Stage 2 Archaeological Assessment: Jericho Wind, Inc., Jericho Wind Energy Centre, Additional Properties

Various Lots and Concessions
Lambton and Middlesex Counties, Ontario

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ORIGINAL REPORT
August 15, 2013

Executive Summary

A Stage 2 archaeological assessment was conducted by Stantec Consulting Ltd. for additional properties on behalf of Jericho Wind, Inc., for the proposed Jericho Wind Energy Centre. Golder Associates Ltd. (Golder) previously conducted a Stage 1 assessment as well as several Stage 2 assessments for the Jericho Wind Energy Centre (Golder 2012a; Golder 2012b; Golder 2013a; Golder 2013b). The Stage 2 assessment conducted by Stantec was undertaken in order to meet the requirements for an application for a Renewable Energy Approval, as outlined in Ontario Regulation 359/09 sections 21 and 22 under Part V.0.1 of the *Environmental Protection Act* (Government of Ontario 1990a).

The Stage 2 assessment was conducted between May 14, 2013 and August 6, 2013 under the PIF P083-212-2013 issued to Arthur Figura, MA, by the Ministry of Tourism, Culture and Sport. A total of 58 hectares were assessed for several project layout changes during the Stage 2 assessment conducted on behalf of Jericho Wind, Inc. The additional study areas assessed are located in the Municipality of Lambton Shores and the Township of Warwick, in Lambton County, Ontario and the Municipality of North Middlesex, Middlesex County.

The Stage 2 assessment conducted by Stantec resulted in the identification of 17 archaeological sites including 16 pre-contact Aboriginal sites (Locations 280 (AgHl-50), 281 (AgHk-159), 282, 283 (AgHk-160), 284, 285 (AgHk-162), 286 (AgHk-163), 287, 288, 289 (AgHk-164), 290 (AgHk-165), 291, 292, 293, 294, and 295) and one historic Euro-Canadian site (Location 279 (AgHl-49)). **Given the paucity of finds for Locations 282, 284 (AgHk-161), 287, 288, 291, 292, 293, 294, and 295, the cultural heritage value or interest of these sites is considered to be sufficiently documented and no further archaeological assessment is recommended. Given the large number of pre-contact Aboriginal artifacts recovered, further Stage 3 work is recommended for Locations 280 (AgHl-50), 281 (AgHk-159), 283 (AgHk-160), 285 (AgHk-162), 286 (AgHk-163), 289 (AgHk-164), and 290 (AgHk-165)**.

The Stage 2 assessment of Location 279 (AgHl-49) resulted in the identification of a Euro-Canadian site containing predominantly mid-to-late 19th century whiteware, ironstone, and earthenware. **Given the mid to late 19th century date of the artifacts collected, further Stage 3 work is recommended for Location 279 (AgHl-49)**.

The Ministry of Tourism, Culture and Sport is asked to accept this report into the Ontario Public Register of Archaeological Reports. Additional archaeological assessment is still required; hence the archaeological sites recommended for further archaeological field work remains subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed, except by a person holding an archaeological license.

The Executive Summary highlights key points from the report only; for complete information and findings, the reader should examine the complete report.

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1.0 Project Context

1.1 DEVELOPMENT CONTEXT

A Stage 2 archaeological assessment was conducted by Stantec Consulting Ltd. for additional properties on behalf of Jericho Wind, Inc., for the proposed Jericho Wind Energy Centre. The Stage 2 assessment was undertaken in order to meet the requirements for an application for a Renewable Energy Approval, as outlined in Ontario Regulation 359/09 sections 21 and 22 under Part V.0.1 of the *Environmental Protection Act* (Government of Ontario 1990a). Previous Stage 1 and Stage 2 archaeological work was conducted by Golder Associates Ltd. (Golder 2012a; Golder 2012b; Golder 2013a; Golder 2013b) and a more detailed discussion of past investigations is presented in Section 1.3. An additional 58 hectares were evaluated within the project study area as a result of layout changes to the Jericho Wind Energy Centre during Stantec's Stage 2 assessment between May 14, 2013 and August 6, 2013 conducted on behalf of Jericho Wind, Inc. (Figure 1).

The *Green Energy Act* (2009) enabled legislation governing project assessments and approvals to be altered to allow for a more streamlined Renewable Energy Approval (REA) process. Under Section 21(2) of the REA, an archaeological assessment must be conducted by a consultant archaeologist. Golder previously determined that archaeological potential for the recovery of pre-contact Aboriginal and Euro-Canadian historic archaeological resources exists within the study area (Golder 2012a). Currently, Ontario Regulation 359/09 of the *Environmental Protection Act* governs the REA process for renewable energy projects such as wind, anaerobic digestions, solar and thermal treatment facilities.

Jericho Wind, Inc., is proposing to construct a wind energy centre in the Municipality of Lambton Shores and the Township of Warwick, Lambton County, Ontario, and in the Municipality of North Middlesex, Middlesex County, Ontario. The proposed Jericho Wind Energy Centre will consist of 92 turbines as well as associated infrastructure including a transformer substation and ancillary equipment, underground 34.5 kV electrical collector cable routes, overhead 115 kV transmission lines, access roads, and construction roads.

The additional properties and municipal right-of-way (ROW) areas that are part of the proposed layout and construction disturbance area (CDA) changes to the Jericho Wind Energy Centre project area are outlined in Tables 1 and 2, respectively.

Table 1: Additional Properties Within the Jericho Wind Energy Centre

QP Number	Infrastructure	Lot	Concession	Geographic Township
JER1003	Access road, collection line re-route	27	6	Bosanquet
JER1013	Access road, area between Turbines 75/76 for collection line	9	3	Bosanquet
JER1023	Collection line	24	8	Bosanquet
JER1036	Access road, collection re-route	15	9	Bosanquet
JER1040	Collection line, construction disturbance for JER1098, JER1040	26	7	Bosanquet
JER1065	New turbine 26 location, collection line, access road	15	7	Bosanquet
JER1001/JER1077	New Turbine west of Army Camp Road	50, 51	West of Lake Road	Bosanquet
JER1098	Collection line, construction disturbance for JER1098, JER1040	43	East	Bosanquet
JER1104	Collection line, access road	29	4	Bosanquet
JER1364	Extended turbine box	7	2	Warwick
JER1693	Access road, collection line re-route	12	7	Warwick
JER2619	Access road and collection line to proposed Turbine	21	4	Warwick
JER2967	ROW for collection line leading to Turbines 102 &103	26	4	Warwick
JER3276	Turbine 78 gap in access road	14	1	Bosanquet
JER3278	Proposed Turbine	9	1	Bosanquet
JER3367	Fill in gap of old railroad ROW for access road	10	9	Bosanquet
JER3425	Access road, collection re-route	23	South Boundary	Bosanquet
JER3445	New Turbine south of Lake Shore Road	45	East of Lake Road	Bosanquet
JER3454	Proposed Turbine	41,42	East	Bosanquet
JER3467	Area between Turbine 63 & 64	12	South Boundary	Bosanquet
JER3607	New Turbine	5	4	Bosanquet
JER3643	Area between Turbine 63 & 64	13	South Boundary	Bosanquet
JER3749	Area between Turbine 79 and access road	14	1	Bosanquet
JER9197	Extended Turbine box	23	1	Bosanquet

Table 2: Additional ROWs within the Jericho Wind Energy Centre, Lambton County

ROW	Area Studied	Infrastructure	Location	Geographic Township
JER1003	61m CDA, 20 metre (m) buffers on east and west sides of access	Access to Turbine 6	Northville Road	Bosanquet
JER1011	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 57	Cedar Point Line	Bosanquet
JER1013	61m CDA, 20m buffers on east and west sides of access	Access to Turbine 76	Townsend Line	Bosanquet

ROW	Area Studied	Infrastructure	Location	Geographic Township
JER1023	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 19	Jericho Road	Bosanquet
JER1035	20m buffer on west side of access	Access to Turbine 38	Townsend Line	Bosanquet
JER1042	61m CDA, 20m buffer on east and west sides of access	Access to Turbine 14	Ravenswood Line	Bosanquet
JER1044	61m CDA, 20m buffer on east and west sides of access	Access to Turbines 21, 23, 25	Jericho Road	Bosanquet
JER1046	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 70	Cedar Point Line	Bosanquet
JER1059	61m CDA, 20m buffer on south side studied of access	Access to Turbines 80, 81, 82	Arkona Road	Bosanquet
JER1065	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 26	Jericho Road	Bosanquet
JER1076/ 2679	Portion of Hickory Creek Line east of Warwick Village Road and 61m CDA, 20m buffer on east side of access	Collection Line move and Access to Turbine PT-5	Hickory Creek Line	Warwick
JER1077	61m CDA, 20m buffers on north and south sides of access	Access to Turbines 1, 2	Army Camp Road	Bosanquet
JER1079	61m CDA, 20m buffer on east and west sides of access	Access to Turbine 46	Cedar Point Line	Bosanquet
JER1098	20m buffer on north and south sides of access	Access to Turbines 4, PT-1	Jericho Road	Bosanquet
JER1104	61m CDA, 20m buffer on east and west sides of access	Access to Turbine 7	Bog Line	Bosanquet
JER1110	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 13	Bruce Scott Road	Bosanquet
JER1119	500m CDA north of Thomson Line	Jericho Substation	Thomson Line	Bosanquet
JER1120	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 3	Bruce Scott Road	Bosanquet
JER1125	20m buffer on north side of access	Access to Turbine 56	Gordon Road	Bosanquet
JER1129	61m CDA, 20m buffers on north and south sides of access	Access to Turbines 11, 12	Army Camp Road	Bosanquet
JER1141	61m CDA, 20m buffers on north and south sides of access	Access to Turbines 15, 16, 17	Jericho Road	Bosanquet
JER1151	61m CDA, 20m buffer on east and west sides of access	Access to Turbines 9, 10	Bog Line	Bosanquet
JER1152	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 75	Gordon Road	Bosanquet
JER1364	20m buffer on south side of access	Access to Turbine 105	Elarton Road	Warwick
JER1601	20m buffer on east side of access	Access to Turbine 92	Hickory Creek Line	Warwick
JER1630	20m buffer on west side of access	Access to Turbine 91	Hickory Creek Line	Warwick
JER1693/ 1720	Portion of Townsend Line east of Warwick Village Road and 61m CDA, 20m buffer on east and west sides of access	New collection line and Access to Turbine 90	Townsend Line	Warwick
JER2644	61m CDA, 20m buffer on east and west sides of access	Access to Turbine PT-8	Tamarack Line	Warwick
JER2777	61m CDA, 20m buffer on east and west sides of access	Access to Turbine PT-9	Hickory Creek Line	Warwick
JER2946	20m buffer on east side of access	Access to Turbines 102, 103	Birnam Line	Warwick

ROW	Area Studied	Infrastructure	Location	Geographic Township
JER2968	325m north of Birnam Line near access to Turbine 102	Collection line and Access to Turbine	Birnam Line	Warwick
JER3129	61m CDA, 20m buffer on east and west sides of access	Access to Turbine 94	Townsend Line	Warwick
JER3156	61m CDA, 20m buffers on north and south sides of access	Access to Turbines 35, 36	Army Camp Road	Bosanquet
JER3275	61m CDA, 20m buffers on north and south sides of access	Access to Turbines 78, 79, PT-2	Arkona Road	Bosanquet
JER3281	61m CDA, 20m buffer on south side of access	Access to Turbines 83, 84, 85	Arkona Road	Bosanquet
JER3287	20m buffer on south side of access	Access to Turbines 86, PT-4	Arkona Road	Bosanquet
JER3315	20m buffer on south side of access	Access to Turbine 45	Northville Road	Bosanquet
JER3326	20m buffer on south side of access	Access to Turbine 62	Northville Road	Bosanquet
JER3331	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 20	Northville Road	Bosanquet
JER3395	61m CDA, 20m buffer on east and west sides of access	Access to Turbine 40	Cedar Point Line	Bosanquet
JER3400	20m buffer on south side of access	Access to Turbine 43	Army Camp Road	Bosanquet
JER3411	61m CDA, 20m buffer on east and west sides of access	Access to Turbines 49, 50, 51	Jura Line	Bosanquet
JER3425	61m CDA, 20m buffer on east and west sides of access	Access to Turbine 44	Petticoat Line	Bosanquet
JER3429	61m CDA, 20m buffer on south side of access	Access to Turbines 52, 53	Jericho Road	Bosanquet
JER3435	61m CDA, 20m buffer on east and west sides of access	Access to Turbine 54	Townsend Line	Bosanquet
JER3445	61m CDA, 20m buffer on east and west sides of access	Access to Turbine Alt 2	Lakeshore Rd.	Bosanquet
JER3467	20m buffer on east and west sides of access	Access to Turbines 63, 64	Townsend Line	Bosanquet
JER3481	61m CDA, 20m buffer on east and west sides of access	Access to Turbine 28	Ravenswood Line	Bosanquet
JER3562	Portion of Northville Road north of Cedar Point Line	Collection line move	Northville Road	Bosanquet
JER3580	61m CDA, 20m buffer on east and west sides of access	Access to Turbines 66, 67, 68, 69	Farmers Line	Bosanquet
JER3591	61m CDA, 20m buffer on east and west sides of access	Access to Turbine 65	Farmers Line	Bosanquet
JER3607	61m CDA, 20m buffer on south side of access	Access to Turbines 59, PT-11	Gordon Road	Bosanquet
JER3623	20m buffer on north side of access	Access to Turbine 71	Arkona Road	Bosanquet
JER3626	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 72	Arkona Road	Bosanquet
JER3653	20m buffer on south side of access	Access to Turbine 73, 74	Arkona Road	Bosanquet
JER3698/ 3696/1026 /3695	Portion of Gordon Road between Widder Road and access for Turbine 27 and 61m CDA, 20m buffers on north and south sides of access	Collection line and Access to Turbine 27	Gordon Road	Bosanquet
JER9197	61m CDA, 20m buffers on north and south sides of access	Access to Turbine 32, 33	Arkona Road	Bosanquet

ROW	Area Studied	Infrastructure	Location	Geographic Township
BOR1513	30m CDA	Transmission line	Elginfield Road	West Williams

Permission to enter the additional optioned lots within the Project Study Area and remove archaeological resources was granted by and coordinated through Jericho Wind, Inc. For the purposes of the Stage 2 assessment, the Ministry of Tourism, Culture and Sport's (MTCS) *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011b) were followed. The objectives of the Stage 2 assessment were to document archaeological resources present within the study area, to determine whether any of the resources might be artifacts or archaeological sites with cultural heritage value or interest requiring further assessment, and to provide specific Stage 3 direction for the protection, management and/or recovery of the identified archaeological resources (Government of Ontario 2011b).

1.2 HISTORICAL CONTEXT

The Jericho Wind Energy Centre project area comprises agricultural fields, structures, woodlots and water courses located in the Municipality of Lambton Shores and the Township of Warwick, Lambton County, and in the Municipality of North Middlesex, Middlesex County, Ontario (Figure 1).

This portion of southwestern Ontario has been occupied by First Nations peoples since the retreat of the glaciers approximately 11,000 years ago. For the majority of this time people followed a hunter gatherer lifestyle, moving seasonally between areas of localized resource abundance. Approximately 1,300 years ago, with the arrival of corn beans and squash in Ontario, there was a gradual move towards farming and the reliance on domesticated food stuffs, resulting in the eventually emergence of permanent villages by the 10th century. The majority of the study area has been subject to European style agricultural practices for much of the past two centuries, with all of the land available for settlement occupied by Euro-Canadian farmers by the mid-19th century.

1.2.1 Pre-contact Aboriginal Resources

It has been demonstrated that pre-contact Aboriginal people began occupying southwestern Ontario as the glaciers receded from the land, as early as 9,000 B.C. Table 3 provides a general outline of the cultural chronology of Lambton County, based on Ellis and Ferris (1990).

Table 3: Cultural Chronology for Lambton County

Period	Characteristics	Time Period	Comments
Early Paleo-Indian	Fluted Projectiles	9000 - 8400 B.C.	spruce parkland/caribou hunters

Period	Characteristics	Time Period	Comments
Late Paleo-Indian	Hi-Lo Projectiles	8400 – 8000 B.C.	smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000 - 6000 B.C.	slow population growth
Middle Archaic	Brewerton-like points	6000 - 2500 B.C.	environment similar to present
Late Archaic	Lamoka (narrow points)	2000 - 1800 B.C.	increasing site size
	Broad Points	1800 - 1500 B.C.	large chipped lithic tools
	Small Points	1500 – 1100 B.C.	introduction of bow hunting
Terminal Archaic	Hind Points	1100 - 950 B.C.	emergence of true cemeteries
Early Woodland	Meadowood Points	950 - 400 B.C.	introduction of pottery
Middle Woodland	Couture Corded Pottery	400 B.C. - A.D.600	increased sedentism
	Riviere au Vase Corded Pottery	A.D. 600 - 1000	Seasonal hunting and gathering
Late Woodland	Younge Phase Pottery	A.D. 1000 - 1200	Incipient agriculture
	Springwells Phase Pottery	A.D. 1200 - 1400	Agricultural villages
	Wolf Phase Pottery	A.D. 1400 - 1550	Earthworked villages, warfare
Contact Aboriginal	Various Algonkian Groups	A.D. 1550 – present	early written records and treaties
Late Historic	French/Euro-Canadian	A.D. 1749 - present	European settlement

1.2.2 Post-contact Aboriginal Resources

The post-contact Aboriginal occupation of Southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking communities by the New York State Iroquois and the subsequent arrival of Algonkian speaking groups from northern Ontario at the end of the 17th century and the beginning of the 18th century (Konrad 1981; Schmalz 1991). By 1690, Algonkian speakers from the north appear to have initiated repopulation of Bruce County (Rogers 1978:761). In addition, this period marks the migration of the Mississaugas into southern Ontario and the lower Great Lakes watershed (Konrad 1981). By the late 1700's, the members of the Three Fires Confederacy (Chippewa, Ottawa and Potawatomi) had immigrated into southwestern Ontario from Ohio and Michigan (Feest and Feest 1978:778-779).

The study area first enters the Euro-Canadian historic record when the Ojibwa and Chippewa First Nations entered into Treaty Number 27 ½ of April 26, 1825,

> *…being an agreement made at Amherstburg in the Western District of the Province of Upper Canada on the 26th of April, 1825, between James Givens, Esquire, Superintendent of Indian Affairs, on behalf of His Majesty King George the Fourth and the Chiefs and Principal Men of the part of the Chippewa Nation of Indians, inhabiting and claiming the tract of land …. Wawanosh Township in the County of Huron was named after Way-way-nosh the principal Chief of the Band making this Treaty.*
>
> (Morris 1943)

While it is difficult to delineate the exact treaty boundaries today, Figure 2 provides an approximate outline of the limits of Treaty Number 27 ½.

1.2.3 Historic Euro-Canadian Archaeological Resources and Surveys

The additional study areas subject to Project layout changes fall within the Geographic Township of Bosanquet and Warwick Township, Lambton County, Ontario and the Geographic Township of West Williams, Middlesex County, Ontario. Detailed historic background research for each of the Geographic Townships included in the Jericho Wind Energy Centre study area, including background on Lambton County and Middlesex County, can be found in Golder 2012a. Background on the Geographic Township of Bosanquet, Warwick Township, and Township of West Williams specifically, can be found below.

Bosanquet Township was originally surveyed in 1829 by Samuel Smith (Elford 1982:32) and was finished in 1835 by John McDonald using the 1,000 acre section system where lots were divided into 100 acre parcels (Figure 3a). Although the survey was not complete by the time, settlers began to arrive in the early 1830s and in 1832 Benjamin Brewster opened a saw mill (Elford 1982:32). Other early settlers to the township were Henry Utter as well as the Eastman and Smith families (Elford 1982:32). An improvement in transportation initiated the arrival of immigrants to Bosanquet Township in greater numbers. Of particular interest, in 1859 the Great Western Railway built a line going from St. Mary's to Point Edward running through Thedford and Forest. The line was abandoned in the late 1980s (Andreae 1997). In 1873, the Canada Company was running out of land to sell. As a result, it decided to drain Lake Burwell and Lake George to create new land lots (Elford 1982:33). Bosanquet Township was subsumed by the Municipality of Lambton Shores in 2001 when the Towns of Bosanquet and Forest and the Villages of Thedford, Arkona, and Grand Bend were amalgamated.

Warwick Township was originally surveyed by Peter Carroll in 1832 (Elford 1982:92) using the 2,400 acre section system, creating rectangular 200 acre lots, with the lots fronting onto road allowances (Figure 3b). Carroll used Egremont Road as a dividing line. Concessions in the northern portion are numbered from one to eight, and those in the southern portion numbered from one to six (Elford 1982:92). Some of the early Euro-Canadian settlers in Warwick

Township were the Hume, Burwell, Thomas, Rees, Hamilton, Donelley and McKenna families. Many retired British soldiers and their families, who were entitled to 200 acres of land, also settled within the township (Elford 1982:92). The Great Western Railway passed through the township in 1858 running from Komoka to Sarnia. In later years it was bought by the Grand Trunk and in 1905 a second track was added (Andreae 1997). This line is owned by CN Railway and is still in use today (Andreae 1997).

The Township of Williams was first surveyed in 1832 by John McDonald using the 1000 acre section system where lots were divided into 100 acres (Figure 3c). In 1860, the township was separated into East and West portions (Miller 1964:56). The first settler in the township was John McLeod, a Scottish Highlander (Miller 1964:56). In 1849 a large number of settlers came to the area the majority being Highlanders (Miller 1964:56). They worked together to clear the land in order to provide lumber to a growing timber industry which shipped the lumber to India via Quebec (Miller 1964:56). A large number of the original Euro-Canadian settlers migrated to other parts of Canada or the United States when an economic depression lasted through the 1880s and 1890s (Miller 1964:56). In years following, immigrants from Holland and Belgium bought the farmland that was vacated by the earlier settlers (Miller 1964:56).

The 1880 *Lambton County Supplement to the Illustrated Atlas of Canada* and the 1878 *Illustrated Historical Atlas of the County of Middlesex* (Page and Co. 1878) serve as good resources for identifying potential historic Euro-Canadian archaeological sites (Belden and Co. 1880; Page and Co. 1878). The township maps illustrate the majority of notable structures as they were located on properties in the last half of the 19th century. The structures noted include brickyards, cemeteries, churches, gravel pits, hotels, manufactories, mills, and schools. However, only property owners and their associated structures who subscribed to the Illustrated Atlases are recorded on the maps. Although locations are only approximate on these maps, they indicate potential for significant archaeological historic remains that could be impacted within the study area. Typically these locations no longer exhibit any visible evidence of their former structure. As a result, if they are to be impacted by a wind turbine placement, the location would need to be archaeologically assessed to see if there are any archaeological remains.

1.2.4 Reports with Relevant Background Information

In addition to the existing historic documentation, the Jericho Wind Energy Centre project area has been documented in recent archaeological assessments. Numerous archaeological assessment reports have also been written for other projects in the vicinity. Immediately to the west of the Jericho Wind Energy Centre, and also overlapping with a small section of the northern portion of this project area, is the Suncor Cedar Point Wind Power Project. These reports also provide background information relevant to the broader archaeological picture of the area encompassed by the Jericho Wind Energy Centre. Table 4 provides a list of the relevant reports.

Table 4: Archaeological Assessment Reports Related to the Jericho Wind Energy Centre

Year	Title	Author	PIF Number
2012a	*Stage 1 Archaeological Assessment, NextEra Energy Canada, ULC, Jericho Wind Energy Centre Lambton and Middlesex Counties, Ontario.* Report on file with the Ontario Ministry of Tourism, Culture and Sport, Toronto	Golder	P001-607-2010
2012b	*Stage 1 Archaeological Assessment, Suncor Cedar Point Wind Farm, Municipality of Lambton Shores Town of Plympton-Wyoming and Township of Warwick, Lambton County, Ontario.* Report on file with the Ontario Ministry of Tourism, Culture and Sport, Toronto.	Golder	P084-196-2010, P218-210-2012
2012c	*Stage 2 Archaeological Assessment, Suncor Cedar Point Wind Power Project, Various Lots and Concessions Municipality of Lambton Shores, Town of Plympton-Wyoming and Township of Warwick, Lambton County, Ontario.* Report on file with the Ontario Ministry of Tourism, Culture and Sport, Toronto	Golder	P084-225-2010, P218-184-2011
2013a	*Stage 2 Archaeological Assessment, NextEra Energy Canada, ULC, Jericho Wind Energy Centre Lambton and Middlesex Counties, Ontario.* Report on file with the Ontario Ministry of Tourism, Culture and Sport, Toronto	Golder	P218-007-2010, P218-039-2011
2013b	*Stage 2 Archaeological Assessment, Jericho Wind ,Inc., Jericho Wind Energy Centre, Additional Report, Various Lots and Concessions, Lambton and Middlesex Counties, Ontario.* Report on file with the Ontario Ministry of Tourism, Culture and Sport, Toronto	Golder	P366-016-2012
2013c	*Stage 2 Archaeological Assessment, Jericho Wind, Inc., Jericho Wind Energy Centre, Part of Nauvoo Road ROW Between Hickory Creek Line and Tamarack Line, Lambton County, Ontario.* Report on file with the Ontario Ministry of Tourism, Culture and Sport, Toronto	Golder	P366-018-2012
2013	*Stage 2 Archaeological Assessment, Suncor Cedar Point Wind Power Project, Various Lots and Concessions, Municipality of Lambton Shores, Town of Plympton-Wyoming and Township of Warwick, Lambton County, Ontario.* Report on file with the Ontario Ministry of Tourism, Culture and Sport, Toronto.	Stantec	P001-680-2012

1.3 ARCHAEOLOGICAL CONTEXT

The additional Stage 2 field assessment was conducted between May 14, 2013 and August 6, 2013 under the PIF P083-212-2013 issued to Arthur Figura, MA, by the MTCS. The areas surveyed during the Stage 2 archaeological assessment encompass approximately 58 hectares and consisted of ploughed and well-weathered agricultural fields, wooded areas, areas of previous disturbance, areas of steep slope, and water courses.

1.3.1 The Natural Environment

The study area is located within the Horseshoe Moraines, the Huron Fringe, and the St. Clair Plains (Chapman and Putnam 1984:113). The Horseshoe Moraines is a moderately hilly area with gravel terraces and swampy floors (Chapman and Putnam 1984:128). The Huron Fringe consists of mostly sandy soil with pockets of gravel bars (Chapman and Putnam 1984:161) and the St. Clair Plains physiographic region is an area of till plains with shallow deposits of clay (Chapman and Putnam 1984:147). The Huron Slope mostly consists of clay with some areas of silty clay (Chapman and Putnam 1984:160). One major soil series is present in Lambton County: the Perth series (Perth clay). The Perth soils are well suited to growing modern day crops with the exception of fruit trees and early vegetable crops (Matthews *et al.* 1957:45). They are imperfectly drained and tend to produce fair crop yields even during dry seasons due to the soil's reserve supply of moisture. Drainage practices are usually undertaken by farmers with this soil type in order to have greater fall crop yields (Matthews *et al.* 1957:45). Although not ideal, the Perth series would have been suitable for pre-contact Aboriginal agriculture. A major soil series in Middlesex County and specifically within the Project Location is the Fox series (Hagerty and Kingston 1992:46). Fox series soils are not well suited to growing crops but drought limitations of the soil can be overcome by use of irrigation (Hagerty and Kingston 1992:47). These soils have poor to imperfect drainage (Hagerty and Kingston 1992:46). Such as the Perth series, Fox series soils are not ideal for crops but could have been suitable for pre-contact Aboriginal agriculture (Hagerty and Kingston 1992:47).

There are many potable water sources associated with the Jericho Wind Energy Centre project area. The Ausable River runs within the eastern half of the Project Location, while numerous small creeks and other small water courses transect the area at various locations including Shashawandah Creek and Jericho Creek. Lake Huron is located approximately three kilometres north of the upper boundary of the Project study area (Figure 1).

1.3.2 Previously Known Archaeological Sites and Surveys

A Stage 1 archaeological assessment previously conducted by Golder resulted in the determination that potential exists within the project area for the identification of pre-contact Aboriginal and Euro-Canadian sites. As a result, Stage 2 archaeological assessment was recommended for any areas to be impacted by turbine construction, access road construction, or other infrastructure related activities (Golder 2012a).

Golder's Stage 2 assessment focused on the proposed wind turbine layout, including turbine sites, collector cable routes, access roads, construction roads, transmission lines, laydown areas and substations. A total of approximately 2971.5 hectares was subject to Stage 2 archaeological assessment, the majority of which was assessed using the pedestrian survey method at an interval of five metres. Small areas of ditches and tree lines that could not be assessed using the pedestrian survey method were assessed using the test pit method at an interval of five metres (Golder 2013a). A total of 221 archaeological sites were found during Golder's Stage 2 archaeological assessment. The identified sites included 187 pre-contact

Aboriginal sites, 33 historic Euro-Canadian sites and one multi-component site that yielded both pre-contact Aboriginal and historic Euro-Canadian artifacts. Of the 221 sites identified, 73 were recommended for Stage 3 archaeological assessment and 148 did not require further assessment. Table 5 lists the archaeological sites identified during Golder's Stage 2 archaeological assessment (Golder 2013a)

Table 5: Archaeological Sites Found in the Stage 2 Assessment by Golder (2013a)

Location	Borden #	Cultural Affiliation	Stage 3 Recommended
1	AgHl-41	Historic Euro-Canadian	yes
2	n/a	Pre-contact Aboriginal	no
3	n/a	Pre-contact Aboriginal	no
4	n/a	Pre-contact Aboriginal	no
5	n/a	Pre-contact Aboriginal	no
6	n/a	Pre-contact Aboriginal	no
7	n/a	Pre-contact Aboriginal	no
8	AhHl-76	Pre-contact Aboriginal	yes
9	n/a	Pre-contact Aboriginal	no
10	n/a	Pre-contact Aboriginal	no
11	n/a	Pre-contact Aboriginal	no
12	AgHl-13	Historic Euro-Canadian	yes
13	n/a	Pre-contact Aboriginal	no
14	n/a	Pre-contact Aboriginal	no
15	n/a	Pre-contact Aboriginal	no
16	n/a	Pre-contact Aboriginal	no
20	n/a	Pre-contact Aboriginal	no
21	n/a	Pre-contact Aboriginal	no
22	n/a	Pre-contact Aboriginal	no
23	n/a	Pre-contact Aboriginal	no
24	n/a	Pre-contact Aboriginal	no
25	AhHl-77	Pre-contact Aboriginal	yes
26	n/a	Pre-contact Aboriginal	no
27	AhHl-78	Multi-component	yes
28	AhHl-79	Pre-contact Aboriginal	yes
29	n/a	Pre-contact Aboriginal	no
30	n/a	Pre-contact Aboriginal	no
31	n/a	Pre-contact Aboriginal	no
32	n/a	Pre-contact Aboriginal	no
33	AhHl-80	Pre-contact Aboriginal	yes
34	n/a	Pre-contact Aboriginal	no
35	n/a	Pre-contact Aboriginal	no

Location	Borden #	Cultural Affiliation	Stage 3 Recommended
36	n/a	Pre-contact Aboriginal	no
37	n/a	Pre-contact Aboriginal	no
38	AgHl-14	Pre-contact Aboriginal	yes
39	n/a	Pre-contact Aboriginal	no
40	n/a	Pre-contact Aboriginal	no
41	n/a	Pre-contact Aboriginal	no
42	n/a	Pre-contact Aboriginal	no
43	n/a	Pre-contact Aboriginal	no
44	AgHl-15	Historic Euro-Canadian	yes
45	n/a	Pre-contact Aboriginal	no
46	AgHl-16	Historic Euro-Canadian	yes
47	n/a	Pre-contact Aboriginal	no
48	n/a	Pre-contact Aboriginal	no
49	n/a	Historic Euro-Canadian	no
50	AgHl-17	Pre-contact Aboriginal	yes
55	n/a	Pre-contact Aboriginal	no
58	n/a	Pre-contact Aboriginal	no
59	n/a	Pre-contact Aboriginal	no
60	n/a	Pre-contact Aboriginal	no
61	AgHl-18	Pre-contact Aboriginal	yes
62	n/a	Pre-contact Aboriginal	no
63	n/a	Pre-contact Aboriginal	no
64	n/a	Pre-contact Aboriginal	no
65	n/a	Pre-contact Aboriginal	no
66	n/a	Pre-contact Aboriginal	no
67	n/a	Pre-contact Aboriginal	no
68	n/a	Pre-contact Aboriginal	no
69	n/a	Pre-contact Aboriginal	no
70	n/a	Historic Euro-Canadian	no
71	AgHl-19	Historic Euro-Canadian	yes
77	AgHk-140	Pre-contact Aboriginal	yes
78	n/a	Pre-contact Aboriginal	no
79	n/a	Pre-contact Aboriginal	no
80	n/a	Pre-contact Aboriginal	no
81	n/a	Pre-contact Aboriginal	no
82	AhHl-81	Pre-contact Aboriginal	yes
83	n/a	Pre-contact Aboriginal	no
84	AhHl-82	Pre-contact Aboriginal	yes
87	AgHl-42	Historic Euro-Canadian	yes

Location	Borden #	Cultural Affiliation	Stage 3 Recommended
88	n/a	Pre-contact Aboriginal	no
89	n/a	Pre-contact Aboriginal	no
90	n/a	Pre-contact Aboriginal	no
91	n/a	Pre-contact Aboriginal	no
92	n/a	Pre-contact Aboriginal	no
93	n/a	Pre-contact Aboriginal	no
94	n/a	Pre-contact Aboriginal	no
95	n/a	Pre-contact Aboriginal	no
96	n/a	Pre-contact Aboriginal	no
97	n/a	Pre-contact Aboriginal	no
98	n/a	Pre-contact Aboriginal	no
99	n/a	Pre-contact Aboriginal	no
101	AgHk-141	Pre-contact Aboriginal	yes
102	AgHk-142	Pre-contact Aboriginal	yes
103	n/a	Pre-contact Aboriginal	no
104	n/a	Pre-contact Aboriginal	no
105	n/a	Pre-contact Aboriginal	no
106	n/a	Pre-contact Aboriginal	no
107	n/a	Pre-contact Aboriginal	no
108	n/a	Pre-contact Aboriginal	no
109	n/a	Pre-contact Aboriginal	no
110	AhHl-83	Historic Euro-Canadian	yes
111	n/a	Pre-contact Aboriginal	no
112	n/a	Pre-contact Aboriginal	no
113	n/a	Pre-contact Aboriginal	no
114	AgHl-20	Pre-contact Aboriginal	yes
115	n/a	Pre-contact Aboriginal	no
116	AgHl-21	Pre-contact Aboriginal	yes
117	AgHl-22	Historic Euro-Canadian	yes
118	AgHl-39	Pre-contact Aboriginal	yes
119	AhHl-84	Pre-contact Aboriginal	yes
120	n/a	Historic Euro-Canadian	yes
121	AhHl-85	Pre-contact Aboriginal	yes
126	AhHl-86	Pre-contact Aboriginal	yes
130	AhHl-87	Pre-contact Aboriginal	yes
133	n/a	Pre-contact Aboriginal	no
134	n/a	Pre-contact Aboriginal	no
135	AgHl-23	Historic Euro-Canadian	yes
136	AhHl-98	Pre-contact Aboriginal	yes

Location	Borden #	Cultural Affiliation	Stage 3 Recommended
140	AhHl-99	Pre-contact Aboriginal	yes
142	AhHl-88	Pre-contact Aboriginal	yes
143	AhHl-100	Pre-contact Aboriginal	yes
147	AhHl-89	Pre-contact Aboriginal	yes
148	AgHk-143	Historic Euro-Canadian	yes
149	n/a	Pre-contact Aboriginal	no
150	AgHk-144	Pre-contact Aboriginal	yes
151	AgHl-43	Historic Euro-Canadian	yes
152	AhHl-90	Pre-contact Aboriginal	yes
153	AgHk-145	Historic Euro-Canadian	yes
154	n/a	Pre-contact Aboriginal	no
155	n/a	Pre-contact Aboriginal	no
156	AgHl-24	Pre-contact Aboriginal	yes
157	n/a	Pre-contact Aboriginal	no
158	n/a	Pre-contact Aboriginal	no
159	AgHl-25	Historic Euro-Canadian	yes
160	AgHl-26	Historic Euro-Canadian	yes
161	AgHl-27	Historic Euro-Canadian	yes
162	AhHl-91	Historic Euro-Canadian	yes
164	n/a	Historic Euro-Canadian	no
165	AgHl-28	Historic Euro-Canadian	yes
166	n/a	Pre-contact Aboriginal	no
168	n/a	Pre-contact Aboriginal	no
169	n/a	Pre-contact Aboriginal	no
170	AgHl-44	Historic Euro-Canadian	yes
171	AgHl-30	Pre-contact Aboriginal	yes
172	n/a	Pre-contact Aboriginal	no
173	n/a	Pre-contact Aboriginal	no
174	n/a	Pre-contact Aboriginal	no
175	n/a	Pre-contact Aboriginal	no
176	n/a	Pre-contact Aboriginal	no
177	n/a	Pre-contact Aboriginal	no
178	n/a	Pre-contact Aboriginal	no
179	AgHl-31	Historic Euro-Canadian	yes
180	AgHl-32	Pre-contact Aboriginal	yes
181	n/a	Pre-contact Aboriginal	no
182	n/a	Pre-contact Aboriginal	no
183	n/a	Pre-contact Aboriginal	no
184	AhHl-92	Pre-contact Aboriginal	yes

Location	Borden #	Cultural Affiliation	Stage 3 Recommended
185	n/a	Pre-contact Aboriginal	no
186	n/a	Pre-contact Aboriginal	no
187	n/a	Pre-contact Aboriginal	no
188	n/a	Pre-contact Aboriginal	no
189	n/a	Pre-contact Aboriginal	no
190	n/a	Pre-contact Aboriginal	no
191	n/a	Pre-contact Aboriginal	no
193	AgHk-146	Pre-contact Aboriginal	yes
196	AgHk-147	Pre-contact Aboriginal	yes
197	AgHk-148	Pre-contact Aboriginal	yes
198	n/a	Pre-contact Aboriginal	no
199	AgHk-149	Pre-contact Aboriginal	yes
200	n/a	Pre-contact Aboriginal	no
204	n/a	Pre-contact Aboriginal	no
207	n/a	Pre-contact Aboriginal	no
209	n/a	Pre-contact Aboriginal	no
210	n/a	Pre-contact Aboriginal	no
211	n/a	Pre-contact Aboriginal	no
212	n/a	Pre-contact Aboriginal	no
213	n/a	Pre-contact Aboriginal	no
214	n/a	Pre-contact Aboriginal	no
215	AgHl-33	Pre-contact Aboriginal	yes
216	AhHl-93	Pre-contact Aboriginal	yes
218	n/a	Pre-contact Aboriginal	no
219	n/a	Pre-contact Aboriginal	no
220	n/a	Pre-contact Aboriginal	no
221	AgHl-40	Historic Euro-Canadian	yes
222	n/a	Pre-contact Aboriginal	no
223	n/a	Pre-contact Aboriginal	no
225	AhHl-94	Pre-contact Aboriginal	yes
226	AhHl-95	Pre-contact Aboriginal	yes
227	n/a	Pre-contact Aboriginal	no
236a	n/a	Pre-contact Aboriginal	no
236b	n/a	Pre-contact Aboriginal	no
238	n/a	Pre-contact Aboriginal	no
239	n/a	Pre-contact Aboriginal	no
240	AgHk-151	Pre-contact Aboriginal	yes
241	AgHl-34	Pre-contact Aboriginal	yes
242	AgHl-35	Historic Euro-Canadian	yes

Location	Borden #	Cultural Affiliation	Stage 3 Recommended
243	n/a	Pre-contact Aboriginal	no
244	n/a	Pre-contact Aboriginal	no
245	AhHk-149	Pre-contact Aboriginal	yes
246	n/a	Pre-contact Aboriginal	no
247	AgHl-36	Historic Euro-Canadian	yes
248	n/a	Pre-contact Aboriginal	no
249	AgHl-45	Historic Euro-Canadian	yes
250	AgHk-156	Historic Euro-Canadian	yes
251	n/a	Pre-contact Aboriginal	no
252	n/a	Pre-contact Aboriginal	no
253	n/a	Pre-contact Aboriginal	no
254	AhHl-101	Pre-contact Aboriginal	yes
255	n/a	Pre-contact Aboriginal	no
256	n/a	Pre-contact Aboriginal	no
257	n/a	Pre-contact Aboriginal	no
258	n/a	Pre-contact Aboriginal	no
259	n/a	Pre-contact Aboriginal	no
260	n/a	Pre-contact Aboriginal	no
261	n/a	Pre-contact Aboriginal	no
262	AgHl-37	Historic Euro-Canadian	yes
263	n/a	Pre-contact Aboriginal	no
264	AgHl-46	Historic Euro-Canadian	yes
265	n/a	Pre-contact Aboriginal	no
266	AgHk-157	Pre-contact Aboriginal	yes
267	n/a	Historic Euro-Canadian	no
268	AgHk-158	Pre-contact Aboriginal	yes
269	n/a	Pre-contact Aboriginal	no
270	n/a	Historic Euro-Canadian	no
271	n/a	Historic Euro-Canadian	no
272	n/a	Pre-contact Aboriginal	no
273	AhHl-96	Pre-contact Aboriginal	yes
274	n/a	Pre-contact Aboriginal	no
275	n/a	Pre-contact Aboriginal	no
276	AgHk-154	Historic Euro-Canadian	yes

Additional Stage 2 archaeological assessment conducted by Golder details the survey of a collection line easement where the disturbance area was extended from the ROW onto adjacent private land (Golder 2013c). A total of approximately 35.1 hectares were subject to this additional Stage 2 archaeological assessment, the majority of which was assessed using the

pedestrian survey method and the remaining using test pit survey. Two archaeological sites were found during this Stage 2 archaeological assessment, one historic Euro-Canadian (Location 277) and one pre-contact Aboriginal (Location 278). Location 277 (AgHk-155) was recommended for Stage 3 assessment, and Location 278 was not recommended for further work (Golder 2013c).

Besides Golder's Stage 1 and 2 archaeological assessments, according to the Archaeological Sites Database (ASDB) there are 111 registered sites located within one kilometre and inside of the Project area: 89 are pre-contact Aboriginal, 2 are historic Euro-Canadian, 3 are multi-component sites, 10 are indeterminate according to the data recorded in the ASDB and another 7 are yet to be fully entered into the ASDB and so nothing has yet been recorded about them except their Borden numbers. Table 6 summarizes the sites found within one kilometre of the study area based on the Archaeological Sites Database (ASDB) (Government of Ontario, n.d.).

Table 6: Archaeological Sites Registered Within One Kilometre of the Study Area

Borden Number	Site Name	Site Type	Cultural Affiliation
AgHk-1	Holmes	chipping station	Glen Meyer, Early Iroquoian, Late Woodland
AhHk-49	Parkhill	village	Archaic, Paleo-Indian
AgHl-3	Standpipe Location 1	findspot	Archaic
AgHk-55	-	campsite	Pre-contact Aboriginal
AgHl-54	Kettle & Stoney Point	campsite	Pre-contact Aboriginal
AhHl-55	Kettle & Stoney Point	campsite	Pre-contact Aboriginal
AhHl-43	Kristy	campsite	Saugeen, Early and Middle Woodland, Meadowood
AgHk-59	-	campsite	Pre-contact Aboriginal
AgHk-60	-	campsite	Pre-contact Aboriginal
AhHl-32	Not yet fully recorded in ASDB		
AhHl-33	Not yet fully recorded in ASDB		
AhHl-34	Not yet fully recorded in ASDB		
AgHk-138	Not yet fully recorded in ASDB		
AgHk-139	Not yet fully recorded in ASDB		
AgHk-98	Not yet fully recorded in ASDB		
AgHk-117	Not yet fully recorded in ASDB		
AhHl-56	Kettle & Stoney Point	campsite	Pre-contact Aboriginal
AgHk-28	-	lithic scatter	Pre-contact Aboriginal
AgHk-29	-	lithic scatter	Pre-contact Aboriginal
AgHk-31	-	lithic scatter	Pre-contact Aboriginal
AgHk-32	Van Bree	campsite	Late Woodland, Younge Phase
AgHk-58	-	campsite, residential	Pre-contact Aboriginal, early to late 19th century
AgHk-57	-	campsite	Pre-contact Aboriginal
AhHl-39	Mud Creek	lithic scatter	Pre-contact Aboriginal

Borden Number	Site Name	Site Type	Cultural Affiliation
AhHl-40	Brent	surface scatter	Archaic, Middle Woodland
AhHl-41	Lorelyn	campsite, lithic scatter	Middle Archaic
AgHk-4	Wyoming Rapids	campsite, village	Middle Woodland, Saugeen
AgHk-30	-	lithic scatter	Pre-contact Aboriginal
AhHl-57	Kettle & Sandy Point	campsite	Pre-contact Aboriginal
AhHl-28	85-2-2	lithic scatter	Pre-contact Aboriginal
AhHk-89	Simons	campsite, burial	Chippewa, Glen Meyer, Iroquois, Early to Late Woodland, Euro-Canadian
AhHk-72	Davidson's Barn	campsite	Archaic, Glen Meyer, Woodland
AhHk-71	Glenn 1	campsite	Archaic, Glen Meyer, Woodland, Euro-Canadian
AhHk-82	-	campsite	Pre-contact Aboriginal
AgHk-62	P1	findspot	Pre-contact Aboriginal
AhHl-62	-	farmstead	Euro-Canadian
AgHk-18	Stragglin Goose	campsite	Early Woodland
AhHk-81	Glenn 3	campsite	Late Woodland, Euro-Canadian
AhHk-80	Sadler 4	campsite, chipping station	Pre-contact Aboriginal
AgHl-1	Moons	campsite	Archaic
AhHk-85	Crawford	village	Pre-contact Aboriginal
AhHk-83	-	campsite	Euro-Canadian
AgHk-16	Adder Orchard	campsite	Late Archaic, Broad Point
AgHk-19	One Red Flake	findspot	Pre-contact Aboriginal
AgHk-52	-	campsite	Pre-contact Aboriginal
AgHk-53	-	campsite	Pre-contact Aboriginal
AgHk-54	-	campsite	Late Woodland
AgHl-4	Geertz #1	campsite, lithic scatter	Late Archaic, Late Woodland
AgHl-5	Geertz #2	campsite	Early Archaic
AgHl-6	Geertz #3	campsite	Pre-contact Aboriginal
AgHk-39	Green Hill	campsite, special purpose	Middle to Late Archaic, Broad Point
AgHk-40	Bingo Village	campsite	Middle Woodland
AgHk-41	-	campsite	Woodland
AgHk-43	-	campsite	Pre-contact Aboriginal
AgHk-44	-	campsite, chipping station	Pre-contact Aboriginal
AgHk-45	-	chipping station	Pre-contact Aboriginal
AgHk-46	-	campsite	Woodland
AgHk-47	-	campsite	Pre-contact Aboriginal
AgHk-42	-	village	Younge Phase Western Basin
AhHl-53	Kettle Point Industrial	campsite	Pre-contact Aboriginal

Borden Number	Site Name	Site Type	Cultural Affiliation
	Park		
AhHl-42	Andrea	camp, lithic scatter	Middle Archaic
AgHk-56	-	campsite	Pre-contact Aboriginal
AhHl-20	Wilf	campsite	Early Woodland
AhHk-84	Glenn 2	campsite	Pre-contact Aboriginal
AhHk-51	Heaman 1	undetermined	Paleo-Indian
AhHk-53	Crawford 2	undetermined	Paleo-Indian
AhHk-73	Dixon	undetermined	-
AhHk-74	Schofield	undetermined	-
AhHk-76	Pascoe	undetermined	-
AhHk-86	Haunted Hill	undetermined	-
AhHk-54	George Davidson	campsite	Archaic
AhHk-69	Desjardins	campsite	Late Archaic
AhHk-70	Sadler 1	campsite	Late Archaic
AhHk-87	Harm	undetermined	-
AhHk-88	F. MacDonald	undetermined	-
AgHk-13	Utter	burial/hamlet	Early Iroquoian
AgHk-14	Butler 1	village	Early Late Woodland
AgHk-15	Butler 2	hamlet	Early Late Woodland
AgHi-2	Braun	hamlet/village	Late Woodland
AgHk-20	Arkona 3	campsite	Pre-contact Aboriginal
AgHk-21	Arkona 4	findspot	Pre-contact Aboriginal
AgHk-23	Arkona 6	findspot	Pre-contact Aboriginal
AgHk-24	Arkona 7	findspot	Pre-contact Aboriginal
AgHk-5	Young	undetermined	-
AgHk-6	Thedford 2	campsite	Paleo-Indian
AgHk-7	Wyoming Reach	undetermined	-
AgHk-8	Wight 1	undetermined	-
AgHk-9	Wight 2	undetermined	-
AgHk-27	Arkona 10	findspot	Pre-contact Aboriginal
AgHk-22	Arkona 5	campsite	Pre-contact Aboriginal
AgHk-26	Arkona 9	findspot	Late Archaic
AhHk-78	Saddler 2	campsite/chipping station	Pre-contact Aboriginal
AhHk-79	Sadler 3	campsite/chipping station	Pre-contact Aboriginal
AgHk-2	-	village	Archaic
AhHk-50	Thedford 1	undetermined	Paleo-Indian
AhHk-48	Crawford	campsite	Late Woodland
AhHl-4	Van Heyst	village	Archaic

Borden Number	Site Name	Site Type	Cultural Affiliation
AhHk-52	McLeod	campsite	Paleo-Indian, Archaic, Woodland
AgHk-10	June 28-8-1	campsite	Pre-contact Aboriginal
AgHk-117	June 28-8-2	campsite	Pre-contact Aboriginal
AgHk-12	June 21-1	campsite	Pre-contact Aboriginal
AhHk-94	-	campsite	Late Archaic
AhHk-96	-	campsite	Pre-contact Aboriginal
AhHl-30	Gibbs	undetermined	Middle Woodland
AhHl-31	Russell	campsite	Late Archaic and Late Woodland
AhHl-35	Brown-Walden	campsite	Late Archaic and Early Woodland
AhHl-36	Hegler	campsite	Late Archaic and Early Woodland
AhHl-37	Joseph Paisley Homestead	scatter	Early Woodland and Middle Woodland
AhHl-38	Northville Crescent	campsite	Middle Archaic, Early Woodland, Middle Woodland
AgHk-35	-	campsite	Late Archaic
AgHk-95	-	campsite	Pre-contact Aboriginal

Well known sites within the study area include the Adder Orchard Site (AgHk-16), a Late Archaic Broad Point campsite which provides the type artifact description for the Adder Orchard projectile point (Fisher 1997); and the Crawford Site (AhHk-48), a Late Woodland site along the eastern edge of the study area (Jury 1948). Noteworthy site clusters that occur within the study area are the Thedford Cluster and the Arkona Cluster.

The Thedford Cluster of 10 sites is a concentration of Paleo-Indian sites located east of the present day village of Thedford (Deller 1979). These sites have been investigated in part due to their location on relic strandlines that were once the beaches of glacial Lakes Algonquin and Nipissing at various times in the past, prior to the configuration of the Great Lakes today (Deller *et al*. 1986). Thedford II (AgHk-6) in particular has been the subject of extensive study (Deller and Ellis 1992). The Thedford sites have been investigated and are in known locations. Consequently, the surrounding area presents increased archaeological potential for sites representing Paleo-Indian occupation. The tendency of pre-contact Aboriginal groups to settle along relic beaches, such as the former Lake Nipissing strandline near Thedford or the Lake Warren strandline to the south – Wyoming Rapids (AgHk-4), a Middle Woodland site, being one such example – lends further potential to the study area for pre-contact Aboriginal archaeological resources.

The other aforementioned cluster, the Arkona Cluster consists of 22 sites. It appears to represent a local Late Woodland population that occupied the area just east of present day Arkona. Seven sites date to the Younge Phase of the Western Basin Tradition, spanning approximately 1000 A.D. to 1300 A.D. (Ferris and Wilson 2009). The other sites in the Arkona Cluster with temporally non-diagnostic artifacts likely date to the same time period. These sites

have been previously investigated and documented by Archaeologix Inc. in the earlier stages of archaeological assessment (Archaeologix Inc. 2003; Archaeologix Inc. 2004; Archaeologix Inc. 2007a; Archaeologix 2007b). The other sites in the cluster have also been excavated and documented (Archaeologix Inc. 1998a; Archaeologix 1998b; Archaeologix 1998c; Archaeologix Inc. 2003; Archaeologix Inc. 2004; Archaeologix Inc. 2006; Archaeologix Inc. 2007a; Archaeologix 2007b). Two notable sites are Younge Phase village sites: the Bingo Village Site (AgHk-42) and the Figura Site (AgHk-52). Although the Arkona sites have been excavated, there is still high archaeological potential within the surrounding area to recover sites related specifically to this occupational sequence or generally to the Western Basin Tradition cultural sequence.

These aforementioned site clusters are within 50 metres of the additional properties discussed in this report, as is the previous Jericho Wind Energy Centre Stage 2 archaeological assessment conducted by Golder and summarized above.

1.3.3 Archaeological Potential

Archaeological potential is established by determining the likelihood of the presence of archaeological resources on a subject property. Stantec applied archaeological potential criteria commonly used by the MTCS (Government of Ontario 2011b) to determine areas of archaeological potential within the region under study. These variables include proximity to previously identified archaeological sites, distance to various types of water sources, soil texture and drainage, glacial geomorphology, elevated topography and the general topographic variability of the area.

Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and, considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential. Finally, extensive land disturbance can eradicate archaeological potential (Wilson and Horne 1995).

In archaeological potential modeling, a distance to water criterion of 300 metres is generally employed. The closest potable water sources to the study area are numerous small creeks that transect the area at various locations including Shashawandah Creek and Jericho Creek. In addition, the Ausable River runs through the eastern half of the Project Location. Lake Huron is located approximately three kilometres to the north of the limits of the Project Location (Figure 1).

Soil texture can be an important determinant of past settlement, usually in combination with other factors, such as topography. Aboriginal groups preferred well drained lighter (sandy) soil to heavier soils. The soils of the additional study areas are imperfectly drained soils which, although not ideal, may have been suitable for pre-contact Aboriginal agriculture.

The MTCS also views the presence of previously registered archaeological resources as a prime indicator of archaeological potential. There are 89 registered pre-contact Aboriginal sites, 17 undetermined sites, 3 multi-component sites, and 2 historic Euro-Canadian sites within and surrounding the Project Location.

The Stage 1 archaeological assessment of the Jericho Wind Energy Centre project area, conducted by Golder (2012a), resulted in the determination that moderate to high archaeological potential exists within the study area for the recovery of pre-contact Aboriginal archaeological sites. This determination was made based on the presence of water sources, previously known archaeological sites, topography (stretches of level land without areas of steep slope, and proximity to glacial strandlines), and the agriculturally suitable soils (Golder 2012a).

In addition, moderate to high archaeological potential was also determined for the recovery of post-contact Aboriginal and historic Euro-Canadian archaeological resources. There is evidence of Euro-Canadian settlement extending back to the early 19th century, during the initial Euro-Canadian occupation of the area and the 19th century road grid is still in use. Two more substantial historic communities, Forest and Alvinston, are located in close proximity to the study area. In addition, there is historical evidence that First Nations people were living in the area during the initial phase of European settlement and to the present day.

2.0 Field Methods

The current study area encompasses additional properties within the Jericho Wind Energy Centre that will be affected by layout changes to the Project Location. Layout changes to turbine locations, collection and transmission line re-routes, new access roads, the extension of turbine pad construction disturbance areas, and expanded areas of other construction disturbance were surveyed by Stantec between May 14, 2013 and August 6, 2013. All proposed turbine pads were surveyed at a 140 by 140 metre area. Access roads were assessed at 60 metres wide and collector cable lines were assessed at a width of 20 metres. Construction disturbance areas for access roads located in municipal ROWs were assessed, in addition to 20 metre long buffer areas on either side of the access road CDA to accommodate expanded road entries. In total, an approximate 58 hectares were surveyed as part of the additional Stage 2 assessment.

As per the *Standards and Guidelines for Consultant Archaeologists* (Section 7.8.6 Standard 1a; Government of Ontario 2011), Photos 1 to 82 confirm that the conditions of the surveyed portions of the study area allowed the standards for Stage 2 pedestrian survey and test pit survey to be met. Photograph locations and directions are provided in Figure 5. During the Stage 2 archaeological assessment, weather conditions varied from overcast and cold to sunny and hot. At no time were the field or weather conditions detrimental to the recovery of archaeological material. Field surface visibility was at least 85% and lighting conditions were excellent. Table 7 lists weather and field conditions for the days when test pitting and pedestrian survey occurred, plus days when field conditions were checked prior to Stage 2 archaeological assessment and when fields were staked for ploughing and weathering prior to Stage 2 archaeological assessment.

Table 7: Weather and Field Conditions

Date	Activity	Weather	Field Conditions
14 May 2013	Checking field conditions	Overcast and cool	No field work conducted
16 May 2013	Staking areas to be ploughed	Sunny and warm	No field work conducted
17 May 2013	Staking sites to be ploughed	Sunny and warm	No field work conducted
22 May 2013	Test pit and pedestrian survey	Overcast and warm	Soil surface has over 85% visibility and is well-weathered in agricultural fields; soil is slightly damp but screens well in areas inaccessible to ploughing
23 May 2013	Test pit survey	Overcast and warm	Soil is dry and screens well
24 May 2013	Checking field conditions	Overcast and cool	No field work conducted
30 May 2013	Pedestrian survey	Sunny and hot	Soil surface has over 90% visibility and is well-weathered
31 May 2013	Pedestrian survey	Sunny and warm	Soil surface has over 85% visibility and is well-weathered
3 June 2013	Pedestrian survey	Overcast and cool	Soil surface has over 80% visibility and is well-weathered
4 June 2013	Pedestrian survey	Overcast and warm	Soil surface has over 85% visibility and is well-weathered

Date	Activity	Weather	Field Conditions
5 June 2013	Test pit and pedestrian survey	Sunny and warm	Soil surface has over 85% visibility and is well-weathered in agricultural fields; soil is slightly damp but screens well in areas inaccessible to ploughing
10 June 2013	Pedestrian survey	Overcast and warm, light rain	Soil surface has over 85% visibility and is well-weathered
14 June 2013	Pedestrian survey	Sunny and warm	Soil surface has over 95% visibility and is well-weathered
23 June 2013	Test pit and pedestrian survey	Sunny and warm	Soil surface has over 85% visibility and is well-weathered in agricultural fields; soil is dry and screens well in areas inaccessible to ploughing
24 June 2013	Test pit and pedestrian survey	Sunny and hot	Soil surface has over 85% visibility and is well-weathered in agricultural fields; soil is dry and screens well in areas inaccessible to ploughing
27 June 2013	Checking field conditions	Sunny and warm	No field work conducted
28 June 2013	Checking field conditions	Sunny and warm	No field work conducted
2 July 2013	Test pit and pedestrian survey	Overcast and warm	Soil surface has over 85% visibility and is well-weathered in agricultural fields; soil is dry and screens well in areas inaccessible to ploughing
10 July 2013	Test pit survey	Sunny and warm	Soil surface has over 85% visibility and is well-weathered in agricultural fields; soil is dry and screens well in areas inaccessible to ploughing
23 July 2013	Test pit survey	Sunny and warm	Soil is dry and screens well
6 August 2013	Pedestrian survey	Overcast and cool	Soil surface has over 85% visibility and is well-weathered

Approximately 9% of the additional parcels were not assessed due to areas of previous disturbance and steep slope, 88% of the additional parcels were subject to pedestrian survey, and 3% were assessed by test pit survey. The areas subject to pedestrian survey were assessed at five metre intervals according to Section 2.1.1 Standard 6 in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011b) (Photo 1 to 15, 17 to 23, 25, 40, 42, 66, 72, 73, and 82). During pedestrian survey, in the event that archaeological resources were recovered, survey intervals were intensified to one metre within a 20 metre radius of the find as per Section 2.1.1 Standard 7 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011b). This approach was taken to establish whether or not the artifact was an isolated find or part of a larger artifact scatter (Government of Ontario 2011b). Areas where the municipal ROW extended into ploughed and weathered agricultural fields with no visible previous disturbance, were pedestrian surveyed at one metre intervals due to the small size of the areas requiring survey.

Woodlots, small treed areas, and manicured lawns were assessed by the test pit survey method at 5 metre intervals as per Section 2.1.2 Standards 1a,1e, and 2 in *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011b) (Photo 3, 13, and 14,). Areas of previous disturbance consisted of ROWs and JER3367 (Figure 4) which have been disturbed

due to previous road and utility construction (Photos 16 and to 80). Following the *Standards and Guidelines for Consultant Archaeologists* Section 2.1.8 Standard 2, and Section 2.1.2 Standard 1f, areas along municipal ROWs were also test pitted where physically viable and when conditions did not meet standards for pedestrian survey to confirm that these areas had been previously disturbed (Photo 41, 47, 52, 55, 63, 71, 72, and 73). Each test pit was excavated by hand and was approximately 30 centimetres in diameter and excavated five centimetres into sterile subsoil (*Standards and Guidelines for Consultant Archaeologists* Section 2.1.2 Standards 5 and 6, Government of Ontario 2011b). Test pits were examined for stratigraphy, cultural features, and evidence of fill. All soil matrix was screened through six millimetre mesh hardware cloth to facilitate the recovery of small artifacts and then used to backfill the pit (*Standards and Guidelines for Consultant Archaeologists Section* 2.1.2 Standards 6, 7, and 9; Government of Ontario 2011b). No artifacts were recovered during the test pit survey and no further test pitting procedures were employed.

Tables 8 and 9 outline the field methods employed for each additional property and ROW assessed in the Stage 2 archaeological assessment, respectively.

Table 8: Field Methods for Additional Properties Assessed by Stantec

QP Number	Pedestrian Survey	Test Pit Survey	Areas of Disturbance	Tile	Photos
JER1003	yes	no	no	5.65	1
JER1013	yes	no	no	5.11	2
JER1023	no	yes	no	5.64	3
JER1036	yes	no	no	5.41	4
JER1040	yes	no	no	5.64	5
JER1065	yes	no	no	5.42	6
JER1098	yes	no	no	5.64	7
JER1104	yes	no	no	5.71	8
JER1364	yes	no	no	5.1	9
JER1693	yes	no	no	5.13	10
JER2619	yes	no	no	5.5	11
JER3332/3445	yes	no	no	5.63	12
JER2967	no	yes	no	5.7	13
JER3276	yes	yes	no	5.44	14 and 85
JER3278	yes	no	no	5.30	15
JER3367	no	yes	yes	5.33	16
JER3425	yes	no	no	5.13	17
JER3454	yes	no	no	5.69	18
JER3467	yes	no	no	5.15	19
JER3607	yes	no	no	5.29	20

QP Number	Pedestrian Survey	Test Pit Survey	Areas of Disturbance	Tile	Photos
JER3643	yes	no	no	5.15	21
JER3749	yes	no	no	5.44	22
JER9197	yes	no	no	5.61	23
JER1001	yes	no	no	5.62	82

Table 9: Field Methods for ROWs Assessed by Stantec

ROW	Pedestrian Survey	Test Pit Survey	Confirmed Disturbance	Tile	Photos
JER1003	no	no	yes	5.65	24
JER1011	yes	no	yes	5.35	25
JER1013	no	no	yes	5.11	26
JER1023	no	no	yes	5.64	27
JER1035	no	no	yes	5.19	28
JER1042	no	no	yes	5.57	29
JER1044	no	no	yes	5.51	30
JER1046	no	no	yes	5.36	31
JER1059	no	no	yes	5.37	32
JER1065	no	no	yes	5.42	33
JER1076/2679	no	no	yes	5.10	34 and 35
JER1077	no	no	yes	5.62	36
JER1079	no	no	yes	5.34	37
JER1098	no	no	yes	5.64	38
JER1104	no	no	yes	5.71	39
JER1110	yes	no	yes	5.63	40
JER1120	no	yes	yes	5.63	41
JER1125	yes	no	yes	5.36	42
JER1129	no	no	yes	5.57	43
JER1141	no	no	yes	5.51	44
JER1151	no	no	yes	5.67	45
JER1152	no	no	yes	5.11	46
JER1364	no	yes	yes	5.1	47
JER1601	no	no	yes	5.8	48
JER1630	no	no	yes	5.8	49
JER1693/1720	no	no	yes	5.13 and 5.20	50 and 51
JER2644	no	yes	yes	5.10	52
JER2777	no	no	yes	5.14	53

ROW	Pedestrian Survey	Test Pit Survey	Confirmed Disturbance	Tile	Photos
JER2946	no	no	yes	5.7	54
JER3129	no	yes	yes	5.11	55
JER3156	no	no	yes	5.26	56
JER3275	no	no	yes	5.44	57
JER3281	no	no	yes	5.30	58
JER3287	no	no	yes	5.17	59
JER3315	no	no	yes	5.35	60
JER3326	no	no	yes	5.22	61
JER3331	no	no	yes	5.65	62
JER3395	no	yes	yes	5.33	63
JER3400	no	no	yes	5.26	64
JER3411	no	no	yes	5.21	65
JER3425	yes	no	yes	5.13	66
JER3429	no	no	yes	5.21	67
JER3435	no	no	yes	5.14	68
JER3467	no	no	yes	5.15	69
JER3481	no	no	yes	5.59	70
JER3562	no	yes	yes	5.35	71
JER3580	yes	yes	yes	5.43	72
JER3591	no	yes	yes	5.43	73
JER3607	no	no	yes	5.29	74
JER3623	no	no	yes	5.30	75
JER3626	no	no	yes	5.30	76
JER3653	no	no	yes	5.17	77
JER3698/3696/1026/3695	no	no	yes	5.60 and 5.66	78 and 79
JER9197	no	no	yes		80
BOR1513	no	yes	yes	5.46	81
JER1001	yes	no	no	5.62	82
JER2968	no	no	yes	5.7	83
JER1693	no	no	yes	5.13	84
JER1119	no	no	yes	5.51	86
JER3445	no	no	yes	5.63	87
JER1040	no	no	yes	5.64	88

Stage 2 field and lab work were carried out in accordance with *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011b). All formal artifact types and

diagnostic categories were collected from each site. On pre-contact Aboriginal sites with fewer than 15 artifacts all surface finds were collected. On pre-contact Aboriginal sites with 15 or more artifacts all diagnostic artifacts as well as a representative sample of approximately 30-50% of all non-diagnostic artifacts was collected based on the professional judgment of the licensed field supervisor as per Section 2.1.1 Standard 9 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011b). In the case of Euro-Canadian sites, all refined ceramic sherds were collected along with an approximate 50% sample of all other artifacts in order to strike a balance between the need to gather enough artifacts to sufficiently document the site and leaving enough in place to relocate it as per Section 2.1.1 Standards 8 and 9 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011b). All artifacts collected during Stage 2 were retained for laboratory analysis and description.

UTM readings were taken using a Trimble Geo XH GeoExplorer 2008 Series handheld GPS unit and a Garmin eTrex, using the North American Datum (NAD) 83 with a minimal accuracy of three metres. UTM coordinates were recorded for all identified archaeological sites and are presented in the supplementary documentation to this report (Supplement B). Figure 5 illustrates the field assessment methods across the study area and Tile 2 in the supplementary documentation illustrates the field methods and results.

Three First Nations monitors also participated in the Stage 2 archaeological assessment; their roles are summarized in Supplement C.

3.0 Record of Finds

The Stage 2 archaeological assessment was conducted, employing the methods described in Section 2.0. An inventory of the documentary record generated by fieldwork is provided in Table 10 below. The Stage 2 survey conducted by Stantec between May 14, 2013 and August 6, 2013 identified 13 archaeological sites including 12 pre-contact Aboriginal locations and one historic Euro-Canadian location, all identified in ploughed, well weathered agricultural fields. A summary of the artifacts collected for each site location and its spatial extents are provided below. Supplement A illustrates the site locations and Supplement B lists the UTM coordinates for each of these locations. They are included in the supplementary documentation for this report.

Table 10: Inventory of Documentary Record

Document Type	Current Location of Document Type	Additional Comments
45 Pages of Field Notes	Stantec office in London	In original field book and photocopied in project file
80 Field Maps	Stantec office in London	In original field book and photocopied in project file
10 Maps Provided by Client	Stantec office in London	Hard and digital copies in project file
1,602 Digital Photographs	Stantec office in London	Store digitally in project file

All of the material culture collected during the Stage 2 survey is contained in one banker's box and will be temporarily housed in Stantec's London office until formal arrangements can be made for its transfer to an MTCS collections facility.

All of the pre-contact Aboriginal sites documented below contain a lithic industry component. The chert types identified in the discussion below include:

- **Kettle Point chert:** occurs mostly in one locality, on the south shore of Lake Huron near Port Franks and the modern Kettle and Stony Point First Nations reserve. This is a dense nonporous material that was of excellent quality for pre-contact Aboriginal lithic technologies. Onondaga formation chert is from the Middle Devonian age, with outcrops occurring along the north shore of Lake Erie between Long Point and the Niagara River. It is a high quality raw material frequently utilized by pre-contact people and often found at archaeological sites in southern Ontario (Eley and von Bitter 1989). Secondary deposits of Kettle Point chert have been reported in Essex County and in the Ausable Basin.

- **Onondaga chert:** Onondaga formation chert is from the Middle Devonian age, with outcrops occurring along the north shore of Lake Erie between Long Point and the Niagara River. It is a high quality raw material frequently utilized by pre-contact people and often found at archaeological sites in southern Ontario. Onondaga chert occurs in nodules or irregular thin beds, it is a dense non-porous rock that may be light to dark

grey, bluish grey, brown or black and can be mottled with a dull to vitreous or waxy lustre (Eley and von Bitter 1989).

Any additional unidentified or isolated chert types recovered during the Stage 2 archaeological assessment are mentioned below as they occur. All chert type identifications were accomplished visually using reference materials located in Stantec's London and Hamilton offices. The flake assemblage was subject to morphological analysis following the classification scheme described by Lennox *et al*. (1986) and expanded upon by Fisher (1997), with the exception that no attempt was made to distinguish "primary" from "primary bipolar" flakes.

3.1 LOCATION 279 (AgHl-49)

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3425, west of Jericho Road and south of Petticoat Line, resulted in the identification of Location 279. Location 279 is situated in a flat field, measuring approximately 40 metres by 40 metres in size, and consists of a historic Euro-Canadian site with two pre-contact Aboriginal artifacts. A total of 140 artifacts were identified on the surface, and a representative sample of 78 artifacts was collected for laboratory processing and analysis (Table 14, Plates 1 and 2). These artifacts consisted of 59 pieces of ceramic, 10 structural artifacts, 5 household artifacts, 2 personal artifacts, and 2 pieces of pre-contact Aboriginal chipping detritus. Approximately 62 historic artifacts were left in the field to relocate the site if it is necessary to conduct further assessment as per Section 2.1.1 Standard 9 in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Approximately 90% of all refined ceramic sherds were collected to form the basis for accurate dating of the site (Section 2.1.1 Standard 8; Government of Ontario 2011) and a representative sample of other artifact types were also collected. A summary of the artifacts recovered from Location 279 can be found in Table 11, and a description of the recovered artifact types is provided below.

Table 11: Location 279 Artifact Summary

Ceramic Artifacts	Frequency	%
whiteware	48	61.54
ironstone	6	7.69
utilitarian	5	6.41
Ceramic Total	***59***	***75.64***
Non-Ceramic Artifacts	**Frequency**	**%**
structural	10	12.82
household	5	6.41
personal	2	2.56
pre-contact Aboriginal	2	2.56
Non-Ceramic Total	***19***	***24.36***
Total	**78**	**100.00**

3.1.1 Ceramic Artifacts

A total of 59 pieces of ceramic were recovered from Location 279. This was comprised of 48 pieces of whiteware, 6 pieces of ironstone, 3 pieces of yellow earthenware, 1 piece of red earthenware, and 1 piece of stoneware. Plate 1 illustrates an example of the ceramic artifacts recovered from Location 279 (AgHl-49). Table 12 summarizes the ceramic artifacts by ware type and Table 13 lists all of the ceramic decorative types recovered. The different ware types are discussed in further detail below.

Table 12: Location 279 Ceramic Assemblage by Ware Type

Ceramic Artifacts	Frequency	%
whiteware	48	81.36
ironstone	6	10.17
utilitarian	5	8.47
Total	**59**	**100**

Table 13: Location 279 Ceramic Assemblage by Decorative Type

Ceramic Artifacts	Frequency	%
whiteware, transfer printed	11	18.64
whiteware, sponged	11	18.64
whiteware, painted	8	13.56
whiteware, undecorated	6	10.17
whiteware, flow transfer printed	6	10.17
ironstone, undecorated	5	8.47
whiteware, edged	3	5.08
whiteware, banded	3	5.08
earthenware, yellow	3	5.08
ironstone, transfer printed	1	1.69
earthenware, red	1	1.69
stoneware, salt-glazed	1	1.69
Total Ceramic Artifacts	**59**	**100.00**

Whiteware

A total of 48 pieces of whiteware were recovered from Location 279. Of those 48 pieces, 11 are transfer printed, 11 are sponged, 8 are painted, 6 are flow transfer printed, 6 are undecorated, 3 are banded, and 3 are edged. Whiteware is a variety of refined earthenware with a near-

colourless glaze. By the 1830s it had replaced earlier, near-white ceramics such as pearlware and creamware. Early whiteware paste tends to be porous, but becomes more vitrified later in the 19th century (Adams 1994).

Early transfer printed whiteware often has thicker lines, a result of the paper used during the transfer of the pattern from paper to ceramic. Later, transfer printed whiteware was manufactured either using tissue paper which allowed for shading and finer line details, or using oil and a sheet of glue to create a design with little dots (Stelle 2001). Transfer printing was popular throughout the 19th century. Before the 1830s, blue was the most common colour used. During the 1830s and 40s, other colours like brown, black, red, green and purple became popular, and between 1850 and 1890 blue, black and brown were popular. In the late 19th century, utilizing a variety of colours became popular once again (Adams 1994). Nine pieces of blue, one piece of black, and one piece of purple transfer printed whiteware were recovered from Location 279 suggesting a mid-19th century occupation.

Whiteware ceramics decorated by using a stamp or sponge to apply a pattern are a form of inexpensive tableware. A total of 11 pieces of sponged whiteware were recovered. These decorative techniques were popular in the 1840s and remained popular until the 1870s (Adams 1994). Thus, the presence of stamped and sponged whiteware represent a sample produced during the mid-to-late 19th century.

Painted whiteware pieces are typically painted by covering the majority of the vessel, revealing very little of the original white colour, employing predominantly blue and black paint during the first quarter of the 19th century (Stelle 2001). It is suggested that polychrome patterns were popular from 1830 to 1860 (Stelle 2001). Eight pieces of green, red, and floral painted whiteware were recovered from Location 279 (AgHl-49).

A total of six pieces of ceramic were flow transfer printed whiteware. Flow transfer printing is a variation of transfer printing in which the pigment, primarily blue, is allowed to flow into the glaze resulting in a less crisp pattern. This process was popular in the middle of the 19th century and was revived again in the 1890s (Adams 1994). The flow transfer printed ceramics from Location 279 were all black in colour.

Banding or “Dipt” ceramics are created using a slip colour that is laid over the ceramic, resulting in a slightly raised pattern which allows banded wares to be easily distinguished from painted wares (Adams 1994). Banded whiteware were made throughout the 19th century with the earlier pieces being more decorative, using mocha design or cat’s eye design, while the later pieces tended to be simpler, demonstrating only bands (Adams 1994). Three pieces of banded whiteware, two of which are blue, were recovered from Location 279 (AgHl-49).

Edged wares are created by moulding the rim then applying colour over top (Adams 1994). According to Miller (1987) these pieces were produced between 1825 and 1891 and were at their peak from 1841 to1857. Three pieces of blue edged ware were recovered from Location 279 (AgHl-49).

Ironstone

Ironstone, also known as white granite and stone china, was manufactured from *circa* 1815 onward. It was used for tablewares, kitchenwares, and toiletwares and was manufactured in large quantities in the late 19th century. Undecorated ironstone was at its peak after 1850 (Saint Mary's University n.d.). Ironstone is a ceramic classified between earthenware and porcelain with thick vitrified white paste, a background colour of white to bluish gray tint and has a thick clear glasslike glaze (Florida Museum of Natural History n.d.). Five pieces of undecorated ironstone and one piece of transfer printed ironstone were recovered from Location 279 (AgHl-49).

Utilitarian Earthenware

From the late 18th through to the late 19th century unrefined earthenwares with red or yellow paste were the most common type of utilitarian vessels. Stoneware vessels with harder, more vitrified pastes were also produced throughout the 19th century and became more refined over time (Adams 1994:99). Stoneware has vitrified stone-like paste due to the high temperatures used to fire the pottery. The paste colours vary between white, gray and tan and are generally quite thick and durable. A common glaze on stoneware is salt-glazed, which is achieved by introducing salt to the kiln during the firing process (Maryland Archaeological Conservation Lab 2012). Stoneware was manufactured in Ontario from 1849 onwards (Adams 1994). Three pieces of glazed yellow earthenware, one piece of glazed red earthenware, and one piece of salt-glazed stoneware were recovered from Location 279.

3.1.2 Structural Artifacts

In total, 10 structural artifacts, all pieces of window glass, were recovered from Location 279 (AgHl-49). Window glass can be temporally diagnostic. In the 1840s window glass thickness changed dramatically. This was in a large part due to the lifting of the English import tax on window glass in 1845, which taxed glass by weight and encouraged manufacturers to produce thin panes. Thus, most window glass manufactured before 1845 tends to be less than 1.6 millimetres (mm) thick, while later glass is thicker (Kenyon 1980). All 10 pieces of window glass recovered were greater than 1.6 millimetres which suggests a production date after 1845 and likely 20th century in date.

3.1.3 Household Artifacts

There were five household artifacts were recovered from Location 279 (AgHl-49), including four pieces of bottle glass and one piece of undetermined glass. Bottle glass is generally not diagnostic and is often simply categorized according to colour. Glass colours present at Location 279 (AgHl-49) include aqua, blue, and colourless. Uncommon prior to the 1870s, clear or colourless glass came into widespread use after the development of automatic bottle manufacturing machines in the early 20th century (Lindsey 2013).

3.1.4 Personal Artifacts

The artifacts recovered from Location 279 (AgHl-49) included two personal artifacts: one white clay pipe bowl and one white agate button. White clay pipes were quite popular in the 19th century with a decline in the last 20 years of the century due to the popularity of cigarettes (Adams 1994). Since no stamp or maker's mark could be identified, the manufacturer and place of manufacture could not be determined.

The button recovered from Location 279 (AgHl-49) is a round white agate button with four holes. Agate buttons are often mistaken for white glass, however, can be distinguished because of the dimpling on the reverse side. Agate buttons were widely distributed in Canada by the late 1840s and were used, instead of shell or pearl, as a cheaper substitute for shell buttons (Adams 1994).

3.1.5 Pre-contact Aboriginal Artifacts

A total of two pieces of chipping detritus were recovered from Location 279. These pieces of chipping detritus were determined to be tertiary flakes manufactured from Kettle Point chert. Kettle Point formation chert is of late Devonian age. Kettle Point chert occurs in one locality, on the south shore of Lake Huron near Port Franks and the modern Kettle and Stony Point First Nations reserve. The Kettle Point material is variable in colour ranging from brown to bluish, grey or black, sometimes mottled, at times showing brassy and greenish colours and it may have a buff, yellow brown or rusty patina and may feature banding (Eley and von Bitter 1989). This is a dense nonporous material that was of excellent quality for pre-contact Aboriginal lithic technologies.

3.1.6 Artifact Catalogue

Table 14: Location 279 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	glass, bottle	4		
2	surface find	glass, window	10		
3	surface find	earthenware, yellow	3		
4	surface find	earthenware, red	1		
5	surface find	stoneware, salt-glazed	1		
6	surface find	glass, undetermined	1		
7	surface find	chipping detritus	2	tertiary	Kettle Point
8	surface find	button	1		
9	surface find	white clay pipe bowl	1		
10	surface find	ironstone	5		
11	surface find	ironstone, transfer printed	1		
12	surface find	whiteware	6		
13	surface find	whiteware, painted	8		

Cat.#	Context	Artifact	Quantity	Morphology	Chert
14	surface find	whiteware, flow transfer printed	6		
15	surface find	whiteware, sponged	11		
16	surface find	whiteware, edged	3		
17	surface find	whiteware, transfer printed	11		
18	surface find	whiteware, banded	3		

3.2 LOCATION 280 (AgHl-50)

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 1693, west of 1st School Road and south of Townsend Line, resulted in the identification of Location 280. Location 280 is located in a flat field, consisting of a lithic scatter measuring approximately 20 metres by 20 metres. There were 26 lithic artifacts identified on the surface and 13 were collected for laboratory processing and analysis. The remaining artifacts – all Onondaga chert flakes – were left in the field to relocate the site if it is necessary to conduct further assessment as per Section 2.1.1 Standard 9 in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). The 13 artifacts consisted of nine pieces of chipping detritus (seven tertiary flakes and two broken), three utilized flakes, and one retouched flake (Table 15; Plate 3). A total of nine artifacts were manufactured from Onondaga chert and four were burnt.

3.2.1 Artifact Catalogue

Table 15: Location 280 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	retouched flake	1		Onondaga
2	surface find	utilized flake	3		Onondaga
3	surface find	chipping detritus	2	tertiary	burnt
4	surface find	chipping detritus	5	tertiary	Onondaga
5	surface find	chipping detritus	2	broken	burnt

3.3 LOCATION 281 (AgHk-159)

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3749, east of Arkona Road and south of Thomson Line, resulted in the identification of Location 281. Location 281 is located on the top of a knoll which slopes down to drainage in the east and is surrounded by forest. Location 281 consists of a lithic scatter measuring approximately 20 metres by 20 metres. Eighteen lithic artifacts were identified on the surface and nine were collected for laboratory processing and analysis (Table 17; Plate 4). The remaining artifacts – all Kettle Point chert flakes – were left in the field to relocate the site if it is necessary to conduct further assessment as per Section 2.1.1 Standard 9 in the *Standards and Guidelines for*

Consultant Archaeologists (Government of Ontario 2011). Of the nine recovered artifacts there were seven pieces of chipping detritus and two bifaces. Of the chipping detritus, four were determined to be tertiary flakes, two broken, and one primary flake. With the exception of one piece of chipping detritus made from Onondaga chert, all of the lithic material is Kettle Point chert.

Two non-diagnostic, crude bifaces are broken and are manufactured from Kettle Point chert; their measurements are presented in Table 16.

Table 16: Location 281 Lithic Tools

Cat.#	Artifact	Chert	Length (mm)	Width (mm)	Thickness (mm)
1	biface	Kettle Point	52.4*	40.8*	16.9
6	biface	Kettle Point	26.9*	45.0*	15.6

*=incomplete measurement

3.3.1 Artifact Catalogue

Table 17: Location 281 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	biface	1		Kettle Point
2	surface find	chipping detritus	1	tertiary	Kettle Point
3	surface find	chipping detritus	1	tertiary	Kettle Point
4	surface find	chipping detritus	1	broken	Kettle Point
5	surface find	chipping detritus	1	primary	Kettle Point
6	surface find	biface	1		Kettle Point
7	surface find	chipping detritus	1	broken	Kettle Point
8	surface find	chipping detritus	1	tertiary	Onondaga
9	surface find	chipping detritus	1	tertiary	Kettle Point

3.4 LOCATION 282

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3278, east of Arkona Road and south of Thomson Line, resulted in the identification of Location 282. Location 282 is located on the top of a small knoll which slopes down to drainage in the south. Location 282 consists of one isolated piece of chipping detritus on the surface which was collected and retained for laboratory analysis (Table 18; Plate 5). The piece of chipping detritus was determined to be a tertiary flake from Kettle Point chert. Despite the intensification of survey intervals to transects spaced one metre apart around the recovered artifact, no additional artifacts were recovered from Location 282.

3.4.1 Artifact Catalogue

Table 18: Location 282 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	chipping detritus	1	tertiary	Kettle Point

3.5 LOCATION 283 (AgHk-160)

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3278, east of Arkona Road and south of Thomson Line, resulted in the identification of Location 283. Location 283 is located on the top of a medium sized knoll which slopes down to drainage in the north. Location 283 consists of a lithic scatter measuring approximately 10 metres by 30 metres. Twelve lithic artifacts were identified on the surface and they were all collected for laboratory processing and analysis: 11 pieces of chipping detritus and 1 retouched flake (Table 19; Plate 6). Of the 11 pieces of chipping detritus, six were tertiary flakes, four were broken flakes, and one was a secondary flake. Ten of these artifacts, including the retouched flake, are of Kettle Point chert and two are of Onondaga chert.

3.5.1 Artifact Catalogue

Table 19: Location 283 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	retouched flake	1		Kettle Point
2	surface find	chipping detritus	1	tertiary	Onondaga
3	surface find	chipping detritus	5	tertiary	Kettle Point
4	surface find	chipping detritus	4	broken	Kettle Point
5	surface find	chipping detritus	1	secondary	Onondaga

3.6 LOCATION 284 (AGHK-161)

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3278, east of Arkona Road and south of Thomson Line, resulted in the identification of Location 284. Location 284 is located to the east of a medium sized knoll. Location 284 consists of one projectile point (Table 21; Plate 7). The recovered projectile point is manufactured on Kettle Point chert and was identified as a Jack's Reef Corner Notched point; its measurements are presented in Table 20. The Jack's Reef Corner Notched point type is dated to the Middle Woodland period with an associated date of 400 BC to 800 AD (Justice 1987:217). Despite the intensification of survey intervals to transects spaced one metre apart around the recovered projectile point, no additional artifacts were recovered.

Table 20: Location 281 Lithic Tools

Cat.#	Artifact	Length (mm)	Overall Width (mm)	Thickness (mm)	Shoulder Width (mm)	Inter-notch Width (mm)	Basal Width (mm)
1	Jack's Reef Corner Notched projectile point	34.9 mm	22.7*	5.5	22.7*	18.9	20.9

*=incomplete measurement

3.6.1 Artifact Catalogue

Table 21: Location 284 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	projectile point	1		Kettle Point

3.7 LOCATION 285 (AGHK-162)

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3278, east of Arkona Road and south of Thomson Line, resulted in the identification of Location 285. Location 285 consists of a lithic scatter measuring approximately 45 metres by 35 metres. Ninety four artifacts were identified on the surface; 43 artifacts and one fire cracked rock were collected for laboratory processing and analysis. There were 50 pieces of chipping detritus left in the field to relocate the site if it is necessary to conduct further assessment as per Section 2.1.1 Standard 9 in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Of the 44 recovered artifacts from Location 285, there were 38 pieces of chipping detritus, 2 bifaces, 1 projectile point, 1 utilized flake, 1 retouched flake, and 1 fire-cracked rock (Table 23; Plate 8). Twenty one pieces of chipping detritus were determined to be tertiary flakes, 15 were broken flakes, 1 was a secondary flake, and 1 was a primary flake. All of the recovered lithic artifacts were of Kettle Point chert.

3.7.1 Lithic Tools

The recovered projectile point, manufactured on Kettle Point chert, was identified as a Stanly Stemmed bifurcate base point, associated with the Middle Archaic period and dating to *circa* 6910-6320 BC (Justice 1987:97) (Plate 8:H). Two bifaces were also recovered from Location 285. Both are of Kettle Point chert and the metrics of each are discussed in Table 22.

Table 22: Location 285 Tool Metrics

Cat.#	Artifact	Length (mm)	Overall Width (mm)	Thickness (mm)	Shoulder Width (mm)	Inter-notch Width (mm)	Basal Width (mm)
2	Stanly Stemmed projectile point	33.70*	16.88*	4.58	13.2*	10.1	12.5
3	biface	43.00*	15.8*	8.6			
4	biface	38.3*	42.0*	13.4			

*=incomplete measurement

3.7.2 Artifact Catalogue

Table 23: Location 285 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	fire-cracked rock	1		
2	surface find	projectile point	1		Kettle Point
3	surface find	biface	1		Kettle Point
4	surface find	biface	1		Kettle Point
5	surface find	chipping detritus	1	primary	Kettle Point
6	surface find	retouched flake	1		Kettle Point
7	surface find	utilized flake	1		Kettle Point
8	surface find	chipping detritus	21	tertiary	Kettle Point
9	surface find	chipping detritus	1	secondary	Kettle Point
10	surface find	chipping detritus	1	broken	burnt
11	surface find	chipping detritus	14	broken	Kettle Point

3.8 LOCATION 286 (AgHk-163)

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3278, east of Arkona Road and south of Thomson Line, resulted in the identification of Location 286. Location 286 is located to the south of a large sized knoll. Location 286 consists of a lithic scatter measuring approximately 50 metres by 155 metres. There were 116 artifacts identified on the surface and 44 were collected for laboratory analysis and processing. Approximately 72 artifacts – all chipping detritus – were left in the field to relocate the site if it is necessary to conduct further assessment as per Section 2.1.1 Standard 9 in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Of the 44 artifacts collected, there were 34 pieces of chipping detritus, 4 bifaces, 2 projectile points, 2 perforators, 1 scraper, and 1 celt (Table 25; Plate 9). Of the 34 pieces of chipping detritus, 22 were determined to be tertiary flakes and 12 were broken. A total of 40 of the lithic artifacts are from Kettle Point chert, two pieces of chipping detritus are burnt, and one of the bifaces, as well as one of the projectile points, are manufactured from Onondaga chert.

3.8.1 Lithic Tools

Bifaces were the most common of the lithic tools recovered from Location 286. Four bifaces, all with similar characteristics were recovered. Each of these tools are preforms with minimal work and informal morphology. Three have been manufactured from Kettle Point chert while one has been manufactured from Onondaga chert. Table 24 provides additional information on all tool metrics.

Two projectile points were recovered from Location 286. A Brewerton Side Notched point from the Middle Archaic Period (c. 3780-3200 BC) was identified and was determined to have been manufactured on Kettle Point chert (Plate 9:G) (Ellis et al. 1990:87). The second projectile point was determined to be a Brewerton Corner Notched point from the Middle Archaic Period as well (Plate 9:H) (Ellis *et al*. 1990:87).

Two perforators were recovered from Location 286. Drills or perforators are identified by the bifacial or trifacial removal of flakes to create two distinct edges that tapered to a point. They are thought to have been used as drills to bore holes in wood, bone, and soft stone possibly to form composite tools. This type of tool may also have been used for perforating hides that were to be sewn together. Other tools associated with the processing of hides include scrapers. Scrapers are often found associated with other hunting tools and lithic debitage. One scraper was recovered from Location 286.

In addition to the lithic tools, one celt was recovered from Location 286. Although temporally non-diagnostic, celts appear on sites from the Archaic period onward and were used as hand axes, or adzes, for woodworking (Plate 9:I).

Table 24: Location 286 Tool Metrics

Cat.#	Artifact	Length (mm)	Overall Width (mm)	Thickness (mm)	Shoulder Width (mm)	Inter-notch Width (mm)	Basal Width (mm)
1	Brewerton Side Notched projectile point	37.4*	33.5	8.2	45.1	18.1	30.2
2	Brewerton Corner Notched projectile point	49.4	33.7*	8.3	29.8*	22.1	28.6
3	biface	45.9*	35.5*	9.3			
4	biface	29.9*	30.9*	7.4			
5	biface	42.5*	22.5*	9.5			
6	biface	52.3*	30.1*	7.5			
7	scraper	44.2	32.2	12.1			
8	celt	109.9	48.6	23.4			
9	perforator	31.6	39.8	12.0			
10	perforator	42.6*	26.5	8.2			

*=incomplete measurement

3.8.2 Artifact Catalogue

Table 25: Location 286 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	projectile point	1		Kettle Point
2	surface find	projectile point	1		Onondaga
3	surface find	biface	1		Kettle Point
4	surface find	biface	1		Kettle Point

Cat.#	Context	Artifact	Quantity	Morphology	Chert
5	surface find	biface	1		Kettle Point
6	surface find	biface	1		Onondaga
7	surface find	scraper	1		Kettle Point
8	surface find	celt	1		
9	surface find	perforator	1		Kettle Point
10	surface find	perforator	1		Kettle Point
11	surface find	chipping detritus	1	tertiary	burnt
12	surface find	chipping detritus	18	tertiary	Kettle Point
13	surface find	chipping detritus	2	broken	burnt
14	surface find	chipping detritus	8	broken	Kettle Point
15	surface find	chipping detritus	3	tertiary	Kettle Point
16	surface find	chipping detritus	2	broken	Kettle Point

3.9 LOCATION 287

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3278, east of Arkona Road and south of Thomson Line, resulted in the identification of Location 287. Location 287 is located on a large knoll and consists of one piece of chipping detritus (Table 26; Plate 10). The recovered piece of chipping detritus was determined to be a broken flake of Kettle Point chert. Despite the intensification of survey intervals to transects spaced one metre apart around the recovered artifact, no additional artifacts were recovered from Location 287.

3.9.1 Artifact Catalogue

Table 26: Location 287 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	chipping detritus	1	broken	Kettle Point

3.10 LOCATION 288

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3278, east of Arkona Road and south of Thomson Line, resulted in the identification of Location 288. Location 288 is located to the west of a medium sized knoll and consists of one piece of chipping detritus (Table 27; Plate 11). The recovered piece of chipping detritus was determined to be a tertiary flake from Kettle Point chert. Despite the intensification of survey intervals to transects spaced one metre apart around the recovered artifact, no additional artifacts were recovered from Location 288.

3.10.1 Artifact Catalogue

Table 27: Location 288 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	chipping detritus	1	tertiary	Kettle Point

3.11 LOCATION 289 (AgHk-164)

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3278, east of Arkona Road and south of Thomson Line, resulted in the identification of Location 289. Location 289 is located in drainage area of a large knoll and consists of a sparse lithic scatter measuring approximately 76 metres by 61 metres. A total of 14 pre-contact Aboriginal artifacts were identified on the surface and all artifacts were collected for laboratory analysis and processing. These artifacts consisted of 10 pieces of chipping detritus, 2 projectile points, 1 hammerstone, and 1 biface (Table 29; Plate 12). Five pieces of chipping detritus were determined to be tertiary flakes, two were determined to be secondary flakes, and three broken. The chert type of one of the broken flakes could not be determined. All of the remaining flakes were of Kettle Point chert.

3.11.1 Lithic Tools

Two temporally diagnostic projectile points were recovered from Location 289. The first is an Adena point dated to the Early Woodland period (*circa* 900-400 BC) (Justice 1987:192). This projectile point was manufactured on Kettle Point chert. The second projectile point is a Saugeen point dated to the Middle Woodland period (400 BC to 800 AD) (Spence *et al*. 1990:148). This projectile point was manufactured from Haldimand chert. Haldimand chert is a relatively high quality raw material that outcrops along the Bois Blanc formation between Kohler and Hagersville, as well as in Cayuga, Ontario. Dating to the Early Silurian, it derives from chalk-bearing limestones which gives the material its characteristically white to light grey or buff colour and relatively low lustre (Eley and von Bitter 1989).

In addition to the projectile points, one biface and one hammerstone were recovered from Location 289. A hammerstone is often identified based on its ovoid shape and characteristic battering marks on one or both ends. The hammerstone is a hard stone used during the process of lithic reduction to remove flakes from tool stone and is often found in association with other lithic artifacts related to lithic reduction. The recovered biface is a preform with minimal work and informal morphology and was manufactured from Onondaga chert. Additional details and biface metrics can be found in Table 28.

Table 28: Location 289 Tool Metrics

Cat.#	Artifact	Length (mm)	Overall Width (mm)	Thickness (mm)	Shoulder Width (mm)	Inter-notch Width (mm)	Basal Width (mm)
1	Adena projectile point	35.4*	28.1	8.3	27.2	22.3	26.1
2	Saugeen projectile point	68.8	24.2	9.93			
7	biface	29.3*	21.3*	3.3			

*=incomplete measurement

3.11.2 Artifact Catalogue

Table 29: Location 289 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	projectile point	1		Kettle Point
2	surface find	projectile point	1		Haldimand
3	surface find	hammer stone	1		
4	surface find	chipping detritus	5	tertiary	Kettle Point
5	surface find	chipping detritus	2	secondary	Kettle Point
6	surface find	chipping detritus	1	broken	unknown
7	surface find	biface	1		Onondaga
8	surface find	chipping detritus	2	broken	Kettle Point

3.12 LOCATION 290 (AGHK-165)

The Stage 2 test pit survey of the proposed wind energy components on property JER 3276 east of Arkona Road and south of Thomson Line, resulted in the identification of Location 290. Location 290 is located on a large knoll and is a lithic scatter measuring 10 by 20 metres. Location 290 consists of 20 artifacts on the surface, of which 11 were collected for laboratory analysis and processing. The remaining artifacts – all Kettle Point chert flakes – were left in the field to relocate the site if it is necessary to conduct further assessment as per Section 2.1.1 Standard 9 in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Of the 11 artifacts collected, 9 are chipping detritus, 1 is a utilized flake, and 1 is a scraper (Table 30; Plate 13). Seven pieces of chipping detritus were determined to be tertiary flakes and two were determined to be broken flakes. Utilized flakes are defined as flakes that were picked up and used once before being discarded (Fisher 1997). One utilized flake was recovered from Location 290. In addition to chipping debitage, one scraper was also recovered from Location 290. This side scraper measure 28.2 millimetres long, 26.6 milimetres wide and 4.4 millimetres thick. Scrapers are believed to have been used in the processing of hides and are often found associated with other hunting tools and lithic debitage. All of the lithic material recovered from Location 290 is manufactured from Kettle Point chert.

3.12.1 Artifact Catalogue

Table 30: Location 290 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	scraper	1		Kettle Point
2	surface find	utilized flake	1		Kettle Point
3	surface find	chipping detritus	7	tertiary	Kettle Point
4	surface find	chipping detritus	2	broken	Kettle Point

3.13 LOCATION 291

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3607 west of Gordon Road and north of Jura Line, resulted in the identification of Location 291. Location 291 is located on a large knoll and consists of one piece of chipping detritus which was collected for laboratory analysis and processing. The recovered piece of chipping detritus was determined to be a tertiary flake from Kettle Point chert (Table 31; Plate 14). Despite the intensification of survey intervals to transects spaced one metre apart around the recovered artifact, no additional artifacts were recovered from Location 291.

3.13.1 Artifact Catalogue

Table 31: Location 291 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	chipping detritus	1	tertiary	Kettle Point

3.14 LOCATION 292

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3445 west of Jericho Road and south of Lakeshore Road, resulted in the identification of Location 292. Location 292 is located in a flat agricultural field and consists of one piece of chipping detritus which was collected for laboratory analysis and processing. The recovered piece of chipping detritus was determined to be a tertiary flake from Kettle Point chert (Table 32; Plate 15). Despite the intensification of survey intervals to transects spaced one metre apart around the recovered artifact, no additional artifacts were recovered from Location 292.

3.14.1 Artifact Catalogue

Table 32: Location 292 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	chipping detritus	1	tertiary	Kettle Point

3.15 LOCATION 293

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3445 west of Jericho Road and south of Lakeshore Road, resulted in the identification of Location 293. Location 293 is located in a flat agricultural field and consists of one piece of chipping detritus which was collected for laboratory analysis and processing. The recovered piece of chipping detritus was determined to be a primary flake from Kettle Point chert (Table 33; Plate 16). Despite the intensification of survey intervals to transects spaced one metre apart around the recovered artifact, no additional artifacts were recovered from Location 293.

3.15.1 Artifact Catalogue

Table 33: Location 293 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	chipping detritus	1	primary	Kettle Point

3.16 LOCATION 294

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3445 west of Jericho Road and south of Lakeshore Road, resulted in the identification of Location 294. Location 294 is located on a small sandy knoll and consists of a lithic scatter measuring 70 metres by 30 metres. A total of 4 pre-contact Aboriginal artifacts were identified on the surface and were all collected for laboratory analysis and processing: four pieces of chipping detritus (Table 34; Plate 17). Of the four pieces of chipping detritus, three were determined to be tertiary flakes and one broken. All flakes were of Kettle Point chert.

3.16.1 Artifact Catalogue

Table 34: Location 294 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	chipping detritus	1	tertiary	Kettle Point
2	surface find	chipping detritus	1	tertiary	Kettle Point
3	surface find	chipping detritus	1	tertiary	Kettle Point
4	surface find	chipping detritus	1	broken	Kettle Point

3.17 LOCATION 295

The Stage 2 pedestrian survey of the proposed wind energy components on property JER 3332 west of Jericho Road and south of Lakeshore Road, resulted in the identification of Location 295. Two pre-contact Aboriginal artifacts were identified on the surface and both were collected for laboratory analysis and processing. These artifacts consisted of two pieces of chipping

detritus (Table 35; Plate 18): one was determined to be a tertiary flake and one was broken. Both flakes were of Kettle Point chert.

3.17.1 Artifact Catalogue

Table 35: Location 295 Artifact Catalogue

Cat.#	Context	Artifact	Quantity	Morphology	Chert
1	surface find	chipping detritus	1	tertiary	Kettle Point
2	surface find	chipping detritus	1	broken	Kettle Point

4.0 Analysis and Conclusions

The additional Stage 2 assessment conducted between May 14, 2013 and August 6, 2013 resulted in the identification of 17 archaeological sites including 16 pre-contact Aboriginal locations (Locations 280 (AgHl-50), 281 (AgHk-159), 282 , 283 (AgHk-160), 284, 285 (AgHk-162), 286 (AgHk-163), 287, 288, 289 (AgHk-164), 290 (AgHk-165), 291, 292, 293, 294, and 295) and one historic Euro-Canadian site (Location 279 (AgHl-49)). Analyses of each of these locations are provided below along with determinations as to whether further archaeological assessment is recommended.

4.1 LOCATION 279 (AgHl-49)

The Stage 2 assessment of Location 279 resulted in the recovery of a large scatter of mid-to-late 19th century historic Euro-Canadian artifacts, as well as a small component of pre-contact Aboriginal artifacts. A total of 140 artifacts were documented and a total of 78 artifacts were recovered for lab analysis including 59 ceramics, 10 structural artifacts, 5 household artifacts, 2 personal artifacts, and 2 pieces of pre-contact Aboriginal chipping detritus. Whiteware ceramics comprise 81.36% of the ceramic assemblage. While the initial manufacture date of whiteware is unknown, it became popular in Ontario after 1830 (Adams 1994). The remaining ceramic assemblage was comprised of ironstone (10.17%), and utilitarian earthenwares (8.47%). Due to the wide timespan of production and the absence of a maker's mark, the ironstone sample is dated to the wide date range of the 19th century; however, undecorated ironstone was at its peak after 1850. Five out of the six pieces of recovered ironstone are undecorated, indicating a mid-to-late 19th century date. In addition, the utilitarian earthenwares recovered from Location 279 are red and yellow glazed, which were the most common type of utilitarian vessels from the late 18th through to the late 19th century (Adams 1994).

Spatially, Location 279 (AgHl-49) was identified on Lot 23, South Boundary Concession, Geographic Township of Bosanquet, Lambton County, Ontario. The 1880 historic map of Lambton County, Bosanquet Township, illustrates that there are no landowners or structures listed for Lot 23. Although there is no landowner shown for Lot 23, historical atlases were funded by subscription fee, so landowners who did not subscribe were not always listed on the maps. In addition, all structures were not necessarily depicted or placed accurately (Gentilcore and Head 1984). As a result, landowner information for Lot 23 may simply be missing from the 1880 Historic Atlas. The presence of over 20 artifacts dating to a period of use prior to 1900 lends cultural heritage value or interest to the site. Based on these considerations, Location 279 (AgHl-49) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1c of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.2 LOCATION 280 (AgHl-50)

The Stage 2 assessment of Location 280 resulted in the identification of a lithic scatter of 26 pre-contact aboriginal artifacts over an area of 20 metres by 20 metres. Thirteen of these were collected for laboratory processing and analysis. Of the 13 recovered items, there were nine pieces of chipping detritus, three utilized flakes, and one retouched flake (Table 11; Plate 3). Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. Chipping detritus, along with utilized and retouched flakes, are generally considered to be temporally non-diagnostic other than being produced by pre-contact Aboriginal peoples. For this reason artifacts such as these cannot help place the archaeological site within a specific time period or cultural group.

Despite the non-diagnostic nature of the artifacts recovered from Location 280 (AgHl-50), the site represents a spatially discrete cluster of at least 10 pre-contact Aboriginal artifacts within a 10 metre by 10 metre area and the cultural heritage value or interest of Location 280 was deemed to be significant. Location 280 (AgHl-50) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.3 LOCATION 281 (AgHk-159)

The Stage 2 assessment of Location 281 resulted in the identification of a lithic scatter of 18 pre-contact Aboriginal artifacts over an area of approximately 20 metres by 10 metres. Nine of these artifacts were collected for laboratory processing and analysis. Of the nine recovered artifacts, there were seven pieces of chipping detritus and two bifaces. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. Bifacially worked tools were common tool kit accessories over an extended period of time in southwestern Ontario, from the first post-glacial occupations until they were eventually phased out by European manufactured goods. Bifacial tools and chipping detritus are generally considered non-diagnostic artifacts and cannot help to place the archaeological site within a specific time period or cultural group.

Despite the non-diagnostic nature of the artifacts recovered from Location 281 (AgHk-159), the site represents a spatially discrete cluster of at least 10 pre-contact Aboriginal artifacts within a 10 metre by 10 metre area and, therefore, the cultural heritage value or interest of Location 281 (AgHk-159) was deemed to be significant. Location 281 (AgHk-159) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.4 LOCATION 282

Location 282 is an isolated piece of pre-contact Aboriginal chipping detritus. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on

pre-contact Aboriginal archaeological sites in southern Ontario. The recovered chipping detritus is manufactured on Kettle Point chert and is considered to be temporally non-diagnostic, other than being produced by pre-contact Aboriginal peoples. For this reason artifacts such as these cannot help place the archaeological site within a specific time period or cultural group. Given the isolated nature of this non-diagnostic artifact, the cultural heritage value or interest of Location 282 was judged to be low. Location 282 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.5 LOCATION 283 (AGHK-160)

The Stage 2 assessment of Location 283 resulted in the identification of a lithic scatter of pre-contact Aboriginal artifacts over an area of approximately 10 metres by 30 metres. Twelve lithic artifacts were collected for analysis and comprised of 11 pieces of chipping detritus and 1 retouched flake. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. Chipping detritus and retouched flakes are generally considered to be temporally non-diagnostic and therefore cannot help to place the archaeological site within a specific time period or cultural group.

Despite the non-diagnostic nature of the artifacts recovered from Location 283 (AgHk-160), the site represents a spatially discrete cluster of more than 10 pre-contact Aboriginal artifacts where there are at least 10 of those artifacts within a 10 metre by 10 metre area and, therefore, the cultural heritage value or interest of Location 283 (AgHk-160) was deemed to be significant. Location 283 (AgHk-160) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.6 LOCATION 284 (AgHk-161)

Location 284 is an isolated pre-contact Aboriginal projectile point manufactured on Kettle Point chert. The projectile point is a Jack's Reef Corner Notched point which dates to the Middle Woodland period. Although this artifact is temporally diagnostic, the isolated nature of this recovery resulted in the determination that the cultural heritage value or interest of Location 284 is judged to be low. Location 284 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.7 LOCATION 285 (AGHK-162)

The Stage 2 assessment of Location 285 resulted in the identification of a lithic scatter of 94 pre-contact Aboriginal artifacts over an area of approximately 45 metres by 35 metres. A total of 44 artifacts were recovered for lab analysis from Location 285, including 38 pieces of chipping detritus, 2 bifaces, 1 projectile point, 1 utilized flake, 1 retouched flake, and 1 fire-cracked rock.

Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. Bifacially worked tools were common tool kit accessories over an extended period of time in southwestern Ontario, from the first post-glacial occupations until they were eventually phased out by European manufactured goods. Bifacial tools, chipping detritus, and utilized and retouched flakes are generally considered non-diagnostic artifacts and cannot help to place the archaeological site within a specific time period or cultural group.

The recovered projectile point is a Stanly Stemmed bifurcate base point, associated with the Middle Archaic period. The projectile point is manufactured on Kettle Point chert and is broken, missing a tip and tang. Location 285 (AgHk-162) represents a spatially discrete cluster of at least 10 pre-contact Aboriginal artifacts within a 10 metre by 10 metre area with a temporally diagnostic projectile point dating to the Middle Archaic period. Based on these findings, the cultural value or interest of Location 285 (AgHk-162) was deemed to be significant. Location 285 (AgHk-162) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standards 1a(i)(1) and 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.8 LOCATION 286 (AgHk-163)

The Stage 2 assessment of Location 286 resulted in the identification of a lithic scatter of 116 pre-contact Aboriginal artifacts within a 50 metre by 155 metre area. A total of 44 artifacts were recovered for lab analysis from Location 286, including 34 pieces of chipping detritus, 4 bifaces, 2 projectile points, 2 perforators, 1 scraper, and 1 celt.

Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. Bifacially worked tools were common tool kit accessories over an extended period of time in southwestern Ontario, from the first post-glacial occupations until they were eventually phased out by European manufactured goods. Bifacial tools, chipping detritus, perforators, scrapers and adzes are generally considered non-diagnostic artifacts and cannot help to place the archaeological site within a specific time period or cultural group.

Both of the recovered projectile points are associated with the Middle Archaic period, a Brewerton Side Notched point and a Brewerton Corner Notched Point. Location 286 (AgHk-163) represents a spatially discrete cluster of at least 10 pre-contact Aboriginal artifacts within a 10 metre by 10 metre area with temporally diagnostic projectile points dating to the Middle Archaic period. Based on these findings, the cultural heritage value or interest of Location 286 (AgHk-163) was deemed to be significant. Location 286 (AgHk-163) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standards 1a(i)(1) and 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.9 LOCATION 287

Location 287 is an isolated piece of pre-contact Aboriginal chipping detritus. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. The recovered chipping detritus is manufactured on Kettle Point chert and is considered to be temporally non-diagnostic, other than being produced by pre-contact Aboriginal peoples. For this reason artifacts such as these cannot help place the archaeological site within a specific time period or cultural group. Given the isolated nature of this non-diagnostic artifact, the cultural heritage value or interest of Location 287 was judged to be low. Location 287 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.10 LOCATION 288

Location 288 is an isolated piece of pre-contact Aboriginal chipping detritus. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. The recovered chipping detritus is manufactured on Kettle Point chert and is considered to be temporally non-diagnostic, other than being produced by pre-contact Aboriginal peoples. For this reason artifacts such as these cannot help place the archaeological site within a specific time period or cultural group. Given the isolated nature of this recovery, the cultural heritage value or interest of Location 288 was judged to be low. Location 288 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.11 LOCATION 289 (AgHk-164)

The Stage 2 assessment of Location 289 resulted in the identification of a lithic scatter of pre-contact Aboriginal artifacts over an area of approximately 76 metres by 61 metres. A total of 14 pre-contact Aboriginal artifacts were recovered for laboratory analysis. These artifacts consisted of 10 pieces of chipping detritus, 2 two projectile points, 1 hammerstone, and 1 biface.

Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. Bifacially worked tools were common tool kit accessories over an extended period of time in southwestern Ontario, from the first post-glacial occupations until they were eventually phased out by European manufactured goods. Bifacial tools, chipping detritus, and hammerstones are generally considered non-diagnostic artifacts and cannot help to place the archaeological site within a specific time period or cultural group.

One of the recovered projectile points is an Adena point, associated with the Early Woodland period. The projectile point is manufactured on Kettle Point chert and is broken. A Saugeen point was also recovered which dates to the Middle Woodland period (400 BC – AD 800).

Location 289 (AgHk-164) represents a sparse spatially discrete cluster where at least three pre-contact Aboriginal artifacts including a temporally diagnostic projectile point are found within a 10 metre by 10 metre area. Based on these findings, the cultural value or interest of Location 289 (AgHk-164) was deemed to be significant. Location 289 (AgHk-164) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(1) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.12 LOCATION 290 (AgHk-165)

The Stage 2 assessment of Location 290 resulted in the identification of a lithic scatter of 20 pre-contact Aboriginal artifacts and is approximately 10 by 20 metres. Eleven lithic artifacts were collected for analysis and consisted of 9 pieces of chipping detritus, a utilized flake, and a scraper. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. Chipping detritus, scrapers, and utilized flakes are generally considered to be temporally non-diagnostic and therefore cannot help to place the archaeological site within a specific time period or cultural group.

Despite the non-diagnostic nature of the artifacts recovered from Location 290 (AgHk-165), the site represents a spatially discrete cluster of at least 10 pre-contact Aboriginal artifacts within a 10 metre by 10 metre area and, therefore, the cultural heritage value or interest of Location 290 (AgHk-165) was deemed to be significant. Location 290 (AgHk-165) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.13 LOCATION 291

Location 291 is an isolated piece of pre-contact Aboriginal chipping detritus. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. The recovered chipping detritus is manufactured on Kettle Point chert and is considered to be temporally non-diagnostic, other than being produced by pre-contact Aboriginal peoples. For this reason artifacts such as these cannot help place the archaeological site within a specific time period or cultural group. Given the isolated nature of this recovery, the cultural heritage value or interest of Location 291 was judged to be low. Location 291 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.14 LOCATION 292

Location 292 is an isolated piece of pre-contact Aboriginal chipping detritus. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. The recovered chipping detritus is manufactured on Kettle Point chert and is considered to be temporally non-diagnostic, other

than being produced by pre-contact Aboriginal peoples. For this reason artifacts such as these cannot help place the archaeological site within a specific time period or cultural group. Given the isolated nature of this recovery, the cultural heritage value or interest of Location 292 was judged to be low. Location 292 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.15 LOCATION 293

Location 293 represents an isolated piece of pre-contact Aboriginal chipping detritus. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. The recovered chipping detritus is manufactured on Kettle Point chert and is considered to be temporally non-diagnostic, other than being produced by pre-contact Aboriginal peoples. For this reason artifacts such as these cannot help place the archaeological site within a specific time period or cultural group. Given the isolated nature of this recovery, the cultural heritage value or interest of Location 293 was judged to be low. Location 293 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.16 LOCATION 294

Location 294 is a small and sparse scatter of ten pieces of pre-contact Aboriginal chipping detritus. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. The recovered chipping detritus is manufactured on Kettle Point chert and is considered to be temporally non-diagnostic, other than being produced by pre-contact Aboriginal peoples. For this reason artifacts such as these cannot help place the archaeological site within a specific time period or cultural group. Given the small number of non-diagnostic artifacts recovered, the cultural heritage value or interest of Location 294 was judged to be low. Location 294 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.17 LOCATION 295

Location 295 is two pieces of pre-contact Aboriginal chipping detritus. Chipping detritus is the waste product from the production of lithic tools and is the most often recovered artifact on pre-contact Aboriginal archaeological sites in southern Ontario. The recovered chipping detritus is manufactured on Kettle Point chert and is considered to be temporally non-diagnostic, other than being produced by pre-contact Aboriginal peoples. For this reason artifacts such as these cannot help place the archaeological site within a specific time period or cultural group. Given the small number of non-diagnostic artifacts recovered, the cultural heritage value or interest of Location 295 was judged to be low. Location 295 does not fulfill the criteria for a Stage 3

archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

4.18 PRELIMINARY INDICATION OF SITES POSSIBLY REQUIRING STAGE 4 ARCHAEOLOGICAL MITIGATION

This preliminary indication of whether any site could be eventually recommended for Stage 4 archaeological mitigation is required under the *Standards and Guidelines for Consultant Archaeologists* Section 7.8.3 Standard 2c. No firm recommendation for, or against, Stage 4 archaeological mitigation will be made until the forthcoming Stage 3 archaeological assessment has been conducted. In addition, any sites recommended for Stage 3 archaeological assessment but not listed here could still require Stage 4 archaeological mitigation pending the outcome of the Stage 3 field work. Locations 279 (AgHl-49), 280 (AgHl-50), 281 (AgHk-159), 283 (AgHk-160), 285 (AgHk-162), 286 (AgHk-163), 289 (AgHk-164), and 290 (AgHk-165)) will be recommended for Stage 3 archaeological assessment. Given that these sites all consist of over 10 artifacts and are not isolated finds, it is anticipated that Stage 4 archaeological mitigation will also be recommended for at least a portion of each of these sites.

5.0 Recommendations

The Stage 2 assessment of the Jericho Wind Energy Centre resulted in the identification of 17 archaeological sites, including 16 pre-contact Aboriginal and 1 historic Euro-Canadian with a small pre-contact Aboriginal component. Recommendations for each location are found below.

5.1 LOCATION 279 (AGHL-49)

Since Location 279 (AgHl-49) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1c of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **a Stage 3 archaeological assessment is being recommended for Location 279 (AgHl-49) to further evaluate the site's cultural heritage value or interest.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Sections 3.2, as well as Table 3.1, of the MTCS' *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) to further test the nature and density of this site. Prior to conducting the field work, if ground visibility has decreased since the Stage 2 pedestrian survey, the site should be reploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one-metre by one-metre square test units laid out in a five-metre grid across the site and should be excavated by hand to a depth of five centimetres within the subsoil. Any exposed features should not be excavated but should be recorded, covered with geotextile fabric and backfilled in preparation for future mitigation. Site specific land registry research to supplement the previous background study concerning the land use and occupation history specific to Location 289 (AgHl-49) should also be conducted as part of the Stage 3 assessment.

5.2 LOCATION 280 (AGHL-50)

Since Location 280 (AgHl-50) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **a Stage 3 archaeological assessment is being recommended for Location 280 (AgHl-50) to further evaluate the site's cultural heritage value or interest.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Sections 3.2, as well as Table 3.1, of the MTCS' *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) to further test the nature and density of this site. Prior to conducting the field work, if ground visibility has decreased since the Stage 2 pedestrian survey, the site should be reploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one-metre by one-metre square test units laid out in a five-metre grid across the site and should be excavated by hand to a depth of five centimetres within the subsoil. Any exposed features should not be excavated but should be recorded, covered with geotextile fabric and backfilled in preparation for future mitigation. The already existing program of Aboriginal engagement should be continued during the Stage 3 archaeological assessment.

5.3 LOCATION 281 (AGHK-159)

Since Location 281 (AgHk-159) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(3) of the *Standards and Guidelines for Consultant* Archaeologists (Government of Ontario 2011), **a Stage 3 archaeological assessment is being recommended for Location 281 (AgHk-159) to further evaluate the site's cultural heritage value or interest.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Sections 3.2, as well as Table 3.1, of the MTCS' *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) to further test the nature and density of this site. Prior to conducting the field work, if ground visibility has decreased since the Stage 2 pedestrian survey, the site should be reploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one-metre by one-metre square test units laid out in a five-metre grid across the site and should be excavated by hand to a depth of five centimetres within the subsoil. Any exposed features should not be excavated but should be recorded, covered with geotextile fabric and backfilled in preparation for future mitigation. The already existing program of Aboriginal engagement should be continued during the Stage 3 archaeological assessment.

5.4 LOCATION 282

Location 282 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). **No further archaeological assessment is recommended for Location 282 and cultural heritage value or interest has been sufficiently documented.**

5.5 LOCATION 283 (AGHK-160)

Since Location 283 (AgHk-160) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **a Stage 3 archaeological assessment is being recommended for Location 283 (AgHk-160) to further evaluate the site's cultural heritage value or interest.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Sections 3.2, as well as Table 3.1, of the MTCS' *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) to further test the nature and density of this site. Prior to conducting the field work, if ground visibility has decreased since the Stage 2 pedestrian survey, the site should be reploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one-metre by one-metre square test units laid out in a five-metre grid across the site and should be excavated by hand to a depth of five centimetres within the subsoil. Any exposed features should not be excavated but should be recorded, covered with geotextile fabric and backfilled in preparation for future mitigation. The already existing program of Aboriginal engagement should be continued during the Stage 3 archaeological assessment.

5.6 LOCATION 284 (AGHK-161)

Location 284 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). **No further archaeological assessment is recommended for Location 284 and cultural heritage value or interest has been sufficiently documented.**

5.7 LOCATION 285 (AGHK-162)

Since Location 285 (AgHk-162) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standards 1a(i)(1) and 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **a Stage 3 archaeological assessment is being recommended for Location 285 (AgHk-162) to further evaluate the site's cultural heritage value or interest.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Sections 3.2, as well as Table 3.1, of the MTCS' *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) to further test the nature and density of this site. Prior to conducting the field work, if ground visibility has decreased since the Stage 2 pedestrian survey, the site should be reploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one-metre by one-metre square test units laid out in a five-metre grid across the site and should be excavated by hand to a depth of five centimetres within the subsoil. Any exposed features should not be excavated but should be recorded, covered with geotextile fabric and backfilled in preparation for future mitigation. The already existing program of Aboriginal engagement should be continued during the Stage 3 archaeological assessment.

5.8 LOCATION 286 (AGHK-163)

Since Location 286 (AgHk-163) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standards 1a(i)(1) and 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **a Stage 3 archaeological assessment is being recommended for Location 286 (AgHk-163) to further evaluate the site's cultural heritage value or interest.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Sections 3.2, as well as Table 3.1, of the MTCS' *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) to further test the nature and density of this site. Prior to conducting the field work, if ground visibility has decreased since the Stage 2 pedestrian survey, the site should be reploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one-metre by one-metre square test units laid out in a five-metre grid across the site and should be excavated by hand to a depth of five centimetres within the subsoil. Any exposed features should not be excavated but should be recorded, covered with geotextile fabric and backfilled in preparation for future mitigation. The already existing program of Aboriginal engagement should be continued during the Stage 3 archaeological assessment.

5.9 LOCATION 287

Location 287 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). **No further archaeological assessment is recommended for Location 287 and cultural heritage value or interest has been sufficiently documented.**

5.10 LOCATION 288

Location 288 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). **No further archaeological assessment is recommended for Location 288 and cultural heritage value or interest has been sufficiently documented.**

5.11 LOCATION 289 (AGHK-164)

Since Location 289 (AgHk-164) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(1) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **a Stage 3 archaeological assessment is being recommended for Location 289 (AgHk-164) to further evaluate the site's cultural heritage value or interest.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Sections 3.2, as well as Table 3.1, of the MTCS' *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) to further test the nature and density of this site. Prior to conducting the field work, if ground visibility has decreased since the Stage 2 pedestrian survey, the site should be reploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one-metre by one-metre square test units laid out in a five-metre grid across the site and should be excavated by hand to a depth of five centimetres within the subsoil. Any exposed features should not be excavated but should be recorded, covered with geotextile fabric and backfilled in preparation for future mitigation. The already existing program of Aboriginal engagement should be continued during the Stage 3 archaeological assessment.

5.12 LOCATION 290 (AGHK-165)

Since Location 290 (AgHk-165) fulfills the criteria for a Stage 3 archaeological investigation as per Section 2.2 Standard 1a(i)(3) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **a Stage 3 archaeological assessment is being recommended for Location 290 (AgHk-165) to further evaluate the site's cultural heritage value or interest.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Sections 3.2, as well as Table 3.1, of the MTCS' *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) to further test the nature and density of this site. Prior to conducting the field work, if ground visibility has decreased since the Stage 2 pedestrian survey, the site should be reploughed and allowed to weather for the controlled surface pick-up. The test unit excavation

should consist of one-metre by one-metre square test units laid out in a five-metre grid across the site and should be excavated by hand to a depth of five centimetres within the subsoil. Any exposed features should not be excavated but should be recorded, covered with geotextile fabric and backfilled in preparation for future mitigation. The already existing program of Aboriginal engagement should be continued during the Stage 3 archaeological assessment.

5.13 LOCATION 291

Location 291 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). **No further archaeological assessment is recommended for Location 291 and cultural heritage value or interest has been sufficiently documented.**

5.14 LOCATION 292

Location 292 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). **No further archaeological assessment is recommended for Location 292 and cultural heritage value or interest has been sufficiently documented.**

5.15 LOCATION 293

Location 293 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). **No further archaeological assessment is recommended for Location 293 and cultural heritage value or interest has been sufficiently documented.**

5.16 LOCATION 294

Location 294 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). **No further archaeological assessment is recommended for Location 294 and cultural heritage value or interest has been sufficiently documented.**

5.17 LOCATION 295

Location 295 does not fulfill the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). **No further archaeological assessment is recommended for Location 295 and cultural heritage value or interest has been sufficiently documented.**

5.18 SUMMARY

According to the above recommendations, 8 of the 17 sites identified by Stantec require further Stage 3 assessment: Locations 279 (AgHl-49), 280 (AgHl-50), 281 (AgHk-159), 283 (AgHk-

160), 285 (AgHk-162), 286 (AgHk-163), 289 (AgHk-164), and 290 (AgHk-165). As such, 9 sites identified by Stantec are not recommended for further archaeological work for this project, Locations 282, 284, 287, 288, 291, 292, 293, 294, and 295.

The Ministry of Tourism, Culture and Sport is asked to accept this report into the Ontario Public Register of Archaeological Reports. Additional archaeological assessment is still required; hence the archaeological site recommended for further archaeological field work remains subject to Section 48(1) of the Ontario Heritage Act and may not be altered, or have artifacts removed, except by a person holding an archaeological license.

6.0 Advice on Compliance with Legislation

This report is submitted to the Ontario Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, 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 consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ontario Ministry of Consumer Services.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

7.0 Bibliography and Sources

Adams, Nick. 1994. *Field Manual for Avocational Archaeologists in Ontario*. Ontario Archaeological Society Incorporated Archaeological Stewardship Project. North York: Ontario Archaeological Society.

Andreae, Christopher. 1997. *Lines of Country: An Atlas of Railway and Waterway History in Canada*. Erin: The Boston Mill Press.

Archaeologix Inc.1998a. *Archaeological Assessment (Stages 1 and 2), Greenway Environmental Management Pit, Warwick Township, Lambton County, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Archaeologix Inc. 1998b. *Archaeological Assessment (Stage 3), Greenway Environmental Management Pit, Warwick Township, Lambton County, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Archaeologix Inc. 1998c. *Archaeological Assessment (Stage 4), AgHk-32, Greenway Environmental Management Pit, Warwick Township, Lambton County, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Archaeologix Inc. 2003. *Archaeological Assessment (Stages 1 & 2), Bingo West Pit, Part Lot 2, South Boundary Concession, Township of Bosanquet, County of Lambton, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Archaeologix Inc. 2004. *Archaeological Assessment (Stage 3), Bingo West Pit, Part Lot 2, South Boundary Concession, Township of Bosanquet, County of Lambton, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Archaeologix Inc. 2006. *Archaeological Assessment (Stage 4), Bingo West Pit AgHk-40, AgHk-41, AgHk-47, Part Lot 2, South Boundary Concession, Township of Bosanquet, County of Lambton, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Archaeologix Inc. 2007a. *Archaeological Assessment (Stage 1 & 2), Inland West Pit, Part of Lots 28 & 29, Concession 5 N.E.R., Township of Warwick, Lambton County, Ontario.* Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Archaeologix Inc. 2007b. *Archaeological Assessment (Stage 3), Inland West Pit, Part of Lots 28 & 29, Concession 5 N.E.R., Township of Warwick, Lambton County, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Belden, H. and Co. 1880. *Illustrated Historical Atlas of the County of Lambton*. 1973 reprint. Sarnia: Edward Phelps.

Chapman, Lyman John and Donald F. Putnam. 1984. *The Physiography of Southern Ontario*. 3rd ed. Ontario Geological Survey Special Volume 2. Toronto: Ontario Ministry of Natural Resources.

Deller, D. Brian. 1979. Paleo-Indian Reconnaissance in the Counties of Lambton and Middlesex, Ontario. *Ontario Archaeology* 32:3-20.

Deller, D. Brian and Chris J. Ellis. 1992. *Thedford II: A Paleo-Indian Site in the Ausable River Watershed of Southwestern Ontario*. Memoir of the Museum of Anthropology, University of Michigan, No. 24.

Deller, Brian, Chris Ellis and Ian Kenyon. 1986. The Archaeology of the Southeastern Huron Basin. In *Studies in Southwestern Ontario Archaeology*. Occasional Publications No. 1 of the London Chapter of the Ontario Archaeological Society (Inc.). pp. 2-12.

Eley, Betty E. and Peter H. von Bitter. 1989. *Cherts of Southern Ontario*. Toronto: Royal Ontario Museum.

Elford, Jean Turnbull. 1982. *Canada West's Last Frontier: A History of Lambton*. Sarnia: Lambton County Historical Society.

Ellis, Chris J. and Neal Ferris (editors). 1990. *The Archaeology of Southern Ontario to A.D. 1650*. Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5.

Ellis, Chris J., Ian T. Kenyon and Michael W. Spence. 1990. The Archaic. In Ellis and Ferris 1990, pp. 65-124.

Feest, Johanna and Christian Feest. 1978. Ottawa. *Handbook of North American Indians*. Volume 15, Northeast, edited by Bruce Trigger, pp. 772-786. Washington: Smithsonian Institution Press.

Ferris, Neal and Jim Wilson. 2009. *The Archaeology of a Late Woodland Borderland in Southwestern Ontario*. Manuscript on file with the authors.

Fisher, Jacqueline A. 1997. *The Adder Orchard Site: Lithic Technology and Spatial Organization in the Broadpoint Late Archaic*. Occasional Publications of the London Chapter, OAS, Number 3.

Florida Museum of Natural History. n.d. *Ironstone, undecorated – Type Index.* Electronic document: http://www.flmnh.ufl.edu/histarch/gallery_types/type_index_display.asp?type_name=IRONSTONE, UNDECORATED. Last accessed August 1, 2013.

Gentilcore, Louis R. and C. Grant Head. 1984. *Ontario's History in Maps*. Toronto: University of Toronto Press.

Golder Associates Ltd. 2012a. *Stage 1 Archaeological Assessment, NextEra Energy Canada, ULC, Jericho Wind Energy Centre Lambton and Middlesex Counties, Ontario.* Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Golder Associates Ltd. 2012b. *Stage 1 Archaeological Assessment, Suncor Cedar Point Wind Farm, Municipality of Lambton Shores Town of Plympton-Wyoming and Township of Warwick, Lambton County, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Golder Associates Ltd. 2012c. *Stage 2 Archaeological Assessment, Suncor Cedar Point Wind Power Project, Various Lots and Concessions Municipality of Lambton Shores, Town of Plympton-Wyoming and Township of Warwick, Lambton County, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Golder Associates Ltd. 2013a. *Stage 2 Archaeological Assessment, NextEra Energy Canada, ULC, Jericho Wind Energy Centre Lambton and Middlesex Counties, Ontario.* Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Golder Associates Ltd. 2013b. *Stage 2 Archaeological Assessment, Jericho Wind Inc., Jericho Wind Energy Centre, Additional Report, Various Lots and Concessions, Lambton and Middlesex Counties, Ontario.* Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Golder Associates Ltd. 2013c. *Stage 2 Archaeological Assessment, Jericho Wind, Inc., Jericho Wind Energy Centre, Part of Nauvoo Road ROW Between Hickory Creek Line and Tamarack Line, Lambton County, Ontario.* Report on file with the Ontario Ministry of Tourism, Culture and Sport, Toronto.

Government of Ontario. 1990a. *Environmental Protection Act*. R.S.O. 1990, CHAPTER O.18. Last amendment: 2009, c. 33, Sched. 11, s. 6. Electronic document: http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90o18_e.htm. Last accessed July 8, 2013.

Government of Ontario. 1990b. *Ontario Heritage Act*, R.S.O. 1990, CHAPTER O.18. Last amendment: 2009, c. 33, Sched. 11, s. 6. Electronic document: http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90o18_e.htm. Last accessed July 8, 2013.

Government of Ontario. 2009. *The Green Energy Act*, S.O. 2009, Chapter 12, Schedule A. Last amendment: 2011, c.9, Sched. 27, s.27. Electronic document: http://www.search.e-laws.gov.on.ca/en/isysquery/a9963fdf-3fb9-458f-92e9-3501a83160e1/1/doc/?search=browseStatutes&context=#hit1. Last accessed July 8, 2013.

Government of Ontario. 2011. *Standards and Guidelines for Consultant Archaeologists*. Ministry of Tourism, Culture and Sport, Toronto.

Government of Ontario. n.d. *Archaeological Sites Database Files*. Culture Services Unit, Ministry of Tourism, Culture and Sport, Toronto.

Hagerty, T.P and M.S. Kingston. 1992. *The Soils of Middlesex County.* Report Number 56 of the Ontario Soil Survey. Guelph: Resources Management Branch, Ontario Ministry of Agriculture and Food.

Jury, Wilfrid. 1948. *Crawford Prehistoric Village Site*. Bulletin of the Museum No. 7. London: Museum of Indian Archaeology, The University of Western Ontario.

Justice, Noel D. 1987. *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States*. Indianapolis: Indiana University Press.

Kenyon, Ian. 1980. 19th Century Notes: Window Glass Thickness. *KEWA* 80-2.

Konrad, Victor. 1981. An Iroquois Frontier: The North Shore of Lake Ontario during the Late Seventeenth Century. *Journal of Historical Geography* 7(2): 129-144.

Lennox, P., C. Dodd and C. Murphy. 1986. *The Wiacek Site: A Late Middleport Component, Simcoe County*. London: Ontario Ministry of Transportation and Communications.

Lindsey, Bill. 2013. *Historic Glass Bottle Identification and Information Website*. Electronic document: http://www.sha.org/bottle/index.htm. Last accessed on August 1, 2013.

Maryland Archaeological Conservation Lab. 2012. *Colonial Ceramics*. Electronic document: http://www.jefpat.org/diagnostic/Historic_Ceramic_Web_Page/Historic_Main.htm. Last accessed July 15, 2013.

Matthews, B.C. and N.R. Richards. 1957. *Soil Survey of Lambton County.* Report Number 22 of the Ontario Soil Survey. Toronto: Resources Management Branch, Ontario Ministry of Agriculture and Food.

Miller, George. 1987. *An Introduction to English Ceramics for Archaeologists*. Midwestern Archaeological Research Centre. Illinois State University.

Miller, Orlo. 1964. *A Brief History of Middlesex County.* London: Civic Sales and Services.

Morris, J.L. 1943. *Indians of Ontario*. 1964 reprint. Department of Lands and Forests, Government of Ontario.

Page, H.R. and Co. 1878. *Illustrated Historical Atlas of the County of Middlesex, Ontario*. 1972 reprint. Sarnia: Edward Phelps.

Saint Mary's University n.d. *Saint Mary's University Archaeology Lab Ceramics Database.* Electronic document: http://www.smu.ca/academic/arts/anthropology/ceramics.html. Last accessed on July 15, 2013.

Schmalz, Peter S. 1991. *The Ojibwa of Southern Ontario*. Toronto: University of Toronto Press.

Stelle, Lenville J. 2001. *An Archaeological Guide to Historic Artifacts of the Upper Sangamon Basin, Central Illinois, U.S.A.* Electronic document: http://virtual.parkland.edu/lstelle1/len/archguide/documents/arcguide.htm. Last accessed on July 17, 2013.

Spence, Michael W., Robert H. Pihl, and Carl R. Murphy. 1990. Cultural Complexes of the Early and Middle Woodland Periods. In Ellis and Ferris 1990, pp. 125-170.

Stantec Consulting Ltd. 2013. *Stage 2 Archaeological Assessment. Suncor Energy Cedar Point Wind Power Project Various Lots and Concessions Municipality of Lambton Shores Town of Plympton-Wyoming and Township of Warwick Lambton County, Ontario.* Report on file, Ontario Ministry of Tourism, culture and Sport, Toronto.

Wilson, J.A. and M. Horne. 1995. *City of London Archaeological Master Plan*. London: City of London, Department of Planning and Development.

8.0 Images

8.1 PHOTOS

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8.2 ARTIFACT PLATES

Plate 1: Location 279 (AgHl-49), Sample of Historic Euro-Canadian Artifacts

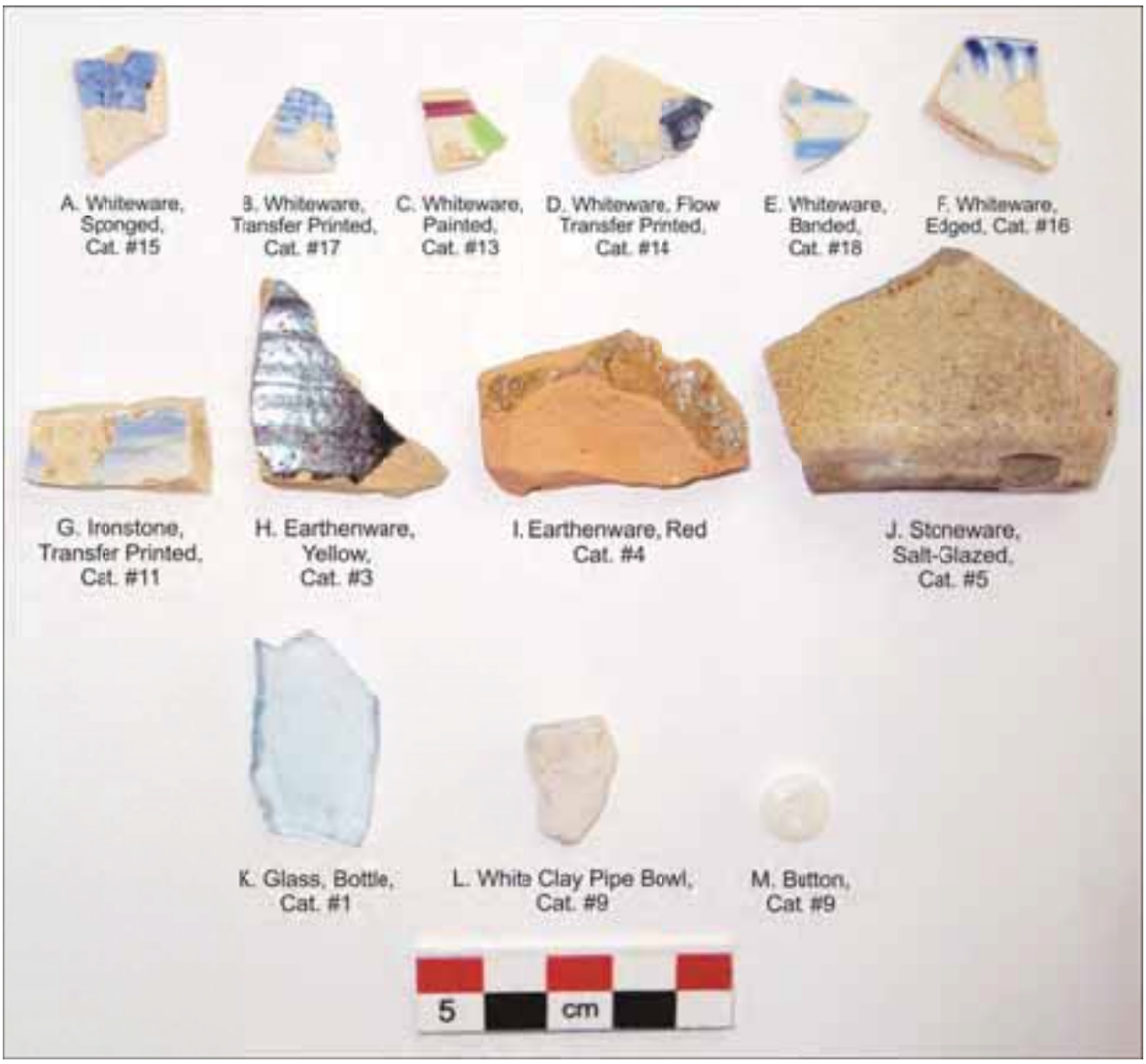


Plate 2: Location 279 (AgHl-49), Pre-contact Aboriginal Chipping Detritus

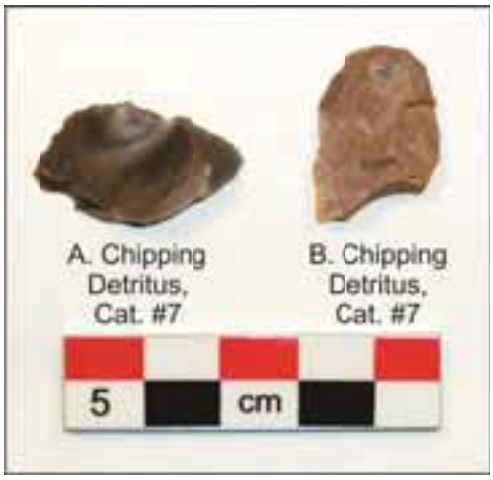


Plate 3: Location 280, Pre-contact Aboriginal Artifacts

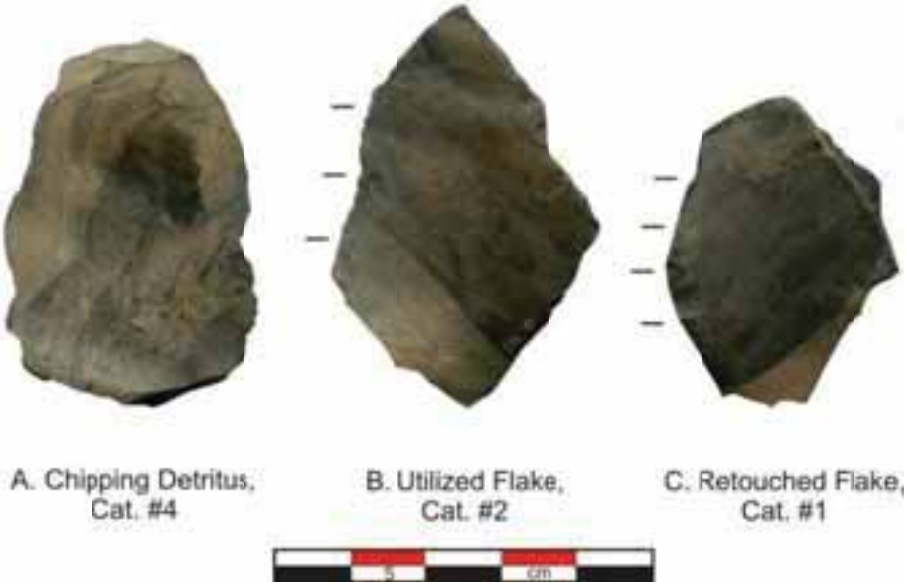


Plate 4: Location 281, Pre-contact Aboriginal Artifacts

Plate 5: Location 282, Chipping Detritus

Plate 6: Location 283, Pre-contact Aboriginal Artifacts

Plate 7: Location 284, Jack's Reef Corner Notched Projectile Point

Plate 8: Location 285, Pre-contact Aboriginal Artifacts

Plate 9: Location 286, Pre-contact Aboriginal Artifacts

Plate 10: Location 287, Chipping Detritus

Plate 11: Location 288, Chipping Detritus

Plate 12: Location 289, Pre-contact Aboriginal Artifacts

Plate 13: Location 290, Pre-contact Aboriginal Artifacts

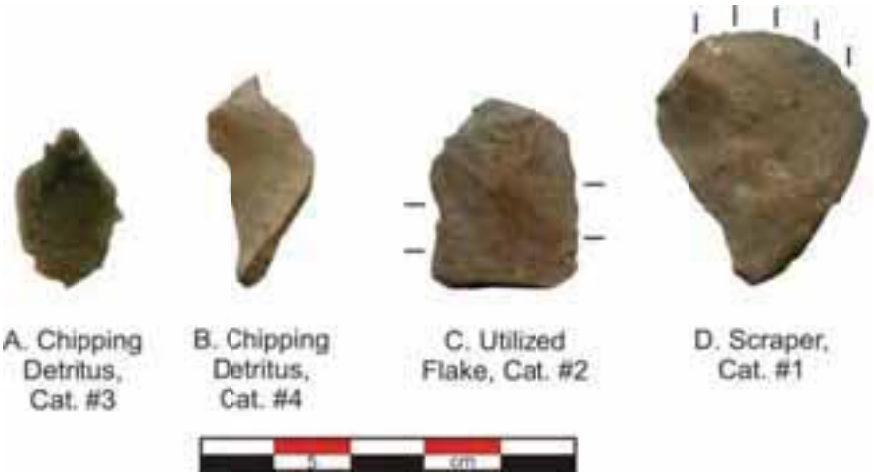


Plate 14: Location 291, Chipping Detritus

Plate 15: Location 292, Chipping Detritus

Plate 16: Location 293, Chipping Detritus

Plate 17: Location 294, Chipping Detritus

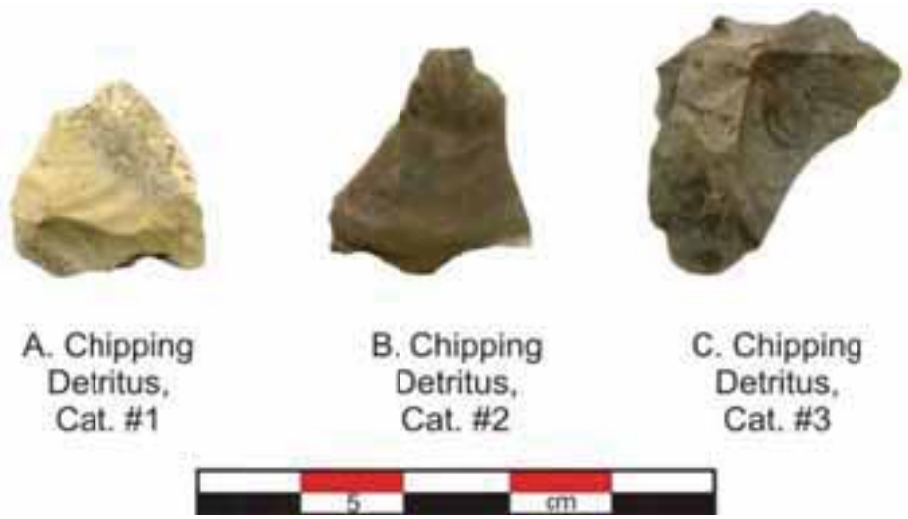
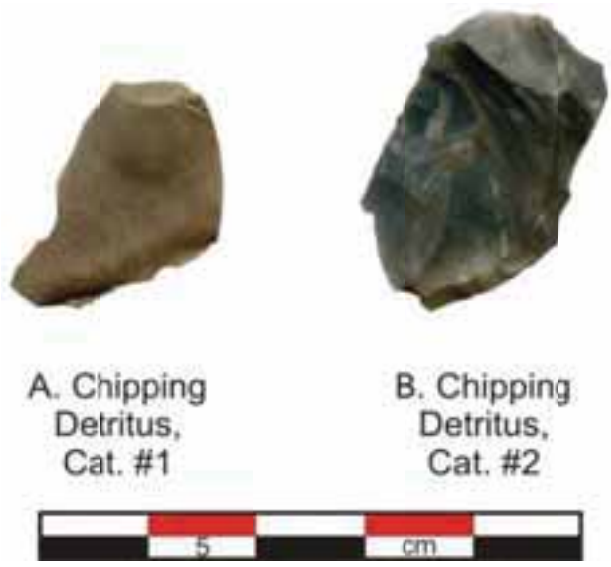
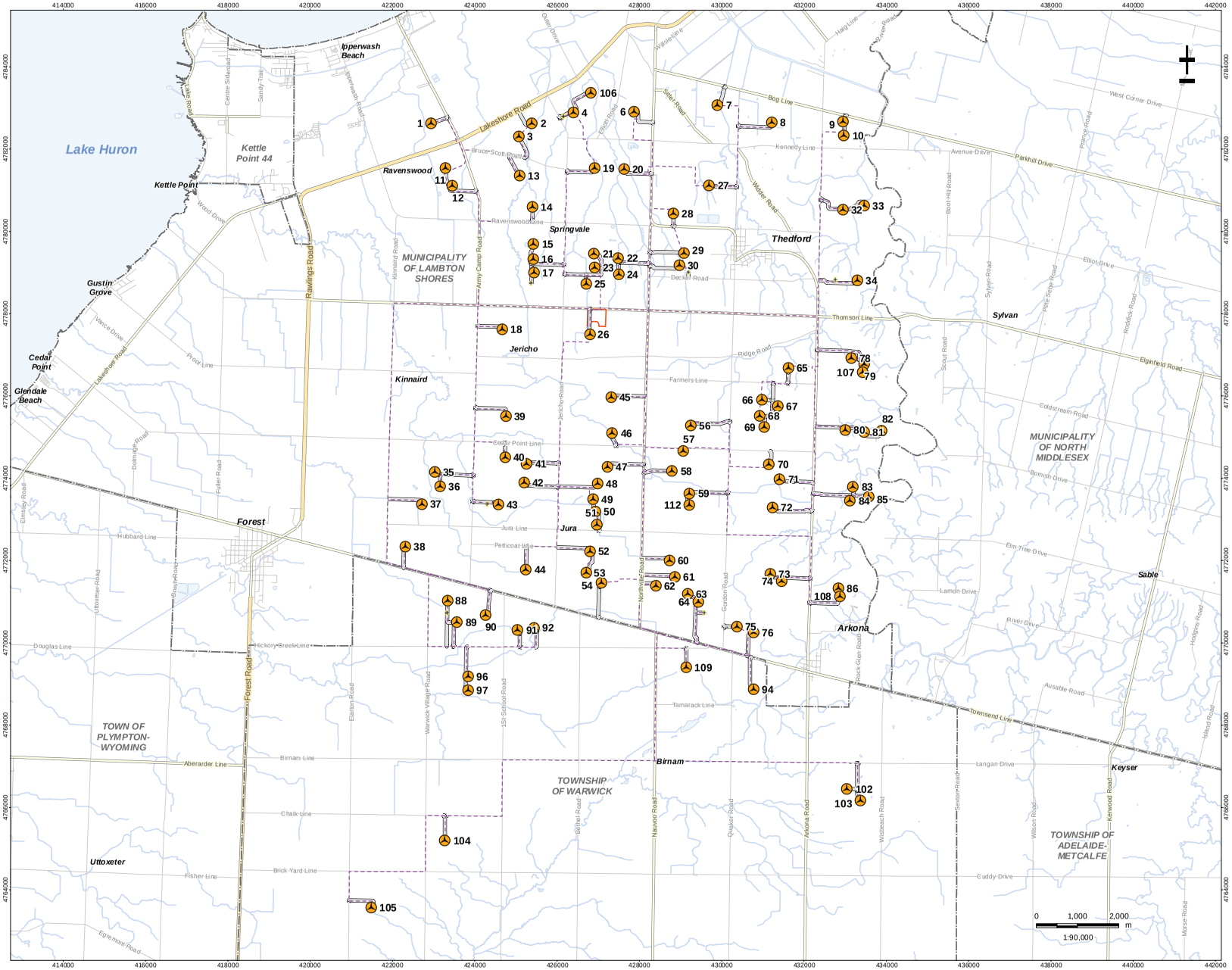


Plate 18: Location 295, Chipping Detritus



9.0 Maps

All maps will follow on succeeding pages. Maps identifying exact site locations do not form part of this public report; they may be found in the supplementary documentation.



Legend

Proposed Project Components

- Wind Turbine
- MET Tower
- Collector Line
- Laydown Area
- Access Road

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.

Stantec

August 2013
160940227

Client/Project
Jericho Wind Inc
Jericho Wind Energy Centre
Stage 2 Archaeological Assessment

Figure No.
1

Title
Project Location

V:\01609\active\160940238 - Jericho St2 and St3\work_progam\drawing\MXD\Stage 2\160940227_St2_Fig1_ProjLoc.mxd
Revised: 2013-08-15 By: carobertson