

# RE WAUBAUSHENE 3 SOLAR PROJECT

Stage 1 and 2 Archaeological Assessment

August 15, 2011

RECURRENT  
ENERGY



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**The 2010 Stage 1-2 Archaeological Assessment of the  
Proposed RE Waubaushene 3  
Solar Generation Facility,  
Lot 78 and 77, Concession 1  
Tay Geographic Township,  
Simcoe County,  
Ontario**

Submitted to

**Hatch Ltd.**  
4342 Queen Street,  
Niagara Fall, Ontario L2E 7J7,  
Telephone – 905 374-5200  
Facsimile – 905 374-1157

and

**The Ontario Ministry of Tourism and Culture**

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

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### Project Personnel

Consulting Archaeologist	Dana R. Poulton
Project Archaeologist	Sherri Pearce
Field Director	Nancy VanSas Sherri Pearce
Field Assistants	Simeon Ehrlich Maddie Hague Daniella Horley Amy Scott Lorelyn Giese
Report Preparation	Dana R. Poulton Lorelyn Giese
Photography	Nancy VanSas Sherri Pearce Lorelyn Giese
Draughting	Christine F. Dodd

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- **Bob Leah**, Director of Development, Canada, Recurrent Energy;
- **Sean Caffyn**, Development Manager, Recurrent Energy;
- **Kathleen Vukovics**, Environmental Scientist, Environmental Assessment & Management, Hatch Ltd.
- **Kimberley Arnold**, Manager, Environmental Services, Renewable Power, Hatch Ltd.
- **Jim Sherratt**, Archaeological Review Officer, Culture Programs Unit, Ontario Ministry of Tourism and Culture; and
- **Robert von Bitter**, Archaeological Data Coordinator, Culture Services Unit, Ontario Ministry of Tourism and Culture.

## **EXECUTIVE SUMMARY**

In the spring of 2010 Hatch Ltd., on behalf of Recurrent Energy, contracted D.R. Poulton & Associates Inc. to carry out an archaeological assessment of the proposed RE Waubaushene 3 Solar Generation Facility. The property that contains the proposed facility is located north of Orr Lake, in Simcoe County, Ontario. This report details the rationale, methods and results of the archaeological assessment of the proposed solar generation facility.

The proposed RE Waubaushene 3 Solar Generation Facility is subject to the Renewable Energy Approval (REA) process (O.Reg. 359/09) and to the provisions of the Ontario Green Energy Act (2009). The proposed solar generation facility has been designated OPA FIT Reference No.: FIT-FLP29UZ.

There were two objectives to the archaeological assessment. The first was to obtain information on past archaeological investigations and known sites within the RE Waubaushene 3 property and within a 2-kilometre study area that surrounds it. The second was to confirm the presence or absence of significant archaeological resources that could represent potential constraints for the proposed construction of the RE Waubaushene 3 Solar Generation Facility.

As detailed in Section 4.2 of this report, the Stage 1 background study determined that no previous archaeological fieldwork had been documented for the subject property but that the property had a moderate to high potential for as-yet undiscovered sites. The background study also determined that two archaeological sites had been registered within a two kilometre radius of the property. A third site, which has not been registered, is also located within the study area. All of the sites are Iroquoian; none is within several hundred metres of the property.

The Leased Lands of the RE Waubaushene 3 Solar Generation Facility have a total surface area of 32.4 hectares (80 acres). The Stage 2 archaeological survey covered 97% of the Leased Lands. A small portion of the property (0.9 ha) was low and wet and was not surveyed. The majority of the Leased Lands consist of two arable fields that were assessed by pedestrian survey. The exception was a 6 hectare abandoned pasture that is overgrown with scrub vegetation, pine trees and meadows; it was surveyed by shovel test pitting. Only one archaeological site was discovered in the course of the survey. Site 1 is a late 19<sup>th</sup> to early 20<sup>th</sup> Euro-Canadian refuse deposit. This site is not considered to represent a significant archaeological resource and planning concern. In view of the negative results of the survey, it is recommended that no further archaeological investigations or concerns are warranted for the proposed RE Waubaushene 3 Solar Generation Facility.

Further to the above, it is recommended that the Ministry of Tourism and Culture issue a letter accepting the present report into the Provincial registry of archaeological reports. It is also recommended that the letter include a statement that the Ministry concurs with the recommendations and other findings presented in this report. Finally, it is requested that a copy of the letter be forwarded by e-mail to Bob Leah, Director of Development, Canada, Recurrent Energy. His e-mail address is Bob.Leah@recurrentenergy.com. In due course, this letter and the related archaeological assessment report will be submitted by Recurrent Energy and Hatch Ltd. to the Ontario Ministry of the Environment as part of the complete REA application for the proposed development of the RE Waubaushene 3 Solar Generation Facility.

## **1.0 INTRODUCTION**

In the spring of 2010 Hatch Ltd., on behalf of Recurrent Energy, contracted D.R. Poulton & Associates Inc. to carry out an archaeological assessment of the proposed RE Waubashene 3 Solar Generation Facility. The property that contains the proposed facility is located north of Orr Lake and west of Coldwater in the Midhurst MNR District, Simcoe County, Ontario. This report details the rationale, methods and results of the archaeological assessment of the proposed solar generation facility.

The proposed RE Waubashene 3 Solar Generation Facility is subject to the Renewable Energy Approval (REA) process (O.Reg. 359/09) and to the provisions of the Ontario Green Energy Act (RSO 2009). The proposed solar generation facility has been designated OPA FIT Reference No.: FIT-FLP29UZ.

Section 22 of the REA Regulations requires proponents of Class 3 solar projects to undertake an archaeological assessment where there is a concern that an undertaking could impact archaeological resources. The purpose of the present assessment was to confirm the presence or absence of significant archaeological resources that could represent potential constraints for the proposed RE Waubashene 3 Solar Generation Facility.

The technical guidelines for archaeological assessment formulated by the Ontario Ministry of Culture, Tourism and Recreation (now Ministry of Tourism and Culture) (MCTR 1993) define up to four sequential stages in an archaeological assessment. The same applies to draft standards and guidelines formulated by the Ministry of Culture (2009). Stage 1 consists of background research to identify any past archaeological investigations or known sites. The background study also identifies the potential for as-yet undiscovered sites. Stage 2 consists of a field survey to confirm the presence or absence of archaeological sites. Stage 3 consists of a more detailed assessment of any sites that are of demonstrable or potential significance as heritage resources and planning concerns. Finally, Stage 4 consists of the mitigation by salvage excavation of any significant sites that are subject to impact from a potential development and cannot be mitigated by preservation and avoidance. The present assessment of the proposed RE Waubashene 3 Solar Generation Facility consisted of a Stage 1 background study and Stage 2 survey as defined by the standards and guidelines.

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 RE Waubashene 3 Solar Generation Facility are detailed in Section 2.0 of the report. Section 3.0 is a cultural synthesis of the region within which the property is situated. Section 4.0 describes the methods and results of the Stage 1 background study. Section 5.0 describes the methods and results of the Stage 2 survey. Section 6.0 details the recommendations that arose from the assessment. Finally, Section 7.0 presents the references that are cited in this report.

In Ontario, licensed archaeological consultants submit a Project Information Form (PIF) for each archaeological assessment to the Ontario Ministry of Tourism and Culture and the Ministry then issues a unique PIF number for the assessment. The Ministry designated the Stage 1-2 archaeological assessment of the RE Waubashene 3 property as PIF #P316-061-2010.

The assessment of the RE Waubaushene 3 property was conducted under Archaeological Consulting Licence #P316, issued by the Province of Ontario to Sherri Pearce of D.R. Poulton & Associates Inc. It was carried out in accordance with the provisions of the Ontario Heritage Act (Government of Ontario 1990) and the Ontario Green Energy Act (Government of Ontario 2009), and with the technical guidelines for archaeological assessment formulated by the Ontario Ministry of Culture, Tourism and Recreation (MCTR 1993).

Further to the above, the assessment was also conducted in accordance with the 2005 Provincial Policy Statement 2.6.2, which has provisions for the conservation of archaeological resources, a definition of the same, and provisions for archaeological assessments. Finally, it was conducted in accordance with the Ontario Ministry of Culture's 2006 Heritage Tool Kit, most particularly with respect to Infosheet #3 and Infosheet #6, which detail provisions for the conservation of archaeological resources and provisions for heritage impact statements, respectively.

Permission for access to the property for purposes of the survey and to remove and curate artifacts was provided by the landowner. The records and artifacts pertaining to this project are currently housed in the corporate offices of D.R. Poulton & Associates Inc. If the opportunity permits, however, the project archive will be transferred to a suitable long term repository. Potential repositories include local or other museums and the storage facilities maintained by the Ontario Ministry of Tourism and Culture.

## 2.0 LOCATION AND DESCRIPTION

The Leased Lands of the RE Waubaushene 3 Solar Generation Facility have a total surface area of 32.4 hectares (80 acres). The property is located 4 km north of Orr Lake and 13 km west of the Town of Coldwater, in the Township of Tay, Simcoe County, Ontario. More specifically, the Leased Lands of the RE Waubaushene 3 property form the eastern two-thirds of Lot 78, Concession 1, Tay Geographic Township. They also include 6 hectares in the northeast corner of the adjacent Lot 77.

The RE Waubaushene 3 property is bounded to the east by Wood Road, to the northeast by agricultural lands, to the northwest, west and southwest by forested lands and to the southeast by scrub vegetation. The property is located 1 km northeast of the hamlet of Waverly. Waverly, in turn, is located at the intersection of Vasey Road (also known as County Road 23) and Old Darby Road (also known as Penetanguishene Road and Highway 93). West of the subject property, Highway 93 diverts eastward to go around the base of Darby's Hill.

Figure 1 shows the location of the subject property relative to a 1:50,000-scale topographic map of the area. Figure 2 shows the limits of the Leased Lands as well as the proposed layout of the solar panels. As illustrated in Figure 2, the majority of the Leased Lands of the Waubaushene 3 property consist of two large irregularly shaped agricultural fields in Lot 78 of Concession 1. They are separated by a northwest to southeast oriented stream course that is bordered by trees (Figure 3). The Leased Lands exclude this stream course and a 30 metre setback either side of it. The northeast edge of the Leased Lands in the eastern field wraps around an extensive farm complex with associated pasture fields.

As stated above, the Leased Lands also include 6 hectares in the northeast corner of Lot 77, Concession 1. Those lands consist of a long-abandoned former pasture. It is overgrown with a mixture of scrub and pine growth interspersed by small meadows. They are imperfectly drained but do include higher and better drained areas.

The arable portions of the Leased Lands have a surface area of approximately 25.5 hectares and represent 79% of the total surface area of the Leased Lands. As stated previously, the non-arable portion of the Leased Lands has a surface area of 6 hectares; it represents 19% of the total surface area of the Leased Lands.

The report also includes a series of photographs to illustrate existing conditions within the subject property. They are referenced in Section 5.0 of the report.

The soils on the subject property are sandy. The headwaters of the Hog River are located 100-200 metres west of the Leased Lands and a series of first order tributaries of that river flow in a north-westerly arc through the Leased Lands. This river was spelled "*Hogg*" in the 19<sup>th</sup> century. The Hog River itself flows in a north-easterly direction and empties into Hog Bay on Severn Sound, an eastern extension of Georgian Bay. The Leased Lands of the RE Waubaushene 3 property are generally level with small undulations in topography.

The site of the proposed RE Waubaushene 3 Solar Generation Facility is situated in the Simcoe Uplands physiographic region (Chapman and Putnam 1984: 182-184). This physiographic region

is characterized by a series of broad rolling till plains separated by steep-sided flat-floored valleys. The heights of land, in turn, formed islands in post-glacial Lake Algonquin; they are encircled by relic shorelines.

The *Soil Survey of Simcoe County* indicates that the majority of soils within the subject property are identified as either Alliston or Berrien sandy loams; Atherley silt loam is also present. Alliston and Berrien soils both have imperfect drainage and are smooth to gently sloping. The only difference between them is that Berrien is listed as stone free while the Alliston is stone free to moderately stony. Atherley is a silty loam with a stony phase and poor drainage; it is smooth to very gently sloping and stone free to very stony (Hoffman et. al. 1962).

### **3.0 CULTURAL SYNTHESIS**

This section of the report comprises a cultural synthesis of the study area that contains the subject property. In the interests 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 1.

#### **3.1 The Paleo-Indian Period (9500-7900 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 an otherwise 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 Hi-Lo type (ca. 8300 - 7900 B.C.).

#### **3.2 The Archaic Period (7700-1000 B.C.)**

Archaeologists divide the Archaic period into three sequential sub-periods: the Early Archaic (ca. 7700 – 6000 B.C.), the Middle Archaic (ca. 3500 – 2500 B.C.) and the Late Archaic (ca. 2500 – 1000 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 1 Cultural Chronology for South-Central Ontario**

PERIOD	GROUP	TIME RANGE	COMMENT
<b>PALEO-INDIAN</b>			
	Fluted Point Hi-Lo	9500 - 8500 B.C. 8300 - 7900 B.C.	Big game hunters; small nomadic groups
<b>ARCHAIC</b>			
Early	Nettling	7700-6900 B.C.	Nomadic hunters and gatherers.
	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
<b>WOODLAND</b>			
Early	Meadowood Red Ochre	1000 - 400 B.C. 1000 – 500 B.C.	Introduction of pottery
Middle	Point Peninsula Princess Point	300 B.C. - 500 A.D. 500 – 800 A.D.	Long distance trade networks. Incipient horticulture
Late	Pickering	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
	Huron	1400 - 1650 A.D.	Tribal differentiation and warfare
<b>HISTORIC</b>			
Early	Odawa, Ojibwa, Mississauga	1700 - 1875 A.D.	Social displacement
Late	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. – 1651 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.

#### ***Early Woodland (ca. 900 - 400 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 this, there appear to have been no substantial changes in the hunting, fishing and gathering settlement and subsistence patterns followed during 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. 400 B.C. - A.D. 800)***

This sub-period reflects, at least initially, a continuation of the settlement and subsistence patterns and mortuary ceremonialism previously described. As represented by the Point Peninsula Complex (300 B.C. - A.D. 500), large fishing stations located at major rapids to exploit spring-spawning fish are particularly in evidence. By about A.D. 500, Middle Woodland populations centred on large drainages with extensive flood plains began experimenting with incipient corn agriculture. By A.D. 700 corn had begun to assume a significant role in settlement and subsistence, and major habitation sites were shifting away from larger rivers onto higher ground adjacent to minor tributaries.

#### ***Late Woodland (ca. A.D. 800 - 1651)***

The Late Woodland sub-period spans the most dynamic series of changes in the 11,000 year history of the Ontario. This sub-period covers the immediate origins and subsequent development of the various Iroquoian-speaking historic tribal confederacies in south-central and south-western Ontario, the Huron-Petun and the Neutral, down to the time of the first direct contact with Europeans in the early 17<sup>th</sup> century.

Although the Late Woodland subsumes many changes in settlement and subsistence patterns, it is broadly characterized by an increasing sedentarism. This was both necessitated and made possible by an increasing reliance on the cultivation of corn, beans and squash. In consequence, Late Woodland sites tend to be at once larger and more densely distributed than those of earlier time periods.

As 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. In south-central Ontario, the Early Iroquoian stage dates from ca. 800 to 1280 A.D. 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.). The Late Iroquoian stage subsumes the pre-contact, proto-historic and historic Huron (or Huron-Petun) (ca. 1400-1550, 1550-1600, and 1600-1651 A.D., respectively).

The Huron-Petun evolved in a series of communities oriented to stream courses that flowed into the north shore of Lake Ontario. These populations collectively form what is sometimes termed the so-called Southern Division Huron. One or more groups from this general population colonized Simcoe County in the 14<sup>th</sup> century, forming what is sometimes termed the so-called Northern Division Huron. In the 16<sup>th</sup> century, a gradual shift of the various Iroquoian populations northward from the shore of Lake Ontario culminated in the settlement of the Petun around Blue Mountain and the merging of the Southern Division Huron with the Northern Division Huron in the area between Lake Simcoe and Georgian Bay. Around 1600 A.D. there was a corresponding westward shift, with the Huron population abandoning Victoria County and settling in Simcoe County.

The Huron, Petun and Neutral all met the same fate in the mid 17<sup>th</sup> 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.

Although the Late Woodland subsumes many changes in settlement and subsistence patterns, it is broadly characterized by an increasing sedentarism. This was both necessitated and made possible by an increasing reliance on the cultivation of corn, beans and squash. In consequence, Late Woodland sites tend to be at once larger and more densely distributed than those of earlier time periods.

Just as the introduction of ceramics marks the beginning of the Woodland Period, so the Late Woodland is marked by the appearance of semi-permanent villages. These Iroquoian villages were often surrounded by a defensive palisade and were 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, smaller, more temporary habitations such as agricultural cabin sites and fishing and hunting camps may occur. The typical burial pattern consists of individual graves within a village and a cemetery outside the village. Upon abandonment, the people of one or more villages would exhume the remains for reburial nearby in a large communal burial pit or ossuary, an occasion which was accompanied by a ceremony known in the 17<sup>th</sup> century as the "*Feast of the Dead*".

### **3.4 The Historic Period (A.D. 1651 to Present)**

The history of the First Nations peoples during the second half of the 17<sup>th</sup> century and the succeeding 18<sup>th</sup> 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 17<sup>th</sup> century. About 1700 A.D. the Ojibwa

established themselves in south-central and southwestern Ontario. The available natural resources made the region 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. To that end, the Crown negotiated a series of treaties with the resident First Nations peoples. What are now Tay and Tiny Townships, including what is now the RE Waubashene property, were ceded to the British Crown by the Mississauga in 1798 (Hunter 1909: 13).

The first Euro-Canadians to settle in Tay Township made their living trading with the local First Nations in the northern part of the township. The earliest settler in the immediate area of the subject property was David Bannister. He was a veteran of the War of 1812 and settled at Waverley in the south half of Lot 76, Concession 1 in 1829 (Hunter 1909: 126). Bannister is one of only 15 individuals listed by Hunter (1909: 302-303) as having settled in Tay Township before 1837.

The settlement of this township was generally slow, especially in the southern portion of Tay, and Hunter (1909: 126) records that until late in 19<sup>th</sup> century Penetanguishene Road from Waverley north to Weybridge, to the west of the subject property, passed through a long stretch of unbroken forest. Notwithstanding the fact that David Bannister had settled at Waverley in 1829, Hunter also recorded that widespread settlement of the southern part of Tay Township did not occur until the late 1860s and the early 1870s, when pioneers arrived from Durham County to take up land. A major impetus to this settlement was the construction of the Midland Railway, which opened in 1869.

Figure 3 shows the state of Euro-Canadian settlement in the area of the RE Waubashene 3 property as of 1881, when the Historic Atlas of Simcoe County was published. As illustrated, the 1881 Historic Atlas map shows that rural settlement in the part of Tay Township that contains the subject property was relatively advanced by that date. The Historic Atlas does not depict the landowners for either Lot 78 or Lot 77 of Concession 1, which include the subject property. All this means is that the owner or owners of the property as of that date did not subscribe to the Historic Atlas.

The 1881 Historic Atlas of Simcoe County also reproduces the 1871 map of Simcoe County, which was compiled and published by John Hogg of Collingwood, Ontario. Reference to the latter map shows that the ownership of Lot 78 of Concession 1 of Tay Township was shared between J. Thompson and E. Thompson. Lot 77 to the south was occupied by C. Robinson. Both of these lots extend across the full breadth of the concession, with road access on either side. These landowners were likely among the pioneers who arrived from Durham County beginning in the late 1860s. Their presence on the 1871 map strongly suggests that they or their successors still occupied the respective properties a decade later, notwithstanding the fact that the land ownership of these properties is blank on the 1881 Historic Atlas map.

## **4.0 STAGE 1: BACKGROUND RESEARCH**

### **4.1 Methods**

The initial element of an archaeological assessment of a proposed development project consists of background research. This is defined as a Stage 1 level of assessment in the archaeological guidelines formulated by the Province of Ontario (MCTR 1993). Background research is carried out in order to:

- amass all of the readily available information on any previous archaeological surveys in the area;
- determine the locations of any registered and unregistered sites within and adjacent to the property;
- identify areas of archaeological potential which represent concerns for Stage 2 field survey; and
- develop an historical framework for assigning levels of potential significance to any new sites discovered during fieldwork.

For purposes of context, the Stage 1 background study examined data for a study area that encompassed a two kilometre buffer surrounding the proposed RE Waubaushene 3 Solar Generation Facility. Two collective sources were examined in the course of the background research. One was the Archaeological Sites Database of the Ministry of Tourism and Culture; it houses site record forms for registered sites as well as published and unpublished reports on past surveys, assessments and excavations. At the request of the consultant, data on registered sites within the study area were provided by Robert von Bitter, the Archaeological Data Coordinator of the Ministry.

The second collective source for the Stage 1 study was the library/archives of D.R. Poulton & Associates Inc. It includes an extensive inventory of published and unpublished reports, as well as inventories of both registered and unregistered archaeological sites.

The above sources were supplemented by reprints of the Illustrated Historic Atlas of Simcoe County (H. Belden & Co. 1881) and the History of Simcoe County by A. F. Hunter (1909). For reference purposes, Figure 3 illustrates the location of the RE Waubaushene 3 property relative to a segment of the 1881 Historic Atlas map of Tay Township.

### **4.2 Results**

The background research obtained information of relevance to the potential for historic and prehistoric sites within the lands involved in the proposed RE Waubaushene 3 Solar Generation Facility. The results of the Stage 1 study may be divided into two separate but related categories: information on past archaeological investigations and known sites within the two-kilometre

study area surrounding the subject property; and data on the potential for as-yet undiscovered archaeological sites within and adjacent to the property. These will be considered in turn.

### ***Past Archaeological Investigations and Known Sites***

The presence of past archaeological investigations in a given area will only be identified by an archaeological assessment under one of two circumstances. One is if the person conducting the assessment has personal knowledge of the past archaeological investigations. The other is if the past investigations resulted in the registration of one or more archaeological sites that will be captured by the archaeological sites data request to the Ontario Ministry of Tourism and Culture.

In the present case, the check of the Archaeological Sites Database of the Ministry determined that two sites have been registered within the study area that contains the proposed RE Waubaushene 3 Solar Generation Facility. The background study also determined that documented archaeological investigations have been carried out in the study area that contains the Waubaushene 3 property on an intermittent basis since the late 19<sup>th</sup> century.

The first documented archaeological investigations in the area were by A.F. Hunter. He was a noted historian and avocational archaeologist who also wrote the 1909 history of Simcoe County. Hunter conducted extensive research on the archaeology of most of the townships of Simcoe County and interviewed local residents, including the surviving members of the first generation of Euro-Canadian settlers.

Figure 4 is a composite of Hunter's map of sites in the Tay Township and the adjacent townships in Simcoe County. Numerous sites and geological features are marked in conjunction with the early road network.

Hunter's maps invariably include trails as well as sites. As illustrated in Figure 4, Hunter's Tay 18 and 19 sites are located close to one end of a trail that started in the vicinity of Waverly and followed the Hogg River to its outlet at Victoria Harbour. It is termed the Waverley Trail in this report. Further information on Hunter's Tay 18 and 19 sites is presented below.

Following Hunter's work in the late 19<sup>th</sup> century and early 20<sup>th</sup> century there was a hiatus of over half a century before the next documented archaeological investigations in the area. In the 1960s research on Huron sites in Simcoe County was conducted by the avocational archaeologist Frank Ridley. Hunter's Tay 18 site was among the sites investigated by Ridley. It was later registered as BdGw-25 by Roberta O'Brien of what is now the Ministry of Tourism and Culture. This site is documented in Ridley's 1973 report on his 1966 investigations.

Hunter described his Tay 18 site as being a village of "*considerable size*", with "*ash beds*" (middens) covering about 4 acres. The artifacts recovered from the site included iron trade axes, glass beads, pottery fragments and smoking pipes (Hunter 1900: 73). Ridley recovered 95 artifacts from this site in 1966, including Lalonde rim and body sherds, pipe fragments, a bone awl, a disc bead, a stone axe, beads and an iron knife. Hunter placed the site in the southwest corner of Lot 77, Concession 1 of Tay Township, the same lot that contains most of the proposed RE Waubaushene 3 Solar Generation Facility. It was situated in a sandy pasture that was later used as an airfield.

Based on the registered site coordinates, Hunter's Tay 18 site is located approximately 725 metres southwest of the Leased Lands of the proposed RE Waubaushene 3 Solar Generation Facility. Hunter recorded the presence on this site of what he called "*two refuse mounds*" and Ridley (1973) similarly recorded the presence of two middens. The latter stated that the site had two Iroquoian components. The earlier of the two, represented by Midden A, was a Lalonde component of the 15<sup>th</sup> century. The other, represented by Midden B, was an early historic Huron component.

Hunter's Tay 19 site is located just northeast of the intersection of Highway 93 and County Road 23, within the crossroads hamlet of Waverley. As such, it is just southwest of his Tay 18 site. This site has not been documented or registered by subsequently archaeological investigations in the area. In Hunter's time the Tay 19 site was situated on the Bannister homestead. Artifacts recovered from it included iron trade axes, stone axes and pottery. Hunter (1900: 73) states that these artifacts indicated the presence of Huron camps but also states that it was unclear if they represented a distinct site or merely outlying "*habitations*" related to the nearby Tay 18 site. Interestingly, Hunter also records that when the Bannister property was cleared in the 19<sup>th</sup> century Huron cornhills were observed on the east part of the farm. They were the small mounds in which the historic Huron planted corn, beans and squash – the so-called "*three Sisters*". This confirms that the historic Huron were practicing agriculture in the immediate area of the Hunter 18 and 19 sites and the RE Waubaushene 3 property in the first half of the 17<sup>th</sup> century, some four hundred years ago.

The background research also revealed the location of another archaeological resource in the study area. It is the Bucket site (BdGw-41) and was registered by Gordon Dibb in 2005. It is located west of Darby Hill Road (Highway 93), in Lots 78 and 79 of Concession 1 of Tiny Township. The archaeological sites data base records this site as a Huron findspot. However, Dibb collected 180 artifacts from an area only 15 metres by 10 metres in size. This demonstrates that it was far more substantial than an isolated findspot. The material collected included 164 ceramic sherds, a ceramic bead, 4 square head nails, 3 chert flakes, 7 pieces of chert shatter and 1 faunal specimen.

It will be noted that all three of the above sites date to the Woodland period and relate to the Iroquoian development sequence of the pre-contact and historic Huron peoples of the area. These two circumstances reflect the fact that the study area is rich in Iroquoian sites. They also reflect a past research bias toward Iroquoian sites of the Late Woodland period in southern Ontario in general and in Simcoe County in particular.

### ***Potential for as-yet Undiscovered Archaeological Sites***

In the absence of any previously identified archaeological sites within the RE Waubaushene 3 property, possible archaeological planning concerns for the proposed solar generation facility were limited to the potential for as-yet undiscovered sites. The potential for as yet undiscovered pre-contact and historic archaeological resources within a given area or property is generally evaluated on the basis of known sites in the area and on human adaptations to the intrinsic nature of the area itself, including topography and drainage.

Since the mid 1980s several models have been generated in an attempt to quantify archaeological potential in southern Ontario (e.g. Pihl 1986, Peters 1986). The results consistently show that distance to water is the most reliable indicator of pre-contact and historic First Nations land use and settlement. In addition, the presence of or proximity to water sources applies to First Nations sites, Euro-Canadian sites and sites of other cultures, as potable water is a basic requirement of life.

The degree of inferred archaeological potential varies somewhat with the significance of the water course. Accordingly, the land use primer developed by the Ministry of Citizenship, Culture and Recreation (1997:12-13) identifies a high potential for First Nations sites within 300 metres of a primary water source, including relic shorelines such as post-glacial Lake Algonquin, and within 200 metres of a secondary water source. The primer also includes other site potential criteria, as follows:

- The presence of a known archaeological site within 250 metres of a proposed development;
- The presence of knolls, ridges or other elevated topography within a property;
- The presence of well-drained sandy soils;
- The presence of distinctive or unusual landforms such as waterfalls, rock outcrops, rock faces, caverns, glacial erratics, etc. which often represented special or spiritual places to First Nations peoples;
- The presence of particular resource-specific features that would have attracted past subsistence or extractive land use, such as chert outcrops important to First Nations peoples or white pine stands important to early Euro-Canadian logging;
- The presence of initial non-Aboriginal (primarily but not exclusively Euro-Canadian) military or pioneer settlement;
- The presence of an early transportation route such as a trail, pass, road, rail, portage route or canal;
- The presence of one or more properties designated under the Ontario Heritage Act.
- The association of the property or site with historic events, activities or occupations.

It should be noted that the mention of well-drained sandy soils as a positive site criterion is potentially misleading, as it would tend to imply that the presence of other types of soils could constitute a negative site criterion. As it happens, in southern Ontario there was a well-documented shift by Iroquoian peoples away from sandy soils and onto heavier clay loam soils during the mid 14<sup>th</sup> century. This may have been occasioned by the onset of a drought, as heavier soils are more drought-resistant than lighter soils, and the Iroquoian peoples of southern Ontario

were heavily dependent on agriculture for their subsistence. In consequence, and contrary to the Ministry's 1997 Primer, the nature of the soils within a given property is not necessarily a reliable indicator in discounting the presence or degree of archaeological potential.

Given the above considerations, it only remains to consider the inherent characteristics of the subject property itself. Several positive site criteria factors apply to the subject property. One is that the site of the proposed RE Waubaushene 3 Generation Facility consists of well-drained lands that are suitable for habitation. A second is the fact that the property consists of soils that are suitable to prehistoric and historic agriculture. A third positive site potential criterion is the close proximity of the subject property to the historic road network, as represented by the adjacent Wood Road which lies directly east of the property. In addition, the property was also transected by Hunter's Waverley Trail, the earliest recorded transportation route in the vicinity of the subject property. A fourth positive site potential criterion is that past impacts within this property have been limited to agriculture; it can and does disturb sites to some degree but it doesn't destroy them.

Granting a lack of significant topographic relief and the lack of larger water sources or water bodies in close proximity, the above factors tended to indicate that the subject property had at least a moderate potential for as-yet undiscovered archaeological resources. The inferred potential for First Nations sites included smaller and more temporary sites such as pre-contact and historic camps and isolated findspots. It also included a potential for larger and/or more significant sites such as Iroquoian villages and burials.

The inferred potential for Euro-Canadian sites within the property applied more particularly to homesteads rather than commercial sites such as blacksmith shops, stores, inns or taverns or for institutional sites such as schools, churches or cemeteries. The reason is that commercial and institutional structures had a greater tendency to be located at crossroads and the closest crossroads to the subject property is located about 600 metres south of the property, at the intersection of Vasey Road and Wood Road.

## **5.0 STAGE 2 ARCHAEOLOGICAL SURVEY**

### **5.1 Methods**

As detailed in Section 4.2 of this report, the Stage 1 background study determined that no previous archaeological fieldwork had been documented for the subject property. The study also determined that the closest known archaeological sites to the property are Hunter's Tay 18 site (BdGw-25), which is situated to the south of the property, and Hunter's Tay 19 site, which is situated further south and west. The Bucket site (BdGw-41) is also located a significant distance west of the Leased Lands, on the other side of Highway 93. All of these sites are located several hundred metres from the property and do not represent potential planning concerns for the proposed solar generation facility. Accordingly, possible archaeological concerns for the proposed development were limited to the potential for as-yet undiscovered archaeological sites.

As described in Section 2.0 of the report, the Leased Lands in the Waubaushene 3 Solar Power Farm property primarily consist of two large agricultural fields. They are separated by a northwest to southeast stream course that is bordered by trees (Figure 3). The fields were ploughed in the late fall of 2009. By the time they were surveyed on April 26, 2010, the field surfaces had weathered over the winter and conditions for the observation of cultural remains were excellent.

The archaeological survey of the agricultural field was conducted by a crew of four under the direction of Nancy VanSas. The weather was sunny. Lighting conditions were excellent and the temperature was mild. The survey of the field was conducted by a systematic surface examination at a five-metre interval. The visibility of the ground surface was 95% and the conditions for the observation of cultural remains were excellent.

The remaining 6 hectares of the Leased Lands consisted of the scrub vegetation in the northeast corner of Lot 77, Concession 1. It was assessed by shovel test pitting. Each test pit was approximately 30 cm in diameter and was excavated to 5 cm below subsoil and all soils were screened through 6 mm mesh to maximize the potential for recovering artifacts. Finally, all test pits were backfilled upon completion. The depths of the individual pits range between 20 and 30 cm.

The test pit survey was conducted by a crew of five under the direction of Sherri Pearce. It began on June 21, 2010 and was interrupted on June 22 by a torrential rainstorm with lightning. The tornado that hit nearby Midland happened the next day. The test pit survey was completed on June 27, 2010. Except for the downpour on June 22, when it was cloudy and hot, the weather during the course of the rest of the test pit survey was sunny and hot and lighting conditions were excellent.

The test pit survey interval was 5 metres in areas of moderate potential and was reduced to 10 metres in area of low potential. As it evolved, this area is the source of several fingertip stream courses that flow northwest through the Leased Lands. Most of it consists of poorly drained and low-lying lands in which the shovel test pits rapidly filled with water. These poorly drained lands were interspersed with occasional low rises where a standard shovel test pit survey was possible.

The drainage was generally poor throughout but was worst in the western third of the scrub lands and along the southern edge.

The arable portions of the Leased Lands that were assessed by pedestrian survey have a surface area of approximately 25.5 hectares and represent 79% of the total surface area of the Leased Lands. The non-arable portion of the Leased Lands that was assessed by a shovel test pit survey has a surface area of 6 hectares; it represents 19% of the total surface area of the Leased Lands. Excluded from the survey were low and wet lands that form a portion of the 30 m set back. Further, the survey did not include the modern house and farm complex, which are located outside the Leased Lands and front onto Wood Road.

Figure 5 shows the location and limits of the RE Waubaushene 3 Solar Generation Facility that was covered by the archaeological survey as well as the survey techniques used. Plates 1-3 show field conditions in the cultivated agricultural fields of RE Waubaushene 3 on April 26, 2010. Plates 4-6 illustrate the range of conditions in the 6 hectares that were surveyed by shovel test pitting between June 21 and 27, 2010.

Plate 1 is a view north of the cultivated and weathered eastern field, with the existing farm complex in distance. Plate 2 is a view west of the central portion of the western field showing the undulating terrain. Plate 3 is a view northeast of the flagged artifact locations in the western field that mark the site of a late historic Euro-Canadian refuse scatter. Plates 4 and 5 are view north of the test pits survey in progress looking north and west, respectively. Plate 6 is a view west showing an area of cattails and poor drainage that exist along the southern portion of those lands.

## **5.2 Results**

No First Nations artifacts were discovered during the Stage 2 survey of the Waubaushene 3 property. The only archaeological site discovered is a small scatter of Euro-Canadian artifacts. Site 1 was found in the pedestrian survey in the western field of the Leased Lands. The GPS coordinates for the site are 17T 0593963N and 4945238E +/- 6m; the elevation is 238 metres above sea level. The site measures approximately 25 metres east-west and 14 metres north-south.

When the first artifacts were discovered during the course of the five metre interval pedestrian surface survey they were marked by coloured survey flags and were left in place. The survey interval was then closed to 1 metre and an intensive surface examination was conducted, flagging additional artifacts as they were discovered. The intensive surface examination extended 20 metres beyond the outermost finds.

The intensive surface examination marked the locations of approximately 30 pieces of Euro-Canadian domestic material. A representative sample of seven artifacts was collected. Plate 7 illustrates the sample of artifacts collected from the scatter. The collection includes fragments of ceramic tableware plus a single piece of utilitarian glass, a button and a fragment of a clay smoking pipe. Each will be considered in turn.

The ceramic tablewares in the sample included a semi-porcelain teapot lid decorated with a poorly executed teal green transfer print design with relief moulded embellishment. A similar relief moulded design is present on the semi-porcelain plate rim. In addition, a teal green transfer

printed semi-porcelain body sherd was recovered. The final piece of ceramic is a piece of ironstone that also has a dark teal green decoration around the rim. This handled dish would have had a cover. The design is typical of those employed on hotel ware or serving pieces used in restaurants in the early to mid 20<sup>th</sup> century. The predominance of semi-porcelain indicates a date of 1891 or later for Site 1.

The aqua glass sherd contains part of a mould printed pattern with a crown, a logo frequently found on food sealers produced by the Dominion Glass Company. Although several small glass houses were in production during the 1870s and 1880s, the Dominion Glass Company did not start production until 1895 (Stevens 1960:23). It is most likely that this piece of utilitarian glass dates to the early 20<sup>th</sup> century.

A four-hole metal brace button was also recovered. It is made from a copper alloy, the surface of which has developed a white powdery patina. The face or rim of the button is encircled with stamped text reading "OUR OWN MAKE". The piece is typical of mass production methods in use during the late 19<sup>th</sup> and early 20<sup>th</sup> centuries.

The partial pipe stem is marked with the incomplete words "MONT..." and "...MAN", demonstrating that the smoking pipe was produced by the firm Bannerman of Montreal. Bannerman was in production from 1858 until 1907 although the pipes that are marked with an initial letter "R" before the Bannerman are from the later period of production of 1888-1907 (Bradley 2000:117). Unfortunately, this pipe stem is missing the beginning of the maker's name that would allow the determination of a more finite date range.

Based upon the relatively late cultural age of these artifacts and the limited size and density of the scatter, Site 1 is considered to be a minor refuse deposit rather than the location of a homestead or farmstead. It seems most likely that the structural complex that was responsible for the site was located outside the northeast edge of the Leased Lands, where the current farmstead that fronts on Wood Road is situated.

Regardless of the specifics, the material recovered and observed indicates that the refuse deposit dates to the late 19<sup>th</sup> and/or early 20<sup>th</sup> century. It is not considered to represent a significant archaeological resource or planning concern. This assessment is based on the relatively late date of the site, on the function of the site as a minor refuse deposit, and on the fact that it has little or no potential for subsurface cultural remains.

## **6.0 RECOMMENDATIONS**

As detailed in Section 4.0 of this report, the Stage 1 background study determined that there were no documented past archaeological investigations or sites within the RE Waubaushene 3 property. However, it also determined that known First Nations archaeological sites were located in the vicinity of the property, and that the property had at least a moderate potential for as-yet undiscovered sites. Notwithstanding the inferred potential, the subsequent Stage 2 survey of the RE Waubaushene 3 property determined that there is only one archaeological site within the property. It is a late 19<sup>th</sup> to early 20<sup>th</sup> century Euro-Canadian refuse deposit. This site is not considered to represent a significant archaeological resource or planning concern. Given the negative results of the assessment, it is recommended that no further archaeological investigations or concerns are warranted for the proposed RE Waubaushene 3 Solar Generation Facility.

Beginning in the 1980s, it was standard practice for what is now the Ontario Ministry of Tourism and Culture to review archaeological assessment reports and then to issue letters of clearance for proposed developments. That system has changed and the Ministry no longer issues letters of clearance. Rather, Archaeological Review Officers of the Ministry now review reports to ensure that the assessment and the report satisfy consulting licence requirements under the Ontario Heritage Act (1990) and other legislation, and that they conform to existing standards and guidelines. If the report and the assessment do so conform, the pertinent Archaeological Review Officer then issues a letter confirming that and accepting the report into the Provincial registry of archaeological reports.

Further to the above, it is recommended that the Ministry of Tourism and Culture issue a letter accepting the present report into the Provincial registry of archaeological reports. It is also recommended that the letter include a statement that the Ministry concurs with the recommendations and other findings presented in this report. Finally, it is requested that a copy of the letter be forwarded by e-mail to Bob Leah, Director of Development, Canada, Recurrent Energy. His e-mail address is [Bob.Leah@recurrentenergy.com](mailto:Bob.Leah@recurrentenergy.com). In due course, this letter and the related archaeological assessment report will be submitted by Recurrent Energy and Hatch Ltd. to the Ontario Ministry of the Environment as part of the complete REA application for the development of the proposed solar generation facility on the RE Waubaushene 3 property.

The above conclude the property-specific recommendations of this report. Nevertheless, it should be emphasized that no archaeological assessment can be considered to totally negate the potential for deeply buried cultural remains, including human burials. Accordingly, it is recommended that archaeological staff of the Ontario Ministry of Tourism and Culture be notified immediately if any deeply buried archaeological remains should be discovered during earthmoving or construction related to the development of the proposed solar generation facility. In the event that human remains should be encountered, it is similarly recommended that the proponent immediately contact Jim Sherratt, Archaeological Review Officer, Ontario Ministry of Tourism and Culture (email address [Jim.Sherratt@ontario.ca](mailto:Jim.Sherratt@ontario.ca); telephone #416 314-7132) and Michael D'Mello, the Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Small Business and Consumer Services (telephone #416 326-8404; email address [Michael.D'Mello@ontario.ca](mailto:Michael.D'Mello@ontario.ca)).

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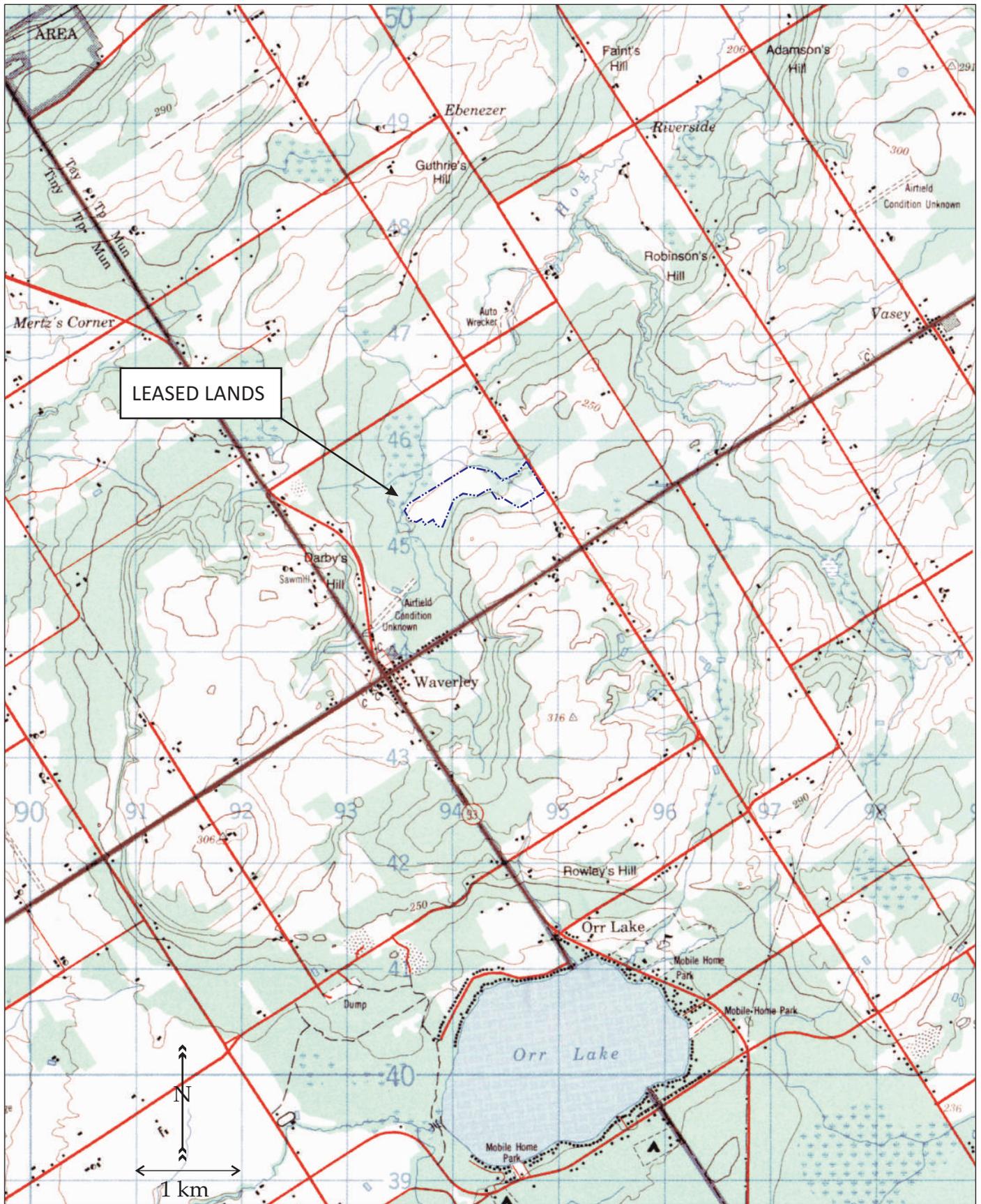
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## **FIGURES**



**Figure 1** Location of the Proposed RE Waubaushene 3 Solar Generation Facility

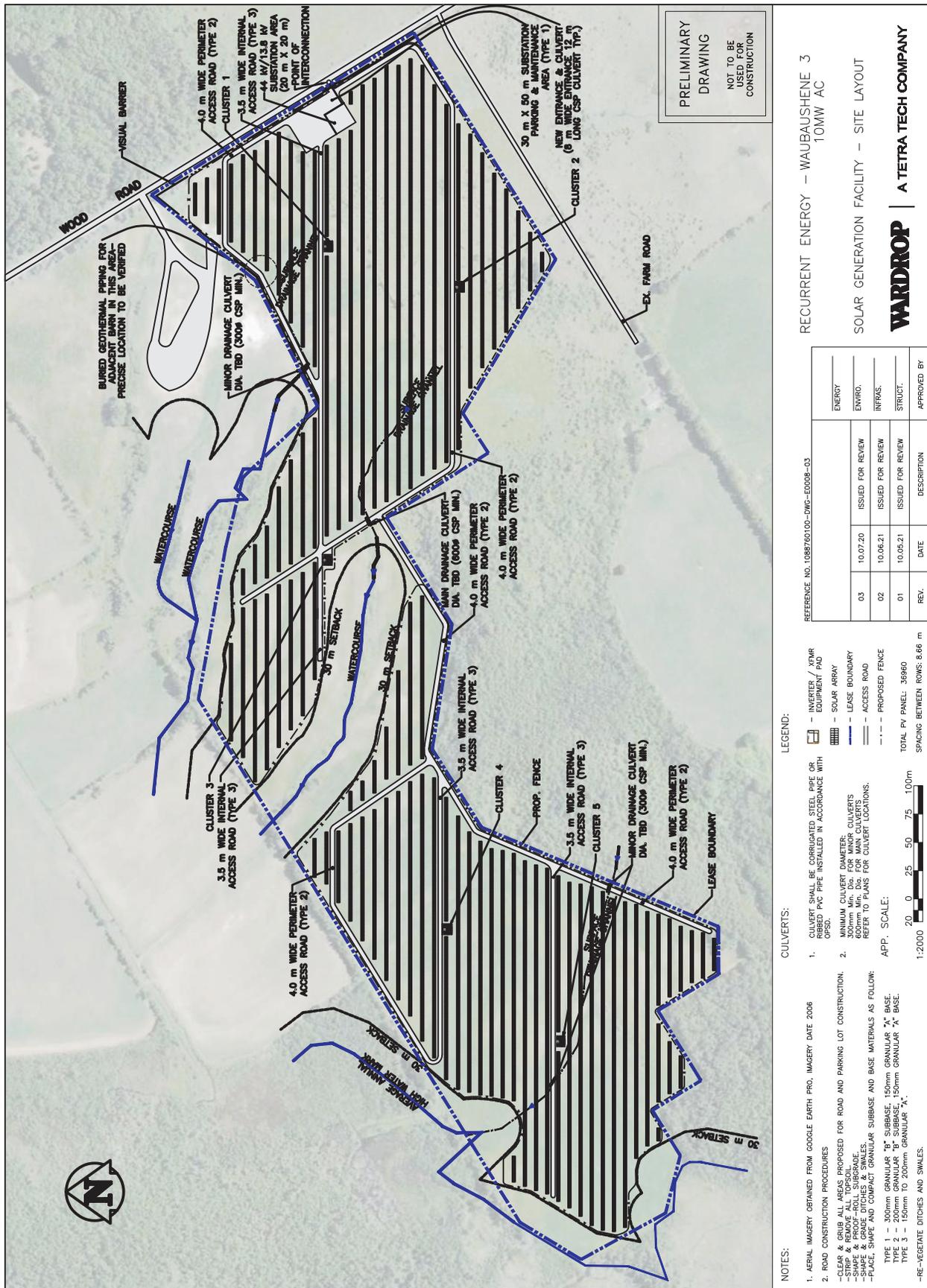


Figure 2 Limits of Leased Lands and the Proposed Solar Panel Layout

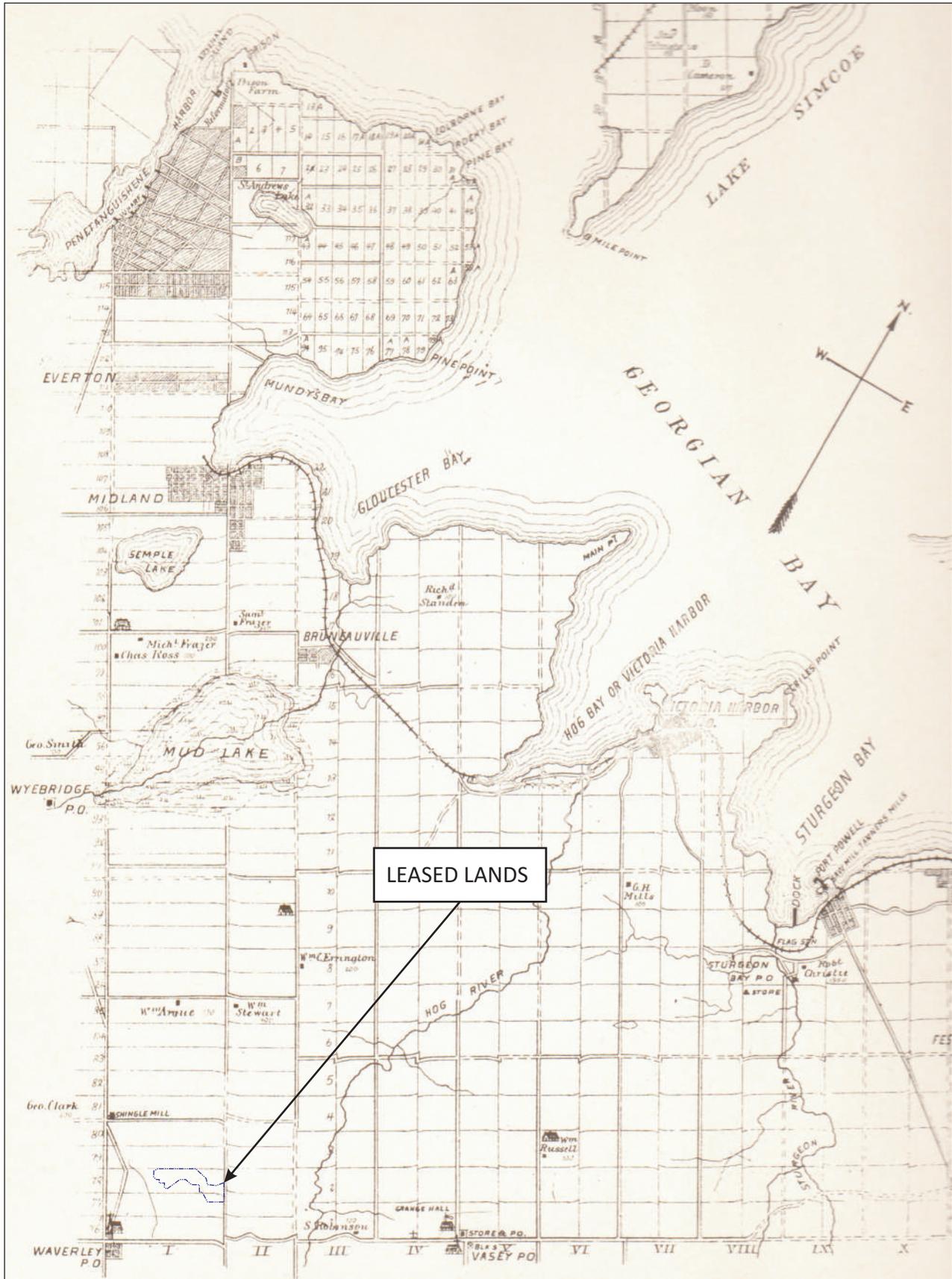


Figure 3 1881 Historical Atlas Map of Tay Geographic Township

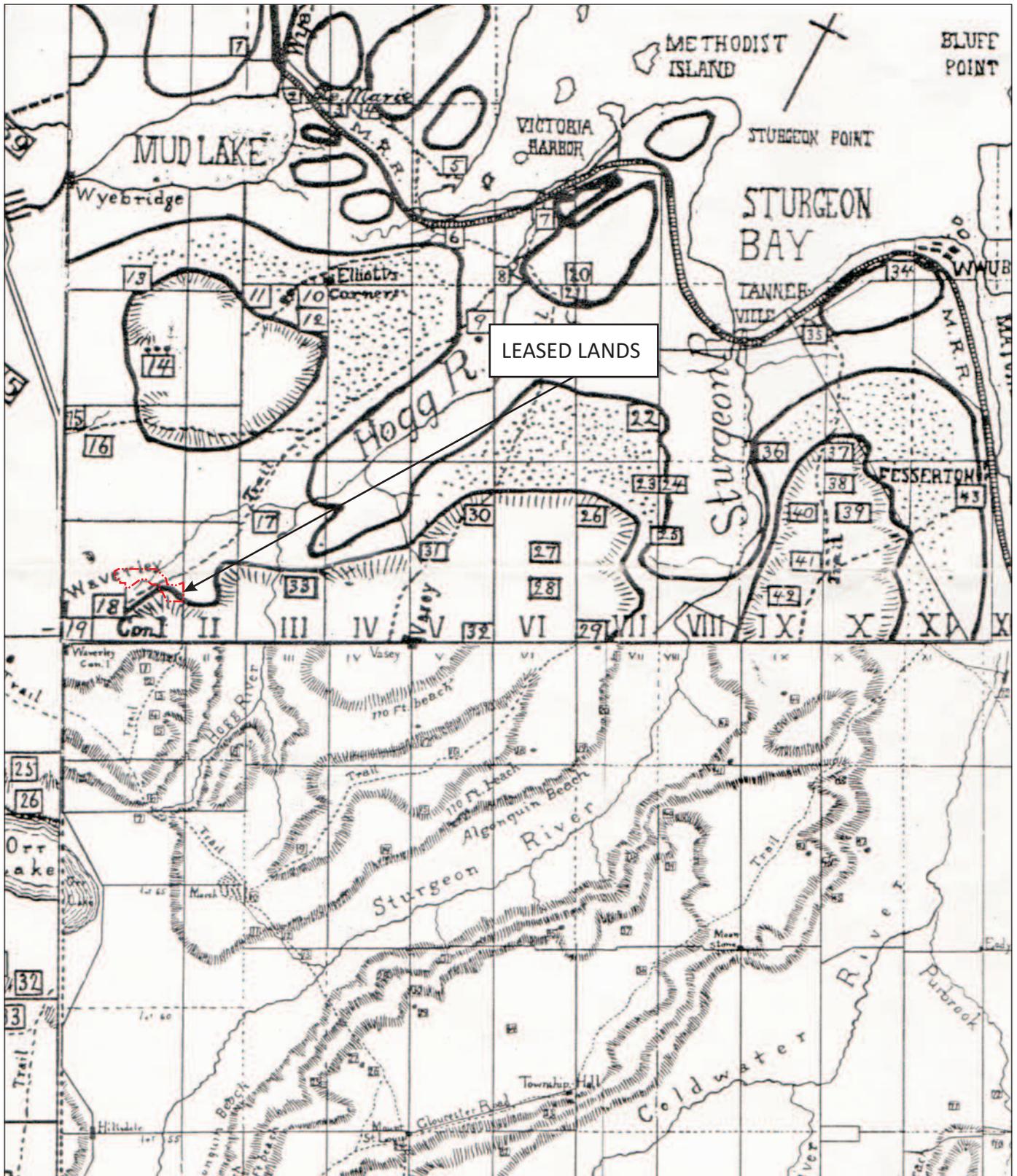


Figure 4 Facsimile of A. F. Hunter's Map of Sites in Tay Township



**Figure 5** Archaeological Survey Coverage and Site Location

## **PLATES**



**Plate 1** RE Waubaushene 3 Property, View North



**Plate 2** RE Waubaushene 3 Property, View West



**Plate 3** RE Waubaushene 3 Property, View Northeast to Site 1



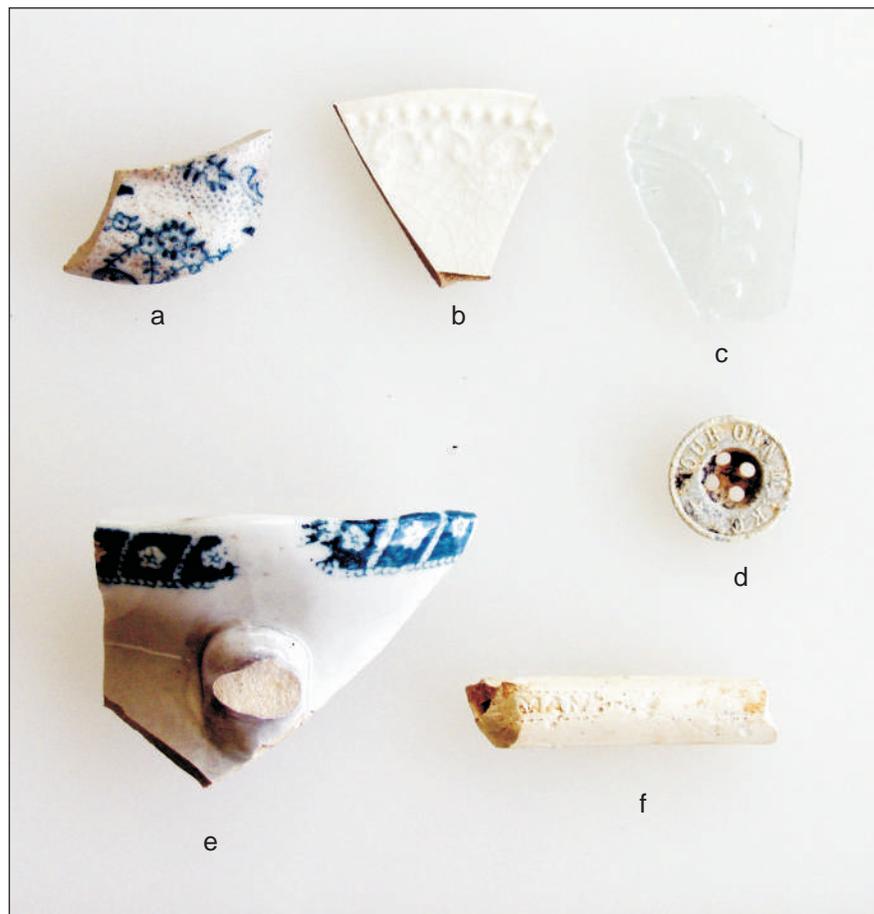
**Plate 4** RE Waubaushene 3 Property, Test Pit Survey in Progress, View North



**Plate 5** RE Waubaushene 3 Property, Test Pit Survey in Progress, View West



**Plate 6** RE Waubaushene 3, View West to Low and Wet Area



**Plate 7** Representative Sample of Artifacts from Site 1

- a Printed Semi-Porcelain sherd
- b Moulded Semi-Porcelain plate rim
- c Portion of a Crown Bottle
- d Brace button
- e Printed Ironstone dish rim
- f Fragment of a Bannerman pipe stem

**Stage 2 Catalogue - RE Waubaushene 3 - April 26, 2010**

<b>Cat #</b>	<b>Category</b>	<b>Class</b>	<b>Type</b>	<b>Description</b>	<b>Colour</b>	<b>Freq</b>	<b>Portion</b>
1	tableware	ceramic	semi-porcelain	moulded/transfer print	teal	1	lid
2	tableware	ceramic	semi-porcelain	transfer print	teal	1	sherd
3	tableware	ceramic	semi-porcelain	moulded	white	1	rim
4	tableware	ceramic	ironstone	transfer print	teal	1	rim
5	utilitarian	glass	jar	mould printed	aqua	1	sherd
6	apparel	fastener	button	4 hole	copper alloy	1	complete
7	personal item	smoking	pipe	marked	white	1	stem

