summary Data on the Proposed Wind Turbines

Facilities		Geographic Township	Municipality	Concession	Lot	Land Use
Turbine	Fig. #					
T1	1	Stanley	Bluewater	Southern Boundary	29	arable field
T2	1				28	arable field
T3	3	Hay		14	27	arable field
T4	2			Northern Boundary	30	arable field
T5	2			15	26-27	arable field
T6	2			15	27	arable field
T7	2			East of Lake Road	5	arable field
T8	2			East of Lake Road	6	arable field
T9	2			15	25	arable field
T10	2			East of Lake Road	6	arable field
T11	4			15	24	arable field
T12	4			East of Lake Road	7	arable field
T13	4			15	23	arable field
T14	4			East of Lake Road	8	arable field
T15	4			15	22	arable field
T16	4			East of Lake Road	9	arable field
T17	6			East of Lake Road	14	arable field
T18	6			East of Lake Road	14	arable field
T19	5			14	14	arable field
T20	5			13	14	arable field
T21	6			East of Lake Road	16	arable field
T22	6			East of Lake Road	16	arable field
T23	6			East of Lake Road	17	arable field
T24	6			East of Lake Road	17	arable field
T25	6		East of Lake Road	17	arable field	
T26	6		East of Lake Road	17	arable field	
T27	6		East of Lake Road	18	arable field	

Facilities		Geographic Township	Municipality	Concession	Lot	Land Use
Turbine	Fig. #					
T28	6	Hay	Bluewater	East of Lake Road	19	arable field
T29	7			East of Lake Road	21	arable field
T30	7			East of Lake Road	22	arable field
T31	7			17	6	arable field
T32	8			East of Lake Road	26	arable field
T33	8			East of Lake Road	26	arable field
T34	8			East of Lake Road	27	arable field
T35	8			East of Lake Road	27	arable field
T36	8			East of Lake Road	27-28	arable field
T37	8			East of Lake Road	28	arable field
T38	8			East of Lake Road	28	arable field
T39	8			East of Lake Road	29	arable field
T40	8			East of Lake Road	31	arable field
T41	9	Stephen	South Huron	Northern Boundary	37	arable field
T42	9			Northern Boundary	37	arable field
T43	9			Northern Boundary	36	arable field
T44	9			A	7	arable field
T45	10			East of Lake Road	5	arable field
T46	10			East of Lake Road	5	arable field
T47	10			A	5	arable field
T48	10			A	5	arable field

3.0 CULTURAL SYNTHESIS

This section of the report also provides the historic context for human settlement of the area of the proposed Grand Bend Wind Farm, as required by Standard 1 of Section 7.5.7 of the Standards and Guidelines (Ministry of Tourism and Culture 2011). In the interest of context, brief summaries are included on the major environmental changes through time, and on the characteristics of settlement and subsistence patterns for the relevant time periods and cultures represented in the history of the area. For reference purposes, a cultural chronology of the region is presented in Table 2.

3.1 The Paleo-Indian Period (9500-7000 B.C.)

The first known human occupation of the province took place ca. 9500 B.C., following the retreat of the Wisconsin glacier. During this period, the environment in southern Ontario was characterized by a cool climate. The vegetation, in transition from spruce to pine dominated forests, would have resembled the modern sub-arctic. The initial occupation of southern Ontario by Paleo-Indian peoples took place toward the end of a period of high water levels in the Great Lakes, including Lake Algonquin in the Lake Huron Basin and early Lake Erie to the south. That ended when the North Bay outlet opened ca. 8500-8000 B.C., draining Lake Algonquin eastward. The result created Lake Stanley in the Lake Huron Basin, Lake Hough in the Georgian Bay Basin and what were in effect a series of large ponds in the Lake Erie Basin. During that period what are now Pelee Island and Middle Island were hills in the dry west end of the Lake Erie Basin.

Paleo-Indian sites in the Great Lakes region are presumed to relate to a focal adaptation based primarily upon the communal hunting of seasonally migrating herds of woodland caribou. In general, favourite Paleo-Indian site locations include areas adjacent to glacial spillways and kettle lakes, often near present-day swamps on loam soils proximal to muck soils representing the margins of relic pro-glacial or post-glacial lakes. The most diagnostic Paleo-Indian artifacts consist of various types of Early Paleo-Indian fluted projectile points (ca. 9500 - 8500 B.C.) and of projectile points of the Late Paleo-Indian Holcombe type (ca. 8400 B.C.) and Hi-Lo type (ca. 8300 - 7000 B.C.).

3.2 The Archaic Period (7700-500 B.C.)

Archaeologists divide the Archaic period into three sequential sub-periods: the Early Archaic (ca. 7700 – 6000 B.C.), the Middle Archaic (ca. 6000 – 2500 B.C.) and the Late Archaic (ca. 2500 – 500 B.C.).

The Archaic period was characterized by gradually warming temperatures and by the northward migration of modern flora and fauna that were established throughout their current range by around 4000 B.C. Water levels continued to rise throughout this period, but in the earlier millennia vast areas in the Lake Erie and Lake Huron basins were dry and habitable. Indeed, research suggests that these lake plains would have represented the richest environment for

prehistoric hunters and gatherers in the entire Lower Great Lakes region, and that they probably contained a wealth of early camp sites and other archaeological resources that were later flooded.

Table 2 Cultural Chronology for Southwestern Ontario

PERIOD	GROUP	TIME RANGE	COMMENT
PALEO-INDIAN	Fluted Point Hi-Lo	9500 - 8500 B.C. 8300 - 7900 B.C.	Big game hunters; small nomadic groups
ARCHAIC			
Early	Side Notched	8050-7750 B.C.	Nomadic hunters and gatherers.
	Nettling	7900-6900 B.C.	
	Bifurcate Base	6800 - 6000 B.C.	
Middle	Laurentian	3500 - 2500 B.C.	Transition to territorial settlements.
Late	Lamoka	2500 - 1800 B.C.	Polished/ground stone tools
	Broad Point	1800 - 1400 B.C.	
	Crawford Knoll	1500 – 500 B.C.	
	Glacial Kame	ca. 1000 B.C.	Burial ceremonialism
WOODLAND			
Early	Meadowood Red Ochre	1000 - 400 B.C. 1000 – 500 B.C.	Introduction of pottery
Middle	Saugeen Princess Point	400 B.C. - 500 A.D. 500 – 800 A.D.	Long distance trade networks. Incipient horticulture
Middle: Western Basin	Couture	300 B.C. –500 A.D.	Long distance trade networks
	Rivière au Vase	500-900 A.D.	Incipient horticulture
Late: Iroquoian	Early Iroquoian	800 – 1280 A.D.	Transition to village life and agriculture
	Uren	1280 - 1330 A.D.	Large village sites
	Middleport	1330 - 1400 A.D.	Widespread stylistic horizon
	Neutral	1400 - 1650 A.D.	Tribal differentiation and warfare
Late: Western Basin	Yonge Phase	900 – 1300 A.D.	Transition to village life and agriculture
	Springwells Phase	1300 – 1400 A.D.	Large village sites
	Wolf Phase	1400 – 1550 A.D.	Tribal differentiation and warfare
HISTORIC			
Early	Odawa, Ojibwa, Potawatomi	1700 - 1875 A.D.	Social displacement
Late	Odawa, Ojibwa, Potawatomi, Six Nations, Euro-Canadian	1800 A.D. - present	European settlement

In general, settlement and subsistence patterns of the Archaic Period are characterized by small camps and scattered finds related to a seasonal round of hunting, fishing and the gathering of wild plant foods. A significant development in settlement at the very end of the Late Archaic was the use of communal cemeteries by peoples of the Glacial Kame Culture. These cemeteries date to ca. 1000 B.C. and typically feature rich mortuary ceremonialism.

3.3 The Woodland Period (1000 B.C. – 1650 A.D.)

The Woodland Period that follows the Archaic in the lower Great Lakes region spans a series of important changes in culture and adaptation. This period is most commonly divided into three chronological sub-periods: Early, Middle and Late.

For the Woodland period archaeologists have recognized a cultural divide between the sites of the central and eastern portions of southwestern Ontario and those of the westernmost portion of the region. Sites in the latter portion of the region pertain to what is termed the Algonquian Western Basin Tradition while sites in the central and eastern portions of the region are ancestral Iroquoian.

Early Woodland (ca. 1000 to 500 B.C.)

The Woodland Period is marked by the introduction into Ontario of pottery, the earliest of which dates to the Early Woodland sub-period. Beyond that, there appear to have been no substantial changes in the hunting, fishing and gathering settlement and subsistence patterns following the Late Archaic. This period in southern Ontario is represented by the Meadowood Complex.

Mortuary ceremonialism is characteristic of this period, as expressed by the inclusion of elaborate grave goods in burials, and it represents the florescence of a pattern recorded for the slightly earlier Glacial Kame Culture of the Terminal Archaic. The evidence for the Early Woodland period suggests that it represents an increased social or territorial identity with a particular resource area such as a drainage system.

Middle Woodland (ca. 300 B.C. to 500 A.D.)

The Couture Complex of the Western Basin Tradition, which occupied this region during the Middle Woodland period, is the poorest known of the Middle Woodland cultural complexes of southern Ontario. This complex occupied the area drained by rivers flowing into Lake St. Clair and the northwest shore of Lake Erie.

The Couture Complex subsistence included the hunting of deer as well as the gathering of black walnut, hickory and acorn. There are some indications that mortuary practices of this complex included the use of burial mounds, and burial mounds have certainly been recorded on Pelee Island and on the mainland north of Point Pelee. Another characteristic of this time period is the presence of large caches of exotic artifacts that provide evidence of long distance contacts with peoples of the Hopewellian Interaction Sphere. One example from the Bothwell Sand Plain of

Kent County is a cache of over 200 bifaces of Flint Ridge Chalcedony; the source for that material is in central Ohio.

Late Woodland (ca. A.D. 800-1650)

The Late Woodland sub-period in the Western Basin Tradition has been divided into four sequential phases: the Rivière au Vase Phase (ca. 500-900 A.D.); the Younge Phase (ca. 900-1300 A.D.); the Springwells Phase (ca. 1300-1400 A.D.); and the Wolf Phase (ca. 1400-1550 A.D.).

The Rivière au Vase Phase is best known from sites on Point Pelee. Sites of this phase include small camps as well as longer term occupations by larger populations exploiting the rich marsh and lakeshore environment. These sites were occupied during the warm seasons. It is believed that in the winter the population dispersed into a number of small groups to hunt elsewhere within their territory.

Our knowledge of the Rivière au Vase Phase is limited, as sites of that phase are generally rare. In contrast, the succeeding Younge Phase is represented by numerous well documented sites. Subsistence during that phase represented a continuation of the Rivière au Vase Phase, with a seasonal round that included the exploitation of seasonally abundant resources. Corn was grown by Younge Phase peoples, but it only occurs in small quantities on sites of this phase and it is evident that it only represented a supplementary food source. That is in sharp contrast to contemporary Iroquoian sites, where cultigens represented an ever increasingly important part of the diet. It has been hypothesized that the larger number of Younge Phase sites reflects an increase in population during the period ca. 900-1300 A.D.; it has further been hypothesized that the people of this region expanded into previously uninhabited areas during this period (Murphy and Ferris 1990:262). The Younge Phase settlements included villages on the Thames River east of Thamesville.

Settlement and subsistence during the succeeding Springwells Phase represented a continuation of earlier patterns, but with an increased emphasis on warm season village sites located in areas with a diversity of natural resources. That pattern evidently reflects an increased reliance of agriculture to supplement the diet of Springwells Phase peoples. Winter camps occur on the Thames River during this period, but not village sites. At the same time, Springwells Phase peoples expanded into the East Dover Plain on the east side of Lake St. Clair. These moves may have been in response to a westward expansion of contemporary Iroquoian peoples into the Western Basin Tradition territory of the Bothwell Sand Plain during the 13th century.

The transition between the Springwells and Wolf Phases and the Wolf Phase itself are both marked by the use of village sites surrounded by protective earthworks. Contemporary villages of the pre-contact Neutral Iroquoians are also protected by earthworks with palisades, providing evidence of continued warfare and tension between the Iroquoians and Western Basin peoples of southwestern Ontario.

Although the study area fell within the limits of the Western Basin Tradition throughout most of the Late Woodland period, it was in reality part of the frontier that separated Western Basin peoples in extreme southwestern Ontario from the contemporary Iroquoian peoples of the

Neutral tribal confederacy in the central and eastern parts of southwestern Ontario. In the late 15th century, during the Wolf Phase of the Western Basin Tradition, there was a westward expansion of Neutral (or Attawandaron) peoples into the Bothwell sand plain and a small number of Iroquoian villages were established in what is now Kent County, as far west as Chatham.

This westward expansion reflects warfare between the Iroquoian Neutral peoples and their Algonquian-speaking Western Basin contemporaries. It was a conflict that extended back into the 15th century and that eventually led to the withdrawal of the Neutral to east of the Grand River by the late 16th century. By the time of the European fur trade in the first half of the 17th century, the conflict between the Neutral and the Algonquian Fire Nation who lived around the west end of Lake Erie was still ongoing.

As originally formulated by J.V. Wright (1966), the full sequence of the Ontario Iroquoian Tradition involves three main stages, termed Early, Middle, and Late Ontario Iroquoian. The Iroquoian peoples of southwestern Ontario consisted of the Neutral tribal confederacy and their prehistoric ancestors.

The Early Iroquoian stage in this region spans the period ca. 800-1280 A.D. and comprises the evolution of various communities. They were typically oriented to drainage systems on sand plains in the area of the Thames River and Sydenham River drainages, and on the stream courses that flowed south into Lake Erie and west into Lake Ontario. J.V. Wright (1966) distinguished between the Early Iroquoian peoples of southwestern Ontario and of south-central and southeastern Ontario as the Glen Meyer and Pickering Branches, respectively. However, those terms have fallen out of favour with more recent researchers, who don't accept the construct that two distinct branches existed during the Early Iroquoian stage.

The succeeding Middle Iroquoian stage subsumes the Uren sub-stage (ca. 1280-1330 A.D.) and the Middleport sub-stage (ca. 1330-1400 A.D.). This period was characterized by an increase in village size and, around the beginning of the Middleport substage, by the abandonment of sand plains and a shift into areas with heavier, more drought-resistant soils.

Archaeologists typically divide the Late Iroquoian stage in southwestern Ontario into three successive periods: the prehistoric (or pre-contact) Neutral (ca. 1400-1550 A.D.); the proto-historic Neutral (ca. 1550-1580 A.D.); and the historic Neutral (ca. 1580-1651 A.D.). Of these, the proto-historic Neutral marks the period of indirect contact with European fur traders and missionaries, while the historic Neutral marks the period of direct contact with Europeans.

Each of the Iroquoian villages in the Bothwell sand plain had a population of up to several hundred individuals and was protected by earthworks. The Iroquoian way of life was largely based on a subsistence pattern that involved the cultivation of corn, beans and squash, supplemented by hunting, fishing and the gathering of wild plant foods. Iroquoian villages were typically occupied year-round for some 12-20 years. They moved when the local supply of firewood had been exhausted and the soils in the surrounding agricultural fields were no longer fertile. Villages may cover from one to several hectares in size and included numerous dwellings known as longhouses. In addition to villages, satellite settlements consisting of smaller, more temporary habitations such as agricultural cabin sites and fishing and hunting camps may occur in the area surrounding the village.

The prehistoric Neutral were widely distributed throughout the southern part of southwestern Ontario, from Lake Ontario and the Niagara Peninsula westward to west of London. In the mid 16th century, however, the communities in the western part of the region moved east of the Grand River. The Neutral and the other Ontario Iroquoian tribal confederacies all met the same fate in the mid 17th century: first devastated by a series of plagues accidentally introduced by the Europeans; and finally dispersed and driven from their homelands by raids from the Iroquois of New York State in 1649-1651 A.D.

3.4 The Historic Period (A.D. 1650 to Present)

The history of the First Nations peoples during the second half of the 17th century and the succeeding 18th century was one of wide-scale cultural displacement. The displacement of the Iroquoians from southern Ontario in 1649-51 and the Algonquian-speaking peoples from adjacent Michigan and Ohio resulted in a re-organization of the cultural landscape of southwestern Ontario towards the end of the 17th century. It was during this period that the Ojibwa established themselves in the region. The available natural resources also made the area attractive for hunting, fishing and foraging for plant foods. Maple sugar was also an important product during this period.

The loss of the Thirteen Colonies in the American Revolution provided the British Crown with an incentive to expand settlement into what became Upper Canada in 1791. The first settlement there began in 1784, with the arrival of United Empire Loyalists from the newly-established United States of America. To enable the settlement of what was to become southern Ontario the British Crown negotiated a series of treaties with the resident First Nations peoples.

The early efforts to settle the Huron Tract are inextricably linked to John Galt and the Canada Company. Galt, a Scottish-born author of some fame in England, had been involved in Canadian affairs since his advocacy for war reparations claimants in the aftermath of the War of 1812. He was instrumental in the formation of the Canada Company in 1824, for the purposes of purchasing Crown and Church land *en masse*, and then selling it for settlement. As part of the complicated negotiations with the Church and Crown involving these lands, the Company received one million acres of land in the Huron Tract, which had been recently acquired from the Ojibwa (Scott 1966: 13-14).

Figures 5-9 are facsimiles of the 1879 Historic Atlas maps of Stephen, Hay, Stanley, Tuckersmith and Hibbert Geographic Townships. Figures 5 and 6 show the northern and southern portions of the study area for the proposed wind farm, including the locations of the proposed turbines and the alignments of the proposed collector lines. Figures 7-9 inclusive show the alignment of the proposed 230 kV Transmission Line. These figures all illustrate the elements of the proposed wind farm in relation to the extent of the settlement as of the third quarter of the 19th century.

The first Euro-Canadian settlers in what would become Huron County arrived in the second half of the 1820s. However, by 1837, there were still less than 400 inhabitants in the county. The building of a major settlement road (the Huron Road) to Goderich in 1832 gradually changed this, and by 1842 the population had exploded to 7,190. Much of this settlement was centred on

Goderich and the London and Huron Roads, but settlement also began to expand to the points north (Scott 1966: 52-57). In 1850 Huron County was created out of the District of Huron.

Goderich and Tuckersmith Geographic Townships were the earliest townships in the county to be settled, beginning as early as 1828 on a small scale. Stephen Geographic Township was settled shortly thereafter, located as it was to the south of the future county, closer to already existing population centres like London. The first settler in Stephen Township was James Willis, who traveled up the London Road with his wife in 1831 and settled in the eastern part of the township. Much of the early settlement was in this area, as the southern and western parts of the township were low and marshy and were unsuitable for habitation or agriculture. The drainage problems grew even worse when Brewster & Co. constructed a mill on the current site of Grand Bend in 1832. The mill dam caused extensive flooding throughout the area, angering many farmers. The Canada Company launched an unsuccessful suit to have the mill torn down, and it was eventually demolished by a “*mob of rioters*” from Williams, Biddulph, McGillivray and Stephen Townships, the four townships that were affected by the flooding. Stephen Township was originally annexed to Usborne Township, but by 1845 it had control of its own municipal affairs. It was once again annexed in 1850, but was again independent by 1852. The first school was established by 1848 on the property of George Snell, who resided on Lot 15 along the London Road. In 1871 the township had a population of 4,349 and a surface area of 53,844 acres (21,799 hectares), of which 17,108 acres (6,926 hectares) were ‘*improved*.’

Hay Geographic Township is located to the north of Stephen Geographic Township; it contains the majority of proposed turbine sites. Hay has a surface area of approximately 54,527 acres (22,076 hectares). It was surveyed in 1835. As of 1879, 26,000 acres of the township (10,526 hectares) were improved. The population at that time was 4,119, which was slightly smaller than its southern neighbor: Stephen Township. This is partly due to its later settlement date. The main source of new inhabitants for this part of Huron County was the London Road, which meant that many travelers simply stayed in Stephen Township. The earliest recorded settlers in Hay Township arrived in 1833; as was the case with Stephen Township, they settled along the London Road. The next highest concentration of settlers was along the Lake Road (now Bluewater Highway) (Hay Township Book Committee 1996: 51). Between 1846 and 1851 French Canadians from Quebec settled at St. Joseph. This community was originally named Johnston’s Mill, after a mill that was located on a creek there (Figure 5). By 1861 new waves of German and Pennsylvania Dutch emigrants had arrived in Hay. That year, the population of Hay Township was 3,054 (Hay Township Book Committee 1996: 30).

A prominent feature of Hay Township was and is Hay Swamp, also known as “*the Big Marsh*.” It was partly drained in the late 19th century but originally extended from Concession 4 to Concession 8 and covered some 8,000 acres, representing 15% of the surface area of the township (Hay Township Book Committee 1996: 12). Hay Swamp was and is very rich in wildlife, including deer.

One feature of the built heritage landscape of Hay Township that is situated within the study area for the proposed wind farm is St. Peter’s Church. It was originally named St. Pierre du Lac and is located on the east side of the intersection of Church Lane and Bluewater Highway, north of Danceland Road, in the west half of Lot 4, Concession East of Lake Road. The church has an associated cemetery that has been in use since 1856. Plate 5 is a view of the church. According to the information that was compiled by Heather Klopp of the Bluewater Heritage Advisory

Committee (minutes of May 1, 2012), there was a log cabin on this site that was in use as a school, church and meeting place from 1850 to 1859, when it was destroyed by fire. The present buff brick church was constructed in 1873; the corner stone is dated July 6 of that year. The church is depicted on the 1879 Historic Atlas map of Hay Township, together with a schoolhouse to the north of it. The church, with a modern front entrance, remains as a local landmark but the nearby schoolhouse is no longer extant.

The northernmost proposed wind turbines are located in Stanley Geographic Township. It was surveyed in 1835 and has a surface area of 53,844 acres (21,799 hectares). The first Euro-Canadian pioneer in Stanley was a Reverend Mr. Cooper, who settled on the Huron Road. A handful of settlers followed over the next few years, then there was a major influx of settlers in 1836. Stanley Township was mainly settled by English Protestants, followed by Scottish Catholics; there were also settlers from Germany of various religious denominations, including Tunkers, Mennonites and Lutherans (Scott 1966: 158).

The 230 Transmission Line follows Rodgerville Road, then northeast on Road 183. The portions of the Rodgerville Road segment that lie on the south side of the road fall within Usborne Township, while portions that lie on the north side of Rodgerville Road fall within Tuckersmith Township. The segments that follow Road 183 are primarily on the north side of the road, within the south edge of Tuckersmith Township; the segments that are on the south side of the road are located within the north edge of Hibbert Township, Perth County.

The first settler in Usborne Township arrived on June 21, 1831. That same year John Balkwell persuaded several of his neighbours in the County of Devon, England, to emigrate to Usborne. They settled together at a place they named Devon (H. Belden & Co. 1879a: xx). By the third quarter of the 19th century settlement in Usborne Township had spread. The 1879 Historic Atlas noted that the population of the township was 2,616 as of 1878 (Ibid).

Tuckersmith is the second smallest geographic township in Huron County, with a surface area of 40,880 acres. The 1879 Historic Atlas also describes it as “*the most thickly settled and most improved,*” with almost 31,000 acres (75%) under cultivation. The Historic Atlas ascribed this prosperity to the fact that the Township was readily accessible by two important settlement roads: the London Road, which forms the west edge of the township; and the Huron Road, which forms the northwest edge. The Historic Atlas lists the population of the township as being 3,699 in 1871 and 3,048 in 1879.

As previously stated, part of the segment of the proposed 230 Transmission Line that follows Road 183 is located in the southern portion of the road right-of-way. This places it in Hibbert Township, Perth County. This township has a surface area of 42,306 acres. The portion of the township that borders the London Road between Dublin and Tuckersmith was known as “*Irishtown.*” It was settled in the 1830s and was the first part of Hibbert Township to be settled by Euro-Canadians (H. Belden & Co 1879b: xviii). Settlement in the township became more widespread between 1848 and 1850; it was during this period that Staffa was established. Dublin was the main community in Hibbert Township. As of the 1871 census, 37,546 acres of the township were occupied and 24,240 acres were improved.

4.0 SOURCES

Several different sources were consulted during the course of the assessment. One collective source consisted of the Ontario Heritage Properties Database. It contains information on properties, buildings, building complexes and other structures that have been designated by municipal by-law under section 29 of Part IV of Ontario Heritage Act, that are protected by municipal heritage conservation easements, that are owned by the Ontario Heritage Trust, or are protected by Ontario Heritage Trust conservation easements.

Until a few years ago, the Ontario Heritage Properties Database was maintained by what is now the Ontario Ministry of Tourism, Culture and Sport. It is now named the Ontario Heritage Act Register and is maintained by the Ontario Heritage Trust (OHT). The Ministry had not updated the database since 2005. The Ontario Heritage Trust is in the process of updating the database, but individuals who access it are informed in a rider that the data included do not necessarily include properties, structures, cultural heritage landscapes or heritage easements that have been added to the Ontario Heritage Act Register since 2005.

During the course of the assessment an on-line check of the Ontario Heritage Properties Database by D.R. Poulton & Associates Inc. determined that as of 2005 there were no heritage conservation districts, designated heritage structures or Ontario Heritage Trust easements within the study area for the proposed Grand Bend Wind Farm. In order to confirm whether that was still the case, Dana Poulton of D.R. Poulton & Associates Inc. contacted Jeremy Collins, Acquisition and Conservation Services, Ontario Heritage Trust. Poulton requested that Collins provide information for the study area on any properties that are subject to Ontario Heritage Trust easements, on any properties that are subject to a notice of intent to designate by the municipalities, on any properties or structures which are municipally designated, and on any heritage conservation districts that may be located within the study area. The response to the OHT request by provided by Sean Fraser, Manager, Acquisition and Conservation Services, Ontario Heritage Trust.

A second source of information for the assessment was the Culture Services Unit of the Programs and Services Branch, Ontario Ministry of Tourism, Culture and Sport. Information of interest to the assessment was kindly provided by Laura Hatcher, Heritage Planner, of the Unit.

Another potential data source that was consulted during the course of the present assessment consisted of the inventory of properties that have been designated by the Historic Sites and Monuments Board of Canada as being of national historic significance. The inventory is maintained by Parks Canada.

Yet another source for the assessment consisted of municipal staff. On July 26, 2012 Dana Poulton of D.R. Poulton & Associates Inc. e-mailed inquiries concerning built heritage resources and cultural heritage landscapes to Michael Di Lullo of the South Huron Heritage Committee and the Municipality of South Huron, and to Charlene Overholt, Deputy Clerk, the Municipality of Bluewater. Ms Overholt confirmed that the Municipality of Bluewater does not currently maintain a general inventory of heritage structures within the municipality; she also confirmed that she had conveyed the request for heritage data to David MacLaren, the Chairperson of the Bluewater Heritage Advisory Committee (personal communication to Dana Poulton, August 14,

2012). As of August 14, 2012, when the heritage assessment report was completed, a response to the July 27, 2012 request had not been received from the Bluewater Heritage Advisory Committee. Copies of the e-mails to Michael Di Lullo and Charlene Overholt are included in Appendix 2.

Michael Di Lullo provided data on heritage structures that are documented in the Municipality of South Huron. He also forwarded the request for information to Claire Dodds, Planner, Huron County Planning & Development Department. Further information on her response and his are detailed in Section 5.2 of this report. For the present, it may be stated that Claire Dodds response included links to two on-line sources concerning the heritage resources of Huron County. They are as follows:

<http://www.creativehuron.ca/wp-content/uploads/2012/Cultural-Mapping-Report-2012-final-version.pdf>

<http://www.creativehuron.ca/images/50ThingsToSeeMap.pdf>

The above sources provided a considerable amount of positive and negative information concerning properties, buildings, building complexes and other structures that have been designated by municipal by-law under section 29 of Part IV of Ontario Heritage Act, that are protected by municipal heritage conservation easements, are owned by the Ontario Heritage Trust, are protected by Ontario Heritage Trust conservation easements, and are in the Municipality of South Huron's heritage inventory. However, this still left a concern for the potential for as-yet unidentified built heritage resources and cultural heritage landscapes. The assessment of those potential concerns was informed by a visual examination of the facilities that will be involved in the proposed construction of the Grand Bend Wind Farm.

Further to the above, the assessment also consulted published sources on the 19th century Euro-Canadian settlement of the area within which the proposed Grand Bend Wind Farm is located. They included reprints of the 1879 Illustrated Historic Atlas of Huron County and the 1879 Illustrated Historic Atlas of Perth County (H. Beldon & Co. 1879a, 1879b, respectively). They also included the history of Huron County by Scott (1966), the history of Stephen Township by Mack (1992), and the history of Hay Township by the Hay Township Book Committee (1996).

5.0 BUILT HERITAGE RESOURCES

This section of the report is divided into four self-explanatory subsections. They are detailed below.

5.1 Definitions of Built Heritage Resources

Weiler (1980:7) defines what he terms “*built heritage environment*” as including any feature that includes one or more of the following attributes:

- It is associated with a well-known event;
- It is associated with a well-known person or group;
- It is associated with the first or formative aspect of an activity;
- It is associated with an activity or endeavour of relative antiquity;
- It is associated with an activity of substantial duration; or
- It is associated with an activity or endeavour that affected a substantial population or geographic area.

Weiler (1980:7-8) also identified several other criteria for built heritage resources. They are specific to what he termed “*architectural or engineering qualities*”, but none of them applies to the present assessment.

The document entitled *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (Ministry of Culture and Communications 1992) was developed in cooperation between the Ministry of the Environment and the Ministry of Culture and Communications. Appendix A of the document defines built heritage resources as follows:

Built heritage sites include buildings, structures, ruins or remains which reveal the broad architectural, cultural, social political, economic or military patterns of Ontario’s history, or are associated with specific events or people that have shaped this history. Examples of built heritage sites include the following; buildings, groups of buildings, historic settlements, foundations, marked cemeteries, dams and outbuildings, fences, and bridges.

The 2005 Provincial Policy Statement of the Ontario Ministry of Municipal Affairs and Housing includes the following definition of Built Heritage:

One or more *significant* buildings, structures, monuments, installations, or remains associated with architectural, cultural, social, political, economic or military history and identified as being important to a community. These resources may be identified through designation or heritage conservation

easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions.

Info Sheet # 1 of the Ontario Heritage Tool Kit (Ontario Ministry of Culture 2006: 3) includes the latest attempt of the Province of Ontario to define built heritage resources, as follows:

The identification, listing, evaluation and protection of *built heritage resources* is an ongoing process. The PPS [Provincial Policy Statement], 2005 policies and land use processes are applicable to *built heritage resources* that have significance to the jurisdiction. *Built heritage resources* include:

- a property with a significant *built heritage resource* listed by local, provincial or federal jurisdictions using evaluation criteria;
- a *protected heritage property*, which means:

real property designated under Part IV (individual property), Part V (heritage conservation districts), or Part VI (archaeology) of the Ontario Heritage Act;

a heritage conservation easement property under Parts II or IV of the Ontario Heritage Act;

a property that is the subject of a covenant or agreement between the owner of a property and a conservation body or level of government, registered on title and executed with primary purpose of preserving, conserving and maintaining a cultural heritage feature or resource, or preventing its destruction, demolition or loss. Municipal jurisdiction(s) of the Ontario Heritage Trust can also confirm if a property is a *protected heritage property*;

- a *significant built heritage resource* that is newly defined as part of a proposal for *development or site alteration*.

5.2 Inventory of Built Heritage Resources

The various sources consulted during the course of the assessment provided both positive and negative information. As previously stated, one potential data source was the inventory of properties that have been designated by the Historic Sites and Monuments Board of Canada (HSMBC) as being of national historic significance. The inventory is maintained by Parks Canada. The assessment determined that the HSMBC inventory did not include any properties within the study area for the proposed Grand Bend Wind Farm.

As described in Section 4.0 of the report, another source for the assessment was Ontario Heritage Act Registrar that is maintained by the Ontario Heritage Trust (OHT). The query to OHT was responded to in a letter and e-mail of August 8, 2012 from Sean Fraser of the Ontario Heritage Trust; it was forwarded to D.R. Poulton & Associates Inc. by Jeremy Collins of the OHT, who

facilitated the inquiry. Appended to the letter was a list of the municipal addresses within the Municipalities of Bluewater and South Huron that are on the Ontario Heritage Act Register. The letter also noted that a small portion of the northern edge of Lambton Shores appeared to be located within the study area. However, the south edge of the study area does indeed fall north of the Lambton Shores – South Huron municipal boundary.

The data provided by the OHT for the Municipality of South Huron lists five properties. A check of the addresses confirmed that only one of them falls within the limits of the study area for the proposed Grand Bend Wind Farm. It is the Huron Country Playhouse (Plate 1) and is the only designated heritage structure in the study area for the proposed wind farm. The Huron Country Playhouse is located east of Grand Bend, in Lot 3, Concession A, Stephen Geographic Township. The municipal address is 70689 B Line.

The closest proposed wind turbine to the Huron Country Playhouse is Turbine 47. The Huron Country Playhouse is situated approximately 900 metres southeast of the proposed location of Turbine 47, and 250 metres southwest of the property within which Turbine 47 is situated. The Huron Country Playhouse was designated on April 5, 1999. The reasons for designation note that it is a valuable asset and resource to the Township of Stephen and surrounding communities and that it is important to the heritage of the theatre and the community within the Province of Ontario. The reasons for designation also note that although the Huron Country Playhouse is “*a modest structure, it is precious evidence of the variety and quality of theatrical and human history that has survived in our community.*”

The other four properties in the data provided by the OHT for the Municipality of South Huron are “*listed*” properties –i.e. non-designated properties. They are located several kilometres outside of the study area for the proposed wind farm and are as follows: the Stephen Township Arena (which is located southwest of Exeter); Tom Burke House and Exeter Town Hall (both located in Exeter); and Village Post Bed and Breakfast (the Henry Eilbert house). The latter is in Crediton.

An Internet search of the Ontario Heritage Properties Database identified two other listed heritage properties in the Municipality of South Huron, but they too are outside of the study area for the proposed wind farm. One is the Exeter Carnegie Library in Exeter. The other is the Exeter CN Station; it was relocated to Grand Bend in 1993. With the addition of these two structures, there are a total of seven documented heritage structures in the Municipality of South Huron.

An Internet search of the Ontario Heritage Properties Database identified three other heritage properties in the Municipality of Bluewater. All three are on Main Street in Bayfield. They are the Little Inn, “*Orlagh*” (the Keillor residence) and the Gardiner house and store.

There are no heritage conservation districts within or in close proximity to the study area for the proposed Grand Bend Wind Farm. The closest to it, and the only one in the Municipality of Bayfield, is the Main Street Heritage Conservation District in the village of Bayfield.

As described in Section 4.0 of the report, another key source for the assessment consisted of municipal staff. In her e-mail of July 27, 2012 to Michael Di Lullo of the South Huron Heritage Committee and the Municipality of South Huron, Claire Dodds of the Huron County Planning & Development Department stated the following:

Am I correct in thinking that the Huron Country Playhouse is a designated heritage building? That is the only designated building I can think of in the study area.

While not designated, I have always felt that or SH [South Huron] lakeshore and the cottage communities (i.e. Kingsmere, Oakwood, etc.) have heritage and cultural value. Port Blake Park has cultural value in the sense that it is the only public access to the South Huron shoreline.

While we do not have any cultural landscapes formally designated in Huron – the County of Huron has just released a Cultural Mapping Report and some related publications that might be of interest to the consultant. The link is below.

<http://www.creativehuron.ca/wp-content/uploads/2012/Cultural-Mapping-Report-2012-final-version.pdf>

<http://www.creativehuron.ca/images/50ThingsToSeeMap.pdf>

As previously stated, Claire Dodds is correct in that the Huron Country Playhouse is a designated heritage building. It is included in the data that are enumerated herein and documented in Appendix A.

A check of the 2012 Cultural Mapping Report for Huron County determined that it contains data on 1,780 cultural features. They encompass a broad range of the following categories: Cultural Industries; Cultural Heritage; Natural Heritage; Festivals and Events; Organizations; Spaces and Facilities; Places of Worship; Education; and Recreation (Ibid, Table 2.1). The Cultural Heritage Features are further broken down into the following: Cemeteries; Designated Heritage Conservation Districts; Designated Heritage Properties; Heritage Plaques and Monuments; Museums; and Public or Outdoor Art.

Within the study area for the proposed wind farm the Cultural Mapping Report for Huron County documents nine locations in the Municipality of Bluewater, two locations in the Municipality of South Huron, one location on Dashwood Road, which forms the boundary between the Municipalities of Bluewater and South Huron, and two locations on Rodgerville Road, which forms the southern limit of the Municipality of Huron East. One of the two locations on Rodgerville Road is the Hensall Union Cemetery (Figure 3). It is situated on the south side of Rodgerville Road east of Highway 4, in Lot 35, Concessions 1 and 2 East of London Road, Osborne Geographic Township. As illustrated in the photograph that is embedded in Figure 3, the north edge of the cemetery is delimited by a guard rail that forms the south edge of the road right-of-way.

Further to the above, one of the locations the Cultural Mapping Report for Huron County documents in the Municipality of Bluewater is Port Blake Park (also known as Port Blake Day Park and Port Blake Conservation Area). It is situated just southwest of the intersection of Dashwood Road, Gore Road and Bluewater Highway, at 71151 Bluewater Highway, just outside the southwest edge of the study area. The closest proposed wind turbine to Port Blake Park is Turbine 46; it is situated about 1300 metres southeast of Port Blake Park.

Several other locations that are documented in the Cultural Mapping Report for Huron County fall within or in proximity to the village of St. Joseph. It is situated at the intersection of Bluewater Highway and Zurich Hensall Road. The village was established in 1846 by emigrants from Quebec. St. Joseph Memorial Park and Historical Walkway (Plate 2) is located at the northwest corner of the intersection. In addition, the St. Joseph Museum and Archives is located 800 metres north of St. Joseph, at 72981 Bluewater Highway; it is housed in the Hessenland Country Inn (Plate 4). The St. Joseph Museum and Archives is situated on the west side of Bluewater Highway, 800 metres north of Zurich Hensall Road.

Narcisse Cantin moved to St. Joseph in 1896. The museum and St. Joseph Memorial Park and Historical Walkway commemorate the plan he developed in the late 1890s and the first decade of the 20th century to establish St. Joseph as a city and a major Great Lakes port, and to open up the St. Lawrence Seaway to allow shipping between the Great Lakes and the Atlantic Ocean, with a deep water canal connecting St. Joseph to Lake Erie. His ambitious plans were thwarted by the outbreak of World War I. Plate 3 illustrates a view of Narcisse Cantin's house. It is located on the west side of Bluewater Highway just north of St. Joseph Memorial Park and Historical Walkway.

Cantin's house, the memorial park, the St. Joseph Museum and Archives and Port Blake Park are all included in the 50 Things to See in Huron County map. St. Joseph itself is mainly situated south of the intersection of Bluewater Highway and Zurich Hensall Road (County Road 84). The closest proposed wind turbine to St. Joseph and to the St. Joseph Museum and Archives is Turbine 16. It is situated approximately 750 metres east-southeast of the Hessenland Country Inn and 700 metres northeast of St. Joseph.

St. Joseph has declined greatly since it was at the height of its success in the first decade of the 20th century. The Cantin house is one of a small number of residences that survive in the community. A gas station occupies the northeast corner of the intersection and a large commercial building with a parking lot occupies the southeast corner. The southwest corner, which is where Cantin had a large brick hotel called Balmoral constructed, is a vacant lot. The hotel was demolished in 1920.

Other possible concerns for above-ground heritage resources within the proposed Grand Bend Wind Farm consisted of undocumented standing heritage structures and cultural heritage landscapes within the lands that will be subject to impact from the proposed wind farm. As previously stated, the assessment of built heritage resources and cultural heritage landscapes was further informed by a visual inspection, in accordance with section 23 of O. Reg. 369/09.

As it evolved, for the properties under consideration for the proposed wind farm there are no heritage resources that fall within Column 1 of the Table in section 19 of O. Reg. 369/09. In accordance with section 23 1i of O. Reg. 369/09, therefore, in every case the visual inspection included the presence of structures that had potential cultural heritage value or interest in the properties within which proposed wind turbines were located. There were 10 such properties, with a total of 17 proposed wind turbines. The properties in question contain the proposed sites of Turbines 8 and 10, Turbine 16, Turbines 23-25 inclusive, Turbines 26 and 27, Turbine 30, Turbines 32 and 33, Turbines 36-38 inclusive, Turbine 40, Turbine 43, and Turbine 44. The other 31 proposed wind turbines under consideration fall within properties which do not contain any structures. For the 10 properties that do contain structures of concern to the built heritage

assessment, each of them minimally contains a residence and all of them are owned by participating landowners.

For purposes of context, the visual inspection was not limited to the above 10 properties. It also included structures in abutting properties up to 1 kilometre outside of the limits of the 10 properties.

Table 3 presents summary data on the inventory of built heritage structures in the 10 properties which contain proposed wind turbines. Pertinent data on each building or building complex or other heritage property are presented in Part 1 of Appendix A. The buildings and buildings complexes are assigned sequential numbers from 1 to 10. Data on structures in the abutting properties are presented in Part 2 of Appendix A. They are sequentially numbered from 11 onward. The inventories are keyed to the photographic plates which illustrate the structures and structural complexes. The two figures that are included in the Appendix show the locations of the structures and the points from which the photographs were taken.

Table 3 Summary Data on the Built Heritage Inventory of the Ten Properties

MAP ID #	Photo ID #	Address	Description & Cultural Heritage Value or Interest (CHVI)
1	1	73170 Bluewater Highway	Farmstead with ca. 1880 brick Queen Anne buff house and modern barns; CHVI.
2	2	72988 Bluewater Highway	Mid 19 th century (possibly earlier) frame side gable house and connected outbuilding; potential CHVI.
3	3	72244 Bluewater Highway	Mid 19 th century frame house partly obscured by vegetation; potential CHVI.
4	4	72198 Bluewater Highway	20 th century bungalow; no CHVI.
5	5	71860 Bluewater Highway	c. 1860-1890 Italianate buff brick house and associated 19 th century barn; CHVI.
6	6	71576 Bluewater Highway	20 th century house and barn; no CHVI
7	7	71468 Bluewater Highway	Excellent example of ca. 1860-1890 Italianate buff brick house, timber banked barn and associated barns and outbuildings; CHVI.
8	8	71302 Bluewater Highway	ca. 1880 buff brick Queen Anne house and newer outbuildings and fenced enclosure; CHVI.
9	9	36123 Dashwood Road	Late 19 th or early 20 th century red brick farmhouse with hipped roof; possible CHVI due to relative rarity of red brick houses in the study area.
10	10	70931 B Line	ca. 1860 Gothic Revival buff brick farmhouse with centre gable; excellent range of outbuildings (now metal sided) and fence; potential CHVI.

Apart from the photograph numbers, the data presented for each property in the Appendix include the direction of the photograph, the municipal or street address, the lot, concession, township and municipality, a description of the building or buildings, the number of and distance to the nearest proposed wind turbine, the inferred Cultural Heritage Value or Interest, and an evaluation of the potential heritage impacts or lack thereof.

The assessment identified ten discrete built heritage resources or building complexes within the ten properties that contain proposed wind turbines (Table 3). They include two mid 19th century frame houses (one a gable house, the other indeterminate), a ca. 1860 Gothic Revival house, two ca. 1880 Queen Anne houses, two ca. 1860-1890 Italianate houses, a late 19th or early 20th century red brick hipped farmhouse, two 20th century houses and assorted barns and other outbuildings. There are no commercial, industrial or institutional buildings in the inventory.

The inventory of built heritage resources in the abutting lands consists of 41 discrete built heritage resources or building complexes. It is provided only for purposes of contest and need not be detailed herein. This inventory includes a further two Gothic Revival houses and one additional Italianate house as well as seven other mid or late 19th century houses. The inventory of built heritage resources in the abutting lands also includes modern buildings or building complexes. Among them are a storage building, an apartment building and a trailer park.

5.3 Evaluation of Built Heritage Resources

Ontario Regulation 9/06 of the *Ontario Heritage Act* (Government of Ontario 1990c) has criteria for determining cultural heritage value or interest. The criteria set out in subsection (2) are prescribed for purposes of clause 29 (1) (a) of the Act, which applies to properties to be designated under the Act. They are as follows:

1. The property has design value or physical value because it,
 - i. it is a rare, unique, representative or early example of a style, type, expression or construction method,
 - ii. displays a high degree of craftsmanship or artistic merit, or
 - iii. demonstrates a high degree of technical or scientific achievement.

2. The property has historical value or associative value because it,
 - i. has direct associations with a theme, event, person, activity, organization or institution that is significant to a community;
 - ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or
 - iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.

1. The property has contextual value because it,
 - i. is important in defining, maintaining or supporting the character of an area,
 - ii. is physically, functionally, visually or historically linked to its surroundings, or
 - iii. is a landmark.

As previously stated, there is only one built heritage resource within the study area for the proposed Grand Bend Wind Farm that is designated under Part IV of the Ontario Heritage Act. It is the Huron Country Playhouse. Following the definitions in section 19 of Ontario Regulation 359/09, it is the only Protected Heritage Property within the study area. As it does not abut any of the properties that contain proposed wind turbines, the Huron Country Playhouse is not included in Table 3, the inventory of heritage structures that are of potential concern to the proposed wind farm. Nor is it included in Table 4, as it does not abut a property that contains a proposed turbine.

As stated previously, the evaluation of the cultural heritage value or interest (CHVI) of the inventory of built heritage structures in the 10 properties that contain proposed wind turbines is presented in Table 3. Following the criteria in Ontario Regulation 9/06 of the *Ontario Heritage Act* (Government of Ontario 1990c), all but two of the ten built heritage resources or building complexes are considered to have demonstrable or potential cultural heritage value and interest. The two exceptions are the 20th century houses. Collectively, the buildings in the inventory reflect the mid 19th century to early 21st century cultural fabric of the study area as a predominantly rural landscape.

Based on the level of research and investigation conducted in the course of the heritage assessment, none of the above structures is considered to have sufficient cultural heritage value and interest that it would be a likely candidate to be designated under Part IV of the Ontario Heritage Act. However, many of these built heritage resources would have sufficient cultural heritage value or interest to merit addition to Municipal Heritage Registries.

5.4 Impact Assessment

As defined in InfoSheet #5 in *Heritage Resources in the Land Use Planning Process, Cultural Heritage and Archaeology Policies of the Ontario Provincial Policy Statement, 2005*, a range of negative impacts could potentially apply to heritage resource in a development context. Quoting from page 3 of InfoSheet #5, negative impacts on a cultural heritage resource include, but are not limited to, the following:

- Destruction of any, or part of any, *significant heritage attributes* or features;
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance;

- Shadows created that alter the appearance of a *heritage attribute* or change the viability of a natural feature or plantings, such as a garden;
- Isolation of a heritage attribute from its surrounding environment, context or a *significant* relationship;
- Direct or indirect obstruction of *significant* views or vistas within, from, or of built and natural features;
- A change in land use such as rezoning a battlefield from open space to residential use, allowing new *development* or *site alteration* to fill in the formerly open spaces;
- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an *archaeological resource*.

In the case of the Grand Bend Wind Farm, the proposed undertaking will not result in the demolition of or alternation to any of the documented heritage structures. In addition, shadows are not a concern for any of the structures, as each turbine will be located several hundred metres from the nearest structures. In fact, residences and farmsteads in the study area tend to be closely oriented to the existing road network, whereas the turbines are all set back hundreds of metres from the nearest roadways.

Similarly, apart from the narrow footprints of the turbines, the proposed undertaking will not require any alternation to the grade of the agricultural landscapes within which the turbines will be located. Nor will the turbines result in the isolation of any of the existing built heritage structures from their surrounding environments. Given their height, the individual wind turbines will be highly visible features in the essentially flat rural landscape, but they will be widely dispersed and will not obstruct any significant views or vistas. As for changes in land use, the current land uses in the study area are primarily agricultural. However, there is at least one existing wind turbine in the study area; it is located to the west of Bronson Line north of Zurich Hensall Road (Plate 8). In addition, numerous wind farm developments have been approved under the REA process, and most of them are similarly located in rural environments. Accordingly, the change in land use that would be involved in the proposed Grand Bend Wind Farm is not considered to represent a negative impact on the built heritage resources of the subject lands.

6.0 CULTURAL HERITAGE LANDSCAPES

As with Section 5.0 of the report, this section is divided into four self-explanatory subsections. They are detailed below.

6.1 Definitions of Cultural Heritage Landscapes

Weiler (1980:7) defines cultural heritage landscapes as any discrete aggregate of “*man-made*” features that has one or more of the following attributes:

- it is the only one of its kind or one of the remaining few;
- it is the most outstanding example of its kind;
- it is perceived by the moving eye as a built-up area with a particularly interesting and attention-catching series of visions;
- it provides the observer with a strong and definite sense of position or place;
- it has a unique or typical material content well executed in terms of colour, style and scale;
- it is exemplary of distinct cultural processes in the historic development and use of lands;
- it is part of a complex of outstanding scenic/historic areas or is perceived as an ensemble of different landscape categories such as a townscape, agricultural landscape, natural landscape or waterscape; or
- it is part of a network of landscape categories as mentioned above, and represents to the moving eye opportunities for sequential experiences or a series of visions of distinct scenic views.

As stated previously, the document entitled *Guidelines for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (Ministry of Culture and Communications 1992) was developed in cooperation between the Ministry of the Environment and the Ministry of Culture and Communications. Appendix A of the document defines cultural heritage landscapes as follows:

Cultural heritage landscapes are groups of features made by people. The arrangements of features illustrate noteworthy relationships between people and their surrounding environment. They can provide the contextual and spatial information necessary to preserve, interpret or reinforce the understanding of important historical settings and changes to patterns of land use. Cultural landscapes include neighbourhoods, townscapes and farmscapes.

It will be noted that the 1992 definition of cultural heritage landscapes is at once more concrete and less prosaic than the 1980 definition. It is also more concise.

The *Ontario Planning Act* (Government of Ontario 1990b) and sub-section 2.6.1 of the related Provincial Policy Statement also have provisions for significant cultural heritage landscapes. Page 1 of Info Sheet #2 of the 2005 Provincial Policy Statement of the Ontario Ministry of Municipal Affairs and Housing defines a Cultural Heritage Landscape as

a defined geographic area of heritage significance which has been modified by human activities and is valued by a community. A landscape involves a grouping(s) of individual heritage features such as structures, spaces, archaeological sites and natural elements, which together form a significance type of heritage form, distinctive from that of its constituent elements or parts. Examples may include but are not limited to heritage conservation districts designated under the Ontario Heritage Act; and villages, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trailways and industrial complexes of cultural heritage value.

Page 2 of Info Sheet # 2 of the 2005 Provincial Policy Statement further notes the following:

The identification, listing, evaluation and protection of *cultural heritage landscapes* is an ongoing process. The PPS [Provincial Policy Statement], 2005 policies and land use processes are applicable to *cultural heritage landscapes* that have significance to the jurisdiction. *Cultural heritage landscapes* include:

- a property with a significant *cultural heritage landscape* listed by local, provincial or federal jurisdictions using evaluation criteria;
- a *protected heritage property*, which means:

real property designated under Part IV (individual property), Part V (heritage conservation districts), or Part VI (archaeology) of the Ontario Heritage Act;

a heritage conservation easement property under Parts II or IV of the Ontario Heritage Act;

a property that is the subject of a covenant or agreement between the owner of a property and a conservation body or level of government, registered on title and executed with primary purpose of preserving, conserving and maintaining a cultural heritage feature or resource, or preventing its destruction, demolition or loss (Municipal jurisdiction(s) of the Ontario Heritage Trust can also confirm if a property is a *protected heritage property*);

- a *significant cultural heritage landscape* that is newly defined as part of a proposal for *development* or *site alteration*.

6.2 Inventory of Cultural Heritage Landscapes

Local, provincial and federal jurisdictions have not designated any cultural heritage landscapes within the study area for the proposed Grand Band Wind Farm. Nor are there any designated cultural heritage landscapes within several kilometres of it.

In assessing potential concerns for cultural heritage landscape for the proposed Grand Bend Wind Farm, the present assessment followed the model for cultural heritage landscapes that was developed for the nearby Regional Municipality of Waterloo by Scheinman (2006). As stated by Scheinman (Ibid: 10), the model followed the tenants that were established in the model that was developed for and adopted by the United States Parks Service. Similar models are in use elsewhere in Ontario, by the Ministry of Tourism, Culture and Sport, by Infrastructure Ontario, by the City of London and by the Town of Caledon. The left hand column of Table 4 details the characteristics that were used in assessing cultural heritage landscapes for the proposed Grand Bend Wind Farm.

6.3 Evaluation of Cultural Heritage Landscape

As stated above, the Cultural Heritage Landscape of the study area was evaluated following the aforementioned model that was developed for the Region of Waterloo.

As detailed in the Table 4, the study area as a whole could be considered to be a cultural heritage landscape. However, from the level of research that was conducted it is not considered to have any distinguishing features that would set it apart from other rural landscapes in the region in which wind farms have been developed since 2009, when the Green Energy Act and the REA process came into effect. As indicated in Table 5, the evaluation determined that the study area as a whole did not represent a significant cultural heritage landscape.

Table 4 Evaluation of the Cultural Heritage Landscape of the Proposed Wind Farm

Characteristics	Evaluation
Is associated with events that made significant contributions to the broad patterns of history (any level – local, regional, national etc.) i.e. strong associations with central themes; or	For the study area as a whole, the assessment did not identify any events that made significant contributions to the broad patterns of history (but see Table 5).
Is closely associated with the lives of individuals and/or families who are considered significant to the history of the area; or	For the study area as a whole, the assessment did not identify any individuals or families whose lives are considered to be significant to the history of the area (but see Table 5).
Embodies the distinctive characteristics of a particular settlement pattern or lifeway, whether derived from ethnic background, imposed by the landscape, was the practice of a specific historic period or a combination of the above; or	These criteria do not apply to the study area as a whole but they can be considered to apply to St. Joseph and environs (see Table 5).

Characteristics	Evaluation
Manifests a particularly close and harmonious long-standing relationship between the natural and domestic landscape; or	These criteria do not apply to the study area as a whole.
Has yielded or is likely to yield information important to the prehistory or history; or	These criteria do not apply to the study area as a whole.
Is strongly associated with cultural and/or spiritual traditions of First Nations or any other ethnic and/or religious group.	These criteria do not apply to the study area as a whole (but see Table 5).

Table 5 Evaluation of the Cultural Heritage Landscape of St. Joseph

Characteristics	Evaluation
Is associated with events that made significant contributions to the broad patterns of history (any any level – local, regional, national etc.) i.e. strong associations with central themes; or	See below.
Is closely associated with the lives of individuals and/or families who are considered significant to the history of the area; or	St. Joseph was home to Narcisse Cantin (1870-1940). He had a vision for what he planned as the future City of St. Joseph, and for a shipping link between the Great Lakes and the Atlantic Ocean that was eventually realized in the mid 20 th century as the St. Lawrence Seaway.
Embodies the distinctive characteristics of a particular settlement pattern or lifeway, whether derived from ethnic background, imposed by the landscape, was the practice of a specific historic period or a combination of the above; or	St. Joseph was founded in the second half of the 1840s by French Canadian emigrants from the Province of Quebec.
Manifests a particularly close and harmonious long-standing relationship between the natural and domestic landscape; or	Not applicable
Has yielded or is likely to yield information important to the prehistory or history; or	The role of St. Joseph in local history is commemorated in St. Joseph Memorial Garden and Historical Walkway and in the St. Joseph Museum and Archives. Although no archaeological investigations have been conducted in the community, 19 th and 20 th century archaeological remains will be present. They have a potential to help inform the history of St. Joseph.
Is strongly associated with cultural and/or spiritual traditions of First Nations or any other ethnic and/or religious group.	As previously stated, St. Joseph was founded by emigrants from the Province of Quebec. It may be the only such community in Huron County.

What remains of the village of St. Joseph consists of buildings of different ages and functions as well as vacant lots and the St. Joseph Memorial Garden and Walkway. As detailed in Table 5, St.

Joseph was evaluated as a cultural heritage landscape. It was found to have some cultural heritage value.

6.4 Impact Assessment

As documented in Section 6.3, the assessment determined that what remains of the village of St. Joseph has some value as a cultural heritage landscape. However, it will not be subject to any impact from the proposed Grand Bend Wind Farm.

7.0 RECOMMENDATIONS

As detailed in this report, the heritage assessment determined that only one designated structure is located within the study area for the proposed Grand Bend Wind Farm. It is the Huron Country Playhouse in the Municipality of South Huron and does not abut any of the properties within which the proposed wind turbines are located.

The assessment also determined there are no designated cultural heritage landscapes or heritage easements within or in close proximity to the proposed Grand Bend Wind Farm. Similarly, the assessment also determined that the inventory of properties of national historic significance designated by the Historic Sites and Monuments Board of Canada and maintained by Parks Canada does not include any properties within or in close proximity to the proposed Grand Bend Wind Farm.

The visual examination and the documentary research conducted as part of the assessment confirmed that there are ten buildings or building complexes within properties that contain proposed wind turbines. All but two contain or consist of structures with some inferred cultural heritage value. However, none of these buildings and building complexes will be subject to impacts from the proposed Grand Bend Wind Farm.

Similarly, the assessment identified one cultural heritage landscape that is considered to have some cultural heritage value. It is what remains of the village of St. Joseph. However, the proposed wind farm does not represent a potential impact to St. Joseph.

Given the lack of heritage features with cultural heritage value or interest that would be impacted by the proposed Grand Bend Wind Farm, it is recommended that the Ministry of Tourism, Culture and Sport issue a letter including a statement that the Ministry concurs with the findings that are presented in this report. In addition, it is requested that a copy of the letter be forwarded by e-mail to Lyle Parsons, Project Manager, Neegan Burnside Ltd. His e-mail address is lyle.parsons@neeganburnside.com.

8.0 REFERENCES CITED

H. Belden & Co.

1879a **Illustrated Historical Atlas of Huron County, Ontario.** Mika Silk Screening Limited Reprint, Belleville, Ontario, 1972.

1879b **Illustrated Historical Atlas of Perth County, Ontario.** Mika Silk Screening Limited Reprint, Belleville, Ontario, 1972.

Chapman, Lyman John and Donald F. Putnam

1984 **The Physiography of Southern Ontario (Third Edition).** Ontario Geological Survey Special Volume 2. Ontario Ministry of Natural Resources, Toronto.

Government of Ontario

2009 **The Green Energy Act.** Queen's Printer, Toronto.

1990a **The Environmental Protection Act (R.S.O. 1990a).** Queen's Printer, Toronto.

1990b **The Planning Act (R.S.O. 1990b).** Queen's Printer, Toronto.

1990c **The Ontario Heritage Act (R.S.O. 1990).** Queen's Printer, Toronto.

1990d **The Environmental Assessment Act (R.S.O. 1990).** Queen's Printer, Toronto.

2012 **Environmental Protection Act.** Ontario Regulation 359/09, Renewable Energy Approvals Under Part V.0.1 of the Act.

Hay Township Book Committee

1996 **Hay Township Highlights: 150 Years of Diversified Progress.** Compiled by the Hay Township Book Committee under the auspices of Hay Township Council.

Hoffman, D.W., N.R. Richards and F.F. Morwick

1952 **Soils of Huron County, Ontario.** Soil Survey Report No. 13. **Experimental Farms Service, Canadian Department of Agriculture and Ontario Agriculture, Guelph.**

Mack, Susan Muriel and Alice Gibb

1992 **The History of Stephen Township.** Corporation of the Township of Stephen.

Ontario Ministry of Culture and Communications

1992 **Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments.**

Ontario Ministry of Culture

2006 **Ontario Heritage Tool Kit. Heritage Property Evaluation: A Guide to Listing, Researching and Evaluating Cultural Heritage Property in Ontario Communities.**

Murphy, Carl and Neal Ferris

1990 The Late Woodland Western Basin Tradition in Southwestern Ontario. In **The Archaeology of Southern Ontario to A.D. 1650**, edited by C.J. Ellis and N. Ferris. Occasional Publication of the London Chapter, OAS No. 5: 189-278.

Scheinman, Andre

2006 Cultural Heritage Landscapes in Waterloo Region. Draft manuscript prepared for the Region of Waterloo.

Scott, James

1966 **The Settlement of Huron County.** The Ryerson Press, Toronto.

Weiler, John

1980 **Guidelines on the Man-Made Heritage Component of Environmental Assessments.** Historical Planning and Research Branch, Ministry of Tourism, Culture and Recreation, Toronto.

Wright, J.V.

1966 *The Ontario Iroquois Tradition.* **National Museum of Canada Bulletin** No. 210.

FIGURES

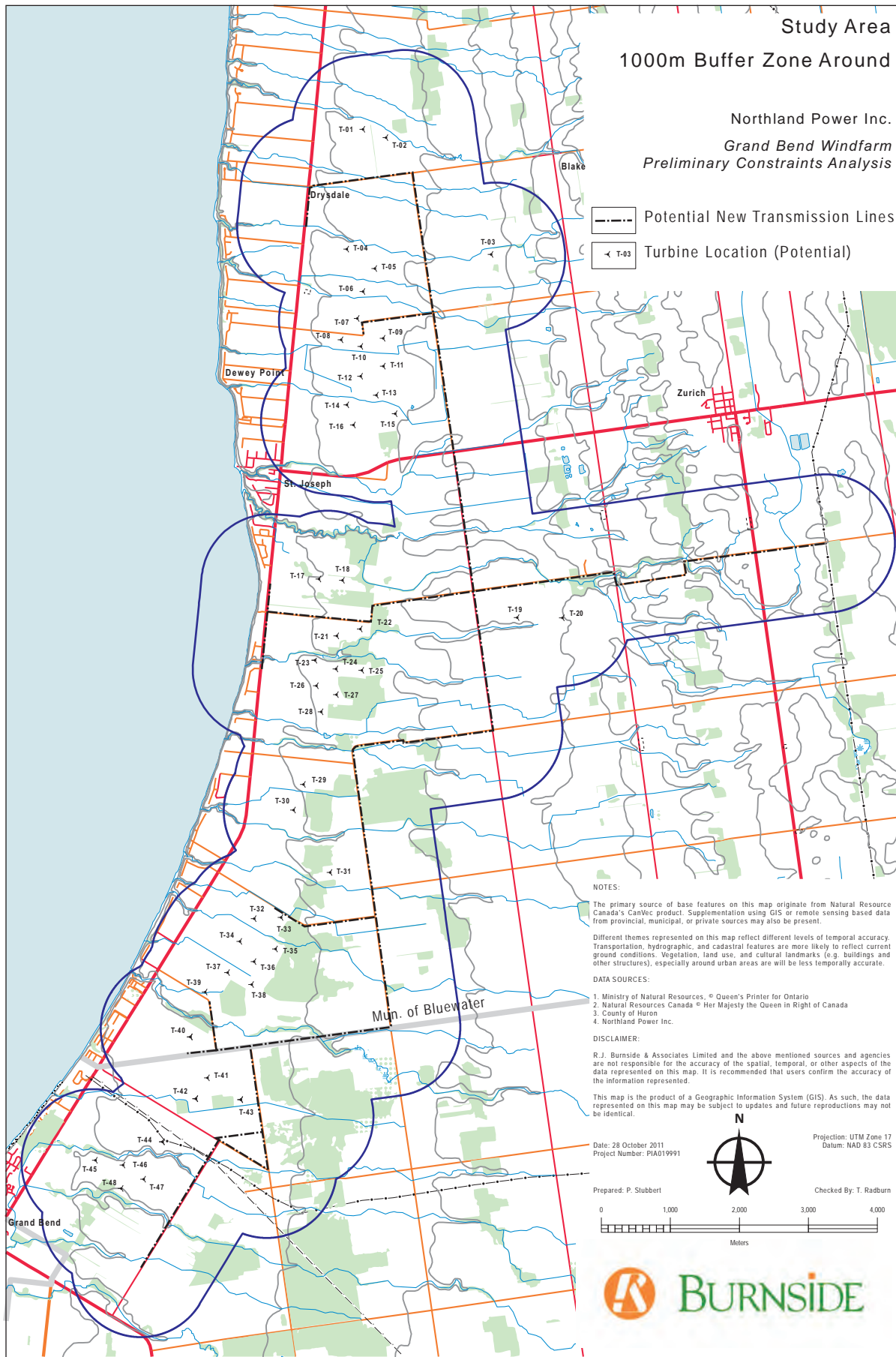


Figure 1 Location of the Study Area for the Proposed Grand Bend Wind Farm

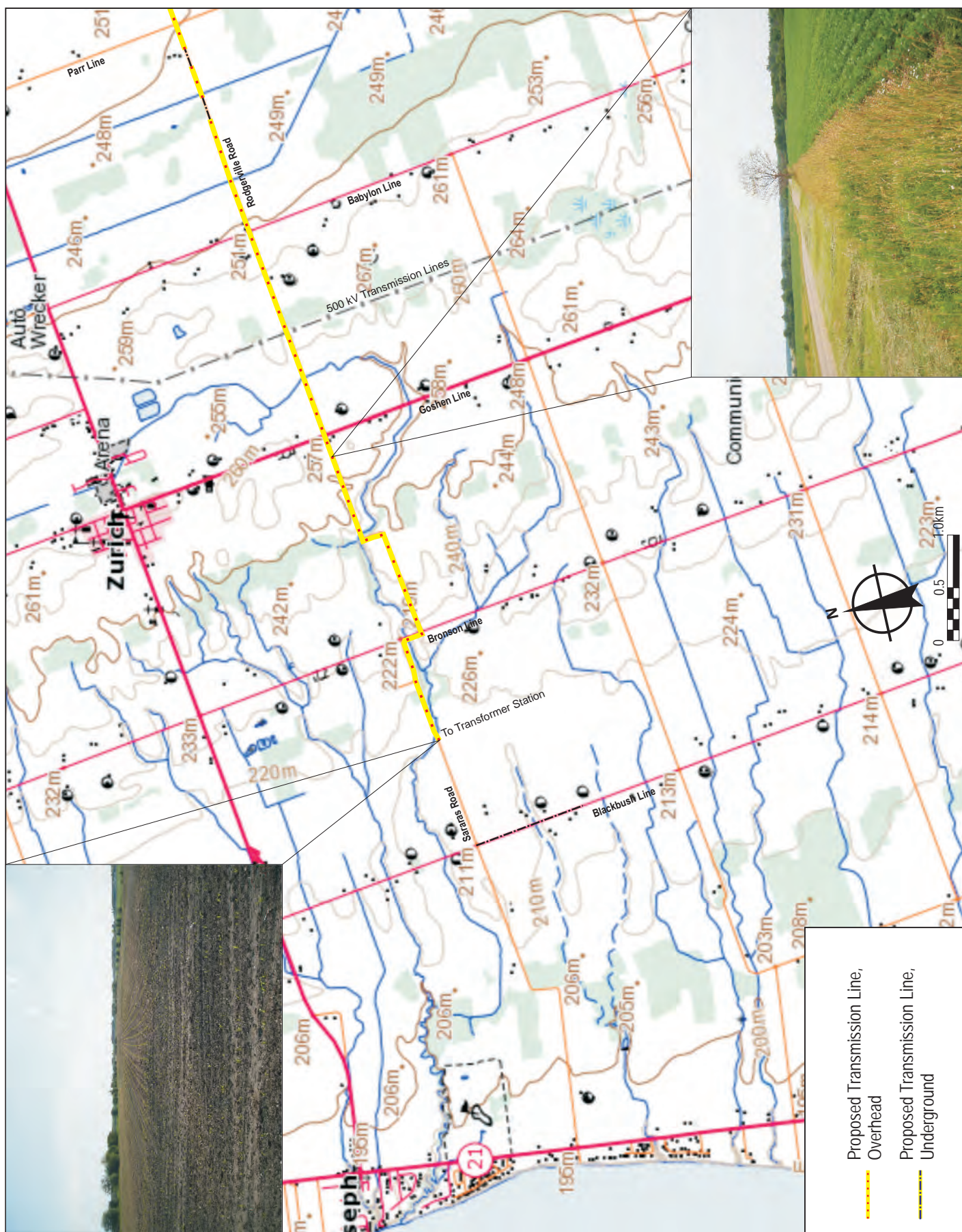


Figure 2 Western Portion of the Proposed 230kV Transmission Line

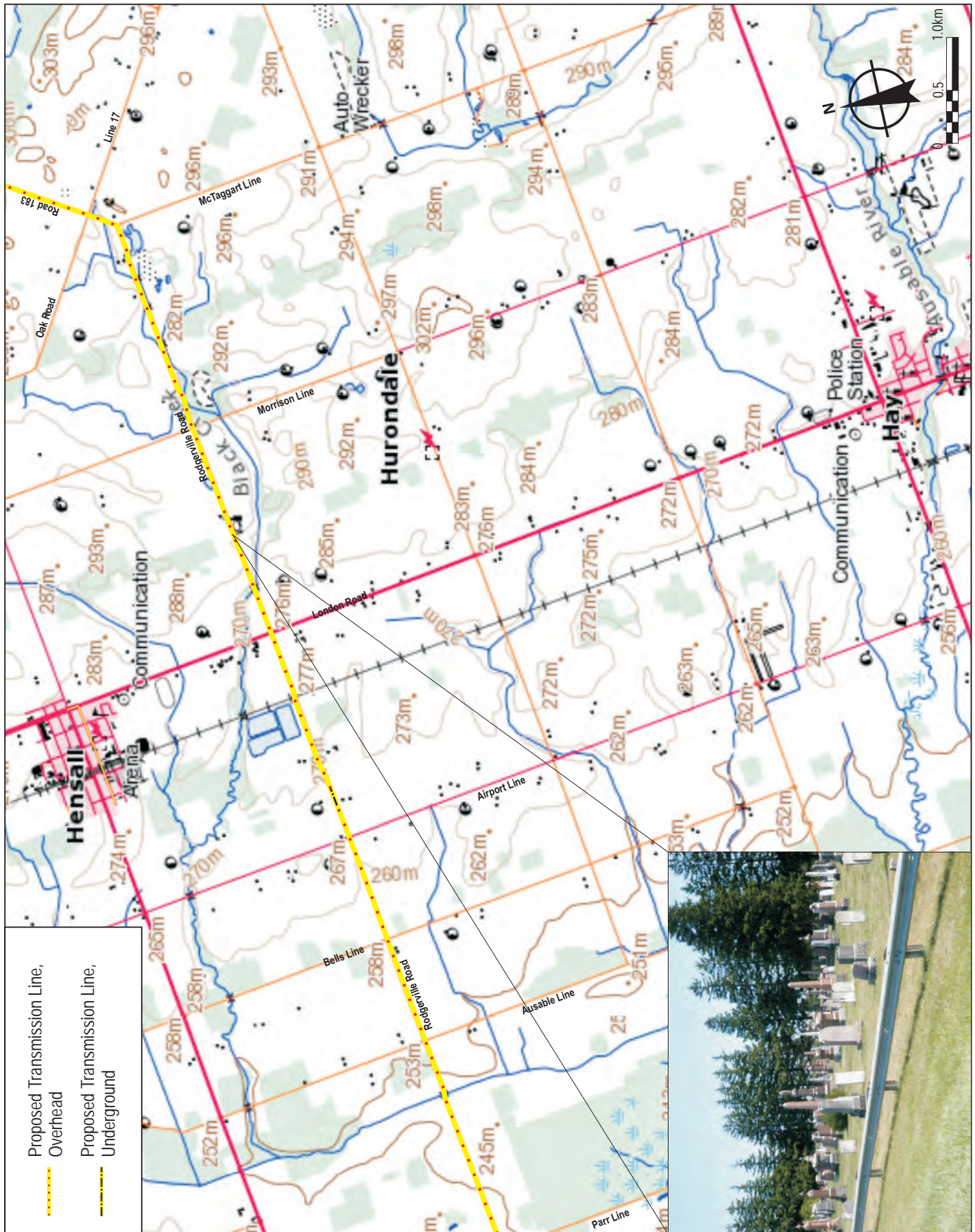


Figure 3 Central Portion of the Proposed 230kV Transmission Line



Figure 4 Eastern Portion of the Proposed 230kV Transmission Line



Figure 5 1879 Historic Atlas Map of the Northern Portion of the Study Area

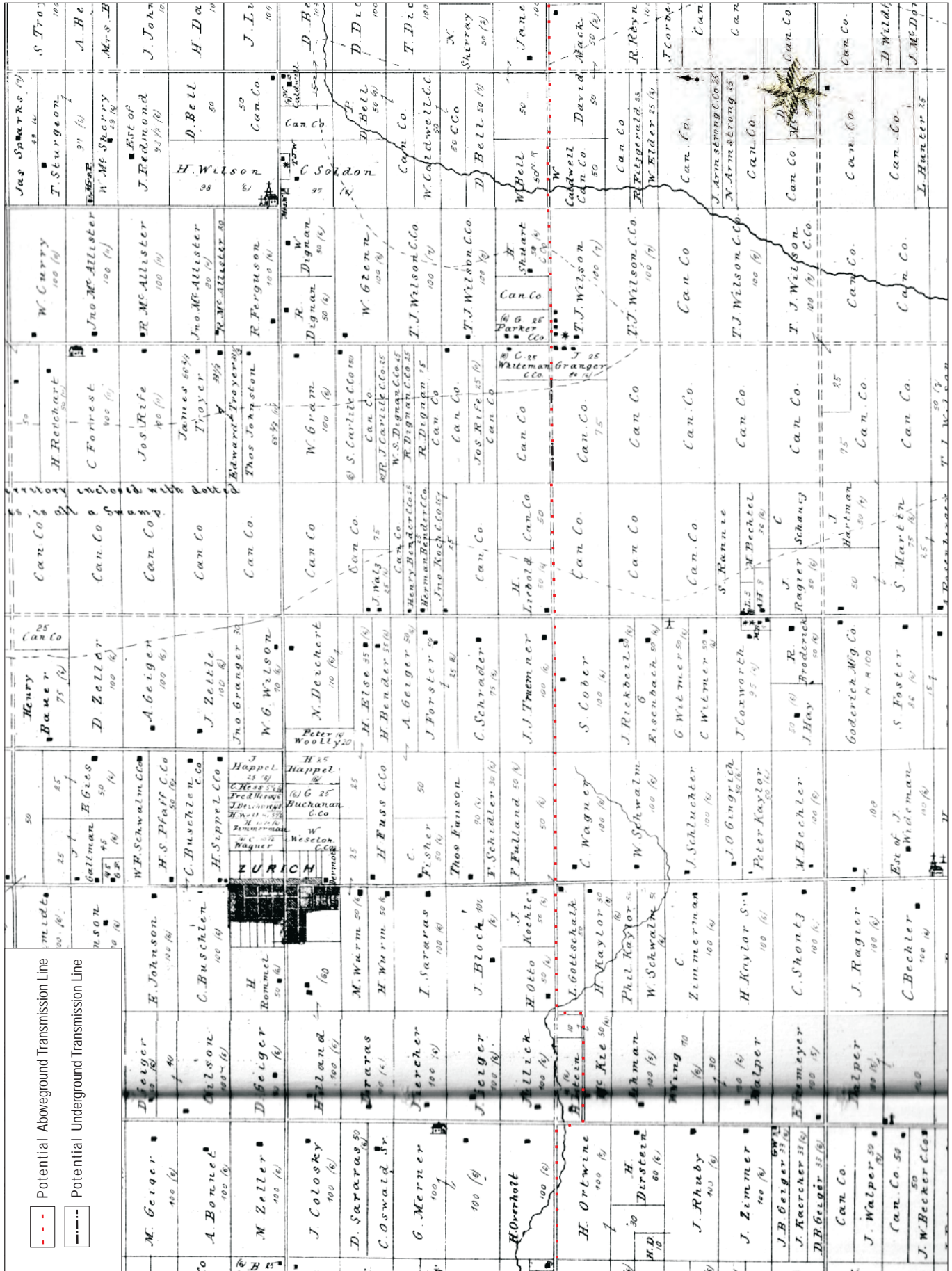


Figure 7 1879 Historic Atlas Map of Hay Township

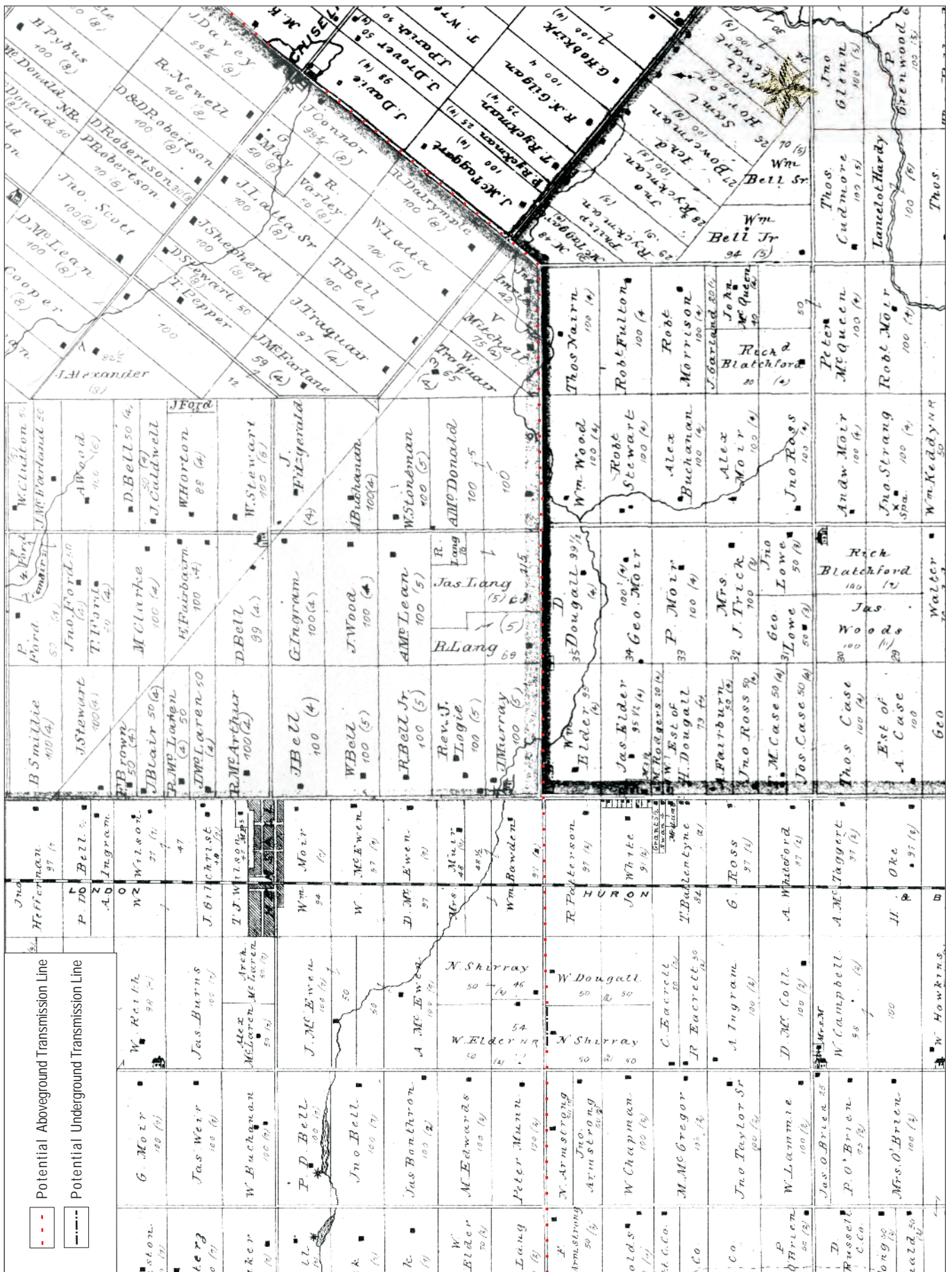


Figure 8 1879 Historical Atlas Map of Hay, Usborne, Hibbert and Tuckersmith Townships

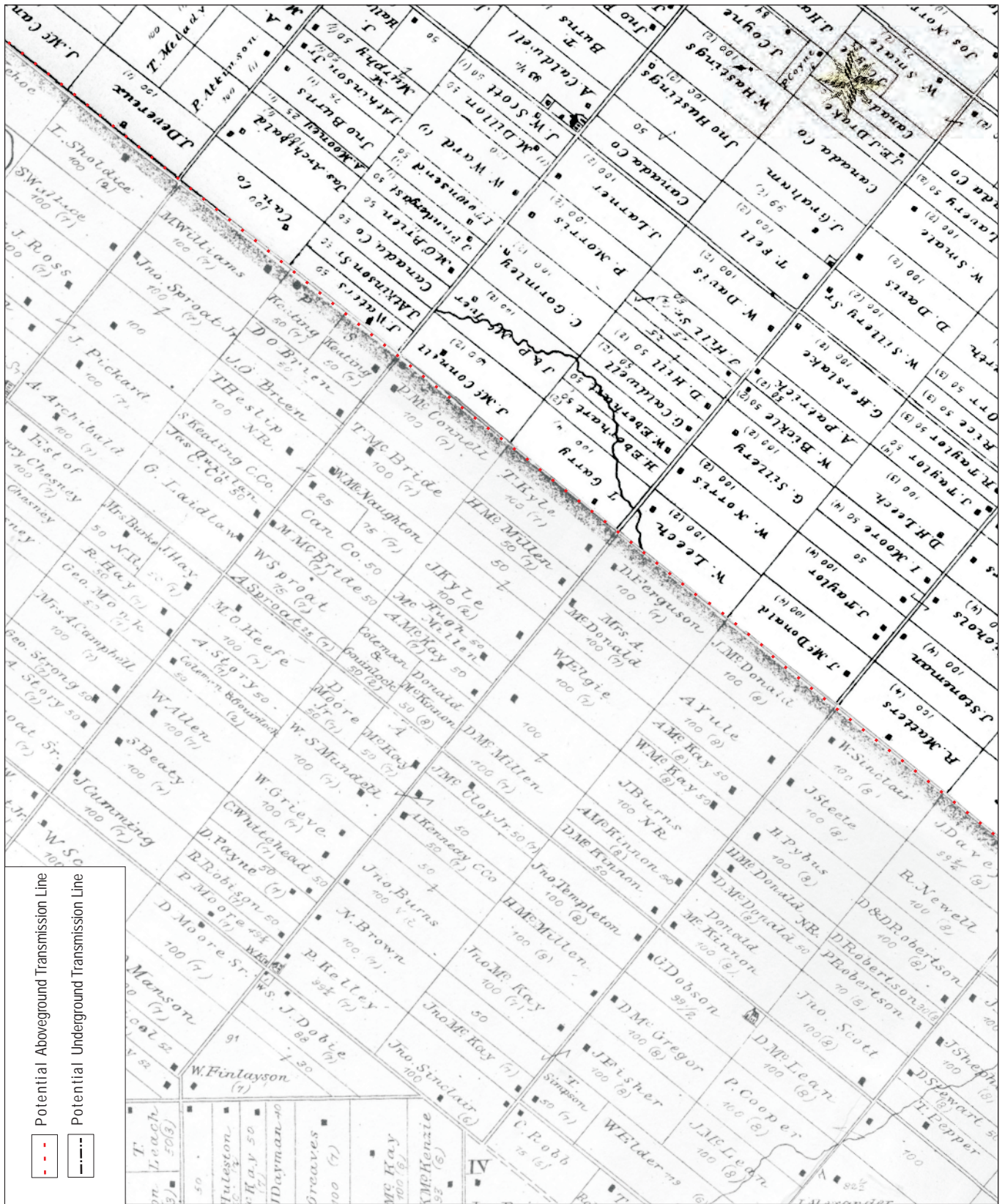


Figure 9 1879 Historical Atlas Map of Hibbert and Tuckersmith Townships



Figure 10 Aerial Photograph of the North Part of the Grand Bend Wind Farm



Figure 11 Aerial Photograph of teh South Part of the Grand Bend Wind Farm

PLATES



Plate 1 Huron Country Playhouse, View Northwest



Plate 2 St. Joseph Memorial Park, View Northeast



Plate 3 Cantin House, View Southwest



Plate 4 Hessenland Country Inn, View West



Plate 5 St. Peter's Catholic Church, View Southeast



Plate 6 Former Schoolhouse on Blackbush Line, View West



Plate 7 Bluewater Highway in the Area of Drysdale, View South



Plate 8 Wind Turbine, View Southeast from Danceland Road East of Blackbush Line



Plate 9 Intersection of Shipka Line and Hendrick Road, View West



Plate 10 Schadeview Road West of Shipka Line, View West



Plate 11 Turnbull's Road, View Northwest



Plate 12 Proposed Access Road to Turbine 44, View Northwest