APPENDIX 1

Archaeological Report

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Stage 1 Archaeological Assessment

St. Columban Wind Project,
Municipality of East Huron, Huron County, Ontario

Submitted to

Econundrum Consulting
89 Isabella Street, Suite 905
Toronto, ON, M4Y 1N8

Prepared by

Archaeological Services Inc.
528 Bathurst Street
Toronto, Ontario M5S 2P9
Tel.: (416) 966-1069
Fax: (416) 966-9723
Email: info@iasi.to
Website: www.iasi.to

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EXECUTIVE SUMMARY

Archaeological Services Inc. (ASI) was contracted by Econundrum Consulting, Toronto, on behalf of CASA Engineering & Construction, to conduct a Stage 1 archaeological assessment for the St. Columban Wind Project, McKillop Ward, Municipality of East Huron, Huron County, Ontario.

The assessment determined that no archaeological sites have been registered within 2 kilometers of the 24 square kilometer study area. A review of the general physiography and local nineteenth century land use within the study area suggests that it exhibits archaeological site potential for both Native and Euro-Canadian archaeological resources. This potential is largely based on proximity to streams and to historic roads and structures.

A field review was conducted of the ten proposed turbine sites and the access road locations to confirm to what extant this potential exists and to determine the degree to which development and landscape alterations may have affected that potential. Most of the impacted lands are active agricultural fields there are only a few locations where recent disturbance (below topsoil) has occurred. Road easements include typical rural ROW disturbance. No steeply sloped locations were observed. It should be noted that much of the land was observed to be low-lying. Prior to the excavation of drainage ditches and channelization of streams, these low-lying lands were probably wet wherever they coincide with poorly drained soil types. These negative characteristics should be confirmed during Stage 2 field survey.

In light of these results, the following recommendation is made:

1. A Stage 2 assessment is recommended in advance of any proposed construction impact on any lands (e.g. turbine sites, associated access roads, and crane paths) within the study area where there is potential for archaeological sites, in accordance with Ministry of Culture's draft *Standards and Guidelines for Consultant Archaeologists (MCL 2006)*. While impact may be expected on access roads, turbine work sites, off-road crane paths, and buried electrical lines, the Stage 2 assessment must examine and clear all designated work sites prior to construction.

ARCHAEOLOGICAL SERVICES INC.
ENVIRONMENTAL ASSESSMENT DIVISION

PROJECT PERSONNEL

Senior Project Manager:	Robert Pihl, MA, CAHP [MCL licence P057] Partner and Senior Archaeologist, Manager, Environmental Assessment Division
Project Director (licence):	Katie Bryant, MA [MCL licence P264] Staff Archaeologist
Project Manager:	Caitlin Lacy, Hon. BA [MCL licence R303] Staff Archaeologist
Field Director:	Deborah Pihl, BA Staff Archaeologist
Project Administrator:	Sarah Jagelewski, Hon. BA Research Archaeologist
Report Writer and Graphics:	Caitlin Lacy
	Deborah Pihl
Graphics:	Erin King, Hon. BA GIS Technician
	Blake Williams, MLitt GIS Technician
Report Reviewer:	Robert Pihl

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1.0 INTRODUCTION

Archaeological Services Inc. (ASI) was contracted by Econundrum Consulting, Toronto, to conduct a Stage 1 archaeological assessment for the St. Columban Wind Project, McKillop Ward, Municipality of East Huron, Huron County, Ontario (Figure 1). The ten proposed turbine locations and associated infrastructure are located within a general study area of approximately 24 square kilometers.

CASA Engineering & Construction is the project proponent. Authorization to carry out the activities necessary for the completion of the Stage 1 assessment was granted to ASI by CASA Engineering & Construction on December 8, 2008.

This report presents the results of the Stage 1 background research and makes one recommendation.

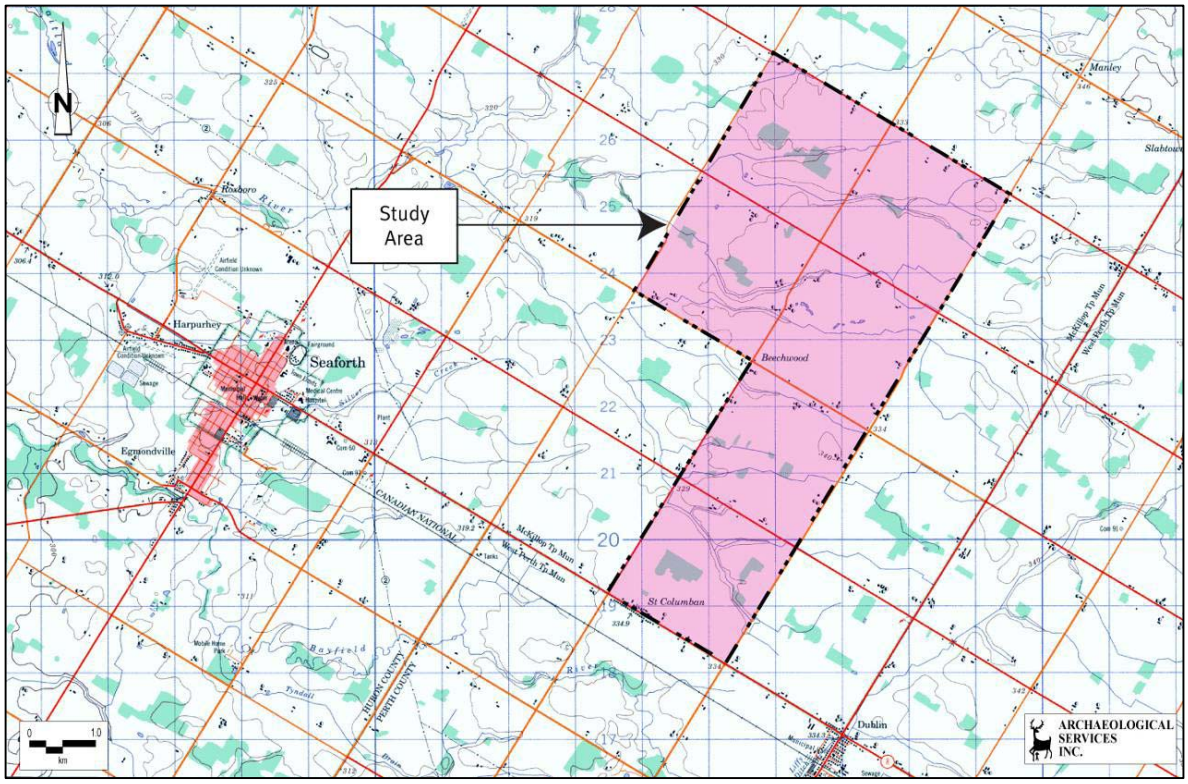

Figure 1: Location of the study area (Seaforth 40P/11).

2.0 BACKGROUND RESEARCH

The Stage 1 archaeological assessment of the study area was conducted in accordance with the *Ontario Heritage Act* (2005) and the Ontario Ministry of Culture's (MCL) draft *Standards and Guidelines for Consultant Archaeologists* (2006). A Stage 1 archaeological assessment involves research to describe the known and potential archaeological resources within the vicinity of a study area. Such an assessment incorporates a review of previous archaeological research, physiography, and land use history. Background research was completed to identify any archaeological sites within the study area and to assess the archaeological potential.

2.1 Previous Archaeological Research

In order that an inventory of archaeological resources could be compiled for the study area, three sources of information were consulted: the site record forms for registered sites housed at the MCL; published and unpublished documentary sources; and the files of ASI.

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MCL. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 kilometers east to west, and approximately 18.5 kilometers north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The study area under review is located in Borden block *AjHh.*

According to the OASD (email communication, Robert von Bitter, MCL Data Coordinator, December 22, 2008), no archaeological sites have been registered within the study area or within 2 kilometers of it.

It should be noted that the dearth of registered archaeological sites in the vicinity of the study area is most likely related to the limited degree of development in the area prior to the instigation of systematic archaeological assessments under provincial legislation. Accordingly, the absence of registered archaeological sites should not be taken as an indicator of any lack of Aboriginal or early Euro-Canadian land use or occupation.

2.2 Physiography and Assessment of Aboriginal Archaeological Potential

The study area is situated within the Stratford Till Plain physiographic region of southern Ontario. Brown calcareous silty clay soils occur both on the ground till that generally covers the area and on several terminal moraines. One of these moraines intersects the north portion of the study area (Chapman and Putnam 1984: 59, 133).

Within the study area the soils are generally imperfectly drained Perth clay. Poorly drained Brookston clay loams with a gley horizon also occur on the more level areas (Ontario Agricultural College 1979). The Brookston clay loam soils are poorly drained, and tiling and municipal drains are widely used to

allow agricultural use of these soils (Chapman and Putnam 1984: 134). In accordance with the Ministry of Culture's draft *Standards and Guidelines for Consultant Archaeologists* (2006: Unit 1b), the potential for sites is low on permanently wet land, and the Brookston clay loams were formerly wet.

Conversely, on elevated locales or where well-drained soils occur within an area of generally heavy soils, there is the potential for sites (MCL 2006: Unit 1b). Thus, within the study area there is potential for sites on the esker where well-drained Donnybrook sandy loam occurs (Ontario Department of Agriculture 1979).

Potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in south central Ontario after the Pleistocene era, proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

The MCL's draft *Standards and Guidelines for Consultant Archaeologists* (2006: Unit 1b) stipulates that undisturbed land within 300 metres of a primary water source (lakeshore, river, large creek, etc.), undisturbed land within 200 metres of a secondary water source (stream, spring, marsh, swamp, etc.), as well as undisturbed land within 300 metres of an ancient water source (as indicated by remnant beaches, shore cliffs, terraces, abandoned river channel features, etc.), are considered to have archaeological potential. The study area is bisected by numerous small tributaries of the South Maitland River which drains into Lake Huron. .

Therefore, depending on the degree of previous land disturbance, it may be concluded that there is potential for the recovery of Aboriginal remains within the study area.

2.3 Assessment of Euro-Canadian Archaeological Potential

The 1879 *Illustrated Atlas of the County of Huron* was reviewed to determine the potential for the presence of historic Euro-Canadian sites within the study area (Figure 2).

The study area is located on Lots 6 to 15, Concessions I to VIII, in the former Township of McKillop, County of Huron (currently known as McKillop Ward, Municipality of East Huron, Huron County). The atlas depicts several property owners/residents within the study area (Table 1). It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlas.

The Township of McKillop, named after one of the first directors of the Canada Company, James McKillop, was first settled in the late 1820's. The nucleus of settlement was centered around two areas know as "the Irish settlement" and "the Scottish settlement". The study area includes the vicinity of Dublin and Beechwood where Irish settlers arrived as early as 1827 (Mika 1981).

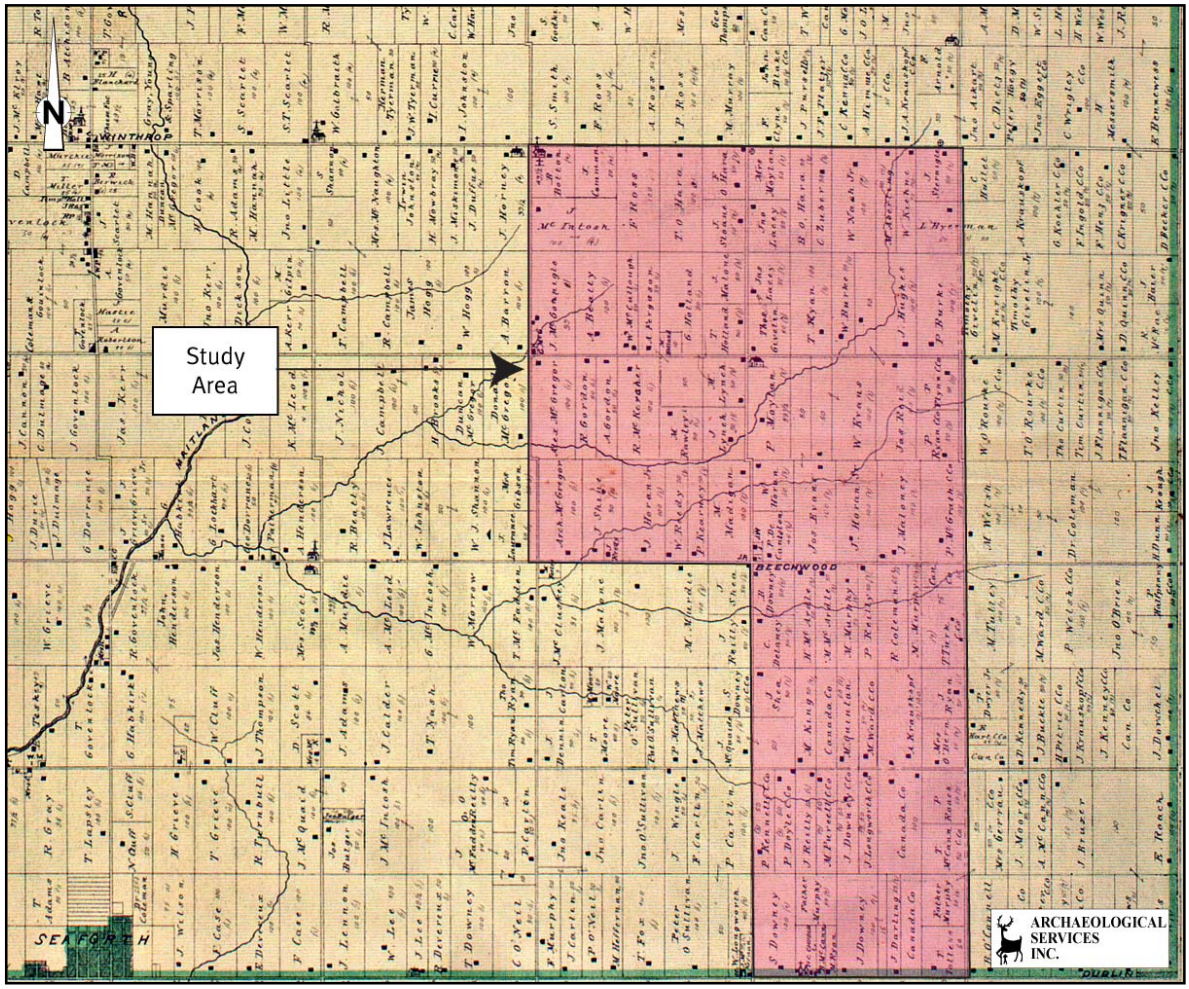

Figure 2: Study area superimposed on a portion of the McKillop Township atlas map (H. Belden & Co. 1879).

Historic cemeteries require particular attention during archaeological assessment, if impact is anticipated in the vicinity. A cemetery and church are indicated on the historic atlas map on Lot 15, Concession VIII. Another church is indicated on the historic atlas maps and on the NTS map on Lot 9, Concession I.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those which are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be captured by the basic proximity to the water model outlined in Section 2.2, since these occupations were subject to similar environmental constraints. An added factor, however, is the development of the network of concession roads and railroads through the course of the nineteenth century. These transportation routes frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 metres of an early settlement road, such as Huron Road (Highway 8), Hydro Line, Bridge Road, Summerhill Road, Winthrop Road, Maple Line, Beechwood

Line, and Manley Line, are also considered to have potential for the presence of Euro-Canadian archaeological sites.

Table 1: Property Owner(s)/Resident(s) and Historical Feature(s) Illustrated Within or Adjacent to the Study Area (H. Belden & Co. 1879)

Con.#	Lot#	Owner(s)/Resident(s)	Feature(s)
I	6	T. Tollern Father Murphy	Homestead
	7	J. Darling Canada Company	Homestead
	8	J. Downey	Homestead
	9	Mrs. Canning H. McCann M. Ryan	Church, 2 homesteads Homestead Homestead
	10	S. Downey	Homestead
II	6	T. McCann P. Roach	
	7	Canada Company	2 homesteads
	8	J. Downey J. Longworth	Homestead Homestead
	9	J. Reilly M. Purcell	Homestead Homestead
	10	P. Kennel P. Doyle	Homestead 2 homesteads
III	6	Mrs. O'Brian J. Ryan	Homestead Homestead
	7	A. Krauskopf	2 homesteads
	8	M. Quinlan M. Ward	Homestead Homestead
	9	M. King Canada Company	Homestead
	10	J. McQuaid J. Shea	 Homestead
IV	6	T. Turk Canada Company	2 homesteads
	7	R. Coleman M. Murphy	
	8	M. Murphy P. Reilly	Homestead Homestead
	9	H. McArdle M. McArdle	Homestead Homestead
	10	C. Delaney H. Downey	Homestead Homestead
V	6	P. McGrath	Homestead
	7	J. Maloney	2 homesteads
	8	J. Horan Sr.	Homestead
	9	Jason Evans	Homestead
	10	P. De Cantelon W. Horan	Homestead Homestead

Con.#	Lot#	Owner(s)/Resident(s)	Feature(s)
	11	M. Madigan	Homestead
	12	W. Reedy P. Kearney	Homestead Homestead
	13	J. Horan Jr.	Homestead
	14	J. Reedy J. Shine	Homestead Homestead
	15	Archibald McGregor	Homestead
VI	6	P. Ryan P. Flynn	Homestead Homestead
	7	Jason Rae	Homestead
	8	W. Evans	
	9	Jason Evans W. Evans	 Homestead
	10	P. Moylan	Schoolhouse, homestead
	11	J. Lynch M. Lynch	Homestead Homestead
	12	M. Rowley A. Ferguson	Homestead
	13	R. McKercher	Homestead
	14	R. Gordon A. Gordon	Homestead Homestead
	15	Alex McGregor	Homestead
VII	6	P. Rurke	Homestead
	7	J. Hughes	Homestead
	8	W. Burke Jason Rae	Homestead Homestead
	9	T. Ryan	Homestead
	10	Thomas Grieve Jason Lacey	Homestead Homestead
	11	T. Holland J. Malone	Homestead
	12	G. Holland M. Welland	Homestead
	13	W. McCullough A. Ferguson	2 homesteads Homestead
	14	A. Beatty	Homestead
	15	M. McGonnigle	2 homesteads
VIII	6	L. Byerman J. Sternigle	Homestead Homestead
	7	M. Aberling W. Kiehne	Homestead Homestead
	8	W. Noah Jr.	Homestead
	9	B.O'Hara C. Zubar	 Homestead
	10	John Lacey Mrs. Maylam	Homestead
	11	J. Slone F. O'Hara	Homestead Homestead
	12	T. O'Hara	Homestead
	13	F. Ross	Homestead

Con.#	Lot#	Owner(s)/Resident(s)	Feature(s)
	14	J. McIntosh J. Comman	
	15	J. McIntosh B. Botton	Homestead Church, cemetery, homestead

Therefore, depending on the degree of previous land disturbance, it may be concluded that there is potential for the recovery of historic cultural material within the study corridor.

3.0 DETERMINATION OF ARCHAEOLOGICAL POTENTIAL

The MCL's draft *Standards and Guidelines for Consultant Archaeologists* cites eleven criteria that indicate where archaeological resources are most likely to be found (2006: Unit 1b 12). Archaeological potential is confirmed when one or more features of archaeological potential are present.

The study area meets four of the eleven criteria used by the MCL for determining archaeological potential:

- within 300 metres of a primary water source, and within 200 metres of a secondary water source;
- Exceptional physiographic feature (cf. elevated topography, well drained soil within area of heavy or rocky soil, or distinctive landforms);
- Early Euro-Canadian settlement; and
- Within 100 metres of an early settlement road.

These criteria characterize the study area as having archaeological potential, and the distribution of this potential has been mapped in Figure 3, in areas indicated by pink highlighting. A field review was conducted to confirm the presence of areas exhibiting site potential.

Site potential is deemed to be low in the absence of positive site potential criteria. In addition, certain criteria indicate low or no potential: wet land, recent disturbance below the topsoil (i.e. grading, fill deposits, or vegetation clearing), and steep slopes (MCL 2006: Unit 1b). Such areas can be identified during the field review, and, if necessary, confirmed by during subsequent field survey.

4.0 FIELD REVIEW

A field review of the ten proposed turbine sites and associated access roads was carried out by Deborah Pihl, ASI Staff Archaeologist (MCL licence R130), on March 13, 2009, in order to make a general appraisal of archaeological potential and to determine, in general terms, the degree to which development and landscape alteration may have affected that potential. The weather was cold and sunny with a light skiff of snow, but viewing conditions were considered acceptable.

As presently defined, the project area comprises ten turbine locations with associated access roads that are connected to the township road network. The turbine foundations are 10 metres in diameter. The transformer pads are 3 metres in diameter. Access roads average maximum width is 5.5 metres. Buried electrical services will largely coincide with the access roads and with the existing disturbed road right-of-ways (ROWs). The project will also involve approximately 3.5 kilometers of new overhead hydro transmission line within the existing road ROWs. No off-road crane paths have yet been defined.

The terrain is level to very gently undulating (Plates 3 and 12). Small South Maitland River tributaries, generally oriented in an east-northeast to west-southwest direction, follow the shallow undulations. All but one of the turbine sites and most of the access roads are within 300 metres of streams. Based on the MCL guideline criteria, this proximity determines potential for archaeological sites. However, almost all of the lands near the streams are low-lying, and in many areas the soils are poorly drained Brookston clay loam. Excavation of drainage ditches (Figure 1) and channelization of all streams have facilitated field drainage. The poorly drained soils were formerly wet, and there is low potential for sites in these locations.

A low gravel ridge, an esker, extends across the study area in a southwest to northeast direction, intersecting Beechwood Line at the boundary between Concession 5 and Concession 6 and paralleling the north side of a stream. The ridge has been extensively quarried as a source of gravel. According to the MCL's guidelines, there is potential for Aboriginal and early Euro-Canadian sites on such an elevated and well drained feature. Turbine 4 and its access road intersect the esker.

With respect to the potential for historic sites, there is potential along all of the township roads (Figure 2). The field review determined that the ROWs are characterized by typical rural ROW disturbance. Although the roadbeds have been elevated, the ditches are generally shallow. In places, a few mature maples exist as remnants of the tree lines that formerly lined the road (Plates 6 and 11). There is potential for sites from the outer shoulder of the ditch to the ROW limit and on adjacent lands. There is also potential for historic sites within 100 metres of the mapped and extant historic structures and features.

The potential for archaeological sites at the ten proposed turbine sites and along their access roads was reviewed based on topographic conditions observable from township roads and on mapped soil characteristics (Ontario Department of Agriculture 1979) (Figure 3). The extent of the areas exhibiting site potential is summarized in Table 2.

For the purposed of the discussion below, the turbine site is the entire footprint of all proposed and future construction, not including access roads or crane paths.

Turbine 1 - West side of Manley Line, south of Hydro Line Road (Plate 1)

Beyond the buffer of historic Euro-Canadian site potential within 100 metres of the road, there is low potential for sites due to the low and level terrain and the poorly drained Brookston clay loam. The stream adjacent to the access road is a drainage ditch.

Facility Size		**Area with Archaeological Potential**	
Access road	5.5 m X 266 m = 1463 sq m	5.5 m x 100 m	550 sq m
Turbine site	78 sq m 78 sq m	none	--- sq m
Subtotal	1541 sq m		550 sq m (36%)

Turbine 2 - South side of Hydro Line Road, west of Manley Line (Plate 2)

Based on the proximity of the historic road and a stream, the location exhibits archaeological potential. However, the lands are low and level, and the soil map indicates imperfect soil drainage. The adjacent stream appears on the NTS mapping (Figure 1), but it is absent on the 1979 soil map and the historic map (Figure 2). Also, during the field review, it was observed that the rectilinear stream course appears ditch-like and farm buildings on the opposite side of the ditch have been constructed on mounds of fill. Thus, field testing should be conducted to verify whether the soils are inadequately drained, confirming low archaeological potential.

Facility Size			**Area with Archaeological Potential**	
Access road	5.5 m X 187 m =	1029 sq m	5.5 m x 187 m	1029 sq m
Turbine site	78 sq m	78 sq m	78 sq m	78 sq m
Subtotal		1107 sq m		1107 sq m (100%)

Turbine 3 - North side of Hydro Line Road, west of Manley Line (Plate 2)

There is potential for sites at the south end of the access road in the vicinity of the historic farmsteads and road. The north end of the access road and the turbine site are within 300 metres of a stream to the north, and there is associated potential for sites in its vicinity. However, soil maps indicate poorly drained Brookston soils in the vicinity of the stream. Because the turbine site was not visible from the traveled road, no verification of the terrain was possible. Thus, field survey should be conducted to verify whether the soils are inadequately drained in the vicinity of the stream.

Facility Size			**Area with Archaeological Potential**	
Access road	5.5 m X 678 m =	3729 sq m	5.5 m x 340 m	1870 sq m
Turbine site	78 sq m	78 sq m	78 sq m	78 sq m
Subtotal		3807 sq m		1948 sq m (51%)

Turbine 4 - North side of Bridge Road, east of Maple Line (Plate 4)

The access road follows a direct route northeastward across a stream and a gravel esker. Due to the presence of the stream and well drained soils, the access route and the turbine site exhibit archaeological potential. The potential for historic sites exists at the south end of the access road, but a structure indicated in the historic atlas appears to be more than 100 metres to the north of the turbine site.

Facility Size			**Area with Archaeological Potential**	
Access road	5.5 m X 4886 m =	2684 sq m	5.5 m x 100 m	2684 sq m
Turbine site	78 sq m	78 sq m	78 sq m	78 sq m
Subtotal		2762 sq m		2764 sq m (100%)

Turbine 5 - South side of Bridge Road, west of Manley Line (Plate 5)

The access road crosses low terrain and a channelized stream enroute to the turbine site. (The stream is absent on the Ontario Department of Agriculture 1979 soil mapping.) While there is low potential for sites on the low lying land nearest the channelized stream due to poorly Brookston drained soils, there

may be archaeological potential further to the south where soils are better drained as well as near the road. There is low potential for sites at the turbine site, since it is distant from water sources and other positive features.

Facility Size			**Area with Archaeological Potential**	
Access road	5.5 m X 660 m =	3630 sq m	5.5 m x 400 m	2200 sq m
Turbine site	78 sq m	78 sq m	none	--- sq m
Subtotal		3708 sq m		2200 sq m (59%)

Turbine 6 - West side of Beechwood Line, north of Bridge Road (Plates 7 and 8)

The access route to Turbine 6 follows the south side of a channelized stream and then turns southward and ascends a moderate slope. There is potential for sites near the road and within 300 metres of the stream, particularly on the elevated land. It is expected that the low land immediately adjacent to the stream will have been disturbed during channelization. The potential is low over most of the turbine site, since it is distant from the stream and the road, and soils there are poorly drained.

Facility Size			**Area with Archaeological Potential**	
Access road	5.5 m X 538 m =	2959 sq m	5.5 m x 538 m	2959 sq m
Turbine site	78 sq m	78 sq m	20 sq m	20 sq m
Subtotal		3037 sq m		2979 sq m (98%)

Turbine 7 - East side of Beechwood Line, north of Bridge Road (Plate 9)

The access route crosses level terrain and then turns northward to the turbine site. Although entirely within 300 metres of the stream, the stream edge has probably been disturbed during channelization. Although the land is low, the soils are mapped as adequately drained. There is also potential for Euro-Canadian remains in proximity to the historic road.

Facility Size			**Area with Archaeological Potential**	
Access road	5.5 m X 495 m =	2723 sq m	5.5 m x 495 m	2723 sq m
Turbine site	78 sq m	78 sq m	78 sq m	78 sq m
Subtotal		2801 sq m		2801 sq m (100%)

Turbine 8 - North side of Bridge Road, west of Manley Line (Plate 10)

There is potential for Euro-Canadian remains within 100 metres of the road. Further to the north, the access route crosses gently rising land, but since there are no water sources in the vicinity, there is low potential for archaeological sites.

Facility Size			**Area with Archaeological Potential**	
Access road	5.5 m X 584 m =	3212 sq m	5.5 m x 150 m	825 sq m
Turbine site	78 sq m	78 sq m	none	--- sq m
Subtotal		3290 sq m		825 sq m (25%)

Turbine 9 - North side of Sawmill Road, west of Beechwood Line (Plate 12)

There is potential for Euro-Canadian remains within 100 metres of the road. Further to the north, there is low potential for archaeological, since the access route and turbine site are located on level land, distant from any water sources.

Facility Size			**Area with Archaeological Potential**	
Access road	5.5 m X 187 m =	1029 sq m	5.5 m x 100 m	550 sq m
Turbine site	78 sq m	78 sq m	none	--- sq m
Subtotal		1107 sq m		550 sq m (50%)

Turbine 10 - East side of Beechwood Line, north of Sawmill Road (Plate 13)

There is potential for Euro-Canadian remains within 100 metres of the road, but a structure indicated on the 1879 atlas map (Figure 2) is more than 100 metres from the proposed work areas. The Further to the east, the turbine site and short access road are on level terrain and distant from any water source, and there is low potential for archaeological sites.

Facility Size			**Area with Archaeological Potential**	
Access road	5.5 m X 180 m =	990 sq m	5.5 m x 180 m	990 sq m
Turbine site	78 sq m	78 sq m	none	--- sq m
Subtotal		1107 sq m		990 sq m (93%)

In summary, in accordance with the MCL Guidelines, there is potential for archaeological resources in areas within 100 metres of the historic roads, within 100 metres of mapped 1879 historic homesteads, within 300 metres of streams, and on elevated and well-drained features. Lands that are low and poorly drained, disturbed below the topsoil, or distant from features positively associated with site potential are deemed to have low potential for archaeological sites (MCL 2006, Unit 1b).

Where negative characteristics occur, these lands exhibit low potential for archaeological sites. The field review noted few areas of obvious deep disturbance outside of the road easements where typical rural ROW disturbance is present. The ROW disturbance includes the addition of fill to elevate the roadbed and excavation of roadside ditches to improve drainage. Undisturbed ROW margins vary from nil to one metre in width. In various locations underground or overhead electrical will be installed within the ROW. These locations will be reviewed during Stage 2 assessment, and any locations with potential for sites will be tested. No steeply sloped locations were observed. However, much of the land was observed to be low-lying and level. Where poorly drained soils coincide with the lowland, these areas are poorly drained and were probably wet prior to historic land clearance, tiling, excavation of drainage ditches, and channelization of streams. A number of the facility sites include such poorly drained lands, and during Stage 2 assessment, they would be inspected to verify the character of the drainage. The extant of the turbine sites with associated access roads exhibiting site potential is summarized in Table 2. In totally, nearly 69% of the total area was determined to have archaeological potential.

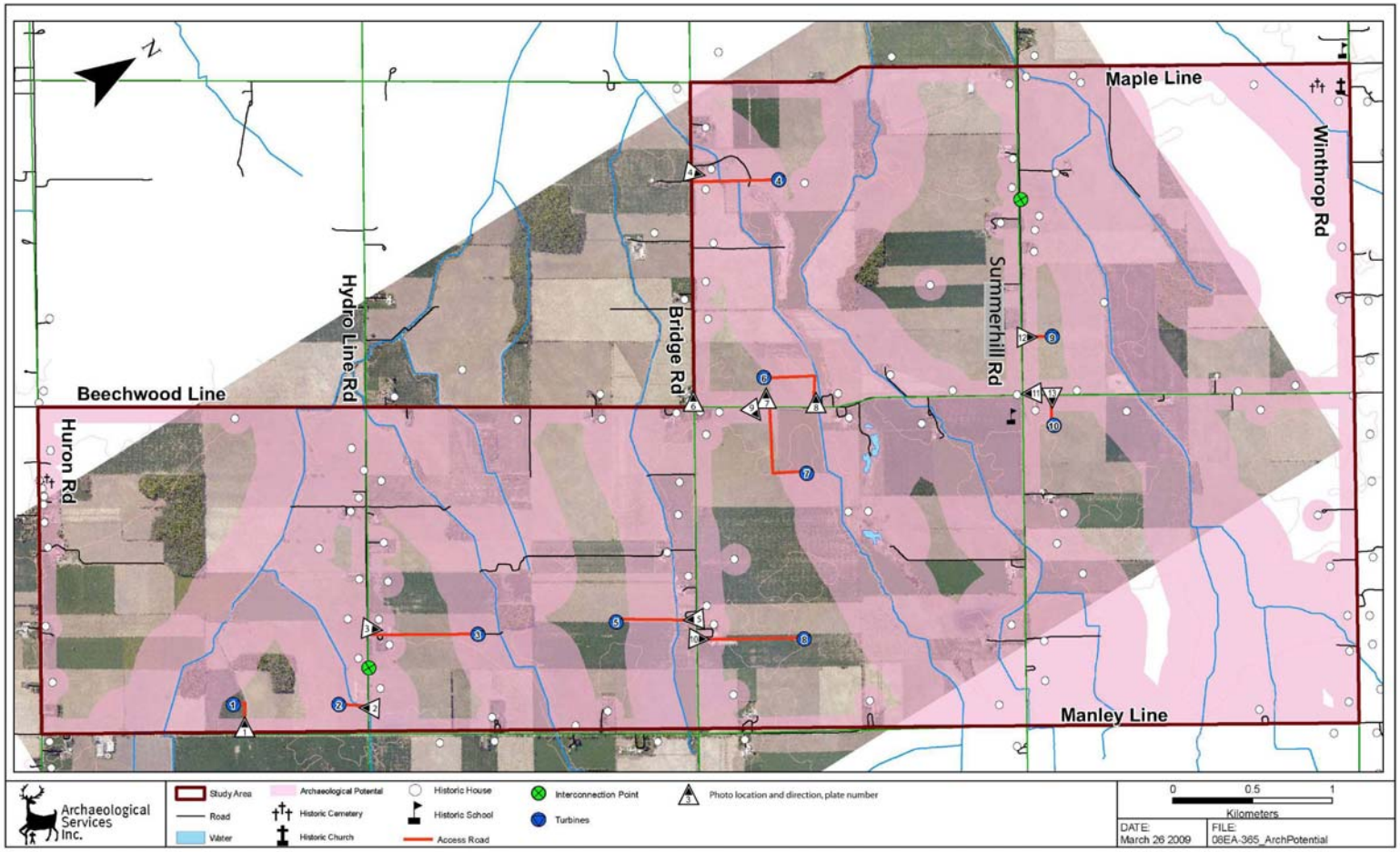

Figure 3: St. Columban Wind Project, Huron County – Results of Stage 1 Archaeological Assessment

Table 2: Estimated Area of Archaeological Potential within Turbine Sites

Turbine Site and Access Road	Total Size (Sq m)	Estimated Area with Archaeological Potential	
		Sq m	%
1	1541	550	36
2	1107	1107	100
3	3807	1948	51
4	2762	2762	100
5	3708	2200	59
6	3037	2979	98
7	2801	2801	100
8	3290	825	25
9	1107	550	50
10	1069	990	93
Total	24,228 (2.42 ha)	16,712 (1.67 ha)	68.98

5.0 CONCLUSIONS AND RECOMMENDATIONS

The Stage 1 archaeological assessment is being conducted to provide information pertinent to the St. Columban Wind Power Project. The assessment determined that no archaeological sites have been registered within 2 kilometers of the study area. Additionally, a review of the general physiography and local nineteenth century land use of the study area suggested that it exhibits potential for the identification of Aboriginal and Euro-Canadian archaeological sites.

A map based review of the study area was conducted in order to construct GIS-based mapping of approximate areas where there is potential for archaeological sites. The map-based review of the study area indicated that most of the overall study area has the potential for archaeological sites (Figure 3: highlighted in pink). This potential is largely based on proximity to streams and to historic roads and structures.

A field review was conducted of the ten proposed turbine sites and the access road locations to confirm to what extant this potential exists and to determine the degree to which development and landscape alterations may have affected that potential. Most of the impacted lands are active agricultural fields there are only a few locations where recent disturbance (below topsoil) has occurred. Road easements include typical rural ROW disturbance. No steeply sloped locations were observed. It should be noted that much of the land was observed to be low-lying. Prior to the excavation of drainage ditches and channelization of streams, these low-lying lands were probably wet wherever they coincide with poorly drained soil types. These negative characteristics should be confirmed during Stage 2 field survey.

In light of these results, the following recommendation is made:

1. A Stage 2 assessment is recommended in advance of any proposed construction impact on any lands (e.g. turbine sites, associated access roads, and crane paths) within the study area where there is potential for archaeological sites (see Figure 3), in accordance with Ministry of Culture's draft *Standards and Guidelines for Consultant Archaeologists (MCL 2006).* While impact may be expected on access roads, turbine work sites, off-road crane paths, and buried electrical lines, the Stage 2 assessment must examine and clear all designated work sites prior to construction.

The following Ministry of Culture conditions also apply:

- This report is filed with the Minister of Culture in compliance with sec. 65 (1) of the Ontario Heritage Act. The ministry reviews reports to ensure that the licensee has met the terms and conditions of the licence and archaeological resources have been identified and documented according to the standards and guidelines set by the ministry, ensuring the conservation, protection and preservation of the heritage of Ontario. It is recommended that development not proceed before receiving confirmation that the Ministry of Culture has entered the report into the provincial register of reports.

- Should previously unknown or unassessed deeply buried archaeological resources be uncovered during development, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage Act.

- Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services.

The documentation and artifacts related to the archaeological assessment of this project will be curated by Archaeological Services Inc. until such a time that arrangements for their ultimate transfer to Her Majesty the Queen in right of Ontario, or other public institution, can be made to the satisfaction of the project owner, the Ontario Ministry of Culture, and any other legitimate interest groups.

5.0 REFERENCES CITED

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6.0 PHOTOGRAPHY

Plate 1: View to west-northwest along access route to Turbine 1 (left of ditch). Level & low terrain.

Plate 2: View to south-southwest along proposed access route to Turbine 2. Level and low terrain. Note elevation of barn on fill.

Plate 3: View to north-northeast along access route to Turbine 3. Gently rise dips to creek beyond.

Plate 4: View to northeast toward Turbine 4 location in the distance. Access road crosses a low gravely esker (visible in distance) and a stream.

Plate 5: View to south-southwest along access route to Turbine 5, approximately at far edge of field. Channelized stream in foreground.

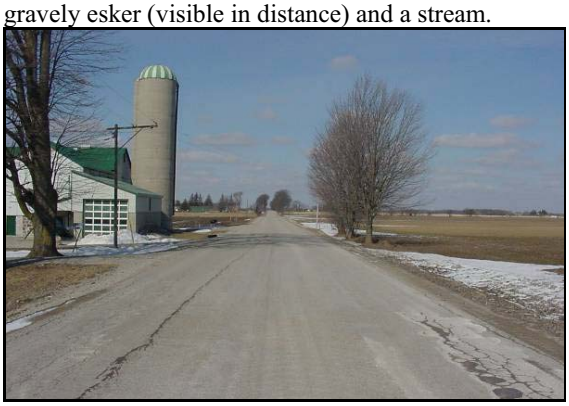

Plate 6: View to west-northwest along Bridge Road. Mature trees in ROW and rural landscape with scattered farms and residences.

Plate 7: View to west-northwest toward proposed Turbine 6 location. Level terrain, distant from water source.

Plate 8: View to west-northwest, proposed access route to Turbine 6 follows south side of stream and then turns south and ascends rising land at left.

Plate 9: View to east, access route to Turbine 7 extends along left margin of ice-covered level land.

Plate 10: View to north-northeast along access route to Turbine 8. Turbine and access road are on rising land. Water is distant.

Plate 11: View to south-southwest along Beechwood Line at intersection with Summerhill Road. Shallow ditches, elevated roadbed, and level terrain.

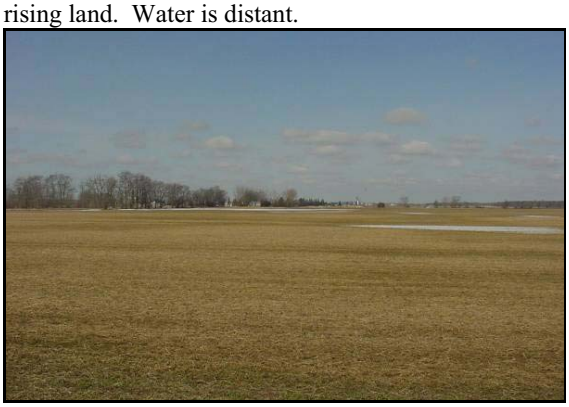

Plate 12: View to north-northeast along access route to Turbine 9. Level terrain.

Plate 13: View to east-northeast along access route to Turbine 10. Level terrain and distant water.