



St. Clair Moore Solar Farm Archaeology Reports

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Date: August 2008



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Stage 1 Archaeological Assessment

St. Clair Solar Farm
Geographic Townships of Moore and Sombra
Lambton County, Ontario

Submitted to

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and

The Ontario Ministry of Culture

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Archaeological License Number: P064
Our File: 2008-71
PIF Number: P064-219-2008

August 2008

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Acknowledgements

TMHC would like to acknowledge the assistance of the following individuals:

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Ministry of Culture, Toronto, Ontario*



Project Summary

A Stage 1 archaeological assessment was conducted for five Sarnia Township properties that are the focus of a proposed new solar farm. Two of these properties occur southeast of the community of Corunna, in Moore Township, Ontario and three occur east and southeast of the community of Sombra, in Sombra Township, Ontario. The project will see the installation of numerous ground-mounted solar panels. The subject lands are currently used for agricultural purposes. Our Stage 1 assessment is required for *Planning Act* approvals. The purpose of our work is to evaluate possible construction impacts to known or potential cultural resources within the proposed solar farm lands.

A review of the topography, hydrology, soils and both current and past land uses for the five properties indicated that much of the proposed solar farm lands have archaeological potential for both First Peoples and historic era archaeological sites. All or portions of properties 1 through 5 exhibited archaeological potential, as determined by Ministry of Culture criteria.

Any proposed construction on properties 1 through 5 will require a Stage 2 archaeological assessment. For lands in crop, this should consist of a pedestrian survey conducted at a five metre interval after the crops have been harvested and the fields cultivated by plough to permit acceptable survey conditions according to Ministry of Culture standards and guidelines. For grassed and treed areas, a Stage 2 shovel test survey must be employed.

All areas to be impacted during construction must be assessed, provided that these exhibit archaeological potential. This includes areas designated for solar panel and utility installation, machine travel and/or material storage. Once the impact areas have been defined, a more detailed review of the project against zones of potential can be carried out in order to determine the extent of survey coverage.

The Ministry of Culture is asked to review the information presented in this report and issue a letter concurring with its recommendations. This correspondence should be directed to Ron Truman of OptiSolar Canada and Holly Martelle of Timmins Martelle Heritage Consultants Inc.



Stage 1 Archaeological Assessment
St. Clair Solar Farm
Geographic Townships of Moore and Sombra
Lambton County, Ontario

1.0 INTRODUCTION

A Stage 1 archaeological assessment was conducted for five Sarnia Township properties that are the focus of a proposed new solar farm. Two of these properties (Study Area 1) occur southeast of the community of Corunna, in Moore Township, Ontario (Figure 1) and three (Study Area 2) occur east and southeast of the community of Sombra, in Sombra Township, Ontario (Figure 2). The project will see the installation of numerous ground-mounted solar panels. The subject lands are currently used for agricultural purposes. Our Stage 1 assessment is required for *Planning Act* approvals. The purpose of our work is to evaluate possible construction impacts to known or potential cultural resources within the proposed solar farm lands.

The background information review was carried out in July and August of 2008, and a field reconnaissance of the properties conducted on August 1, 2008. The field “windshield” survey took place in warm weather conditions. All archaeological consulting activities were performed under the Professional Archaeological License of Dr. Holly Martelle (P064) and in accordance with the “Archaeological Assessment Technical Guidelines” of the Ministry of Culture (MCTR 1993). Permission to carry out our study was given by Ron Truman of OptiSolar Farms Canada, proponent for the proposed solar farm.

2.0 PURPOSE

The *Ontario Heritage Act* makes provisions for the protection and conservation of heritage resources in the Province of Ontario. Heritage concerns are recognized as a matter of provincial interest in Section 2.6.2 of the *Provincial Policy Statement* which states:

“development and site alteration shall only be permitted on lands containing archaeological resources or areas of archaeological potential if the significant archaeological resources have been conserved by removal and documentation, or by preservation on site. Where significant archaeological resources must be preserved on site, only development and site alteration which maintain the heritage integrity of the site may be permitted.” (emphasis in the original)

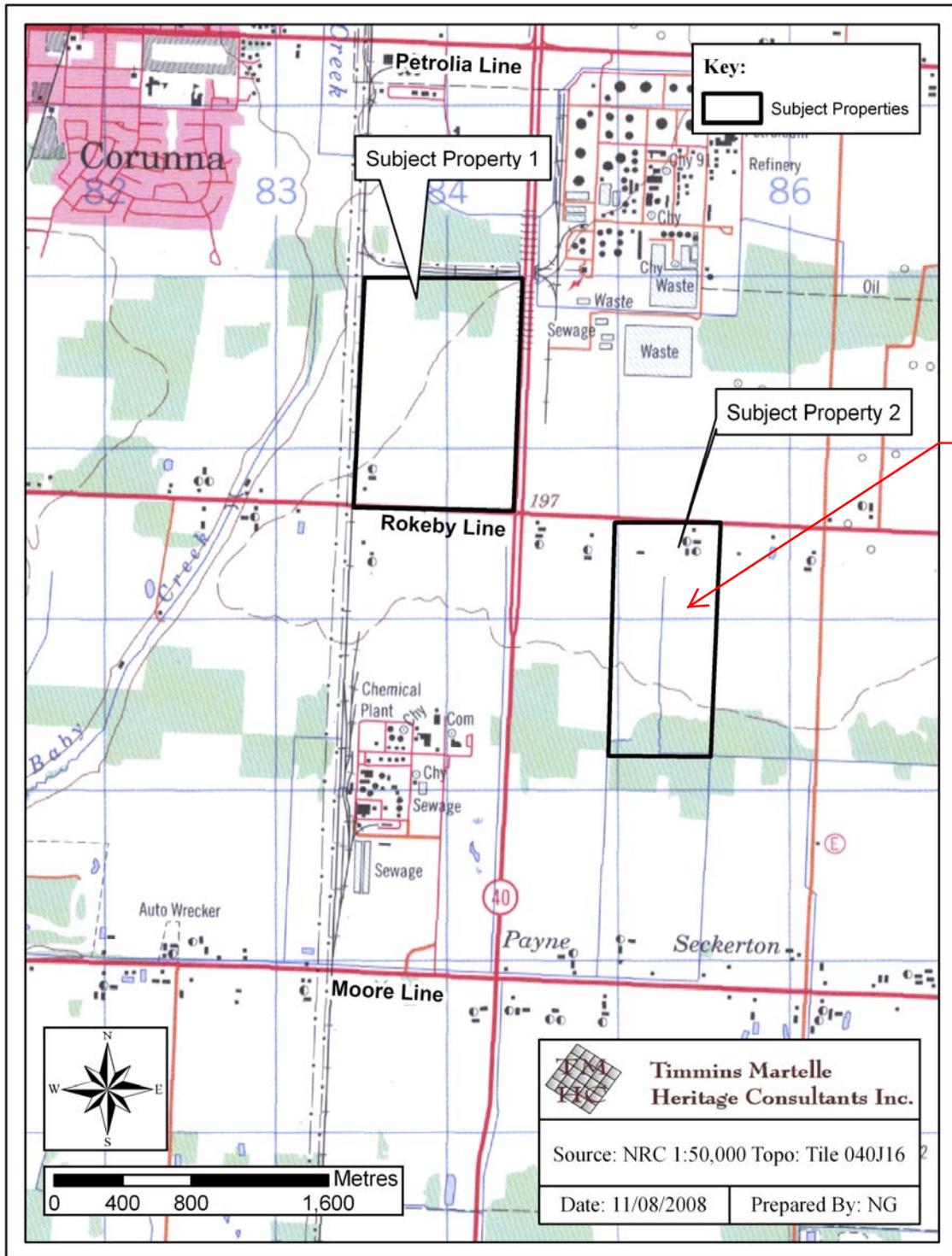


Figure 1: Location of Properties 1 and 2 Within Study Area 1, Near Corunna, ON



The purpose of a Stage 1 background study is to determine if there is potential for cultural resources to be found on a property for which a change in land use is pending. It is used to determine the need for a Stage 2 field assessment involving the search for archaeological sites. In accordance with *Provincial Policy Statement 2.6*, if significant sites are found, a strategy (usually avoidance, preservation or excavation) must be put forth for their mitigation. A land use change application triggers a review of the property for archaeological concerns. If properties are deemed to have potential for archaeological sites, a Stage 1 and 2 archaeological assessment is required and listed as a condition of land use change approval.

A Stage 1 overview and background study was conducted to gather information about known and potential cultural heritage resources within the proposed solar farm lands. This work included a review of the physical characteristics of the properties (e.g., soils, topography, and drainage), pertinent historic maps, and other relevant documentation and a consideration of land use history. The Provincial archaeological database was also consulted in order to determine if there are registered sites within or in proximity to the subject lands. The information collected during this background study was used to evaluate the archaeological potential of the property and devise an appropriate methodology for the Stage 2 field survey.

3.0 METHODS AND SOURCES OF INFORMATION

A Stage 1 overview and background study was conducted to gather information about known and potential cultural heritage resources within the study areas. Landscape and environmental conditions were reviewed using physiographic, topographic and soils mapping for the area. Early historic maps and historical summaries were consulted and a review of the Provincial registered archaeological sites database was carried out. A review of background documents was supplemented by a preliminary field reconnaissance of the study areas to photo-document existing conditions and highlight significant features within the study area that indicate archaeological potential.

When compiled, this information was used to create a summary of the characteristics of the study areas in general and each property in particular, in an effort to evaluate their archaeological potential. For the Province of Ontario, the Ministry of Culture has identified a number of criteria that can be used to determine if an area has archaeological potential. These criteria primarily relate to geographic and cultural-historic features which would have influenced past land and resource use, as well as encouraged settlement (MCCR 1997:11). The presence or absence of such features allows an archaeologist to estimate the likelihood of ancient land use and thus the presence of archaeological sites.

Typically, a Stage 1 assessment will determine potential for precontact First Peoples and historic Euro-Canadian sites independently. This is due to the fact that



lifeways varied considerably between the prehistoric and historic eras so that the criteria used to evaluate potential for each type of site differs.

4.0 STAGE 1 ASSESSMENT

4.1 Project Description and Study Area

OptiSolar Farms Canada seeks to construct a solar farm in northwestern Moore Township, Lambton County, Ontario (Study Area 1), and in west central Sombra Township (Study Area 2), Lambton County, Ontario. This solar farm's construction will result in the production of additional electricity generating capacity and is in accordance with provincial commitments to increase renewable energy sources in Ontario. Five properties have been selected (Figures 1 and 2) representing two discrete study areas. Study Area 1 is the more northerly of the two study areas and contains two properties (Properties 1 and 2), which are situated south of Petrolia Line and north of Moore Line, and between Saint Clair Parkway and Ladysmith Road. The subject properties in Study Area 1 fall within Concessions 8 and 9 of the Geographic Township of Moore. Study Area 2 is the more southerly of the two study areas and contains three properties (Properties 3, 4, and 5), which are situated south of Bentpath Line and north of Ward Line and between Baseline Road and Modeland Road (Hwy. 40). The subject properties in Study Area 2 fall within Concessions 8, 9, 10 and 11 of the Geographic Township of Sombra. All of the subject properties in each of the two study areas are primarily agricultural in nature. The two subject properties in Study Area 1 are situated southeast of the community of Corunna's urban periphery, and within one kilometer of existing industrial zones. A north-south railway and hydro-electric corridor parallels the western boundary of Property 1 in Study Area 1 (Figure 1). The three subject properties in Study Area 2 are situated east and southeast of the Town of Sombra and are surrounded primarily by rural agricultural lands. However, the west-east Darcy McKeough Floodway parallels the southern boundary of Property 3 in Study Area 2 (Figure 2).

The following sections provide an overview of the general study areas and their archaeological potential. A detailed review of the individual properties is also included in Section 4.5.

4.2 Physiography, Drainage and Soils

All of the subject properties fall within the St. Clair Clay Plains physiographic region (Chapman and Putnam 1966:240). The region is essentially an extensive clay plain covering over 2,000 square miles east of the St. Clair River and south of the Lake Huron shoreline (Chapman and Putnam 1966:240). The plain shows very little notable relief yet minor elevation changes have a marked effect on soils and vegetation (Chapman and Putnam 1966:240). The St. Clair Clay Plain was formerly the bed of glacial lakes Whittlesey and Warren (Chapman and Putnam 1966:241) and the former shorelines of



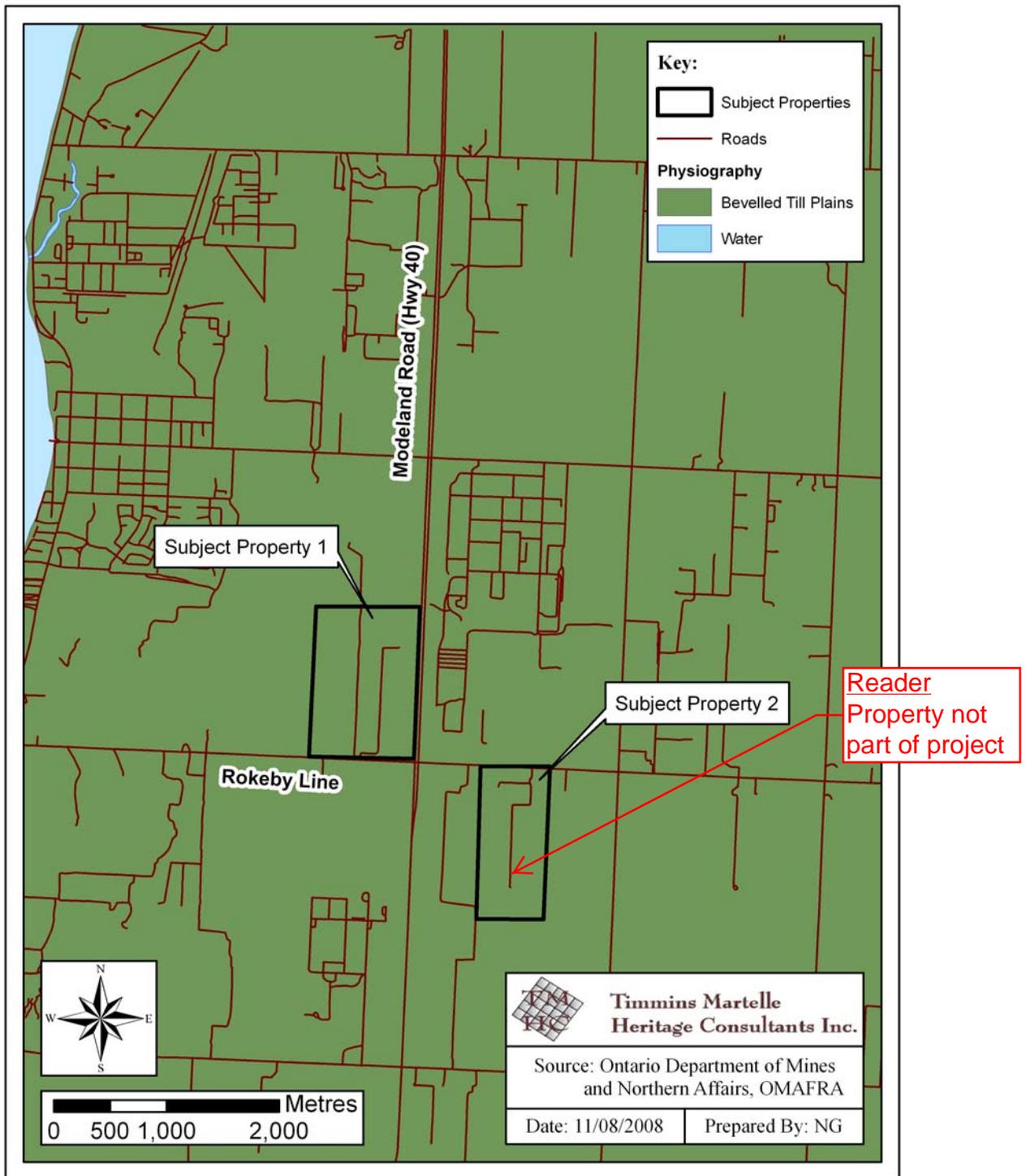


Figure 3: Physiography in the Vicinity of Subject Properties 1 and 2 Within Study Area 1, Near Corunna, ON



these ancient water bodies have been documented along the eastern edge of the plain, near Alvinston and Watford. In parts of Lambton County, the clay plain is categorized as beveled till plain given that a shallow layer of clay overlies an underlying till plain (Chapman and Putnam 1966:243). The three subject properties in Study Area 2 occur west of a distinctive glacial shorecliff that is oriented along a north-northwest to south-south-east axis. This shorecliff feature represents a relic fossil shoreline of a former higher water level of Early Lake St. Clair (Chapman and Putnam 1966:33-34).

The two predominant soil types within Study Area 1 are Brookston Clay and Caistor Clay (Figure 5). Brookston clay is a poorly drained dark grey gleisolic soil. Caistor Clay is a better drained grey-brown podzol. Brookston Clay and Brisbane Loam are the predominant soil types within Study Area 2, and pockets of Caistor Clay and Burford Loam occur in the area (Figure 6). Notably, pockets of Burford Loam and Brisbane Loam occur in direct association with what appear to be beach bar formations immediately adjacent and parallel to the Early Lake St. Clair shorecliff immediately to the east, and a distinct change in elevation at 180 metres asl (above sea level) is directly associated with these soil/physiographic features (Figure 6). Most of the soils in Lambton County are not particularly well drained, such that farming regularly requires drainage improvement to make it profitable (Matthews et al. 1957:11). In some cases this has been accomplished through the excavation of ditches along property boundaries or the installation of drainage tile. The underlying bedrock in the area is black fissile shale of the Kettle Point Formation and Hamilton Formation blue/grey shale and grey limestone (Matthews et al. 1957:33).

Study Area 1 is drained by Baby Creek to the southwest and by a branch of Talfourd Creek (named Marsh Creek) to the northwest, both of which drain directly into the St. Clair River to the west (Figure 7). Neither of these creeks are deeply cut but are nonetheless notable features on the otherwise generally flat landscape of the area. Within the study area, the grade slopes gently from roughly 195 metres asl near Modeland Road (Hwy. 40) to the east to roughly 184 metres along Saint Clair Parkway to the west. Study Area 2 is drained by Clay Creek to the north, and by Grape Run to the south (Figure 8). Clay Creek is a natural spillway, whereas Grape Run appears to be an open drainage ditch that might previously had been a natural spillway that has since been modified for land drainage purposes. The Darcy McKeough Floodway, which bisects the Study Area in an east-west direction between Smith Line and Holt Line, likely provides some drainage to at least the most northerly (Property 3) of the three subject properties within this study area (Figure 8).

Prior to historic clearing, Lambton County was essentially covered by mixed forest and swamp. Southern deciduous tree species like oak, hickory and chestnut were plentiful, as were beech, sugar maple and basswood. The County's poorly drained zones were populated by elm trees, with marsh grass typical in the marsh lands (Matthews et al. 1957:27-28).



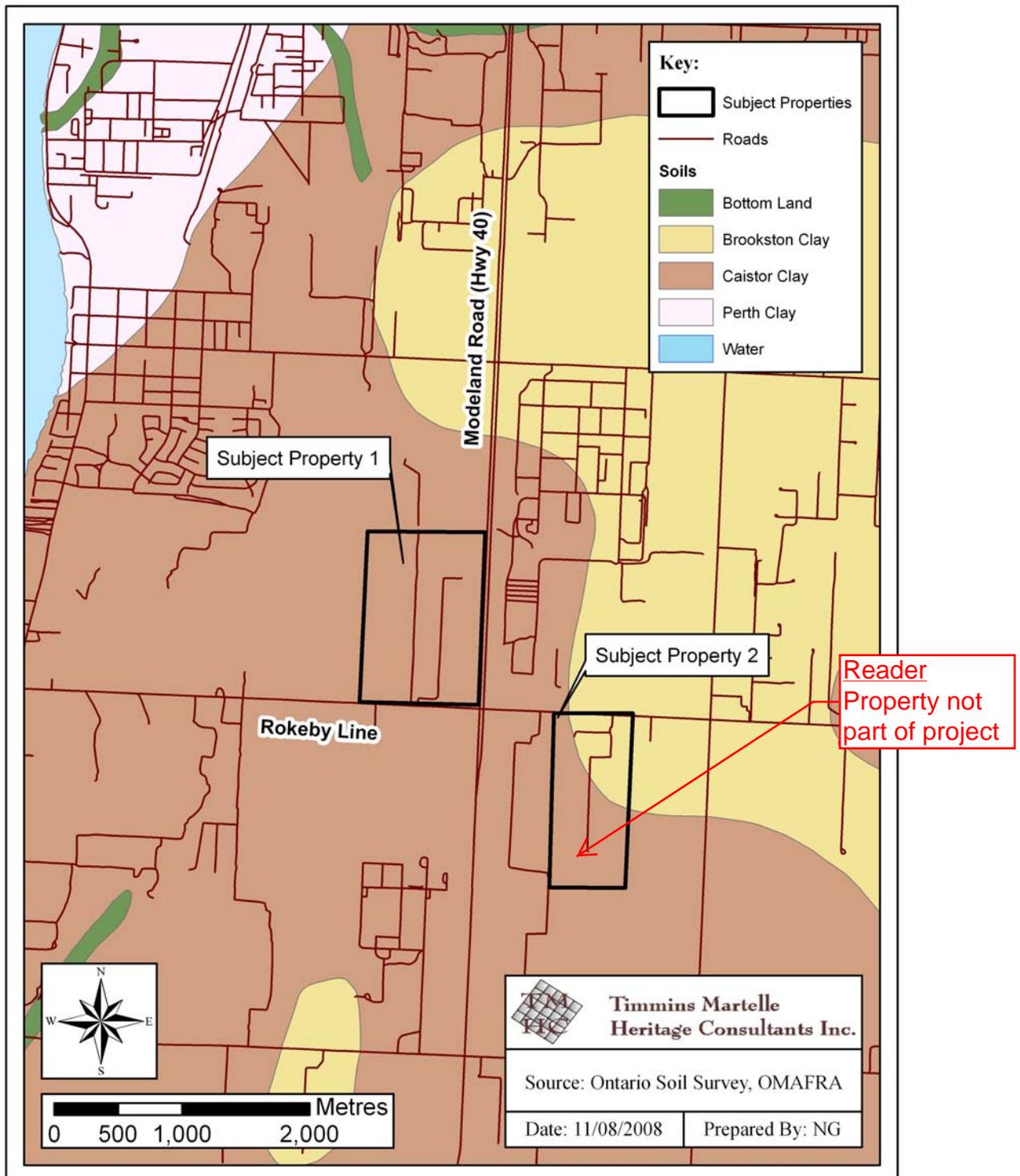


Figure 5: Soils in the Vicinity of Subject Properties 1 and 2 Within Study Area 1, Near Corunna, ON



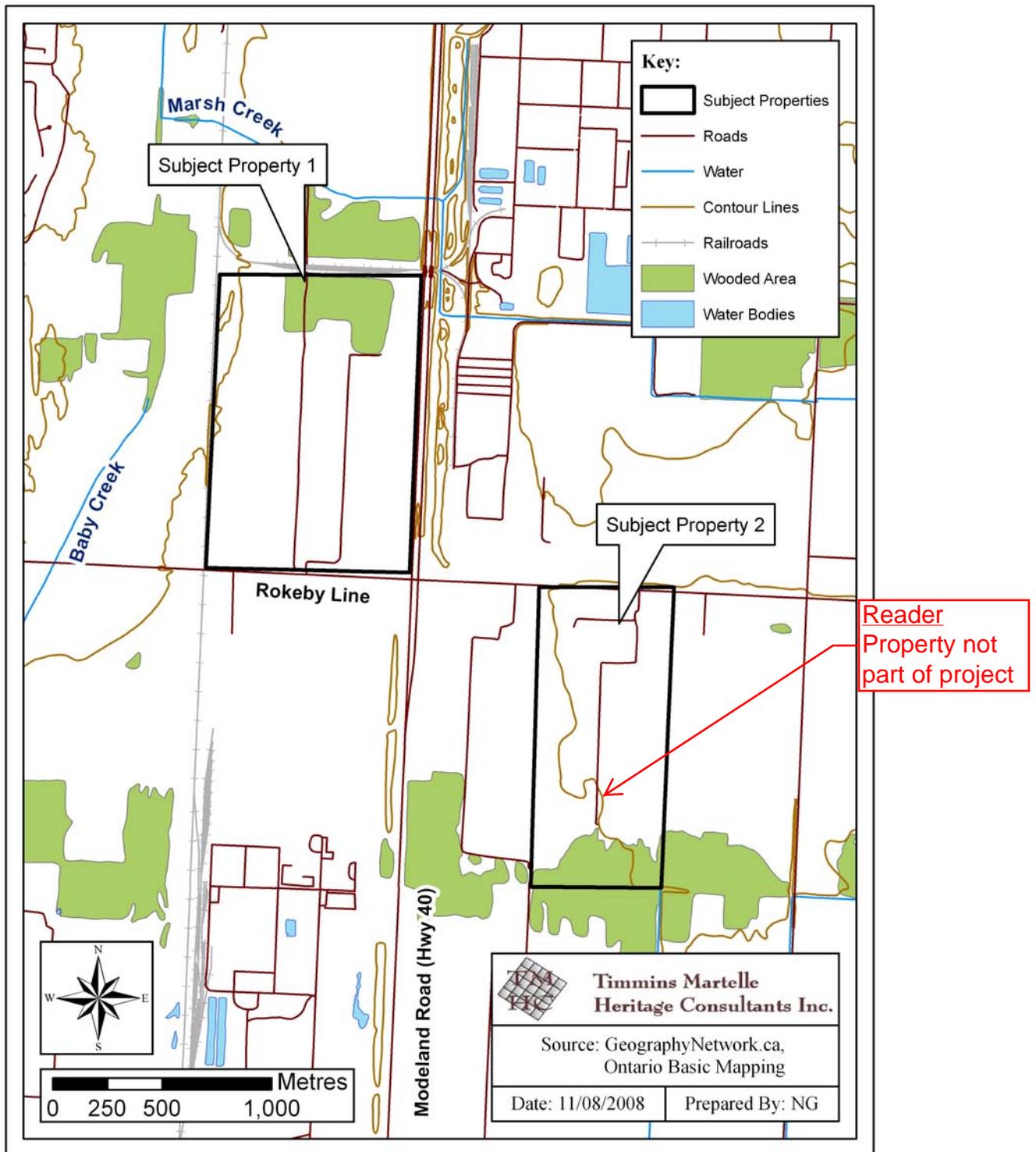


Figure 7: Drainage in the Vicinity of Subject Properties 1 and 2 Within Study Area 1, Near Corunna, ON



4.3 Evaluation of Archaeological Potential: First Peoples Sites

There have been relatively few archaeological surveys of lands in the general study areas. However, the limited investigations that have been carried out have provided evidence that the Lake St. Clair environs were readily used by native peoples in the past.

According to the Provincial database there are four registered sites within three kilometers of the two study areas. Three of these sites represent native camp sites or find spots ranging in age from the Late Paleo-Indian to Late Woodland periods, and one is a historic Euro-Canadian site.

Table 1: Registered Sites in the Vicinity of the Study Areas

Borden #	Name	Type	Temporal/Cultural Affiliation	Researcher
AeHo-6	Sombra 1	find spot	Late Paleo-Indian – Hi-Lo	Knight (1987)
AfHo-1	Parker Earthworks	village	Iroquoian/Wolfe Phase/Late Woodland	Lee (1958)
AfHo-2	Stag Island Cemetery	cemetery	Riviere?/undetermined	Fox (1981)
AfHo-5	n/a	homestead	Historic – Euro-Canadian	Williamson (1989)

Despite the documentation of these sites, our knowledge of past native occupation in the two study areas remains incomplete. Nonetheless, based on region-specific and province wide data, a model of native settlement in the region has been proposed (Table 2).

Table 2: Cultural Chronology for Native Settlement in the Corunna and Sombra Study Areas

Period		Time Range (circa)	Diagnostic Features	Complexes	
Paleoindian	Early	9000 - 8400 B.C.	fluted projectile points	Gainey, Barnes, Crowfield	
	Late	8400 - 8000 B.C.	non-fluted and lanceolate points	Holcombe, Hi-Lo, Lanceolate	
Archaic	Early	8000 - 6000 B.C.	serrated, notched, bifurcate base points	Nettling, Bifurcate Base Horizon	
	Middle	6000 - 2500 B.C.	stemmed, side & corner notched points	Brewerton, Otter Creek, Stanly/Neville	
	Late	2000 - 1800 B.C.	narrow points	Lamoka	
		1800 - 1500 B.C.	broad points	Genesee, Adder Orchard, Perkiomen	
		1500 - 1100 B.C.	small points	Crawford Knoll	
	Terminal	1100 - 950 B.C.	first true cemeteries	Hind	
Woodland	Early	950 - 400 B.C.	expanding stemmed points, Vinette pottery	Meadowood	
	Middle	400 B.C. - A.D. 500	dentate, pseudo-scallop pottery	Saugeen/Couture	
	Transitional	A.D. 500 - 900	first corn, cord-wrapped stick pottery	Princess Point/Riviere au Vase	
	Late	Early Iroquoian	A.D. 900 - 1300	first villages, corn horticulture, longhouses	Glen Meyer/Young
		Middle Iroquoian	A.D. 1300 - 1400	large villages and houses	Uren, Middleport/Springwells
		Late Iroquoian	A.D. 1400 - 1650	tribal emergence, territoriality	Neutral Iroquois/Wolf
Contact		Aboriginal	A.D. 1700 - 1875	treaties, mixture of Native & European items	Ojibwa
		Euro-Canadian	A.D. 1796 - present	English goods, homesteads	European settlement, pioneer life



Several factors can be used to assess an area's potential for housing First Peoples sites. These include the presence of well-drained sandy soils, rolling topography, impressive and elevated landscape features and proximity to both potable water and known archaeological sites. When these are taken into consideration, many of the lands within the two study areas demonstrate archaeological potential. Those lands with archaeological potential are primarily those within 200 - 300 metres of watercourses and the glacial shoreline.

4.4 Evaluation of Archaeological Potential: Historic Era Sites

The potential of an area to contain historic era or EuroCanadian sites can be considered through an overview of the historical development of a region, a review of land records and a consideration of landscape features that might have been attractive for settlement during the period.

Study Area 1

Study Area 1 incorporates lots within Concessions 8 and 9 in the Geographic Township of Moore. It is also in general proximity to the historic and current communities of Corunna and Mooretown. The historical review will focus primarily on the origin of these places, the identification of early roads that made settlement possible, and other features and attributes that would indicate historic era archaeological potential.

As early as 1812, two Frenchman, Champleau and Papineau, located to where Mooretown now exists; the earliest known village of the area. Early French settlers to the area held their land by "squatter's rights" until the Township of Moore was surveyed in 1829 by Boswell Mount (Johnston 1925:46). Sir John Colborne named this Township after the noted British General John Moore, who died in the battlefield of Corunna that was fought in 1809 by Napoleon's army during the Spanish Conquest. This is also how the community of Corunna derived its name in 1837. Mooretown is the oldest settlement in the township and historically was purportedly the largest village (H. Belden & Co. 1880). Moore Township was noted for its relatively large number of settlements in Lambton County, owing largely to the presence of and access to the Saint Clair Division of Canada's Southern Railway line, which bisected the township west to east just south of Mooretown between the communities of Courtright and Brigden (H. Belden & Co. 1880). Though the St. Clair riverfront portion of Moore Township was settled early in 19th century, settlement of interior portions of the township did not begin until the 1830s because forested swampland dominated these interior lands. In these interior areas land grants were made to the sons of United Empire Loyalists in reward for their loyalty to the British Crown during the War of 1812, though most quickly sold their land cheaply to other incoming settlers and land speculators. Thus, two distinct sections of the township, the riverfront and the interior, received two distinct classes of settlers. People of Official Class (e.g., army and navy men, businessmen, physicians, mechanics) settled the riverfront, whereas those of the labouring class (e.g., farmers, shepherds, sailors, fisher-



men, carpenters) settled the less hospitable interior. However, this seemed to work well for everyone, as riverfront settlers obtained much needed labour from the interior labourers who welcomed the earnings and who were used to such strenuous work.

Until at least 1839, the only passable roadway in Moore Township was the one along the river (now the Saint Clair Parkway), which itself had limited access to areas farther north. Even when concession lines were opened up and ditches dug alongside these, it was many years thereafter before these roads could be travelled by wagon due to the extensive dense and wet clay soils in the poorly drained interior regions. It was not until the 1880s that the main road arteries running into Sarnia (River Road, Reserve Road, and Kimball Side Road) were gravelled. Most of the concession roads in Moore Township were open by mid-century and were likely somewhat accessible by the 1830s when the concessions were settled (Figure 9).

A review of the 1880 historic atlas map of Moore Township (Figure 9) indicates that only two parcels of the two subject properties bear the names of their owners (H. Belden & Co. 1880). William Turnbull occupied 50 acres comprising the eastern third of Lot 26, Concession 9 (the western third of subject Property 1). A structure is shown on the lot and situated north of Rokeby Line, within the study area. Charles Reilley occupied 100 acres comprising Lot 25, Concession 9 (the eastern two thirds of subject Property 1). A structure is shown on the lot and situated near the northwest intersection of Rokeby Line and Modeland Road (Hwy. 40), also within the study area. However, it should be noted that historic atlas maps are not always accurate renderings of land use conditions at the time. For example, landowners often had to pay a subscribers fee to be listed in the atlas and many individuals chose not to do so. Thus, many of the properties that bear no owner names may also have been settled before 1880.

This historical review has demonstrated that the general vicinity incorporating Study Area 1 was settled at a very early date in the history of Moore Township. While the early centres of Corunna and Mooretown fall just outside of the study area, the concession roads within the study area proper were settled by the mid-19th century. Properties 1 and 2 have potential for the discovery of historic era archaeological sites given their proximity to these open concession roads. Property 1 also has potential given the presence of two known 19th century structures.

Study Area 2

Study Area 2 incorporates lots within Concessions 8 and 11 in the Geographic Township of Sombra. It occurs east and southeast of the historic and current community of Sombra. The historical review will focus primarily on the origin of these places, the identification of early roads that made settlement possible, and other features that would indicate historic era archaeological potential.

Reader
Property not
part of project



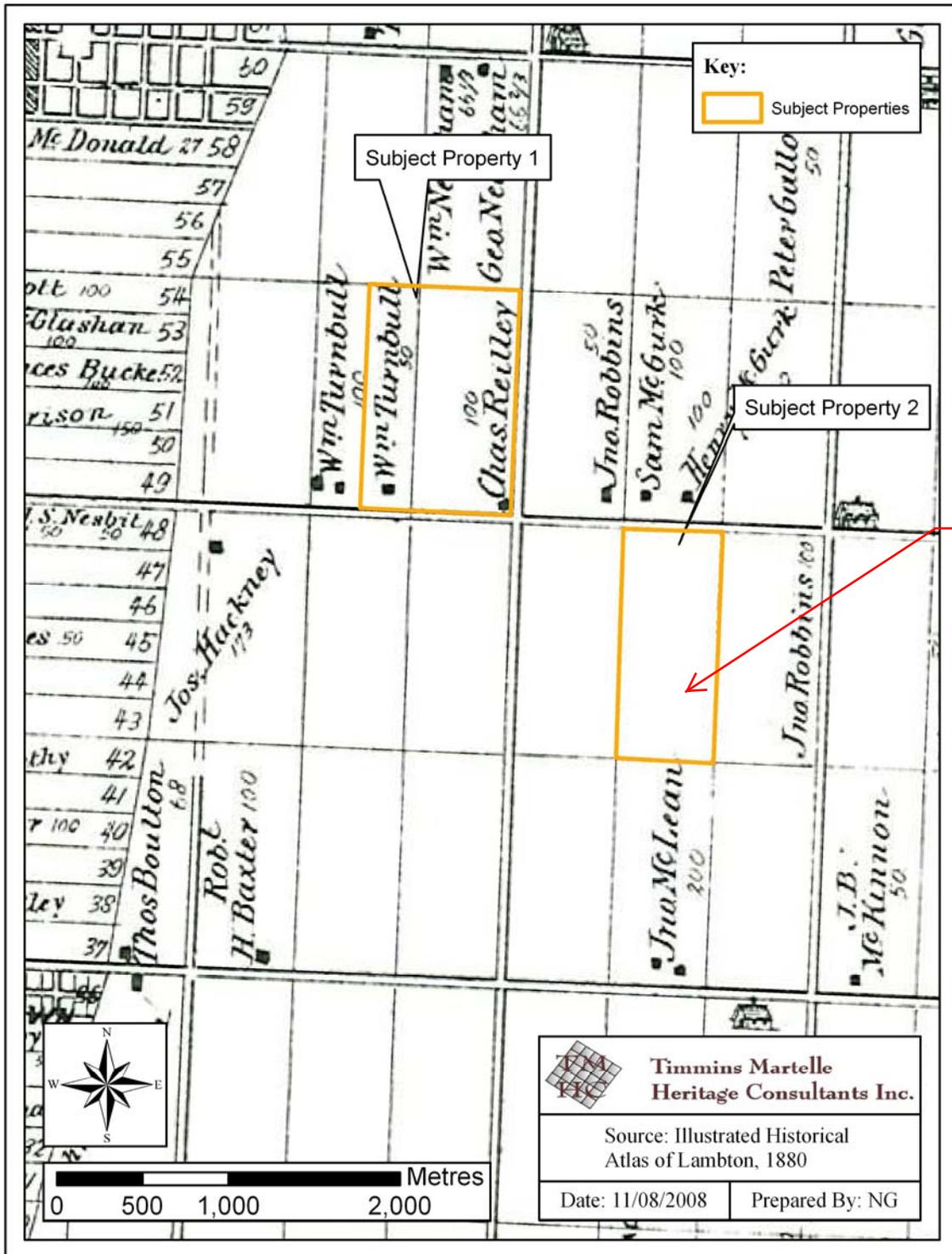


Figure 9: Subject Properties 1 and 2 Shown on the 1880 Map of Moore Township, Lambton County, ON

4.5 Property Review

The proponent has identified five properties to be included in the solar farm project. These are mapped in Figure 11 for Study Area 1 (Subject Property 1 and 2) and Figure 19 for Study Area 2 (Subject Property 3, 4 and 5). More detailed descriptions of the features and archaeological potential of the individual properties are provided below.

4.5.1 Study Area 1, Property 1, Part of Lot 26 and Lot 25, Concession 9, Moore Township (300 acres) (Figures 11-15)

Property 1 is a 300 acre rectangular parcel of agricultural land situated immediately south of a railway line and east of a north-south hydro-electric power line, bounded south by Rokeby Line to the east by Modeland Road (Hwy. 40). It is bounded to the north by an industrial facility and to the northeast by the Nova Chemicals plant. The property is currently zoned for agriculture. The southwest corner of the property is pasture with farm buildings (Figure 12). There is a treed parcel in the southeast corner of the property as well (Figure 13). These latter two areas are likely the homestead lots shown on the historic atlas map. The central portion of the property contains agricultural fields, with the westernmost field in wheat (Figure 14) and the easternmost fields in beans (Figure 15). At the north end of the property, there is a dense mature woodlot (Figure 15) of approximately 12 ha in size. The headwaters of Baby Creek occur 230 metres to the west of the western boundary of this property and Marsh Creek passes through agricultural and industrial lands to the north.

Two primary features of Property 1 (proximity to early transportation routes – Modeland Road and Rokeby Line) and proximity to both Baby Creek and Marsh Creek give it archaeological potential. As such, if any construction or machine travel is proposed for Property 1, a Stage 2 survey will be required for all areas of impact.

4.5.2 Study Area 1, Property 2, Lot 23, Concession 8, Moore Township (190 acres) (Figures 11, 16-18)

This roughly 190 acre rectangular parcel fronts Rokeby Line. The property is relatively flat and is mostly under agricultural cash crop production except for a woodlot of approximately 10 ha, which occurs at the south end of the property. Mature soybeans occur in the agricultural fields (Figure 16). There is an extant residence fronting Rokeby Line (Figure 17) and an active pasture area in the northeast portion of the property, alongside a Union Gas facility (Figure 18). Although the property is relatively flat, there is a slight change in elevation midway through the property as indicated on the 1:10,000 base map shown in Figure 7.



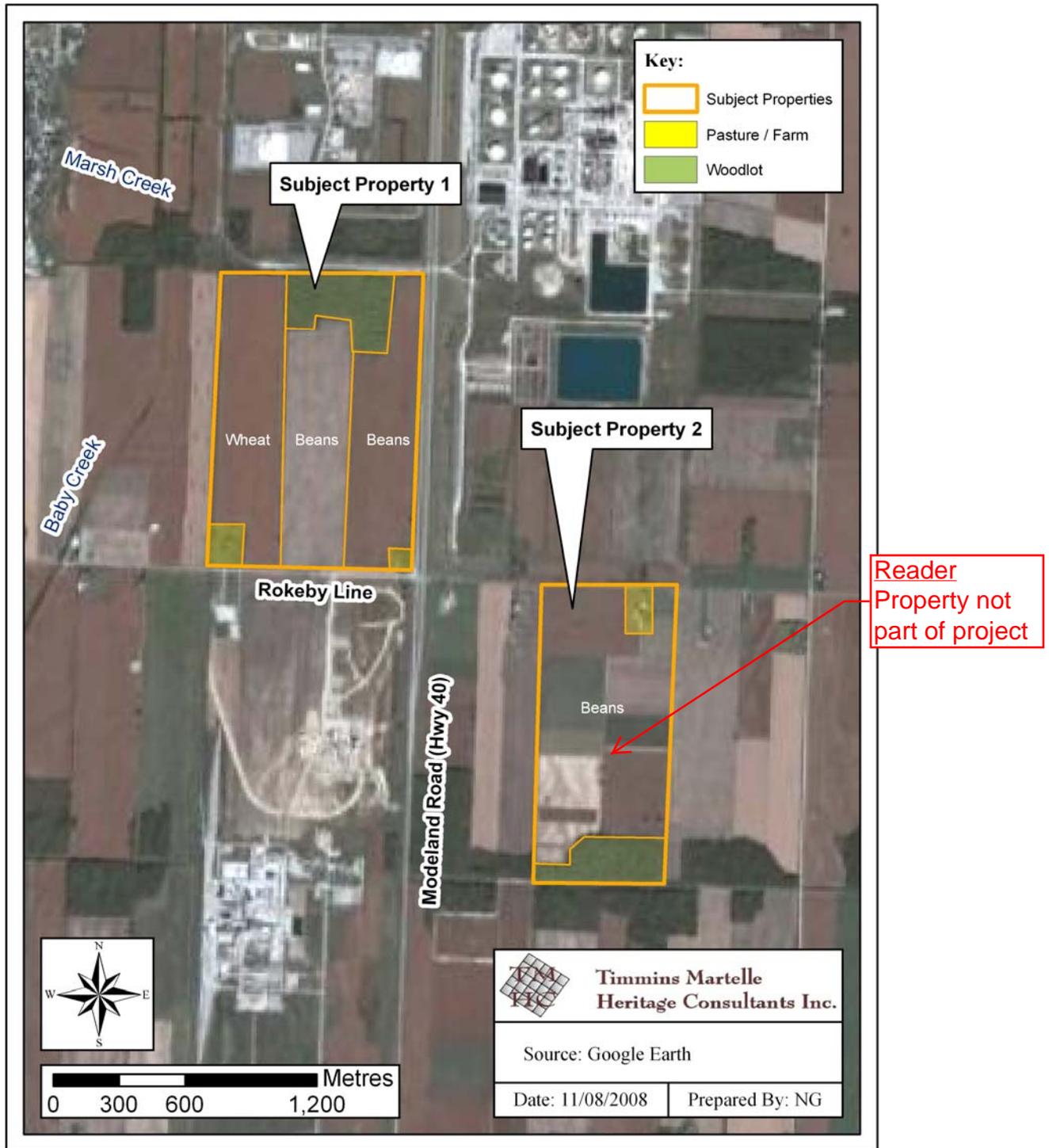


Figure 11: Aerial Photograph Showing Subject Properties 1 and 2



Figure 12: Property 1, Farmstead and Pasture (looking northeast)



Figure 13: Property 1, Treed Area in Southeast Corner (looking northeast)



Figure 14: Property 1, Wheat Field (looking north)



Figure 15: Property 1, Bean Field and Woodlot (looking southwest)



Figure 28: Dumping Area on Property 5 (looking north)



There is a small tributary and former glacial beach ridge to the east and northeast a more prominent Early Lake St. Clair shorecliff feature to the east that is parallel in its orientation. In sum, the property's proximity to potable water and the former beach ridge gives it archaeological potential. Historic potential is also indicated by the presence of French Line which was open by 1880. As such, if any construction or machine travel is proposed for Property 5, a Stage 2 survey will be required for all areas of impact.

5.0 SUMMARY AND RECOMMENDATIONS

A Stage 1 archaeological assessment was conducted for five properties within two relatively study areas identified for a proposed new solar farm in the townships of Moore and Sombra, Lambton County, Ontario. According to Ministry of Culture criteria, all five properties contain lands demonstrating archaeological potential. Any proposed surface or subsurface impacts that will result from construction, utility installation, material storage and machine travel may affect previously unrecorded archaeological resources within these five subject properties. As such, Stage 2 archaeological assessments will be required prior to construction to determine if archaeological sites are present.

Since typical archaeological assessment methods cannot always detect deeply buried archaeological deposits, if these are found at any point during construction, the Ministry of Culture should be notified immediately at (519) 675-6898. Upon the discovery of human remains during construction, the proponent should immediately



contact a representative of Timmins Martelle Heritage Consultants, the Ministry of Culture as well as the Registrar of Cemeteries, Michael D'Mello, in the Cemeteries Regulation Unit of the Ministry of Consumer and Commercial Relations (416) 326-8392.

The Ministry of Culture is asked to review the information presented in this report and issue a letter concurring with our recommendations.

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Ministry of Citizenship, Culture and Recreation (MCCR)

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Ministry of Culture, Tourism and Recreation (MCTR - now the Ministry of Culture)
Cultural Programs Branch, Archaeology and Heritage Planning
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December 7, 2009

Dr. Holly Martelle
Timmins Martelle Heritage Consultants Inc.
584 Oxford Street East
London, Ontario N5Y 3J1

Re: Review and Acceptance into the Provincial Register of Reports: Archaeological Assessment Report Entitled, "Stage 1 Archaeological Assessment, St. Clair Solar Farm, Geographic Townships of Moore and Sombra, Lambton County, Ontario", August 2008, Received November 4, 2008 Licence/PIF # P064-219-2008, MCL File 38SP013

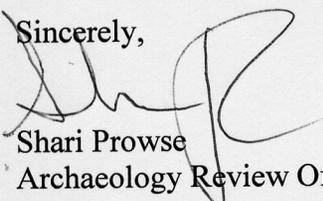
Dear Dr. Martelle,

This office has reviewed the above-mentioned report which has been submitted to this Ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. This review is to ensure that the licensed professional consultant archaeologist has met the terms and conditions of their archaeological licence, that archaeological sites have been identified and documented according to the 1993 technical guidelines set by the Ministry and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

As the result of our review, this Ministry accepts the above titled report into the Provincial register of archaeological reports. The report indicates that portions of the subject property have archaeological and should be subject to a Stage 2 archaeological assessment. This Ministry concurs with this recommendation.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,



Shari Prowse
Archaeology Review Officer

cc. Archaeological Licensing Office
Mr. Ron Truman, OptiSolar Farms Canada

Stage 2 and 3 Archaeological Assessment

St. Clair Solar Farm

Geographic Townships of Moore and Sombra

Lambton County, Ontario

Submitted to

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First Solar Development (Canada) Inc.
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and

The Ontario Ministry of Culture

Prepared by



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Archaeological License Number: P064
Our Files: 2008-87, 2008-120
PIF Numbers: P064-219-2008; P064-230-2008

May 2009

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TMHC would like to thank the following staff members who contributed to this project:

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Acknowledgements

TMHC would like to acknowledge the assistance of the following individuals:

<i>Ron Truman</i>	<i>Director of Project Development</i> OptiSolar Farms Canada Inc., Arthur, Ontario
<i>Kayleigh Enders</i>	<i>Project Development Associate</i> First Solar Inc.



Project Summary

A Stage 1 archaeological assessment was previously conducted for five Lambton County properties that are the focus of a proposed new solar farm (TMHC 2008). Two of these properties occur southeast of the community of Corunna, in Moore Township, Ontario and three occur east and southeast of the community of Sombra, in Sombra Township, Ontario. The project will see the installation of numerous ground-mounted solar panels. The subject lands are currently used for agricultural purposes. The Stage 1 background review indicated the properties had potential for the discovery of archaeological resources. As such, a Stage 2 field survey was recommended. This report describes the results of the Stage 2 survey of the majority of project lands as well as the Stage 3 testing of two potentially significant archaeological sites. Our work was required for *Planning Act* related development approvals.

The Stage 2 combined test pit and pedestrian survey of Property 1 resulted in the discovery of four artifact locations. Three of these were scatters of 19th and 20th century EuroCanadian artifacts. Of the latter, two (Locations 3 and 4) are sufficiently recent enough to not warrant further assessment, whereas Location 2 requires Stage 3 testing. The fourth site is a precontact native site that was subject to Stage 3 testing. The latter activity resulted in the documentation of a 10,000 year old Late Paleoindian Hi-Lo occupation. This is a very significant archaeological site that requires Stage 4 mitigation prior to construction.

The Stage 2 pedestrian survey of Property 2 resulted in the documentation of a single, isolated native artifact. This does not warrant Stage 3 testing. The pedestrian survey of Property 5 did not result in the documentation of artifacts. One 20th century site was discovered during the pedestrian survey of Property 4. It is not recommended for Stage 3 testing.

The Stage 2 pedestrian survey of Property 3 resulted in the discovery of artifacts in three locations. Two of these (Locations 1 and 3) are single native artifacts that are isolated finds and do not warrant further investigation. Location 2 is a EuroCanadian occupation that was subject to Stage 3 testing. The latter activity documented the presence of intact archaeological resources relating to a likely circa 1845 through 1870 farmstead potentially related to the McKay family. Location 2 requires Stage 4 mitigation prior to construction.

The Ministry of Culture is asked to review the information presented in this report and issue comment. This correspondence should be directed to Kayleigh Enders of First Solar Inc. (fax: 519-344-8113) and copied to Holly Martelle of Timmins Martelle Heritage Consultants Inc. (519-641-7220). All required mitigation and preservation measures described in this report must be developed in consultation with the Ministry of Culture and, where necessary, the local municipality.



Stage 2 and 3 Archaeological Assessment
St. Clair Solar Farm
Geographic Townships of Moore and Sombra
Lambton County, Ontario

1.0 INTRODUCTION

A Stage 1 archaeological assessment was previously conducted for five Lambton County properties that are the focus of a proposed new solar farm (TMHC 2008). Two of these properties occur southeast of the community of Corunna, in Moore Township, Ontario and three occur east and southeast of the community of Sombra, in Sombra Township, Ontario. The project will see the installation of numerous ground-mounted solar panels. The subject lands are currently used for agricultural purposes. The Stage 1 background review indicated the properties had potential for the discovery of archaeological resources. As such, a Stage 2 field survey was recommended. This report describes the results of the Stage 2 survey of the majority of project lands as well as the Stage 3 testing of two potentially significant archaeological sites. Our work was required for *Planning Act* related development approvals.

The Stage 2 field survey was initiated in the fall of 2008 but was suspended due to the onset of winter weather and the lack of ploughing for some properties. Stage 2 field survey dates include September 8-11 and 17, October 21, 27, and 31, November 3-7, 10, 2008 and April 29, 2009. Dates for Stage 3 testing include September 22-26, 29, October 6-7, 14-15, 22-23, 27-30 and November 12, 14, 2008 as well as April 30, May 1 and 4, 2009. The Stage 3 work could not be completed in the fall due to exceptionally poor soil conditions and wet weather. All archaeological consulting activities were performed under the Professional Archaeological License of Dr. Holly Martelle (P064) and in accordance with the “Archaeological Assessment Technical Guidelines” of the Ministry of Culture (MCTR 1993). Apart from those described in the body of this report, there were no conditions detrimental to the recognition and recovery of archaeological resources. Permission to carry out our studies was given by Ron Truman of OptiSolar Farms Canada and Kayleigh Enders of First Solar.

2.0 PURPOSE

The *Ontario Heritage Act* makes provisions for the protection and conservation of heritage resources in the Province of Ontario. Heritage concerns are recognized as a matter of provincial interest in Section 2.6.2 of the *Provincial Policy Statement* which states:

“development and site alteration shall only be permitted on lands containing archaeological resources or areas of archaeological potential if the significant archaeological resources have been conserved by removal and documentation, or by preservation on site.

Where *significant archaeological resources* must be preserved on site, only *development* and *site alteration* which maintain the heritage integrity of the site may be permitted.” (emphasis in the original)

The purpose of a Stage 1 background study is to determine if there is potential for cultural resources to be found on a property for which a change in land use is pending. It is used to determine the need for a Stage 2 field assessment involving the search for archaeological sites. In accordance with *Provincial Policy Statement 2.6*, if significant sites are found, a strategy (usually avoidance, preservation or excavation) must be put forth for their mitigation.

3.0 PROJECT DESCRIPTION, STUDY AREA AND PREVIOUS INVESTIGATIONS

A new solar farm is proposed for five properties within the northwestern portion of Moore Township and west-central Sombra Township, in Lambton County, Ontario (Figures 1 and 2). The solar farm’s construction will result in the production of additional electricity generating capacity and is in accordance with provincial commitments to increase renewable energy sources in Ontario. In keeping with our previous project documentation, these properties have been numbered 1 through 5. Properties 1 and 2 are situated south of Petrolia Line and north of Moore Line, between Saint Clair Parkway and Ladysmith Road. These fall within Concessions 8 and 9 of the Geographic Township of Moore. Properties 3, 4, and 5 are situated south of Bentpath Line and north of Ward Line, between Baseline Road and Modeland Road (Hwy. 40) in Concessions 8, 9, 10 and 11 of the Geographic Township of Sombra. All five properties are primarily agricultural in nature.

In the summer of 2008, Timmins Martelle Heritage Consultants Inc. (TMHC) was hired by OptiSolar Farms Canada Inc. to carry out a Stage 1 archaeological assessment of the project lands. This work determined that all of the properties showed potential for the discovery of archaeological resources (TMHC 2008). In the fall of 2008, TMHC was contracted by OptiSolar Farms Canada Inc. to complete the Stage 2 field survey. We initiated the fieldwork at that time but many properties were not ploughed or ready for assessment prior to the onset of winter. Our survey work commenced in the early spring of 2009. Stage 3 testing of two sites was undertaken throughout the fall of 2008 but did not see completion until the spring of 2009 when adequate soil conditions were realized.

In April 2009, OptiSolar Farms Canada Inc. was purchased by First Solar Development (Canada) Inc. and our 2009 fieldwork has been carried out under the direction of the latter firm. This report describes the results of the 2008 and 2009 Stage 2 and 3 fieldwork.



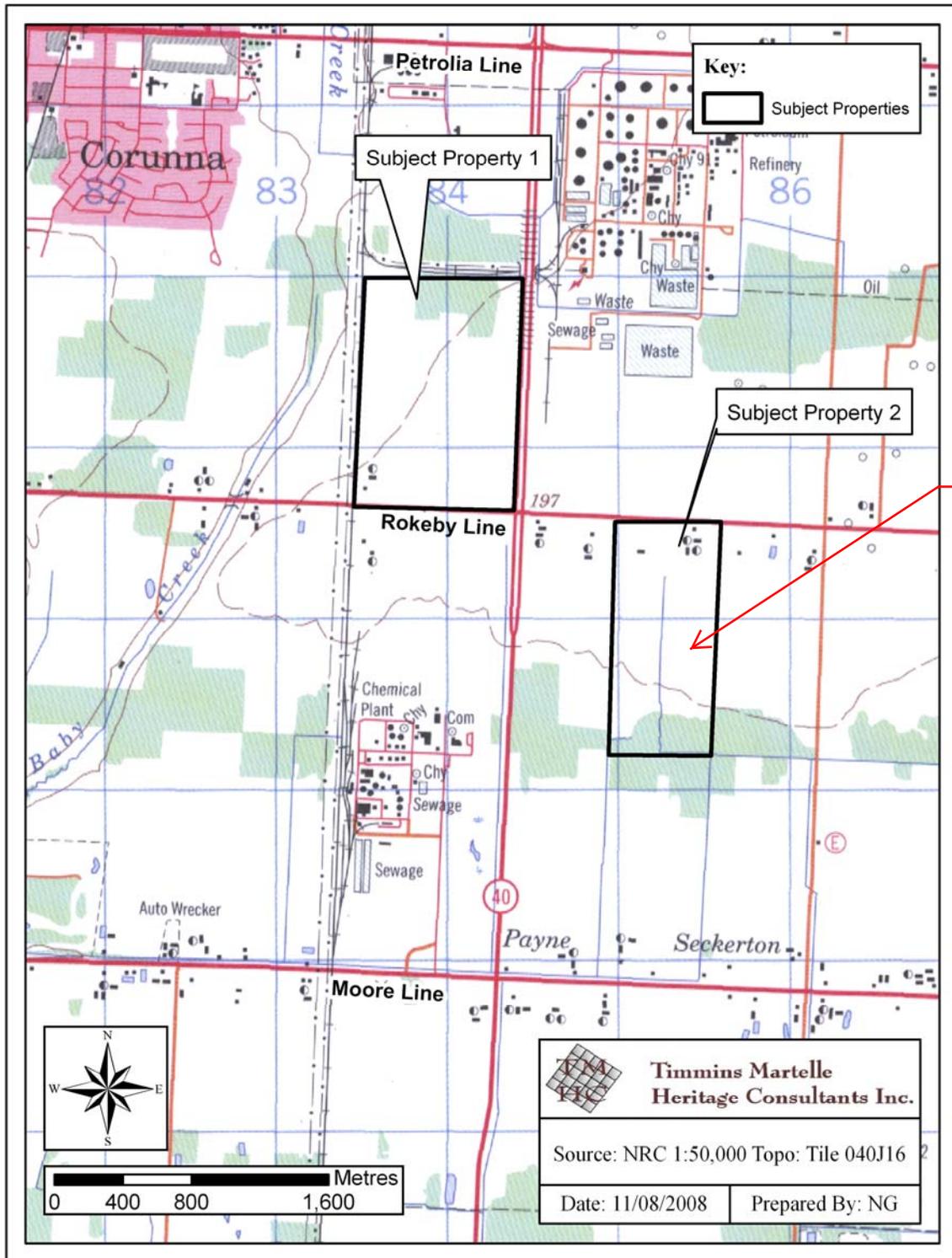


Figure 1: Location of Properties 1 and 2 Near Corunna, ON



4.0 STAGE 2 ASSESSMENT

4.1 Methods

The subject properties were primarily active agricultural fields. As such, they were ploughed prior to our assessment. Some fields were ploughed in the fall of 2008, with others seeing cultivation in the spring of 2009. In all cases, the fields were allowed to weather under heavy rains prior to survey. The lands were investigated using a pedestrian survey conducted at an interval of five metres. When artifacts were identified the survey interval was reduced and the general vicinity surrounding the find was intensively examined. For unploughable areas (old house lots, treed lands) test pitting was employed. Each test pit measured roughly 30 cm (i.e., shovel-width) in diameter and was excavated to subsoil, with all fill screened through ¼” hardware cloth to look for artifacts. When screening was completed, the test pits were filled in and recapped with sod. A five metre transect interval was also used during the test pit survey.

4.2 Results

The current project layout incorporates five properties. The field conditions, assessment methods and results for each property are provided below.

4.2.1 Property 1, Part of Lot 26 and Lot 25, Concession 9, Moore Township (300 acres) (OptiSolar/First Solar Fields 1 and 2) (Figures 3-8)

This is a 300 acre rectangular parcel of agricultural land occupying the northwest corner of the intersection of Rokeby Line and Modeland Road (Hwy. 40) east of the Nova Chemicals plant near Corunna. The parcel is bounded to the north by a railway feeder line and to the west by a hydro transmission corridor. The lands are currently zoned and used for agricultural purposes. There is a tree lot along the northern property boundary and a former farmstead in the southwest corner. A second former farmstead area at the corner of Rokeby Line and Highway 40 is not included in the project lands. The headwaters of Baby Creek occur 230 metres to the west of the western boundary of this property and Marsh Creek passes through agricultural and industrial lands to the north. The soils within the property are Caistor clay.

The western third of Property 1 was surveyed starting in early September of 2008, after the harvest of a winter wheat crop and both ploughing and weathering. The weather that day was bright and breezy. Surface visibility was good and we walked the field at a five metre interval. We revisited this field again on September 17, 2008 to collect additional artifacts from find spots and complete the field survey. We carried out the survey of the east portion of the ploughed field on Property 1 on November 4 to 6 in clear warm weather. Visibility was also good.



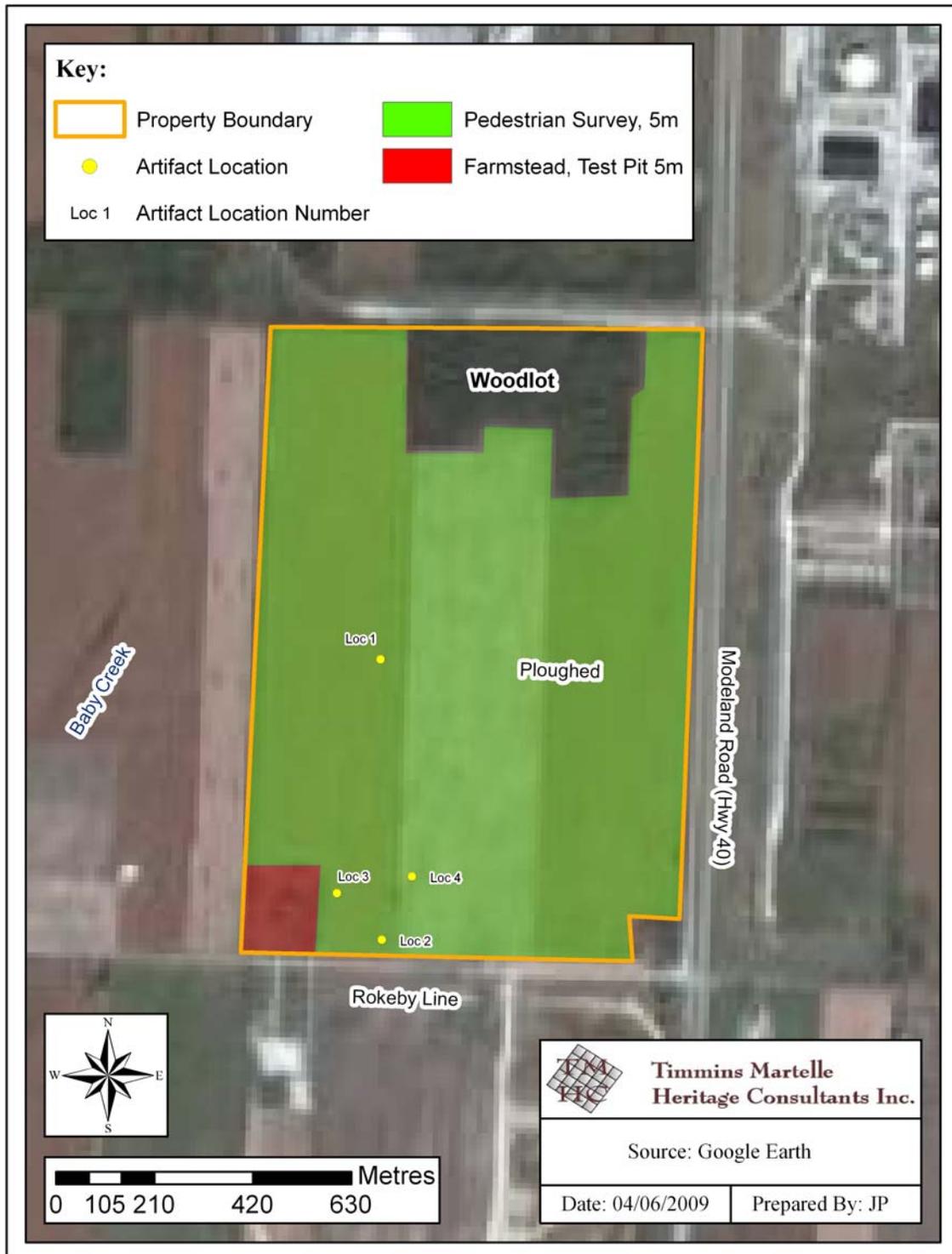


Figure 3: Property 1 Stage 2 Field Conditions, Assessment Methods & Results





Overview of West Field (looking southeast)



East Portion of Field (looking north)



Silo and Barn Site in Farmstead Area (looking northeast)

Figure 4: Property 1 Photographs



Concrete Well in Farmstead Area



Demolished Building in Farmstead Area (looking northeast)



Gravel Driveway in Farmstead Area (looking north)



We also test pitted the farmstead site in the southwest corner of the property. This area included some open overgrown grassed and treed areas, collapsed buildings, some standing outbuildings, numerous piles of refuse, concrete pads and driveways, and a well. We test pitted all areas that were not covered in impenetrable demolition rubble, concrete, gravel or standing features. Apart from modern debris, no cultural material was noted in this area.

Artifacts were identified in four locations on Property 1. These are described individually below.

Location 1 (Borden number pending) (Figure 5)

This is a lithic scatter covering 20 metres by 30 metres roughly 42 metres west of the east wheat field boundary. The surface material included six flakes and one projectile point. The flakes are largely Kettle Point chert, a common raw material type that outcrops along Lake Huron near Stony Point and Kettle Point. The projectile point is manufactured on a banded, mottled material, either Bayport or Kettle Point toolstone. It is missing the base but has a triangular blade with irregular, re-sharpened lateral edges. The blade has a plano-convex profile. The dimensions of the extant portion of this tool are 32.4 mm in length, 16.9 mm in width and 5.2 mm in thickness. Given the extent of blade modification and the absence of the base of the tool it is difficult to assign the artifact a particular age and cultural affiliation.

Given the density of material at the site and the recovery of a formal tool, this location is deemed to be potentially significant by provincial standards. As such Stage 3 testing is recommended.

Figure 5: Property 1, Location 1 Stage 2 Artifacts (Actual Size)

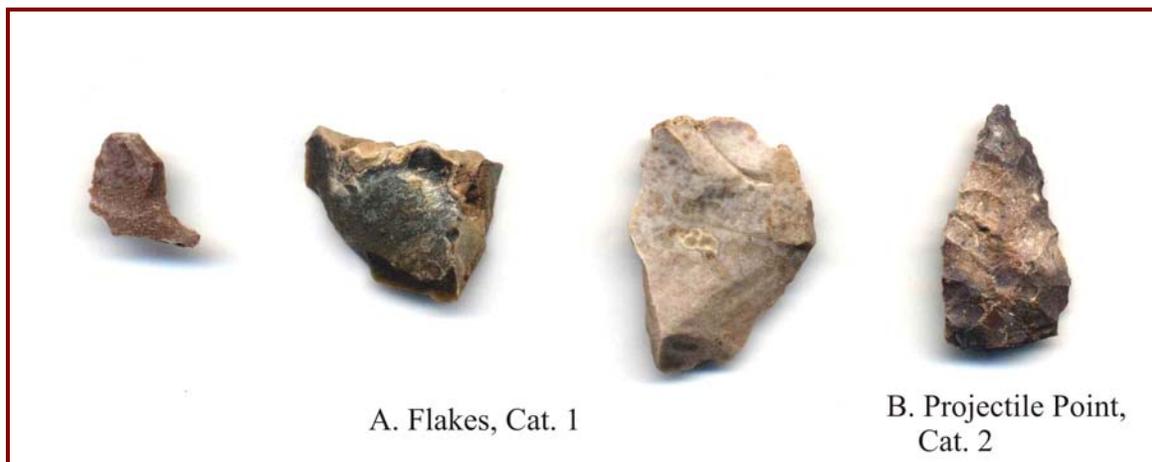


Figure 6: Property 1, Location 2 Stage 2 Artifacts (Actual Size)



milk glass container, likely used for cosmetics. Milk glass became popular in the last half of the 19th century and was used for cosmetic containers, table and decorative ware. Six other artifacts are bottle glass, although one of these is thick enough that it is more likely a Mason jar fragment.

The artifacts collected at Location 3 are typical for a late 19th and 20th century occupation and were found in close association with the extant farmstead lot. Sites of this nature and age are not uncommon in Lambton County and are generally considered to have limited archaeological significance. As such, Stage 3 testing is not recommended for this location.



Figure 7: Property 1, Location 3 Stage 2 Artifacts (Actual Size)



Top Row: A. blue printed whiteware; B. flow blue whiteware; C. teal printed semiporcelain; D. ironstone with "ALF" maker's mark

Middle Row: A. teal printed semiporcelain; B. yellowware, C. Mason jar fragment; D. milk glass container fragment

Bottom Row: I. red printed ironstone; J. painted, moulded, decaled porcelain; K. rockingham-glazed yellowware; L. salt-glazed stoneware with "...UILLET" stamped maker's mark



Location 4 (Borden number pending) (Figure 8)

Location 4 is another historic scatter covering an area 54 metres east to west and 51 metres north to south, centred 102 metres from Rokeby Line and roughly 38 metres from the east boundary of the wheat field. The scatter includes 19th century EuroCanadian ceramic tablewares (n = 16), crockery and kitchen ceramics (n = 2), structural material (n = 1; roofing slate), bottle and container glass (n = 2), faunal remains (n = 1; mammal tooth) and ornamental dish glass (n = 1). Two native artifacts were also collected including a Haldimand chert flake and a retouched Onondaga chert blade. The latter tool is 1.9 mm wide and 4.3 mm long and has continuous fine and steep retouch along both long lateral edges of the dorsal surface. The ceramic tablewares include whiteware (n = 7), ironstone (n = 5), porcelain (n = 3) and semiporcelain. The whiteware pieces are blue stamped (n = 1), hand painted (n = 4; green, blue, red, black), edged (n = 1) and banded (n = 1). The ironstone sherds are red, teal, black and grey transfer printed (n = 4) in late 19th to 20th century colours and hand painted (n = 1) in the late 19th and 20th century red “tea leaf” pattern luster. The porcelain sherds are teal or orange printed or decaled (n = 2) and moulded with a light blue/purple floral appliqué. The sole semiporcelain piece is teal printed. All of the ironstone, porcelain and semiporcelain items are typical of late 19th and early 20th century manufacture. The crockery and kitchen ceramics include a fragment of undecorated yellowware and a piece of yellow interior and exterior glazed salt glazed stoneware. The bottle and container glass assemblage includes a single fragment of bright cobalt glass and another thick piece of aqua coloured glass that may be part of a jar or, in fact, an electrical insulator.

This material predominantly dates to the late 19th and early 20th century. As such, it is not deemed significant based on provincial standards and Stage 3 testing is not recommended.

Outstanding Archaeological Concerns for Property 1

The woodlot in the north portion of the property will be protected from development and was therefore not assessed. The small former residential partial in the northwest corner of the intersection of Rokeby Line and Hwy 40 was not within the currently proposed project lands and therefore also not assessed. If construction plans change to incorporate impacts to either of these areas, Stage 2 assessment will be required.

Locations 1 and 2 require Stage 3 testing based on provincial standards.

4.2.2 *Property 2, Lot 23, Concession 8, Moore Township (190 acres) (OptiSolar/First Solar Fields 3 and 4) (Figures 9-13)*

This roughly 190 acre rectangular parcel fronts Rokeby Line. The property is relatively flat and consists primarily of agricultural fields. There is a farmstead and

Reader
Property not
part of project



Figure 8: Property 1, Location 4 Stage 2 Artifacts



pasture area in the northeast corner of the lot, as well as a Union Gas station site. Further to the south and west of this is a standing barn. A lane provides access between the two farm building areas and also down the centre of the property to the woodlot.



We visited the property on October 21 to check field conditions. Ploughing had not produced adequate surface visibility so we requested re-cultivation. We re-checked the property on October 27 noting the need for additional rain and weathering. After the latter was realized, pedestrian survey commenced. The northwest corner of the property was ploughed in the late fall and was surveyed on November 7 in cool, overcast conditions. Surface visibility and weathering were good. The survey was interrupted by rain and did not recommence until November 10, again in overcast conditions. The remaining areas of the property were not ploughed and appropriately weathered for survey until the spring of 2009. On April 29 we completed the pedestrian survey in sunny but cool weather.

The woodlot at the south end of the property will be preserved and avoided during construction. It was not assessed. An active cow pasture east of the extant farmstead was not available for ploughing or assessment, as the farmer wished to keep it in active use until closer to the date of construction. The disturbed lane, as well as the standing, isolated barn area (with associated modern debris, lane, loading area and hay bales) was not assessed due to prior disturbance.

One archaeological location was discovered on the property. Property 2 Location 1 is a Kettle Point chert projectile point blade collected from the surface roughly 45 metres west of the central farm lane and 73 metres southeast of two isolated trees along that lane. Despite the intensification of the survey interval in conditions of good visibility, no other artifacts were noted. This is considered an isolated find for which Stage 3 testing is not required. The point is long and finely made with slightly excurving lateral edges. It measures 5.6 mm in length and 3.0 mm in width, with a thickness of 6.5 mm. Because the base is missing it is difficult to assign to a particular point type, although in blade configuration it most resembles Early Woodland Meadowood points (Kenyon 1980a). A radiocarbon date for the Bruce Boyd site of this period dates the complex to roughly 2,600 years before the present.

Outstanding Archaeological Concerns for Property 2

The woodlot in the south portion of the property will be protected from development and was therefore not assessed. The pasture area in the northeast portion of the property was also not assessed as the farmer wishes to keep it in active use. First Solar plans to have the area ploughed and subject to Stage 2 assessment closer to the time of construction. If construction plans change to incorporate impacts to the woodlot, Stage 2 assessment will be required.



4.2.5 *Property 5, Part of Lot 2, Concession 9, Sombra Township*
(50 acres) (Figures 22-25)

Reader
Property not
part of project

Property 5 is a 50-acre rectangular parcel of agricultural land (Figure 23) fronting French Line, east of Base Line Road. The property is relatively flat and there is an extant residence on French Line (Figure 24) and a cleared, disturbed area (approximately 30 m x 40 m) in the extreme southeastern portion of the property that contains a pond and dumping ground (Figure 25).

We surveyed the recently ploughed and weathered agricultural land on October 21 in sunny, cool weather. Despite a pedestrian survey of the entire ploughed area at five metre intervals, no artifacts were noted. The area containing farm and residential buildings, as well as the pond and dumping area, was deemed to be disturbed and not assessed. As all areas within the parcel were assessed and no artifact locations were discovered, there are no outstanding archaeological concerns for Property 5.

5.0 STAGE 3 ASSESSMENT

The findings of the Stage 2 survey of the proposed solar farm properties demonstrated that three sites required Stage 3 testing based on provincial standards. One of these, Property 1 Location 1, is a precontact native lithic scatter. Two others (Property 1 Location 2, Property 3 Location 2) are likely mid-19th century EuroCanadian homestead sites. In the fall of 2008, OptiSolar Farms gave TMHC authorization to proceed with the Stage 3 testing of Property 1 Location 1 and Property 3 Location 2. The results of these assessments are described below.

5.1 Property 1 Location 1 (Borden number pending)

5.1.1 *Methods*

We relocated the site using location information recorded in our Stage 2 field notes and coordinates generated by our hand-held GPS unit. We established a five by five metre grid over the site area using the triangulation method and erected datum points along the field boundary east of the site. The north-south transects of the grid paralleled the field boundary and were oriented to true north. Grid stakes were used to mark five metre intervals along the north and east transect lines. Each five by five metre grid unit was assigned a unique alphanumeric identifier based on north and east grid references of the southwest corner. Each major grid unit was then subdivided into 25 individual one-metre squares that were given sub-unit designations of 1 to 25 by working sequentially from west to east along each row, then moving northward. The field was re-walked in conditions of good surface visibility. Surface artifacts were marked and their locations recorded relative to the grid using the triangulation method.



5.1.2 Results

Ten chert items were recorded on the surface of the site. Roughly half of these were natural chert fragments and later discarded. The distribution of this material was spread out over a roughly 32 metre (north-south) by 25 metre (east-west) flat area within the agricultural field composed of heavy clay soils. Six of the surface items were clustered in a smaller (15 by 15 m) area. There were two outliers over 10 metres to the northwest and another two between 10 and 15 metres to the southwest.

Thirteen one-metre units were excavated. Three of these were negative for artifacts. Five others produced only single artifacts. Five units (the majority in the southeast corner) had native artifact counts of between two and four. The depth of the medium brown heavy clay topsoil ranged from 19 to 25 cm. The subsoil was a consistent lighter orange-brown to orange-grey clay.

The combined artifact total for the surface collection and Stage 3 unit excavation was 27. Two of these are modern/historic items (one wire nail, one domestic mammal tooth) and the remaining 25 are chert artifacts relating to an ancient native occupation. Of the latter, 23 (92 %) are pieces of tool manufacturing debris, one (4 %) is a complete projectile point and another is a retouched flake (4 %). The chipping detritus includes Kettle Point chert from the Lake Huron shoreline (n = 10), Haldimand chert (n = 4), local till or cobble chert (n = 5), Onondaga chert (n = 1), and unknown material (n = 3). Two of the flakes categorized as till chert may also be Bayport chert from Michigan. They are quite small, so identification is difficult. Several of the flakes contain cortex and appear to be from pebble cores. The retouched flake is a piece of thick Haldimand chert with continuous retouch along one lateral edge of the ventral surface. The maximum length, width and thickness measurements for this tool are 21.4 mm, 15.1 mm, and 6.0 mm, respectively. The projectile point is a complete Late Paleoindian Hi-Lo point manufactured on Haldimand chert (Figure 25). It has been heavily reworked and shows evidence of alternate edge beveling. The base is concave, ground and slightly eared. The tool measures 25.9 mm in maximum length, 22.6 mm in width, and 6.7 mm in thickness. Hi-Lo points (Ellis 1981) date to circa 10,000 years before the present and represent one of the earliest cultural complexes known in Eastern North American and the province of Ontario. These sites are very rare and are deemed to have extreme heritage significance based on provincial standards.

Although the artifact recoveries from this location, the site's potential relationship to a 10,000 year old Late Paleoindian occupation give it high heritage value based on provincial site evaluation criteria. As such, this site requires Stage 4 mitigation if it cannot be avoided by construction. Given the very heavy soils at this location and the subsequent laborious nature of excavations, every effort should be made to preserve the site *in situ*. If preservation and long-term protection is not a viable option, complete excavation will be warranted. Based on provincial standards, this will require the hand excavation of a block of one-metre units in the area of highest artifact density. Because of

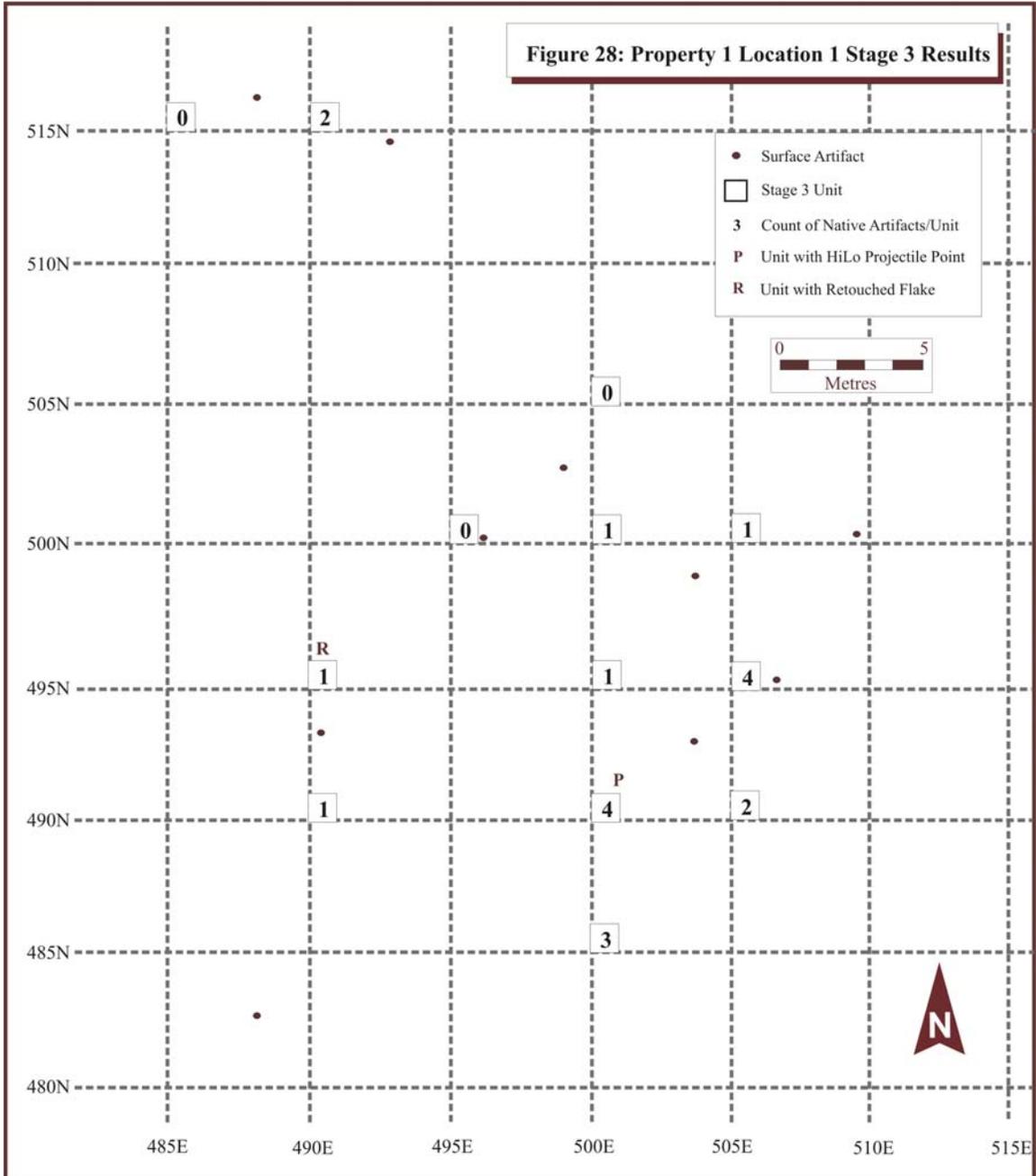


Figure 26: Property 1 Location 1 Stage 3 Testing in Progress (looking northwest)



Figure 27: Property 1 Location 1 Sample Stage 3 Unit (looking north)





the early age of the site and the fact that sites of this period produce very tiny flakes, hand excavation must be accompanied by water screening of soil to look for small artifacts that might otherwise pass through 1/4" hardware cloth. This approach is preferable to the use of 1/8" screen given that the heavy soils of the site will not pass through smaller mesh. The Stage 4 work plan should be developed in consultation with the Ministry of Culture.



Figure 29: Projectile Point (left) and Retouched Flake (right) from Property 1 Location 1 Stage 3 Testing



5.2 Property 3 Location 2 (Borden number pending)

5.2.1 Methods

We relocated the site using location information recorded in our Stage 2 field notes and coordinates generated by our hand-held GPS unit. We established a five by five metre grid over the site area using a total station and hand-held data collector. The north-south transects of the grid paralleled the field boundary and were oriented to true north. Grid stakes were used to mark five metre intervals along the north and east transect lines. Each five by five metre grid unit was assigned a unique alphanumeric identifier based on north and east grid references of the southwest corner. Each major grid unit was then subdivided into 25 individual one-metre squares that were given sub-unit designations of 1 to 25 by working sequentially from west to east along each row, then moving northward. The field was re-walked in conditions of good surface visibility. Surface artifacts were marked and their locations recorded relative to the grid using a total station.

The topsoil from each one-metre unit was excavated by hand and passed through ¼” hardware cloth. Artifacts were bagged by one-metre provenience units and taken to the laboratory for processing. For each one-metre unit, artifacts belonging to the same class were grouped and given a single catalogue number. Unit locations, soil depth and conditions were recorded.

We began the Stage 3 work in late September and conducted the controlled surface pick up and surface artifact mapping in conditions of excellent surface visibility. Fieldwork was carried out on September 26 and 29, as well as October 6, 7, 14, 15, 22, 23, 27 and 30 of 2008. The weather varied from warm and sunny to overcast and cool.



5.2.3 Land Registry Review

In keeping with provincial guidelines, the Stage 3 assessment of this site also included a review of the land registry records for the north half of Lot 1, Concession 10, containing the site. The land records did not prove to be particularly helpful in offering new information regarding the identity of the site's occupants. The north half of Lot 1, Concession 10 (100 acres) was granted to Martha McKay in October of 1877. She sells a 10 acre parcel of that to Joseph Stover 13 days later and the remaining 90 acres to George Stokes in December of the same year. All of these transactions appear to pre-date our site. The grant for the south half of the lot was in 1863.

It seems likely that the occupation on this property precedes the official land grant. Thus, the farmstead could be that of a squatter who had no legal rights to the property or that of Martha McKay (and her family) if she applied for the official grant after improvements had been made. The latter scenario may be indicated by the fact that one Peter McKay (Martha's husband? son?) is listed in the 1877 directory for Sombra Township. More detailed historical research will be required to further investigate this issue.

6.0 SUMMARY AND RECOMMENDATIONS

A Stage 2 archaeological assessment was conducted for five properties that form part of a proposed solar farm within the townships of Moore and Sombra in Lambton County, Ontario. A combined pedestrian and test pit survey carried out for each of the properties resulted in the discovery of several archaeological site locations. Results, recommendations and outstanding archaeological concerns for each of the properties are herein summarized:

1) Property 1 – a combined test pit and pedestrian survey documented four archaeological find spots. Two of these (Locations 3 and 4) were not recommended for Stage 3 testing. Stage 3 testing was carried out on Location 1 and demonstrated the presence of a highly significant Late Paleoindian Hi-Lo site. This site requires Stage 4 mitigation through avoidance and long term protection or complete excavation. Location 2 is a scatter of 19th century artifacts and has yet to undergo Stage 3 testing.

Outstanding Archaeological Concerns: The woodlot in the north end of the property was not assessed and is currently not incorporated into the planned construction area. If construction plans change to include impacts to the woodlot, Stage 2 survey will be required. Formal protection measures will need to be negotiated with the Ministry of Culture and the local municipality.

Location 2, a potentially significant 19th century occupation, has not been subject to Stage 3 assessment and it is not known whether the site area will be impacted by the proposed construction. As Stage 3 testing is typically required prior to long term protection, any avoidance strategy must be approved by the Ministry of Culture.



Location 1, a very significant precontact native site, requires Stage 4 mitigation through avoidance and long term protection or complete excavation. Every effort should be made to preserve the site *in situ*. In the event that preservation is not an option, a complete block excavation will be required. Given the early date of this site and the presence of small artifacts, the excavation work will have to include either the use of 1/8" hardware cloth or water screening to assist in the recovery of cultural material that would otherwise fall through larger screening mesh.

2) Property 2 – a pedestrian survey of the ploughed lands resulted in the documentation of one isolated native artifact that does not require Stage 3 testing.

Reader
Property not
part of project

Outstanding Archaeological Concerns: The woodlot in the south end of the property was not assessed and is currently not incorporated into the planned construction area. If plans change to include impacts to the woodlot, Stage 2 survey will be required. Formal protection measures will need to be negotiated with the Ministry of Culture and the local municipality.

The pasture lands east of the extant farm operation have not been assessed as the farmer wishes to keep them in active use until closer to the time of construction. Provisions for completing the Stage 2 work must be set in place in consultation with the Ministry of Culture.

3) Property 3 – a pedestrian survey of the ploughed lands resulted in the discovery of three archaeological locations. Locations 1 and 3 are isolated finds of single native artifacts that do not require Stage 3 testing. A Stage 3 assessment was carried out for a 19th century farmstead site south of Smith Line. This testing of Location 2 resulted in the documentation of intact archaeological resources relating to a likely 1845 through 1870 occupation. This site warrants Stage 4 mitigation based on provincial standards.

Reader
Property not
part of project

Outstanding Archaeological Concerns: The woodlot in the east portion of the property was not assessed and is currently not incorporated into the planned construction area. If plans change to include impacts to the woodlot, Stage 2 survey will be required. Formal protection measures will need to be negotiated with the Ministry of Culture and the local municipality.

Location 2 requires mitigation through avoidance and long term protection or complete excavation. Any proposed avoidance strategy must incorporate both short term plans for protecting the site during construction and covenants registered on title that will assist in the long term protection of the site area from future construction and development.

4) Property 4 – a pedestrian survey of the ploughed lands resulted in the discovery of a scatter of largely 20th century material that does not require Stage 3 testing based on provincial standards. There are no outstanding archaeological concerns for this property.

Reader
Property not
part of project



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Stage 2 and 3 Artifact Catalogues

Property 1 Location 1 – Stage 2 Artifact Catalogue

Cat.	Context	Artifact	n	Comments
1	surface	chipping detritus	3	Kettle Point
2	surface	projectile point	1	Kettle Point or Bayport? base missing
		Total	4	

Property 1 Location 2 – Stage 2 Artifact Catalogue

Cat.	Context	Artifact	n	Comments
1	surface	clay marble	1	
2	surface	glass, bottle	1	aqua
3	surface	glass, window	1	aqua, 1.7 mm thick
4	surface	glass, bottle	1	olive
5	surface	stoneware, salt glazed	1	interior brown glaze
6	surface	whiteware, transfer print	3	blue, chinoiserie
7	surface	semiporcelain	1	
8	surface	whiteware, sponged	1	blue (tight), burnt
9	surface	whiteware, banded	1	blue
10	surface	whiteware, sponged	1	blue (tight)
11	surface	whiteware, transfer print	2	blue, chinoiserie
12	surface	yellowware	1	
13	surface	glass, window	1	aqua tint, 0.8 mm thick
14	surface	whiteware, undecorated	1	
15	surface	whiteware, sponged	1	blue (coarse/stamping)
16	surface	whiteware, undetermined	1	blue
17	surface	earthenware, red	1	greenish brown glaze
		Total	20	



Property 1 Location 3 – Stage 2 Catalogue

Cat.	Context	Artifact	n	Comments
1	surface	glass, milk	1	
2	surface	glass, bottle	1	olive
3	surface	glass, bottle	2	aqua, iridescent
4	surface	glass, bottle	1	aqua; thick; likely mason jar fragment
5	surface	glass, bottle	2	light green tint
6	surface	stoneware, salt glazed	1	grey exterior; Albany interior
7	surface	yellowware, undecorated	1	
8	surface	stoneware, salt glazed	1	exterior blue glaze, "..UILLET"
9	surface	yellowware, rockingham glaze	1	interior & exterior rockingham glaze
10	surface	porcelain, painted/decals	1	scalloped edge with red paint on rim; phantom overglaze floral decal
11	surface	whiteware, banded	2	brown bands
12	surface	whiteware, painted	1	interior pink rim line
13	surface	ironstone, transfer printed	1	red, floral
14	surface	ironstone	1	"ALF.." in black
15	surface	whiteware, painted	1	green leaves, very bold strokes
16	surface	semiporcelain, transfer printed	1	blue
17	surface	semiporcelain, transfer printed	1	blue green leaves
18	surface	semiporcelain, transfer printed	1	teal, floral
19	surface	whiteware, transfer print	1	blue
20	surface	whiteware, flow transfer	1	blue
21	surface	whiteware, transfer print	1	blue
		Total	24	



Property 1 Location 4 – Stage 2 Catalogue

Cat.	Context	Artifact	n	Comments
1	surface	porcelain, transfer print	1	teal
2	surface	whiteware, stamped	1	blue
3	surface	whiteware, painted	2	blue, red, black, green
4	surface	faunal remains	1	tooth
5	surface	ironstone, transfer print	1	red; floral
6	surface	porcelain, transfer print	1	red floral/decal
7	surface	whiteware, banded	1	baby blue bands
8	surface	whiteware, painted	1	green leaves
9	surface	ironstone, painted	1	servicing; luster paint; tea leaf pattern
10	surface	yellowware	1	
11	surface	glass, dish	1	amethyst; ribbed
12	surface	glass, bottle	1	aqua; insulator?
13	surface	porcelain, moulded	1	light blue/purple applique; floral
14	surface	stoneware, salt glazed	1	yellow interior and exterior glaze
15	surface	whiteware, edged	1	blue; scalloped; moulded
16	surface	whiteware, painted	1	washed out blue lines
17	surface	semiporcelain, transfer print	1	teal
18	surface	ironstone, transfer print	2	black; one maker's mark
19	surface	chipping detritus	1	Haldimand
20	surface	ironstone, transfer print	1	teal/grey; thick; floral
21	surface	glass, bottle	1	cobalt
22	surface	retouched blade	1	Onondaga
23	surface	roofing slate	1	
		TOTAL	25	

Reader
Property not
part of project

→ **Property 2 Location 1 – Stage 2 Catalogue**

Cat.	Context	Artifact	n	Comments
1	surface	projectile point	1	Kettle Point; base missing
		Total	1	

Reader
Property not
part of project

→ **Property 3 Location 1 - Stage 2 Artifact Catalogue**

Cat.	Context	Artifact	n	Comments
1	surface	projectile point	1	Onondaga, Genesee, reworked tip
		Total	1	



Reader
 Property not
 part of project

→ **Property 4 Location 1 – Stage 2 Artifact Catalogue**

Cat.	Depth	Artifact	n	Comments
1	surface	glass, bottle	1	amber
2	surface	glass, bottle	1	pink
3	surface	glass, milk	1	ribbed
4	surface	porcelain, transfer print	1	yellow flower, green leaves
5	surface	glass, bottle	1	green
6	surface	glass, bottle	1	amethyst
7	surface	glass, bottle	1	yellow
8	surface	glass, bottle	1	iridescent blue
9	surface	glass, bottle	4	1 with "ZO" III, 1 with "6507", 1 with "7", "13" "6"; colourless
10	surface	stoneware	1	interior Albany glaze, 3 exterior horizontal blue bands over Bristol glaze
11	surface	light bulb	1	purple glass
12	surface	semiporcelain	1	"WOOD & SON.." ".NGLAN"
13	surface	semiporcelain, transfer print	1	interior gold/black band with pink and green floral, pattern on top
14	surface	semiporcelain, transfer print	1	blue; chinoiserie
15	surface	knife handle	1	
16	surface	glass, milk	1	green painted; coffee mug or dish?
Total			19	

Property 1 Location 1 - Stage 3 Catalogue

Cat.	Context	Depth	Artifact	n	Comments
3	515N 490E:1	0-21cm	chipping detritus	2	Kettle Point
4	490N 490E:1	0-19cm	chipping detritus	1	till
5	500N 500E:1	0-25cm	chipping detritus	1	Kettle Point
6	495N 490E:1	0-23cm	retouched flake	1	Haldimand
7	500N 505E:1	0-24cm	chipping detritus	1	Kettle Point
8	495N 500E:1	0-21cm	chipping detritus	1	Kettle Point cortex
9	490N 500E:1	0-23cm	projectile point	1	Haldimand; HiLo
10	490N 500E:1	0-23cm	chipping detritus	2	1 Haldimand; 1 till or Bayport, small
11	490N 500E:1	0-23cm	chipping detritus	1	unknown; cortical
12	surface	0cm	chipping detritus	5	Kettle Point
13	490N 505E:1	0-24cm	chipping detritus	2	unknown
14	485N 500E:1	0-23cm	chipping detritus	3	2 till; 1 Haldimand, cortical
15	495N 505E:1	0-22cm	nail, wire	1	
16	495N 505E:1	0-22cm	faunal remains	1	tooth; domestic mammal; historic
17	495N 505E:1	0-22cm	chipping detritus	4	2 Haldimand; 1 Onondaga; 1 possible Bayport or till
Total				27	



66	500N 500E:1	0-35cm	glass, window	1	colourless, 2mm thick
67	500N 500E:1	0-35cm	faunal remains	3	mammal
68	500N 500E:1	0-35cm	ironstone, undecorated	3	
69	500N 500E:1	0-35cm	nails, cut	6	
70	500N 500E:1	0-35cm	brick	10	red
71	500N 500E:1	0-35cm	button	1	bone, 4 holes
72	500N 520E: 1	0-28cm	faunal remains	3	mammal
73	500N 520E: 1	0-28cm	yellowware, rockingham glaze	1	
74	500N 520E: 1	0-28cm	whiteware, undecorated	1	
75	500N 520E: 1	0-28cm	earthenware, red	2	brown glaze
76	500N 520E: 1	0-28cm	white clay pipe	1	bowl; plain
77	500N 520E: 1	0-28cm	nails, cut	2	
78	500N 520E: 1	0-28cm	glass, bottle	2	iridescent
79	480N 500E:1	0-25cm	yellowware, undecorated	1	
80	480N 500E:1	0-25cm	whiteware, undecorated	1	
81	480N 500E:1	0-25cm	whiteware, painted	2	black rim line
82	480N 500E:1	0-25cm	faunal remains	2	mammal
83	480N 500E:1	0-25cm	metal, miscellaneous	4	ferrous, minute scraps
84	480N 500E:1	0-25cm	nails, undetermined	2	
85	480N 500E:1	0-25cm	bolt	1	
86	505N 490E:21	0-27cm	glass, bottle	1	aqua
87	505N 490E:21	0-27cm	nails, cut	7	
88	505N 490E:21	0-27cm	metal, miscellaneous	1	copper brass, perforated
89	505N 490E:21	0-27cm	ironstone, undecorated	1	
90	505N 490E:21	0-27cm	faunal remains	1	calcined
91	505N 490E:21	0-27cm	yellowware, undecorated	2	
92	505N 490E:21	0-27cm	yellowware, rockingham glaze	1	
93	505N 490E:21	0-27cm	whiteware, painted	2	blue lines
94	505N 490E:21	0-27cm	whiteware, undecorated	7	
95	505N 490E:21	0-27cm	earthenware, red	1	brown glaze
96	505N 490E:21	0-27cm	charcoal	5	
97	505N 490E:21	0-27cm	button	1	round button, 4 holes, grey/brown agate
98	505N 490E:21	0-27cm	glass, window	11	1.9 mm, 2.5 mm
99	500N 490E:1	0-31cm	brick	16	red
100	500N 490E:1	0-31cm	brick	13	red
101	500N 490E:1	0-31cm	earthenware, red	1	brown, glaze
102	500N 490E:1	0-31cm	faunal remains	1	fish vertebrae
103	500N 490E:1	0-31cm	brick	3	red
104	500N 490E:1	0-31cm	bolt	1	
105	500N 490E:1	0-31cm	whiteware, undecorated	20	
106	500N 490E:1	0-31cm	whiteware, transfer printed	1	blue
107	500N 490E:1	0-31cm	glass, bottle	1	aqua
108	500N 490E:1	0-31cm	glass, bottle	1	olive
109	500N 490E:1	0-31cm	faunal remains	9	mammal, 1 calcined
110	500N 490E:1	0-31cm	glass, window	5	colourless, 1.41mm, 1.83mm, 2.19mm thick
111	500N 490E:1	0-31cm	nails, wrought	2	



112	500N 490E:1	0-31cm	nails, cut	4	
113	500N 490E:1	0-31cm	nails, undetermined	5	shafts
114	500N 490E:1	0-31cm	bolt	1	
115	500N 490E:1	0-31cm	brick	2	red
116	500N 490E:1	0-31cm	yellowware, undecorated	1	
117	500N 490E:1	0-3 cm	metal, miscellaneous	1	ferrous, part of loop
118	500N 490E:1	0-31cm	whiteware, stamped	2	blue
119	500N 490E:1	0-31cm	white clay pipe	2	bowls; plain
120	530N 470E:1	0-35cm	brick	7	red
121	530N 470E:1	0-35cm	glass, bottle	3	colourless, 1 Pepsi Cola
122	530N 470E:1	0-35cm	earthenware, red	3	
123	530N 470E:1	0-35cm	brick	3	red
124	530N 470E:1	0-35cm	fencing wire	3	
125	530N 470E:1	0-35cm	glass, bottle	1	amber
126	530N 470E:1	0-35cm	earthenware, red	10	minute fragments
127	520N 490E:1	0-30cm	whiteware, undecorated	1	
128	520N 490E:1	0-30cm	earthenware, red	1	
129	520N 490E:1	0-30cm	glass, window	1	aqua, 2.52mm thick
130	520N 490E:1	0-30cm	nails, undetermined	2	
131	520N 490E:1	0-30cm	shell	1	clam
132	520N 490E:1	0-30cm	metal, miscellaneous	1	
133	520N 490E:1	0-30cm	brick	3	red
134	490N 480E:1	0-32cm	whiteware, undecorated	2	
135	490N 480E:1	0-32cm	whiteware, undecorated	1	burnt
136	490N 480E:1	0-32cm	earthenware, red	2	
137	490N 480E:1	0-3cm	brick	1	red
138	490N 480E:1	0-32cm	nails, undetermined	4	
139	510N 470E:1	0-28cm	glass, bead	1	robin egg blue
140	510N 470E:1	0-28cm	nails, undetermined	2	shafts
141	510N 470E:1	0-28cm	earthenware, red	1	
142	510N 470E:1	0-28cm	brick	6	red
143	500N 510E:1	0-29cm	brick	13	red
144	500N 510E:1	0-29cm	faunal remains	3	mammal
145	500N 510E:1	0-29cm	metal, miscellaneous	1	ferrous
146	500N 510E:1	0-29cm	whiteware, sponged	1	interior blue
147	500N 510E:1	0-29cm	nails, cut	1	
148	500N 510E:1	0-29cm	earthenware, red	3	brown glaze
149	500N 510E:1	0-29cm	glass, bottle	1	olive
150	500N 510E:1	0-29cm	glass, bottle	2	colourless; thin
151	500N 510E:1	0-29cm	glass, window	4	colourless, 1.57mm, 1.72mm, 1.93mm thick
152	500N 510E:1	0-29cm	whiteware, undecorated	1	
153	500N 510E:1	0-29cm	whiteware, edged	1	blue moulded
154	490N 500E:1	0-24cm	glass, bottle	1	aqua
155	490N 500E:1	0-24cm	glass, bottle	1	colourless; thin
156	490N 500E:1	0-24cm	nails, cut	1	
157	490N 500E:1	0-24cm	earthenware, red	1	brown glaze



158	490N 500E:1	0-24cm	yellowware, undecorated	1	
159	490N 500E:1	0-24cm	brick	4	yellow
160	490N 500E:1	0-24cm	whiteware, undecorated	3	
161	490N 500E:1	0-24cm	ironstone, undecorated	1	
162	490N 500E:1	0-24cm	whiteware, transfer flow	1	blue
163	490N 500E:1	0-24cm	whiteware, edged	1	blue, painted
164	500N 530E:1	0-26cm	whiteware, undecorated	1	
165	500N 530E:1	0-26cm	brick	3	red
166	surface	0cm	glass, bottle	1	light green
167	surface	0cm	glass, bottle	1	light yellow/green
168	surface	0cm	glass, bottle	1	aqua, "...AL"
169	surface	0cm	nail, cut	1	spike
170	surface	0cm	faunal remains	4	mammal, 1 pig molar
171	surface	0cm	whiteware, undecorated	2	
172	surface	0cm	whiteware, edged	1	blue, moulded
173	surface	0cm	whiteware, edged	1	blue
174	surface	0cm	ironstone, undecorated	4	
175	surface	0cm	whiteware, painted	1	red rim line
176	surface	0cm	whiteware, painted	1	red rim line
177	surface	0cm	glass, window	2	colourless, 1.61 mm, 1.91mm thick
178	surface	0cm	shoe leather	1	heel
179	505N 490E:21	0-27cm	nails, horseshoe	1	
			Total	538	



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December 7, 2009

Dr. Holly Martelle
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Re: Review and Acceptance into the Provincial Register of Reports: Archaeological Assessment Report Entitled, "Stage 2 and 3 Archaeological Assessment, St. Clair Solar Farm, Geographic Townships of Moore and Sombra, Lambton County, Ontario", May 2009, Received June 18, 2009, Licence/PIF # P064-219-2008 and P064-230-2008, MCL File 38SP013

Dear Dr. Martelle,

This office has reviewed the above-mentioned report which has been submitted to this Ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. This review is to ensure that the licensed professional consultant archaeologist has met the terms and conditions of their archaeological licence, that archaeological sites have been identified and documented according to the 1993 technical guidelines set by the Ministry and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

As the result of our review, this Ministry accepts the above titled report into the Provincial register of archaeological reports. The report indicates that nine archaeological sites were documented during the assessment and, with the exception of Location 1 and Location 2 (Property 1) and Location 2 (Property 3) which warrant Stage 3 investigations, they are considered sufficiently documented. The report also notes that pasture land located within Property 2 still requires Stage 2 assessment. Stage 3 investigations were carried out for Location 1 (Property 1) and Location 2 (Property 3) and both are recommended for Stage 4 mitigation. Based on the above, it is recommended that the following be completed:

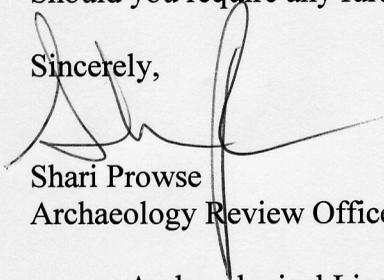
- 1) Stage 2 assessment of the pasture lands within Property 2;
- 2) Stage 3 investigations for Location 2 (Property 1); and
- 3) Stage 4 mitigation of Location 1 (Property 1) and Location 2 (Property 3) through avoidance and protection, or documentation and removal.

This Ministry concurs with these recommendations and that the provincial interest in the archaeological sites Locations 3 and 4 (Property 1), Location 1 (Property 2), Location 1 and 3 (Property 3) and Location 1 (Property 4) has been addressed.

We will require written confirmation (e.g. zoning by-law or conditions of development approval) that development and soil disturbances of any kind is prohibited in the unassessed woodlots located within Properties 1, 2, 3 prior to an archaeological assessment.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Shari Prowse', written over the word 'Sincerely,'.

Shari Prowse
Archaeology Review Officer

cc. Archaeological Licensing Office
Mr. Ron Truman, OptiSolar Farms

**Stage 3 Archaeological Assessment
Location 2 Property 1 – AfHo-37
St. Clair Solar Farm
Lot 26, Concession 9
Geographic Township of Moore
Lambton County, Ontario**

Submitted to

First Solar Development (Canada) Inc.
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Sarnia, ON N7T 7H3
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and

The Ontario Ministry of Culture

Prepared by



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Archaeological License Number: P064
Our Files: 2009-059
CIF Number: P064-276-2009

August 2009

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Acknowledgements

TMHC would like to acknowledge the assistance of the following individuals:

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Project Development Technologist
First Solar Development (Canada) Inc.

Kayleigh Enders

Project Development Associate
First Solar Development (Canada) Inc.



TMHC Personnel

TMHC would like to thank the following staff members who contributed to this project:

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Project Summary

A Stage 1 archaeological assessment was previously conducted for five Lambton County agricultural properties (numbered 1 through 5) that are the focus of a proposed new solar farm (TMHC 2008). Two of these properties occur southeast of the community of Corunna, in Moore Township, Ontario and three occur east and southeast of the community of Sombra, in Sombra Township, Ontario. The project will include the installation of numerous ground-mounted solar panels. The Stage 1 background review indicated the properties had potential for the discovery of archaeological resources. As such, a Stage 2 field survey was recommended. The Stage 2 combined test pit and pedestrian survey of Property 1, comprising part of Lots 25 and 26, Concession 9 of Moore Township, resulted in the discovery of four artifact locations, including one precontact Aboriginal lithic scatter and three 19th to 20th century Euro-Canadian sites (TMHC 2009a). Of the latter, two sites (Locations 1 and 2) were deemed potentially significant and warranted Stage 3 testing. Location 1 formerly underwent Stage 3 testing and Stage 4 mitigation and was reported on separately (TMHC 2009a, b). This report describes the results of the Stage 3 testing of Location 2 on Property 1 (AfHo-37), a 19th century historic scatter. Our work was required for *Planning Act* related development approvals.

The Stage 3 assessment of Property 1 Location 2 (AfHo-37) involved the mapping of surface artifacts with a total station and the hand excavation of 25 one-by-one metre test units across the site area. This resulted in the recovery of 786 artifacts typical of a mid-19th century domestic occupation. Due to a low quantity of ironstone recovered from the site there is no indication that the site extends much beyond the 1870s. Based on the provincial standards, pre-1870 sites are significant, particularly on the interior lands of the St. Clair Clay Plain where the majority of historic sites documented are late 19th and early 20th century. Thus, given that the site relates to the period of early municipal settlement in the township, it has high heritage significance and information potential. As such, Stage 4 mitigation of construction impacts is warranted. The preferred option for mitigation is always long term protection and avoidance. If it is determined that that site cannot be adequately protected in the long term, a complete Stage 4 excavation is required.

The Ministry of Culture is asked to review the results presented in this report and issue comment. This correspondence should be directed to Eric Hyatt of First Solar Inc. (fax: 519-344-2187) and copied to Holly Martelle of Timmins Martelle Heritage Consultants Inc. (fax: 519-641-7220).



**Stage 3 Archaeological Assessment
Location 2 Property 1 – AfHo-37
St. Clair Solar Farm
Lot 26, Concession 9
Geographic Township of Moore
Lambton County, Ontario**

1.0 INTRODUCTION

A Stage 1 archaeological assessment was previously conducted for five Lambton County agricultural properties (numbered 1 through 5) that are the focus of a proposed new solar farm (TMHC 2008). Two of these properties occur southeast of the community of Corunna, in Moore Township, Ontario and three occur east and southeast of the community of Sombra, in Sombra Township, Ontario. The project will include the installation of numerous ground-mounted solar panels. The Stage 1 background review indicated the properties had potential for the discovery of archaeological resources. As such, a Stage 2 field survey was recommended. The Stage 2 combined test pit and pedestrian survey of Property 1, comprising part of Lots 25 and 26, Concession 9 of Moore Township, resulted in the discovery of four artifact locations, including one precontact Aboriginal lithic scatter and three 19th to 20th century Euro-Canadian sites (TMHC 2009a). Of the latter, two sites (Locations 1 and 2) were deemed potentially significant and warranted Stage 3 testing. Location 1 formerly underwent Stage 3 testing and Stage 4 mitigation and was reported on separately (TMHC 2009a, b). This report describes the results of the Stage 3 testing of Location 2 on Property 1 (AfHo-37), a 19th century historic scatter. Our work was required for *Planning Act* related development approvals.

The Stage 3 testing of AfHo-37 Property 1 Location 2 took place on June 18, July 2-3, 6-8, and 14 in typical summer weather conditions that varied from clear and sunny to overcast and cool. Our work was periodically interrupted by rain that made screening of the clay soils difficult. Apart from those described in the body of this report, there were no conditions encountered that prohibited the identification and recovery of artifacts. All archaeological consulting activities were performed under the Professional Archaeological License of Dr. Holly Martelle (P064), in accordance with the “*Archaeological Assessment Technical Guidelines*” of the Ministry of Culture (MCTR 1993). Permission to carry out our assessment was given by Kayleigh Enders of First Solar Inc. The artifacts recovered during our work will be stored at the office of Timmins Martelle Heritage Consultants Inc. until arrangements can be made for their transfer to the Ministry of Culture (Toronto) or another appropriate curatorial facility.

2.0 PURPOSE

The *Ontario Heritage Act* makes provisions for the protection and conservation of heritage resources in the Province of Ontario. Our archaeological assessment work is part of an environmental review which is intended to identify areas of environmental interest as specified in the *Provincial Policy Statement*. Heritage concerns are recognized as a matter of provincial interest in Section 2.6.2 of the *Provincial Policy Statement* which states:

“development and site alteration shall only be permitted on lands containing archaeological resources or areas of archaeological potential if the significant archaeological resources have been conserved by removal and documentation, or by preservation on site. Where significant archaeological resources must be preserved on site, only development and site alteration which maintain the heritage integrity of the site may be permitted.” (emphasis in the original)

The purpose of a Stage 1 background study is to determine if there is potential for cultural resources to be found on lands for which a change in land use or construction is pending. It is used to determine the need for a Stage 2 field assessment involving the search for archaeological sites. In accordance with *Provincial Policy Statement 2.6*, if significant sites are found, a strategy (usually avoidance, preservation or excavation) must be put forth for their mitigation.

As part of the assessment process, all archaeological resources identified during Stage 2 site survey are evaluated based on provincially defined criteria. Sites that are deemed to be potentially significant based on the type, quantity and nature of artifacts produced, are recommended for a site-specific Stage 3 assessment. The purpose of the Stage 3 assessment is to collect better information about the resource so that a determination of significance can be made alongside a recommendation for or against mitigation of construction impacts. The Stage 3 “testing” involves the mapping of artifact locations and the hand excavation of one-metre test units across the site area. A site deemed significant following Stage 3 testing must be mitigated through either long-term protection and avoidance or complete excavation (i.e., a Stage 4 assessment is carried out). Sites not deemed significant upon completion of Stage 3 fieldwork do not warrant further investigation.

Therefore, the Stage 3 assessment of Property 1 Location 2 (AfHo-37) was undertaken in order to collect information about its extent, integrity and age, with the intent to use all of the latter pieces of information to evaluate the cultural heritage significance of the site and determine if Stage 4 mitigation is warranted.



3.0 PROJECT DESCRIPTION AND PREVIOUS INVESTIGATIONS

A new solar farm is proposed for five properties within the northwestern portion of Moore Township and west-central Sombra Township, in Lambton County, Ontario. The solar farm's construction will result in the production of additional electricity generating capacity and is in accordance with provincial commitments to increase renewable energy sources in Ontario. In keeping with our previous project documentation, these properties have been numbered 1 through 5. Properties 1 and 2 are situated south of Petrolia Line and north of Moore Line, between Saint Clair Parkway and Ladysmith Road. These fall within Concessions 8 and 9 of the Geographic Township of Moore. Properties 3, 4 and 5 are situated south of Bentpath Line and north of Ward Line, between Baseline Road and Modeland Road (Hwy. 40) in Concessions 8, 9, 10 and 11 of the Geographic Township of Sombra. All five properties are primarily in agricultural in nature.

In the summer of 2008, Timmins Martelle Heritage Consultants Inc. (TMHC) was hired by OptiSolar Farms Canada Inc. to carry out a Stage 1 archaeological assessment of the proposed project lands. This work determined that all of the properties showed potential for the discovery of archaeological resources (TMHC 2008). In the fall of 2008, TMHC was contracted by OptiSolar Farms Canada Inc. to complete the Stage 2 field survey. We initiated the fieldwork at that time but many properties were not ploughed or ready for assessment prior to the onset of winter. Our survey work commenced in the early spring of 2009 (TMHC 2009a). In the fall of 2008, TMHC was contracted by OptiSolar Farms Canada Inc. to complete the Stage 2 field survey which continued into the spring of 2009, with some small areas still outstanding. Three sites identified during Stage 2 survey were recommended for Stage 3 follow up investigations. These included Locations 1 and 2 on Property 1 (native and historic sites, respectively) and Location 2 on Property 3 (a 19th century historic homestead). The Stage 3 work on Location 1 Property 1 (Late Paleoindian native site) and Location 2 Property 3 (19th century historic homestead) was summarized in combination with the Stage 2 work in a report entitled *Stage 2 and 3 Archaeological Assessment, St. Clair Solar Farm, Geographic Townships of Moore and Sombra, Lambton County, Ontario* (TMHC 2009a).

Our investigations on Property 1, containing the potentially significant site that is the subject of this report, involved a pedestrian survey of ploughed agricultural lands and a test pit survey of a grassed area containing recently demolished farm buildings. Four artifact locations were discovered on the property. Three of these were scatters of 19th and 20th century EuroCanadian artifacts. Of the latter, two (Locations 3 and 4) were deemed sufficiently recent enough to not warrant further assessment, whereas Location 2 (AfHo-37) was recommended for Stage 3 testing given its potential mid-19th century date and relationship to the early municipal settlement period in Lambton County. The fourth site discovered was a precontact native site (Location 1) that was subsequently mitigated during a Stage 4 assessment (TMHC 2009b) and reported on separately.



The Stage 3 testing of the mid-19th century Location 1 on Property 1 (AfHo-37) took place in the summer of 2009 and is the focus of this report.

It should be noted that in April of 2009, OptiSolar Farms Canada Inc. was purchased by First Solar Development (Canada) Inc. and our 2009 fieldwork has been carried out under the direction of the latter firm.

4.0 SITE OVERVIEW AND PHYSICAL SETTING

Property 1 is a 300 acre agricultural parcel occupying the majority of the northwest corner of the intersection of Rokeby Line and Modeland Road (Hwy. 40) southeast of Corunna, Ontario (Figures 1 and 2). There is a railway along the north edge of the property and a hydro-electric power line along its western boundary. The lands sit south of the Nova Chemicals plant. The property consists primarily of active agricultural land, although there is a woodlot along the north boundary and a grassed former farmstead in the southwest corner. The headwaters of Baby Creek occur 230 metres to the west of the western boundary of this property and Marsh Creek passes through agricultural and industrial lands to the north. The property comprises most of Lots 25 and 26, Concession 9 in the Geographic Township of Moore. AfHo-37 (Location 2) is situated in the southeast corner of Lot 26, immediately north of Rokeby Line, in a flat area west of the edge of an agricultural field. It is situated east of a former and recently demolished homestead on the lot. Figure 3 illustrates the general site setting.

The property falls within the St. Clair Clay Plains physiographic region, an extensive clay plain covering over 2,000 square miles east of the St. Clair River and south of the Lake Huron shoreline (Chapman and Putnam 1966:240). The plain shows very little notable relief yet minor elevation changes have a marked effect on soils and vegetation (Chapman and Putnam 1966:240). The St. Clair Clay Plain was formerly the bed of glacial lakes Whittlesey and Warren (Chapman and Putnam 1966:241) and the former shorelines of these ancient water bodies have been documented along the eastern edge of the plain, near Alvinston and Watford. The soils within Property 1 are Caistor clay, a fine textured calcareous till containing shale and with imperfect drainage (Matthews et. al. 1957).

5.0 STAGE 3 ASSESSMENT – PROPERTY 1 LOCATION 2 AfHo-37

5.1 Methods

The Stage 3 testing of Afho-37 consisted of a controlled surface collection of artifacts and the hand excavation of one-metre units across the site area. The field was re-walked in conditions of excellent surface visibility. Surface artifacts were marked with flags and their locations recorded using a total station (Figure 3). A datum was established along the southern edge of the site (field edge) and from this a five metre grid was laid out over the site. Grid stakes were used to mark five metre intervals along the north and east transect lines. Each five by five metre grid unit was assigned a unique



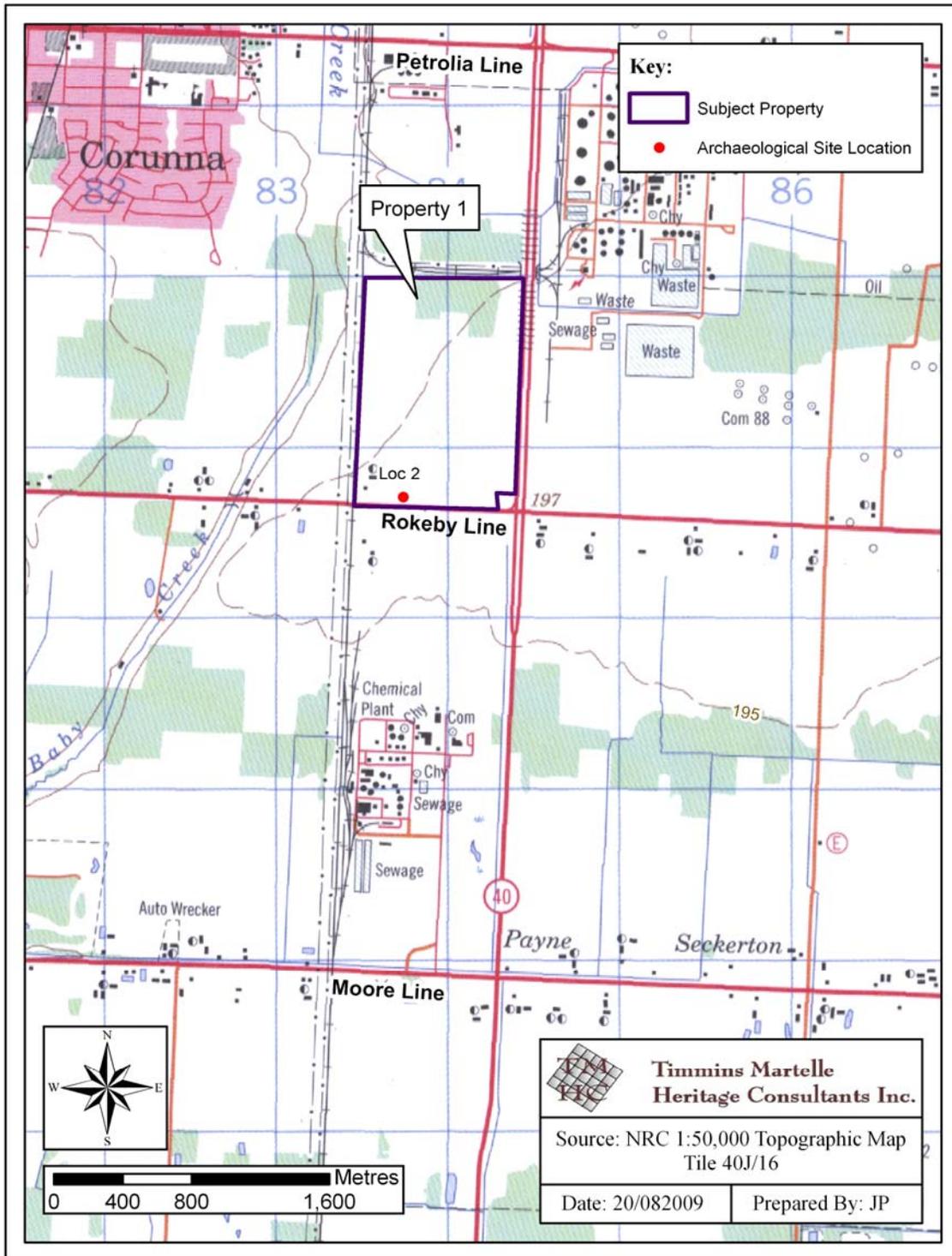


Figure 1: Location of St. Clair Solar Farm Property 1 Near Corunna, ON





Figure 2: Aerial Photograph Showing Location of Property 1 Location 2 AfHo-37



**Figure 3: Site Setting - Controlled Surface Collection Using a Total Station
(looking south)**



Figure 4: Stage 3 Test Unit Excavation in Progress (looking south)



alphanumeric identifier based on north and east grid references of the southwest corner. Each major grid unit was then subdivided into 25 individual one-metre squares that were given sub-unit designations of 1 to 25 by working sequentially from west to east along each row, then moving northward.

The topsoil from each one-metre test unit was excavated by hand and passed through ¼” hardware cloth (Figure 4). Artifacts were bagged by one-metre provenience units and taken to the laboratory for processing. For each one-metre unit, artifacts belonging to the same class were grouped and given a single catalogue number. Unit locations, soil depth and conditions were recorded. When unit excavation was completed, the squares were refilled with soil.

5.2 Results

During the controlled surface collection we mapped 190 surface artifacts, including structural remains (brick, nails, window glass), table ceramics, kitchen related artifacts, personal and miscellaneous items. A total of 25 one-metre test units were excavated (Figures 5 and 6), which resulted in the recovery of an additional 596 historic artifacts. Artifact counts for individual units ranged from a low of 2 to a high of 83. Topsoil depths ranged from a minimum of 18 cm to a maximum of 35 cm, with unit fill composed of medium brown exceptionally heavy clay topsoil, underlain by yellowish brown hard packed clay subsoil. No subsurface cultural features were noted during Stage 3 test excavations. The combined artifact total for the surface collection and Stage 3 test unit excavation was 786 (Table 1).

The site abuts the east edge of Lot 26 which is defined by a remnant (historic) fence line and an excavated ditch. These features mark the edge of the historic landholding. No artifacts were noted east of the fence and ditch despite an intensified search during both Stage 2 and 3 work. Therefore, the field boundary is confirmed as the east edge of the site. The site extends to the west for roughly 37 metres and spans a roughly 40 metre area (excluding a distant outlier).

5.3 Artifacts (Figure 7)

There were 786 artifacts collected during the Stage 3 testing, including structural remains (n = 236), tablewares (n = 455), kitchen-related items and animal bone (n = 72), barn and tack material (n = 4), and other miscellaneous items (n = 19). Artifact counts based on these classifications are provided in Table 1.

Structural Remains

Of the 236 structural remains, 180 (22.90 %) are window glass and 41 (5.09 %) are nails. Of the latter, machine cut nails account for 11 (1.40 %) items. The nail category also includes 28 (3.56 %) unidentified nails (i.e., shafts), and one (0.13 %) hand wrought



Figure 5: Completely Excavated One-Metre Test Unit (looking north)



nail. Of the remaining structural materials, nine (1.14 %) are brick, six (0.76 %) are mortar and one (0.13 %) is a screw.

Window glass thickness is time sensitive and can provide approximate dates of occupation. Generally, glass that is greater than 1.5 mm thick is indicative of a post-1850 manufacturing date, while thinner glass is typical of pre-1850 production (Kenyon 1980). Window glass from Location 2 ranges from 0.8 to 2.7 mm, suggesting both a pre- and post-1850 occupation.

Nail varieties can be similarly used as temporal indicators. Hand wrought nails were the only available nail type prior to 1830 (Adams et al. 1994). Although invented earlier, machine cut nails became common after 1830 and were used well into the 19th century when they were replaced by wire nails in the 1880s and 1890s. The very low incidence of hand wrought nails (n = 1) suggests an initial occupation date later than 1830. The presence of machine cut nails (n = 11) indicate that the site was occupied well into the 19th century but the absence of wire nails suggests that the occupation did not extend beyond circa 1880.



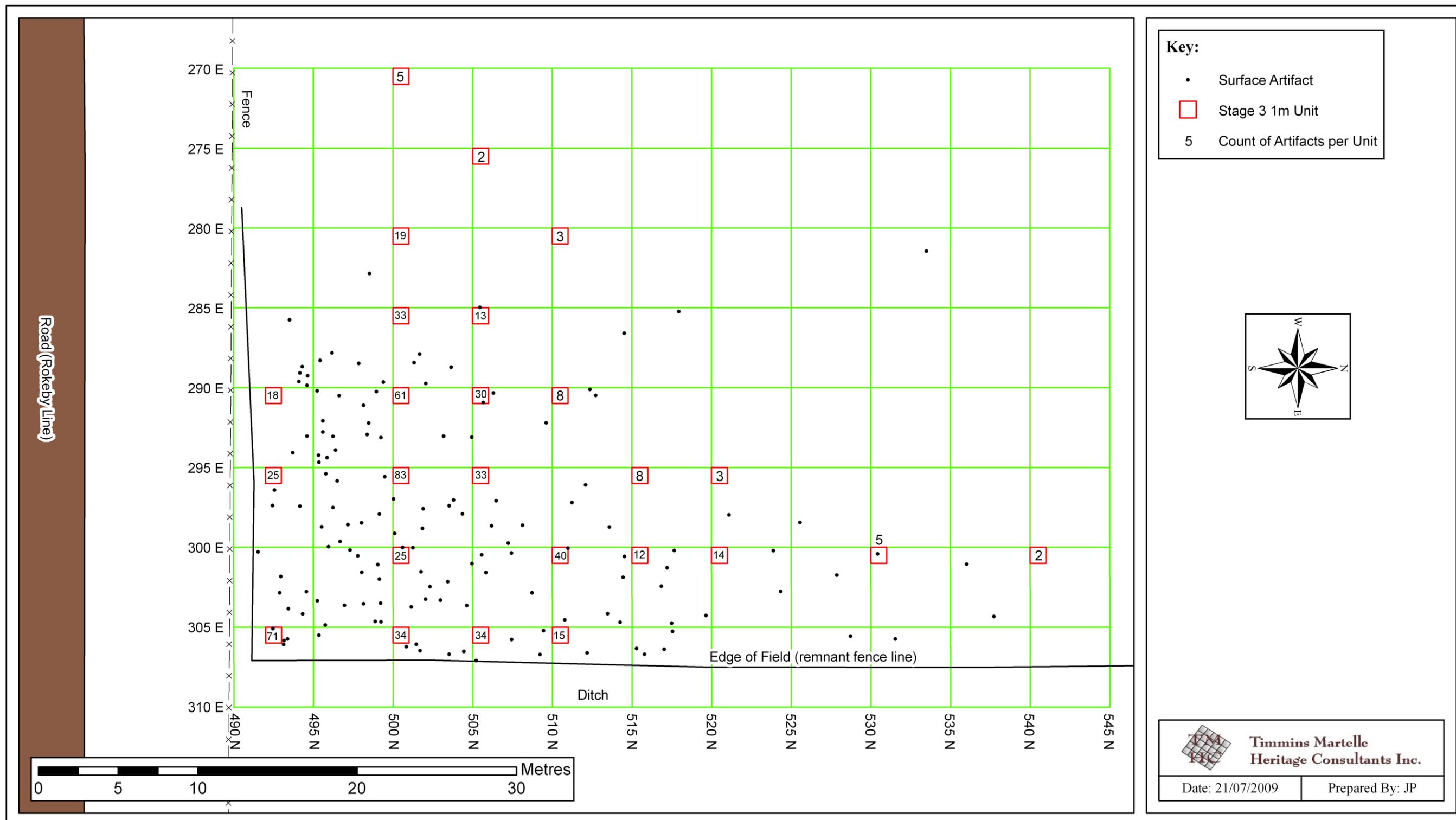


Figure 6: Stage 3 Results for Property 2 Location 1 (AfHo-37)



Table 1: Location 2 (AfHo-37) Stage 3 Artifact Summary

Artifact	n	%	Artifact	n	%
<i>Structural Remains</i>			<i>Kitchen Related Items and Faunal Remains</i>		
window glass	180	22.90	bottle glass	29	3.69
nails (unidentified-shafts)	28	3.56	salt glazed stoneware	14	1.78
machine cut nails	11	1.40	faunal remains	12	1.53
brick	9	1.14	undecorated yellowware	6	0.76
mortar	6	0.76	shell	4	0.51
hand wrought nails	1	0.13	red earthenware	4	0.51
screw	1	0.13	undecorated stoneware	3	0.38
Total	236	30.02	Total	72	9.16
<i>Tablewares</i>			<i>Miscellaneous Items</i>		
undecorated whiteware	220	27.99	white clay pipe	6	0.76
transfer printed whiteware	135	17.17	miscellaneous metal	6	0.76
sponged whiteware	43	5.47	molten glass	2	0.25
painted whiteware	14	1.78	clay marble	1	0.13
transfer flow printed whiteware	10	1.27	chimney glass	1	0.13
edged whiteware	10	1.27	slate	1	0.13
undecorated ironstone	8	1.02	metal ring	1	0.13
banded whiteware	5	0.64	slate pencil	1	0.13
glass dish	2	0.25	Total	19	2.42
stamped whiteware	2	0.25	<i>Barn & Tack</i>		
undecorated porcelain	1	0.13	wire fencing	4	0.51
rockingham yellowware	1	0.13	Total	4	0.51
glass tumbler	1	0.13			
redware	1	0.13			
moulded whiteware	1	0.13			
flow transfer ironstone	1	0.13			
Total	455	57.89			

Tablewares

Tablewares comprise 455 items or 57.89 % of the Stage 3 assemblage. The majority of these (n = 452) are ceramic tablewares but two fragments of glass dish and one glass tumbler fragment are also present. The ceramics include whiteware (refined white earthenware; n = 440), ironstone (n = 9), yellowware (n = 1), redware (n = 1), porcelain (n = 1; undecorated). The ceramic tablewares are largely tea sets, serving dishes and plates.

Of the whiteware items, 220 are undecorated and 220 are decorated. In descending order of occurrence, the decorative types include transfer printed (n = 135), sponged (n = 43), painted (n = 14), transfer flow printed (n = 10), edged (n = 10), banded



or slipped (n = 5), stamped (n = 2), and moulded (n = 1). The transfer printed sherds occur in blue (n = 131; some chinoiserie, some burnt), and black (n = 4), and contain floral, geometric and/or scenic patterns that are typical of the mid-19th century. The hand painted sherds are done in blue and late palette (post-1830) colours.

Sponging occurs in blue only, with most examples containing tight sponging rather than the more coarse, openly spaced sponging that was typical of the late 19th century. The pieces with edged decoration have various degrees of moulding. There are no examples of fancy edging with embossed decoration (pre-1830). The flow printed items are largely blue although there is one example of flown mulberry print on whiteware. The banded items have patterns that incorporate brown and baby blue bands, as are common in the mid-19th century. There are no examples of pre-1840 rouletting. The rockingham glazed piece is likely from a pitcher or small serving vessel.

There is one undecorated porcelain fragment in the collection. The ironstone sherds are undecorated (n = 8) and flow transfer printed (n = 1, black). The remaining piece of ceramic is a fragment of fine red earthenware (redware), likely from a teapot or pitcher.

The tableware assemblage is very typical of a mid-19th century occupation. The absence of pearlware and creamware indicates that the site was not likely occupied until after 1830. The low quantity of ironstone, a tableware that dominated the market by the last quarter of the 19th century, indicates that the occupation likely did not extend beyond 1870. The prevalence of whiteware is consistent with an 1840-1870 span of occupation. The decorative traditions associated with the whiteware sherds are also very characteristic of the 1840-1860 temporal span.

Kitchen-Related Items and Animal Bone

Kitchen-related items and animal bone account for 9.16 % (n = 72) of the artifacts collected during Stage 3 testing. A total of 27 are utilitarian ceramics, however 29 bottle and container glass specimens (19 aqua; 5 colourless; 4 olive; 1 amber) are also represented, in addition to faunal remains (n = 12), stoneware (n = 3), and shell (n = 4). A small number of animal bone fragments (n = 12) was recovered during a Stage 3 mitigation, with the majority being domestic mammal.

Miscellaneous Items

A total of 19 items have been placed in a miscellaneous category and represent 2.42 % of the entire assemblage. Six of them (0.76%) are miscellaneous or identifiable metal items and scrap. Personal items comprise of six white clay pipe fragments. There are two pipe bowl fragments in the collection. The lone decorated small bowl fragment contains floral motifs under two horizontal lines. One of the plain stem fragments displays letters "MUR..." identifying the maker of the pipe as M. Murray – Glasgow



Figure 7: AfHo-37 Stage 3 Artifacts



A. banded whiteware, cat. 96; B. flow blue whiteware, cat. 221; C. sponged whiteware, cat. 175; D. yellowware, cat. 29; E. edged whiteware, cat. 87; F. printed whiteware, cat. 25; G. ironstone, cat. 178; H. slate pencil, cat. 106; I. printed whiteware, cat. 219; J. painted whiteware, cat. 222; K. printed whiteware, cat. 168; L. white clay pipe stem, cat. 21; M. glass tumbler, cat. 34; N. salt glazed stoneware, cat. 23



circa 1833 to 1861 (Kenyon 1984). One moulded pipe stem fragment contains a fish scale motif. The remaining miscellaneous items include molten glass (n = 2), a clay marble, a colourless fragment of chimney glass, a metal ring, a slate fragment and a slate pencil. The miscellaneous metal consists mainly of unidentifiable ferrous scraps and some potential tool fragments, although identification is made difficult by the extensively corroded and fragmented state of the material.

Barn & Tack

Barn and tack items account for 0.51 % (n = 4) of the artifacts collected during Stage 3 testing and include four pieces of wire fencing.

In sum, the material collected from AfHo-37 is indicative of a typical mid-19th domestic occupation. A review of the land registry records for the lot was undertaken in order to determine who may have occupied the lot at the time the site was occupied.

5.4 Land Registry Review

This site is located in the southeast corner of Lot 26, Concession 9, Moore Township. It is therefore contained within the east half of the lot (Figure 8). The original patent for east half of Lot 26, Concession 9 was granted in 1836 to Thomas Parsons. The parcel was purchased by William McCrae in August 1836 who was awarded the patent for the west half of the lot. The lands were bought by and sold to a number of subsequent owners until Samuel Edwards obtains the property in October of 1838. Ten years later, Samuel Edwards sells half of his landholdings comprising the west 50 acres of the east part of the lot to Mark Edwards, presumably a relative. Shortly thereafter, in 1855, Samuel sells his remaining 50 acres (the east 50 of the east half of Lot 26) to Francis Creighton and assumes a mortgage on the property. In 1861, Creighton sells the property to James Fleihoft (?) who retains it for four years and then sells in 1865 to Abraim D. Cuvney, at which time a mortgage is registered on the parcel. Cuvney's landholdings are deeded to William Turnbull in 1868. Turnbull remains on the property for some time as it is his name that appears on the 1880 historic atlas.

Based on this information, it seems likely that AfHo-37 relates to the occupation of the property by Samuel Edwards. Edwards held the easterly 50 acres of the east half of Lot 26 from 1838 to 1855. This date range is consistent with the artifacts from the site. It seems likely that Edwards erected a structure in the southeast corner of his original property (east 100 acres of Lot 26) then divided his landholdings to retain the easterly 50 acres containing his house, selling the rest to Mark Edwards. When Samuel Edwards eventually sells his property in 1855 it is possible that his house continued to be used until William Turnbull took possession of the parcel and demolished the building, erecting a more substantial brick structure. Turnbull's new residence is likely that shown on the 1880 historic map. Since our site did not produce post-1870 material, Turnbull's 1880 house on the historic atlas map cannot be Edwards' earlier structure.



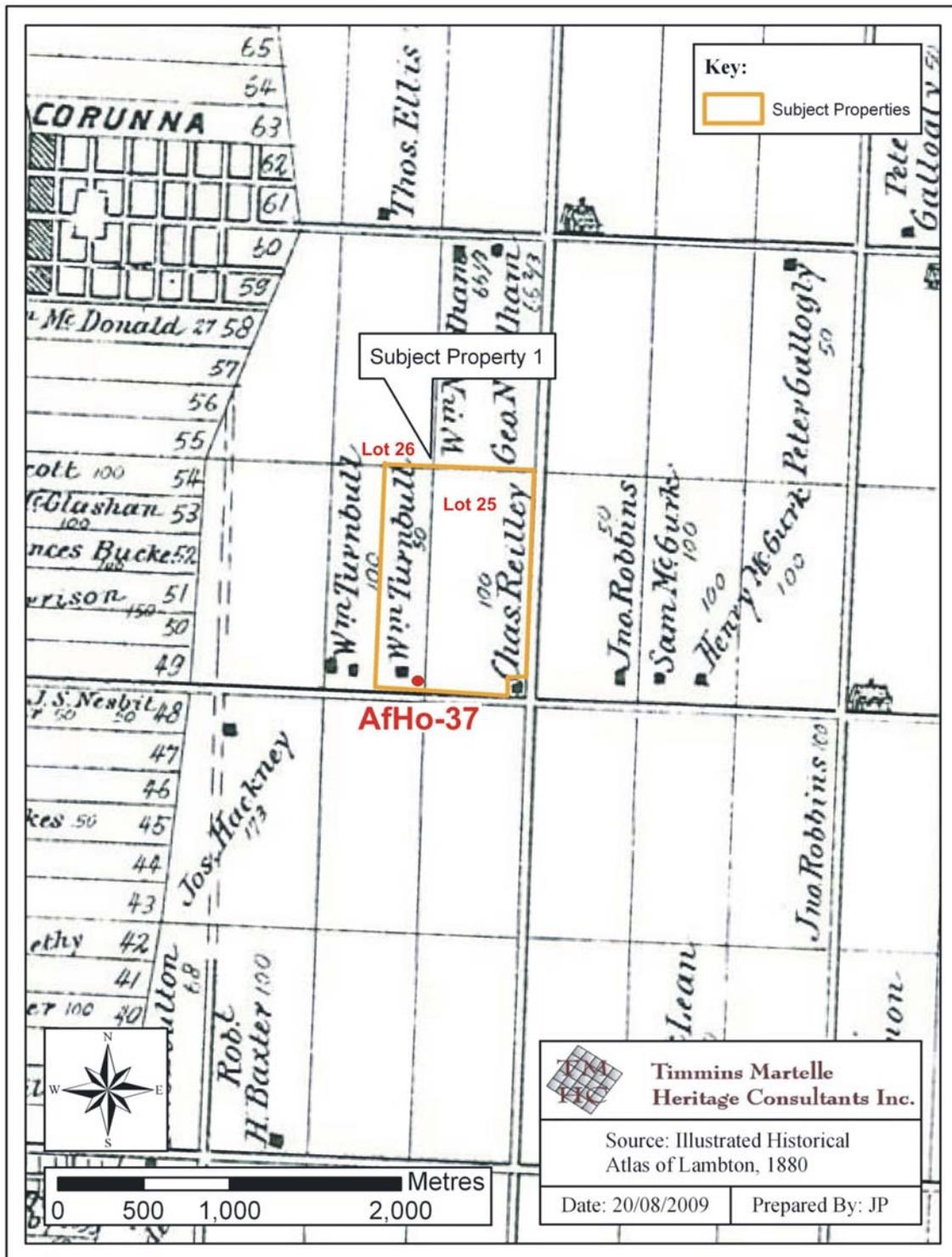


Figure 8: Location 2 AfHo-37 Shown on the 1880 Map of Moore Township



Table 2: Land Registry Details for the East Half (100 acres) of Lot 26, Concession 9

Instrument	Instrument Date	Reg'n Date	Grantor	Grantee	Lands
Grant	20 Mar. 1836		Crown	Thomas Parsons	E 1/2 100 ac
Grant	16 May 1835		Crown	William McCrae	W 1/2 100 ac
Bargain & Sale	20 Aug 183?	Aug 1836	Thomas Parsons	William McCrae	E 1/2 100 ac
Bargain & Sale	22 Aug 1836	30 Aug 1836	William McCrae	Thomas Fish....	W 1/2 100 ac
Bargain & Sale	25 Feb 1839	1 Apr 1839	Thomas Fish....	William Turnbull	W 1/2 100 ac
Bargain & Sale	17 Oct 1838	29 Jan 1840	...illegible	Samuel Edwards	E 1/2 100 ac
Bargain & Sale	1 July 1848	1 Mar 1854	Samuel Edwards	Mark Edwards	W 1/2 of E 1/2 50 acres
Bargain & Sale	15 Nov 1855	16 Nov 1855	Samuel Edwards	Francis Creighton	E 1/2 of E 1/2 50 acres
Mortgage	15 Nov 1855	16 Nov 1855	Francis Creighton	Samuel Edwards	E 1/2 of E 1/2 50 acres
Bargain & Sale	21 Sept 1861	14 May 1862	Francis Creighton	James Fleitof (?)	E 1/2 of E 1/2 50 acres
Bargain & Sale	16 Dec 1865	19 Dec 1865	James Fleitof (?)	Abraim D. Cuvney	E 1/2 of E 1/2 50 acres
Mortgage	16 Dec 1865	19 Dec 1865	Abraim D. Cuvney	James Fleitof (?)	E 1/2 of E 1/2 50 acres
Deed	1 Dec 1868	2 Dec 1868	Abraim D. Cuvney	William Turnbull	E 1/2 of E 1/2 50 acres
D of Mortgage	30 Jan 1874	30 Jan 1874	James Fleitof (?)	William Turnbull	E 1/2 of E 1/2 50 acres

Turnbull's circa 1880s structure is likely that which occupies the southwestern corner of Property 1, where a recently demolished farmstead was present.

6.0 SUMMARY AND RECOMMENDATIONS

A Stage 3 archaeological assessment was carried out for a EuroCanadian historic era domestic site (Location 2 – AfHo-37) on Property 1 of the proposed St. Clair Solar Farm. Our controlled surface collection of artifacts and hand excavation of one-metre test units resulted in the recovery of 786 pieces of predominantly mid-19th century, circa 1840 to 1870 cultural material. A low quantity of ironstone recovered from the site indicates that the occupation of the site does not extend much into the 1870s. A review of the land registry information for the east half of Lot 26, Concession 9 of Moore Township, containing the subject site, indicates that the archaeological material may relate to a residence erected on the property by Samuel Edwards between 1838 and 1855 when he owned the parcel. Given that the site dates to the earliest settlement period of Moore Township it is deemed to be a significant cultural heritage resource and full Stage 4 mitigation of construction impacts is recommended.

The preferred mitigation option is long term preservation and avoidance. If preservation is chosen, a series of protective measures is necessary. First, short-term protection during construction is required and should involve the erection of temporary



fencing around the site to protect it from incidental impacts from earth moving, machine travel, material stockpiling and related activities. Construction crews must be given clear instructions that this is a “no go” area. To ensure long term protection, a restrictive covenant must be attached to the site area. This covenant could consist of the registration of the site area on title or prohibitive rezoning. A preservation strategy should be developed in consultation with the Ministry of Culture.

If the chosen mitigation option is full excavation, the Stage 4 assessment should consist of the hand excavation of a block of one-metre units around the highest artifact yielding Stage 3 squares followed by the mechanical stripping of topsoil to search for subsurface features. Full documentation of settlement features must follow, combined with additional historical research on the property and the site’s occupants. Here, some minimal block excavation is recommended prior to stripping because the site is a comparatively low density resource compared to later sites in the same area, did not produce evidence of potential subsurface features during Stage 3, represents a relatively early and important period of early settlement in the township, and likely represents the remnants of a very flimsy frame shanty or house which may not leave subsurface traces (i.e., root cellar, foundation, etc.). Low density sites of this period can sometimes be stripped entirely of subsoil and have no subsurface features present.

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

Any persons discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Small Business and Consumer Services. The Heritage Operations Unit or the Ministry of Culture can be reached at (416) 314-7148. The Registrar of Cemeteries, Cemeteries Regulation Unit can be reached at (416)326-8404 or (416)326-8393.

The Ministry of Culture is asked to review the results presented in this report and issue comment. This correspondence should be directed to Eric Hyatt (fax: 519-344-2187) and copied to Holly Martelle of Timmins Martelle Heritage Consultants Inc. (fax: 519-641-7220).



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Stage 3 Artifact Catalogue, Location 2 AfHo-37

Cat.	Context	Depth	Artifact	n	Comments
18	CSP	surface	brick	9	red
19	CSP	surface	nails, cut	2	
20	CSP	surface	white clay pipe	1	stem fragment, "MUR...", "...ASG..."
21	CSP	surface	white clay pipe	1	moulded stem fragment, fish scale, banded
22	CSP	surface	white clay pipe	1	stem fragment, yellow glaze traces
23	CSP	surface	stoneware, salt glazed	4	exterior grey glaze, interior Albany slip
24	CSP	surface	yellowware, rockingham	1	
25	CSP	surface	whiteware, transfer print	4	black, 2 with floral design
26	CSP	surface	faunal remains	1	calcined, mammal
27	CSP	surface	stoneware, undetermined	2	brown glaze
28	CSP	surface	stoneware, salt glazed	1	interior and exterior cream glaze
29	CSP	surface	yellowware, undecorated	1	yellow glaze
30	CSP	surface	whiteware, banded	1	blue bands on white
31	CSP	surface	whiteware, transfer flow	2	blue, 1 Chinoiserie
32	CSP	surface	nails, undetermined	2	
33	CSP	surface	glass, bottle	10	aqua
34	CSP	surface	glass, tumbler	1	amethyst
35	CSP	surface	glass, molten	1	aqua
36	CSP	surface	glass, dish	2	1 burnt, colourless
37	CSP	surface	whiteware, edged	2	blue, moulded chicken foot design, straight edged, burnt
38	CSP	surface	whiteware, edged	2	blue, straight edged
39	CSP	surface	whiteware, painted	2	red rim line, red
40	CSP	surface	whiteware, painted	1	black, green
41	CSP	surface	porcelain, undecorated	1	
42	CSP	surface	ironstone, undecorated	2	
43	CSP	surface	whiteware, painted	1	blue line, burnt
44	CSP	surface	whiteware, sponged	16	11 tight, 5 coarse, blue, 1 burnt
45	CSP	surface	whiteware, transfer print	8	blue, Chinoiserie
46	CSP	surface	whiteware, transfer print	19	blue, 4 burnt
47	CSP	surface	whiteware, undecorated	48	5 burnt
48	CSP	surface	glass, window	41	4 colourless, 37 aqua tint; 0.9mm to 1.6mm to 2.5mm
49	500N 280E:1	0-25cm	clay marble	1	
50	500N 280E:1	0-25cm	glass, window	3	aqua tint; 1.0mm, 1.0mm and 1.1mm
51	500N 280E:1	0-25cm	glass, bottle	1	colourless
52	500N 280E:1	0-25cm	whiteware, painted	1	red, blue
53	500N 280E:1	0-25cm	whiteware, sponged	1	blue, tight
54	500N 280E:1	0-25cm	whiteware, transfer print	4	blue
55	500N 280E:1	0-25cm	whiteware, undecorated	7	1 burnt
56	500N 280E:1	0-25cm	faunal remains	1	calcined
57	540N 300E:1	0-19cm	whiteware, undecorated	1	
58	540N 300E:1	0-19cm	glass, window	1	aqua tint; 2.0mm
59	520N 295E:1	0-26cm	ironstone, undecorated	2	mends
60	520N 295E:1	0-26cm	glass, window	1	aqua tint; 1.8mm



61	530N 300E:1	0-24cm	white clay pipe	1	stem fragment
62	530N 300E:1	0-24cm	glass, window	2	aqua tint; 0.8mm and 0.7mm
63	530N 300E:1	0-24cm	glass, bottle	1	colourless
64	530N 300E:1	0-24cm	whiteware, transfer print	1	blue, Chinoiserie
65	505N 275E:1	0-20cm	whiteware, undecorated	1	
66	505N 275E:1	0-20cm	whiteware, transfer flow	1	mulberry
67	500N 270E:1	0-29cm	whiteware, undecorated	1	
68	500N 270E:1	0-29cm	stoneware, salt glazed	1	cream glaze
69	500N 270E:1	0-29cm	glass, window	1	aqua tint; 2.0mm
70	500N 270E:1	0-29cm	nails, undetermined	2	
71	505N 285E:1	0-24cm	glass, bottle	1	aqua, "...D..."
72	505N 285E:1	0-24cm	glass, bottle	1	amber
73	505N 285E:1	0-24cm	whiteware, transfer print	5	blue
74	505N 285E:1	0-24cm	whiteware, undecorated	6	
75	510N 305E:1	0-22cm	wire fencing	1	
76	510N 305E:1	0-22cm	stoneware, salt glazed	1	exterior grey glaze, interior Albany slip
77	510N 305E:1	0-22cm	whiteware, banded	1	brown band on white
78	510N 305E:1	0-22cm	whiteware, transfer flow	1	blue
79	510N 305E:1	0-22cm	whiteware, edged	2	1 moulded, blue
80	510N 305E:1	0-22cm	whiteware, transfer print	3	blue
81	510N 305E:1	0-22cm	whiteware, undecorated	3	
82	510N 305E:1	0-22cm	glass, bottle	1	colourless
83	510N 305E:1	0-22cm	glass, window	2	aqua tint; 1.6mm and 1.9mm
84	510N 300E:1	0-25cm	stoneware, salt glazed	3	exterior grey glaze, interior Albany slip
85	510N 300E:1	0-25cm	nails, undetermined	2	
86	510N 300E:1	0-25cm	wire fencing	2	
87	510N 300E:1	0-25cm	whiteware, edged	1	blue, moulded band
88	510N 300E:1	0-25cm	whiteware, sponged	3	blue, tight
89	510N 300E:1	0-25cm	whiteware, transfer print	4	blue, Chinoiserie
90	510N 300E:1	0-25cm	whiteware, transfer print	5	blue
91	510N 300E:1	0-25cm	whiteware, transfer print	1	black
92	510N 300E:1	0-25cm	whiteware, painted	1	red rim line
93	510N 300E:1	0-25cm	whiteware, banded	1	green on white
94	510N 300E:1	0-25cm	yellowware, undecorated	1	yellow glaze
95	510N 300E:1	0-25cm	faunal remains	3	calcined
96	510N 300E:1	0-25cm	whiteware, banded	1	brown bands (?) on white, burnt
97	510N 300E:1	0-25cm	ironstone, undecorated	1	
98	510N 300E:1	0-25cm	whiteware, undecorated	9	
99	510N 300E:1	0-25cm	glass, window	2	aqua tint; 1.4mm and 1.9mm
100	520N 300E:1	0-25cm	whiteware, sponged	1	blue, tight
101	520N 300E:1	0-25cm	white clay pipe	1	bowl fragment
102	520N 300E:1	0-25cm	wire fencing	1	
103	520N 300E:1	0-25cm	metal, miscellaneous	1	
104	520N 300E:1	0-25cm	glass, molten	1	aqua
105	520N 300E:1	0-25cm	glass, window	3	aqua tint; 1.1mm, 1.7mm and 1.8mm
106	520N 300E:1	0-25cm	glass, bottle	1	aqua
107	520N 300E:1	0-25cm	whiteware, undecorated	5	



108	500N 295E:1	0-27cm	whiteware, molded	1	
109	500N 295E:1	0-27cm	glass, bottle	1	aqua
110	500N 295E:1	0-27cm	whiteware, transfer print	5	blue, Chinoiserie
111	500N 295E:1	0-27cm	ironstone, transfer flow	1	black
112	500N 295E:1	0-27cm	stoneware, salt glazed	1	exterior grey glaze, interior Albany slip
113	500N 295E:1	0-27cm	faunal remains	2	1 burnt, mammal
114	500N 295E:1	0-27cm	whiteware, transfer print	8	blue, 1 burnt
115	500N 295E:1	0-27cm	whiteware, sponged	3	blue, tight
116	500N 295E:1	0-27cm	earthenware, red	1	interior and exterior green glaze
117	500N 295E:1	0-27cm	yellowware, undecorated	2	yellow glaze
118	500N 295E:1	0-27cm	nails, undetermined	6	
119	500N 295E:1	0-27cm	metal, miscellaneous	1	
120	500N 295E:1	0-27cm	whiteware, undecorated	30	3 burnt
121	500N 295E:1	0-27cm	glass, window	21	aqua tint; 1.1mm to 1.7mm to 2.0mm
122	500N 285E:1	0-25cm	stoneware, salt glazed	1	exterior grey glaze, interior Albany slip
123	500N 285E:1	0-25cm	stoneware, undetermined	1	exterior brown glaze
124	500N 285E:1	0-25cm	earthenware, red	1	interior and exterior green glaze
125	500N 285E:1	0-25cm	whiteware, sponged	2	blue, tight
126	500N 285E:1	0-25cm	whiteware, transfer print	2	blue,
127	500N 285E:1	0-25cm	glass, bottle	1	aqua
128	500N 285E:1	0-25cm	nails, undetermined	2	
129	500N 285E:1	0-25cm	metal, miscellaneous	1	
130	500N 285E:1	0-25cm	whiteware, undecorated	16	1 burnt
131	500N 285E:1	0-25cm	glass, window	6	5 aqua tint, 1 colourless; 1.1mm to 1.3mm to 2.1mm
132	500N 290E:1	0-27cm	screw	1	
133	500N 290E:1	0-27cm	stoneware, salt glazed	1	exterior grey glaze, interior Albany slip
134	500N 290E:1	0-27cm	whiteware, transfer print	4	blue, Chinoiserie
135	500N 290E:1	0-27cm	earthenware, red	2	interior and exterior green glaze
136	500N 290E:1	0-27cm	whiteware, sponged	1	blue
137	500N 290E:1	0-27cm	whiteware, painted	1	red rim line
138	500N 290E:1	0-27cm	yellowware, undecorated	1	yellow glaze
139	500N 290E:1	0-27cm	whiteware, transfer print	12	2 mend, 2 burnt, blue
140	500N 290E:1	0-27cm	faunal remains	1	mammal, tooth
141	500N 290E:1	0-27cm	glass, bottle	1	olive
142	500N 290E:1	0-27cm	glass, bottle	1	colourless
143	500N 290E:1	0-27cm	whiteware, undecorated	9	1 burnt
144	500N 290E:1	0-27cm	glass, window	21	2 colourless, 19 aqua tint; 0.9mm to 1.6mm to 2.0mm
145	500N 290E:1	0-27cm	glass, bottle	1	aqua
146	500N 290E:1	0-27cm	glass, chimney	1	colourless
147	500N 290E:1	0-27cm	nails, cut	1	
148	500N 290E:1	0-27cm	nails, undetermined	1	
149	500N 290E:1	0-27cm	metal, miscellaneous	1	
150	510N 280E:1	0-23cm	glass, window	1	aqua tint; 2.1mm
151	510N 280E:1	0-23cm	whiteware, undecorated	1	
152	510N 280E:1	0-23cm	whiteware, banded	1	brown band on white
153	510N 290E:1	0-23cm	whiteware, edged	1	blue, straight edged, moulded
154	510N 290E:1	0-23cm	whiteware, sponged	2	blue, tight



155	510N 290E:1	0-23cm	whiteware, transfer print	1	blue
156	510N 290E:1	0-23cm	whiteware, undecorated	2	
157	510N 290E:1	0-23cm	glass, window	2	aqua tint; 1.3mm and 1.4mm
158	515N 300E:1	0-35cm	whiteware, painted	1	teal green
159	515N 300E:1	0-35cm	glass, bottle	1	aqua
160	515N 300E:1	0-35cm	glass, window	1	aqua tint; 1.9mm
161	515N 300E:1	0-35cm	whiteware, painted	1	blue
162	515N 300E:1	0-35cm	whiteware, transfer print	1	blue, building
163	515N 300E:1	0-35cm	whiteware, transfer print	4	blue, Chinoiserie
164	515N 300E:1	0-35cm	whiteware, undecorated	3	
165	500N 300E:1	0-20cm	redware	1	interior and exterior dark brown glaze
166	500N 300E:1	0-20cm	slate pencil	1	
167	500N 300E:1	0-20cm	whiteware, sponged	1	blue, tight
168	500N 300E:1	0-20cm	whiteware, transfer print	3	blue
169	500N 300E:1	0-20cm	glass, bottle	1	olive
170	500N 300E:1	0-20cm	mortar	1	
171	500N 300E:1	0-20cm	glass, window	6	5 aqua tint, 1 colourless; 0.9mm to 1.2mm to 2.3mm
172	500N 300E:1	0-20cm	nails, undetermined	5	
173	500N 300E:1	0-20cm	whiteware, undecorated	5	
174	500N 300E:1	0-20cm	ironstone, undecorated	1	burnt
175	515N 295E:1	0-24cm	whiteware, sponged	2	blue, tight
176	515N 295E:1	0-24cm	glass, window	3	2 aqua tint, 1 colourless; 0.9mm to 1.2mm to 1.5mm
177	515N 295E:1	0-24cm	whiteware, undecorated	3	2 burnt
178	505N 295E:1	0-28cm	ironstone, undecorated	1	
179	505N 295E:1	0-28cm	whiteware, painted	1	blue, red
180	505N 295E:1	0-28cm	glass, bottle	1	aqua
181	505N 295E:1	0-28cm	whiteware, transfer print	1	blue, Chinoiserie
182	505N 295E:1	0-28cm	whiteware, sponged	5	3 tight, 1 coarse, blue
183	505N 295E:1	0-28cm	whiteware, transfer print	9	blue, 1 with a bird
184	505N 295E:1	0-28cm	nails, cut	1	
185	505N 295E:1	0-28cm	nails, undetermined	1	
186	505N 295E:1	0-28cm	whiteware, undecorated	6	1 burnt
187	505N 295E:1	0-28cm	glass, window	7	6 aqua tint, 1 colourless; 1.1mm to 1.6mm to 2.0mm
188	505N 290E:1	0-27cm	whiteware, transfer print	3	blue, Chinoiserie
189	505N 290E:1	0-27cm	whiteware, transfer print	3	blue, 1 burnt
190	505N 290E:1	0-27cm	whiteware, sponged	2	blue, tight
191	505N 290E:1	0-27cm	whiteware, undecorated	9	1 burnt
192	505N 290E:1	0-27cm	nails, undetermined	4	
193	505N 290E:1	0-27cm	metal, miscellaneous	1	
194	505N 290E:1	0-27cm	faunal remains	2	mammal, 1 calcined, 1 tooth
195	505N 290E:1	0-27cm	glass, window	6	aqua tint; 1.3mm to 1.4mm to 1.8mm
196	490N 295E:11	0-18cm	whiteware, stamped	2	blue
197	490N 295E:11	0-18cm	metal, miscellaneous	1	
198	490N 295E:11	0-18cm	whiteware, transfer print	1	blue
199	490N 295E:11	0-18cm	whiteware, transfer print	1	blue
200	490N 295E:11	0-18cm	whiteware, undecorated	5	1 burnt
201	490N 295E:11	0-18cm	glass, bottle	1	aqua



202	490N 295E:11	0-18cm	glass, bottle	1	olive
203	490N 295E:11	0-18cm	glass, window	13	aqua tint; 1.1mm to 1.7mm to 2.1mm
204	490N 290E:11	0-27cm	nails, cut	1	
205	490N 290E:11	0-27cm	shell	3	
206	490N 290E:11	0-27cm	whiteware, sponged	1	blue, tight
207	490N 290E:11	0-27cm	whiteware, transfer print	1	blue
208	490N 290E:11	0-27cm	glass, bottle	1	colourless
209	490N 290E:11	0-27cm	yellowware, undecorated	1	yellow glaze
210	490N 290E:11	0-27cm	glass, window	3	aqua tint; 1.4mm, 1.5mm and 2.5mm
211	490N 290E:11	0-27cm	whiteware, edged	1	blue
212	490N 290E:11	0-27cm	whiteware, undecorated	5	
213	490N 290E:11	0-27cm	whiteware, sponged	1	blue
214	490N 305E:11	0-26cm	whiteware, edged	1	blue
215	490N 305E:11	0-26cm	whiteware, undecorated	21	3 burnt
216	490N 305E:11	0-26cm	glass, window	15	aqua tint 0.8mm to 0.9mm to 2.2mm
217	490N 305E:11	0-26cm	ironstone, undecorated	1	burnt
218	490N 305E:11	0-26cm	white clay pipe	1	bowl fragment, moulded ribbing
219	490N 305E:11	0-26cm	whiteware, transfer print	1	blue, burnt, Chinoiserie
220	490N 305E:11	0-26cm	whiteware, transfer print	1	black
221	490N 305E:11	0-26cm	whiteware, transfer flow	6	mends, old blue
222	490N 305E:11	0-26cm	whiteware, painted	1	black rim line, black stem, red
223	490N 305E:11	0-26cm	whiteware, painted	2	green lines
224	490N 305E:11	0-26cm	whiteware, transfer print	9	blue, 1 burnt
225	490N 305E:11	0-26cm	glass, bottle	1	aqua
226	490N 305E:11	0-26cm	mortar	5	
227	490N 305E:11	0-26cm	nails, cut	5	
228	490N 305E:11	0-26cm	nails, wrought	1	
229	500N 305E:1	0-22cm	whiteware, transfer print	1	dark brown
230	500N 305E:1	0-22cm	whiteware, transfer print	1	black
231	500N 305E:1	0-22cm	whiteware, transfer print	4	blue, Chinoiserie
232	500N 305E:1	0-22cm	whiteware, transfer print	4	blue
233	500N 305E:1	0-22cm	nails, undetermined	1	
234	500N 305E:1	0-22cm	nails, cut	1	
235	500N 305E:1	0-22cm	whiteware, painted	1	green line
236	500N 305E:1	0-22cm	whiteware, undecorated	13	
237	500N 305E:1	0-22cm	glass, window	8	aqua tint; 0.8mm to 1.3mm to 2.6mm
238	505N 305E:1	0-23cm	shell	1	
239	505N 305E:1	0-23cm	metal ring	1	open
240	505N 305E:1	0-23cm	whiteware, sponged	2	blue, tight, 1 burnt
241	505N 305E:1	0-23cm	glass, window	11	2 colourless, 9 aqua tint; 0.7mm to 1.8mm to 2.1mm
242	505N 305E:1	0-23cm	glass, bottle	1	olive
243	505N 305E:1	0-23cm	nails, undetermined	2	
244	505N 305E:1	0-23cm	slate	1	
245	505N 305E:1	0-23cm	faunal remains	2	mammal, 1 tooth
246	505N 305E:1	0-23cm	stoneware, salt glazed	1	exterior grey glaze, interior Albany slip, burnt
247	505N 305E:1	0-23cm	whiteware, transfer print	1	blue, burnt
248	505N 305E:1	0-23cm	whiteware, undecorated	11	1 burnt





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Re: Review and Acceptance into the Provincial Register of Reports: Archaeological Assessment Report Entitled, "Stage 3 Archaeological Assessment, Location 2 Property 1 – AfHo-37, St. Clair Solar Farm, Geographic Townships of Moore, Lambton County, Ontario", August 2009, Received September 10, 2009, Licence/PIF # P064-276-2008, MCL File 38SP013

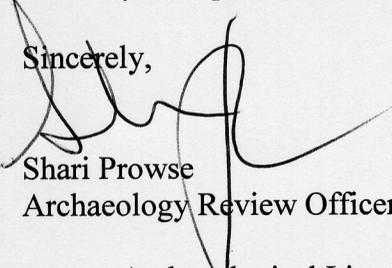
Dear Dr. Martelle,

This office has reviewed the above-mentioned report which has been submitted to this Ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. This review is to ensure that the licensed professional consultant archaeologist has met the terms and conditions of their archaeological licence, that archaeological sites have been identified and documented according to the 1993 technical guidelines set by the Ministry and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

As the result of our review, this Ministry accepts the above titled report into the Provincial register of archaeological reports. The report details the Stage 3 investigations of Location 2 - AfHo-37 (Property 1) and recommends that it be subject to Stage 4 mitigation through avoidance and protection, or documentation and removal. This Ministry concurs with this recommendation.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,


Shari Prowse
Archaeology Review Officer

cc. Archaeological Licensing Office
Mr. Eric Hyatt, First Solar Development (Canada) Inc.

**Stage 4 Archaeological Assessment
Property 1 Location 1
St. Clair Solar Farm
Geographic Twp. of Moore
Lambton County, Ontario**

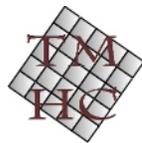
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and

The Ontario Ministry of Culture

Prepared by



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Archaeological License Number: P064
Our File: 2009-050
CIF Number: P064-275-2009

August 2009

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TMHC Personnel

TMHC would like to thank the following staff members who contributed to this project:

Project Coordinator:	Holly Martelle, Ph.D. (P064)
Report Production:	Holly Martelle, Ph.D. (P064) Arthur Figura, M.A. (P083)
Field Directors:	Johnathan Freeman, B.A. (R274) Arthur Figura, M.A. (P083)
Field/Lab Assistants:	Tom Porawski, M.A. (R320) Krista Lane, B.A. Monica Maika, B.A. Stephanie Keeler, B.A. Paige Glenen, M.Sc. Sarah Newstead, M.A. Rachelle Carter, B.A. Robert Fleming Elton (Bear) John Kurt Kostuk

Acknowledgements

TMHC would like to acknowledge the assistance of the following individuals:

Kayleigh Enders

Project Development Associate
First Solar Inc.



Project Summary

A Stage 1 archaeological assessment was previously conducted for five Lambton County agricultural properties that are the focus of a proposed new solar farm near the communities of Sombra and Corunna (TMHC 2008). The project will include the installation of numerous ground-mounted solar panels. The Stage 1 background review indicated the properties had potential for the discovery of archaeological resources. As such, a Stage 2 field survey was recommended and initiated in the fall of 2008, resulting in the discovery of numerous archaeological sites and find spots. In total, three sites were recommended for Stage 3 testing, including a Euro-Canadian occupation on Property 3 (designated Property 3 – Location 2) and both a native lithic scatter (designated Location 1) and Euro-Canadian homestead (designated Location 2) on Property 1. Borden numbers have been requested for the above described locations. The Stage 3 testing of Property 1 – Location 1 took place in the fall of 2008 and resulted in the documentation of a very small Late Paleoindian (circa 10,000 years before the present) native site of high archaeological significance based on provincial standards. Property 1 Location 1 was subsequently recommended for Stage 4 mitigation through avoidance or excavation. Although long-term protection was recommended as the preferred option, in the spring of 2009 the proponent decided to proceed with Stage 4 excavation of the latter site. This report describes the results of the Stage 4 excavation work at Property 1 – Location 1. All of our assessment work was required for *Planning Act* related development approvals.

The Stage 4 archeological assessment consisted of a hand excavation of series of one-metre squares around each of the Stage 3 units with four precontact native artifacts. One quarter or 25% of the soil from each one-metre unit excavated was water screened through 1/8” metal mesh in order to recover potential microflakes which are characteristic of Paleoindian sites and often missed during screening using the standard 1/4” hardware cloth. Our hand and water screening of the topsoil of these units resulted in the recovery of minimal cultural material and the documentation of a second Archaic period cultural component. The site has now been adequately documented and no further work is recommended.

The Ministry of Culture is asked to review the results presented in this report and issue comment. This correspondence should be directed to both Eric Hyatt of First Solar Inc. (fax: 519-344-8113) and Holly Martelle of Timmins Martelle Heritage Consultants Inc. (fax: 519-641-7220).



**Stage 4 Archaeological Assessment
Property 1 Location 1
St. Clair Solar Farm
Geographic Twp. of Moore
Lambton County, Ontario**

1.0 INTRODUCTION

A Stage 1 archaeological assessment was previously conducted for five Lambton County agricultural properties that are the focus of a proposed new solar farm near the communities of Sombra and Corunna (TMHC 2008). The project will include the installation of numerous ground-mounted solar panels. The Stage 1 background review indicated the properties had potential for the discovery of archaeological resources. As such, a Stage 2 field survey was recommended and initiated in the fall of 2008, resulting in the discovery of numerous archaeological sites and find spots. In total, three sites were recommended for Stage 3 testing, including a Euro-Canadian occupation on Property 3 (designated Property 3 – Location 2) and both a native lithic scatter (designated Location 1) and Euro-Canadian homestead (designated Location 2) on Property 1. Borden numbers have been requested for the above described locations. The Stage 3 testing of Property 1 – Location 1 took place in the fall of 2008 and resulted in the documentation of a very small Late Paleoindian (circa 10,000 years before the present) native site of high archaeological significance based on provincial standards. Property 1 Location 1 was subsequently recommended for Stage 4 mitigation through avoidance or excavation. Although long-term protection was recommended as the preferred option, in the spring of 2009 the proponent decided to proceed with Stage 4 excavation of the latter site. This report describes the results of the Stage 4 excavation work at Property 1 – Location 1. All of our assessment work was required for *Planning Act* related development approvals.

The Stage 4 fieldwork was conducted on June 16, 19, 24, 25, 26, 27, 29, and 30, 2009 in typical summer weather that varied from warm to hot and humid. Apart from those described in the body of this report, no conditions were encountered that prohibited the recognition and recovery of archaeological resources. All archaeological consulting activities were performed under the Professional Archaeological License of Dr. Holly Martelle (P064) and in accordance with the “Archaeological Assessment Technical Guidelines” of the Ministry of Culture (MCTR 1993). Permission to enter the property and remove artifacts was given by Kayleigh Enders of First Solar Inc. The artifacts recovered during our work will be stored at the office of Timmins Martelle Heritage Consultants Inc. until arrangements can be made for their transfer to the Ministry of Culture (London-Toronto) or another appropriate curatorial facility.

2.0 PURPOSE

The *Ontario Heritage Act* makes provisions for the protection and conservation of heritage resources in the Province of Ontario. Heritage concerns are recognized as a matter of provincial interest in Section 2.6.2 of the *Provincial Policy Statement* which states:

“development and site alteration shall only be permitted on lands containing archaeological resources or areas of archaeological potential if the significant archaeological resources have been conserved by removal and documentation, or by preservation on site. Where significant archaeological resources must be preserved on site, Only development and site alteration which maintain the heritage Integrity of the site may be permitted.” (emphasis in the original)

The purpose of a Stage 1 background study is to determine if there is potential for cultural resources to be found on a property for which a change in land use is pending. It is used to determine the need for a Stage 2 field assessment involving the search for archaeological sites. In accordance with *Provincial Policy Statement 2.6*, if significant sites are found, a strategy (usually avoidance, preservation or excavation) must be put forth for their mitigation. The purpose of Stage 3 is to assess the cultural heritage value of archaeological site, as well as to determine the limits of the site and collect a representative sample of artifacts. The main objective is to determine the need for Stage 4 mitigation of development impacts through avoidance and long-term protection or documentation through excavation.

The previous Stage 3 work demonstrated that Location 1 Property 1 was a small but very significant native site dating to the Late Paleoindian period, circa 10,000 years before the present. Stage 4 mitigation was recommended based on provincial standards for such sites and avoidance and long-term protection were recommended as the preferred mitigation option. As an alternative to preservation, the proponent decided to proceed with mitigation through excavation and documentation. Thus, the purpose of our Stage 4 work was two-fold. First, it was intended to mitigate development impacts to the site by the collection and documentation of cultural material within the main concentration of artifacts. Second, the validity of the Stage 3 findings in terms of both site size and artifact density was tested through water screening. This was carried out since sites of this time period often produce very small flakes that are not retained in standard ¼” hardware cloth.

3.0 PROJECT BACKGROUND AND HISTORY OF INVESTIGATIONS

A new solar farm is proposed for five properties within the northwestern portion of Moore Township and west-central Sombra Township, in Lambton County, Ontario. The solar farm’s construction will result in the production of additional electricity generating capacity and is in accordance with provincial commitments to increase



renewable energy sources in Ontario. In the summer of 2008, Timmins Martelle Heritage Consultants Inc. (TMHC) was hired by OptiSolar Farms Canada Inc. to carry out a Stage 1 archaeological assessment of the project lands. This work determined that all of the properties showed potential for the discovery of archaeological resources (TMHC 2008). In the fall of 2008, TMHC was contracted by OptiSolar Farms Canada Inc. to complete the Stage 2 field survey which continued into the spring of 2009, with some small areas still outstanding. Three sites identified during Stage 2 survey were recommended for Stage 3 follow up investigations. These included Locations 1 and 2 on Property 1 (native and historic sites, respectively) and Location 2 on Property 3 (a 19th century historic homestead). The Stage 3 work on Location 1 Property 1 (Late Paleoindian native site) and Location 2 Property 3 (19th century historic homestead) was summarized in combination with the Stage 2 work in a report entitled *Stage 2 and 3 Archaeological Assessment, St. Clair Solar Farm, Geographic Townships of Moore and Sombra, Lambton County, Ontario* (TMHC 2009).

Our investigations on Property 1, containing the potentially significant site that is the subject of this report, involved a pedestrian survey of ploughed agricultural lands and a test pit survey of a grassed area containing recently demolished farm buildings. Four artifact locations were discovered on the property. Three of these were scatters of 19th and 20th century EuroCanadian artifacts. Of the latter, two (Locations 3 and 4) were deemed sufficiently recent enough to not warrant further assessment, whereas Location 2 was recommended for Stage 3 testing given its potential mid-19th century date and relationship to the early municipal settlement period in Lambton County. The fourth site discovered was a precontact native site (Location 1). The Stage 3 testing of the historic site at Location 2 on Property 1 was carried out this summer but is summarized in a separate, forthcoming report.

The Stage 3 testing of the Late Paleoindian site at Location 1 took place in the fall of 2008 and spring of 2009. It documented the presence of a low density, circa 10,000 year old occupation in general proximity to a former glacial beach ridge. The recovery of a Hi-Lo projectile point confirmed this designation. As sites of this time period are extremely rare, they are considered to be highly significant based on provincial standards. As such, Stage 4 mitigation was recommended. This report describes the results of the Stage 4 excavation of the site.

It should be noted that in April of 2009, OptiSolar Farms Canada Inc. was purchased by First Solar Development (Canada) Inc. and our 2009 fieldwork has been carried out under the direction of the latter firm.

4.0 SITE OVERVIEW AND PHYSICAL SETTING

Property 1 is a 300 acre agricultural parcel occupying the majority of the northwest corner of the intersection of Rokeby Line and Modeland Road (Hwy. 40)



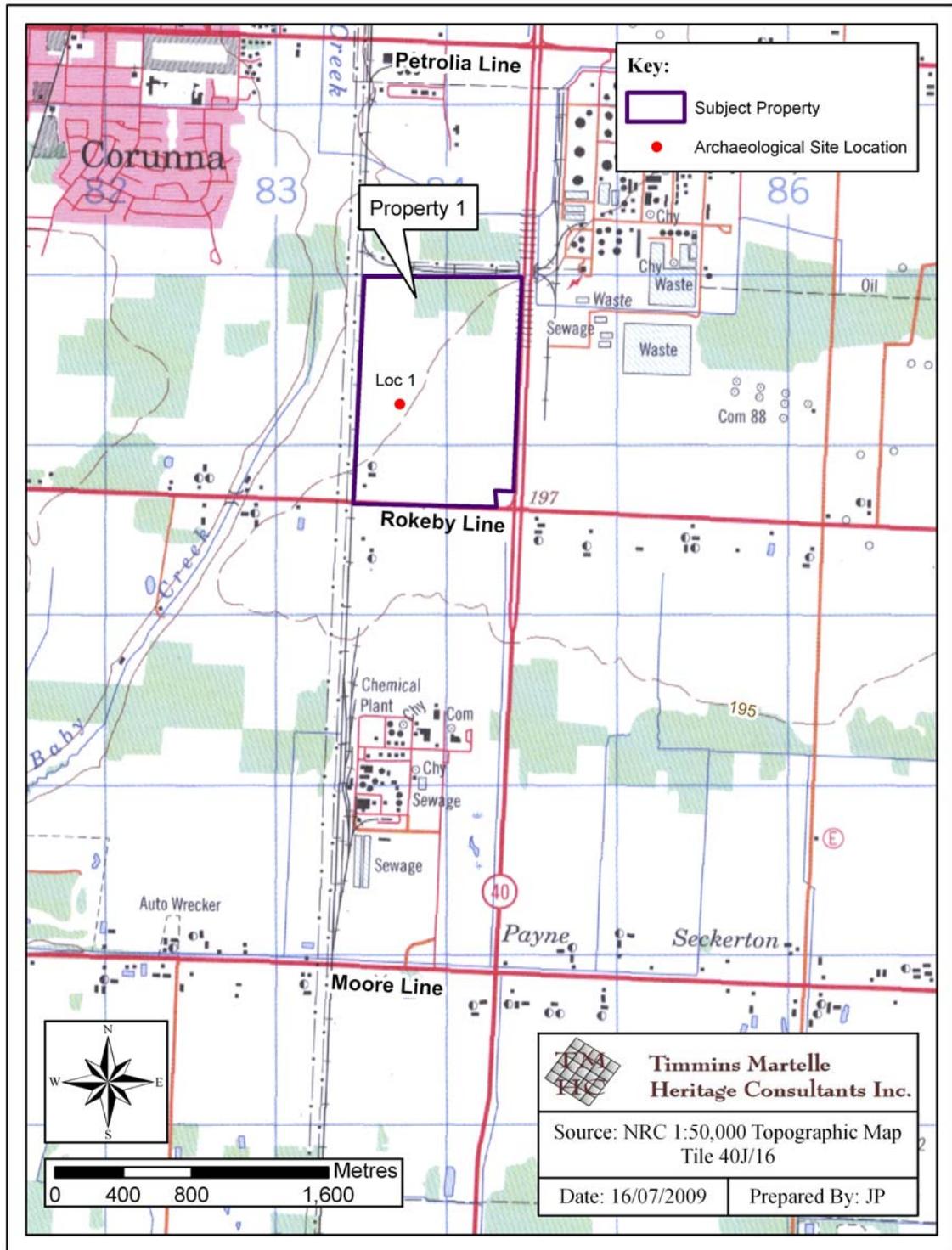


Figure 1: Location of St. Clair Solar Farm Property 1 Near Corunna, ON





Figure 2: Aerial Photograph of St. Clair Solar Farm Property 1 Near Corunna, ON



southeast of Corunna, Ontario (Figures 1 and 2). There is a railway along the north edge of the property and a hydro-electric power line along its western boundary. The lands sit south of the Nova Chemicals plant. The property consists primarily of active agricultural land, although there is a woodlot along the north boundary and a grassed former farmstead in the southwest corner. The headwaters of Baby Creek occur 230 metres to the west of the western boundary of this property and Marsh Creek passes through agricultural and industrial lands to the north. Location 1 is situated on/near to a subtle rise that overlooks Baby Creek to the west. Figure 3 illustrates the general site setting.

The property falls within the St. Clair Clay Plains physiographic region, an extensive clay plain covering over 2,000 square miles east of the St. Clair River and south of the Lake Huron shoreline (Chapman and Putnam 1966:240). The plain shows very little notable relief yet minor elevation changes have a marked effect on soils and vegetation (Chapman and Putnam 1966:240). The St. Clair Clay Plain was formerly the bed of glacial lakes Whittlesey and Warren (Chapman and Putnam 1966:241) and the former shorelines of these ancient water bodies have been documented along the eastern edge of the plain, near Alvinston and Watford. The soils within Property 1 are Caistor clay, a fine textured calcareous till containing shale and with imperfect drainage (Matthews et. al. 1957).

Figure 3: General Overview of Location 1 Property 1 Site Area (looking northeast)



5.0 STAGE 4 ASSESSMENT OF PROPERTY 1 – LOCATION 1

5.1 Methods

Upon our return to the site, Stage 3 grid stakes were relocated. The pre-existing Stage 3 five metre grid was reestablished using a total station, combined with measuring tape triangulation. The grid was oriented to magnetic north and was previously tied into existing boundaries and closest landmarks. Grid stakes were used to mark five metre intervals along the north and east transect lines. Each five by five metre grid unit was assigned a unique alphanumeric identifier based on north and east grid references of the southwest corner. Each major grid unit was then subdivided into 25 individual one-metre squares that were given sub-unit designations of 1 to 25 by working sequentially from west to east along each row, then moving northward.

Since a Late Paleoindian Hi-Lo point was recovered during Stage 3 testing at the site there was also a concern regarding the collection of microflakes since these are very typical of ancient sites like this one and can be missed during screening using standard ¼” hardware cloth. Thus, we employed an excavation strategy that would test for the presence of microflakes using 1/8” metal mesh and water screening. It was hoped that water screening with finer mesh would help reveal the presence of these small artifacts, if present, and also determine whether the same were missed during Stage 3 test unit excavation using ¼” screen. When very heavy clay soils are encountered and screened with ¼” mesh, the loss of micro-artifacts is highly likely. Thus, water screening was deemed important for determining if the Stage 3 data regarding site size and artifact density were accurate.

Three (25 x 25 cm) quadrants (or 75%) of each Stage 4 one-metre unit was excavated by hand and passed through standard ¼” hardware cloth. To test for the presence of microflakes, the soil from the remaining (southwest) quadrant was collected from the field in the form of bagged soil samples and returned to the laboratory for water screening through 1/8” metal mesh (Figure 4). In sum, we sampled 25 % of the excavated topsoil using 1/8” hardware cloth (Figures 5 and 6). The Stage 4 units were excavated down to the subsoil level and then trowelled in an effort to identify any possible subsurface features that might be present (Figure 7). Unit locations, soil depth and conditions were recorded. Upon completion of the documentation of the each one-metre square, the units were backfilled.

5.2.1 Results

In total, 11 one-metre squares were excavated during the Stage 4 fieldwork (Figure 8). Despite the use of water screening, only one artifact was recovered - a complete projectile point. The fact that no microflakes were identified during water screening confirms that the site is a small, low-density artifact location and reinforces the Stage 3 results. Further, the projectile point recovered is a Late Archaic specimen, indicating that the site is, in fact, multi-component. No cultural features were noted.



Figure 4: Removal of Southwest Quadrant of Stage 4 Unit For Water Screening



Figure 5: Water Screening Conditions

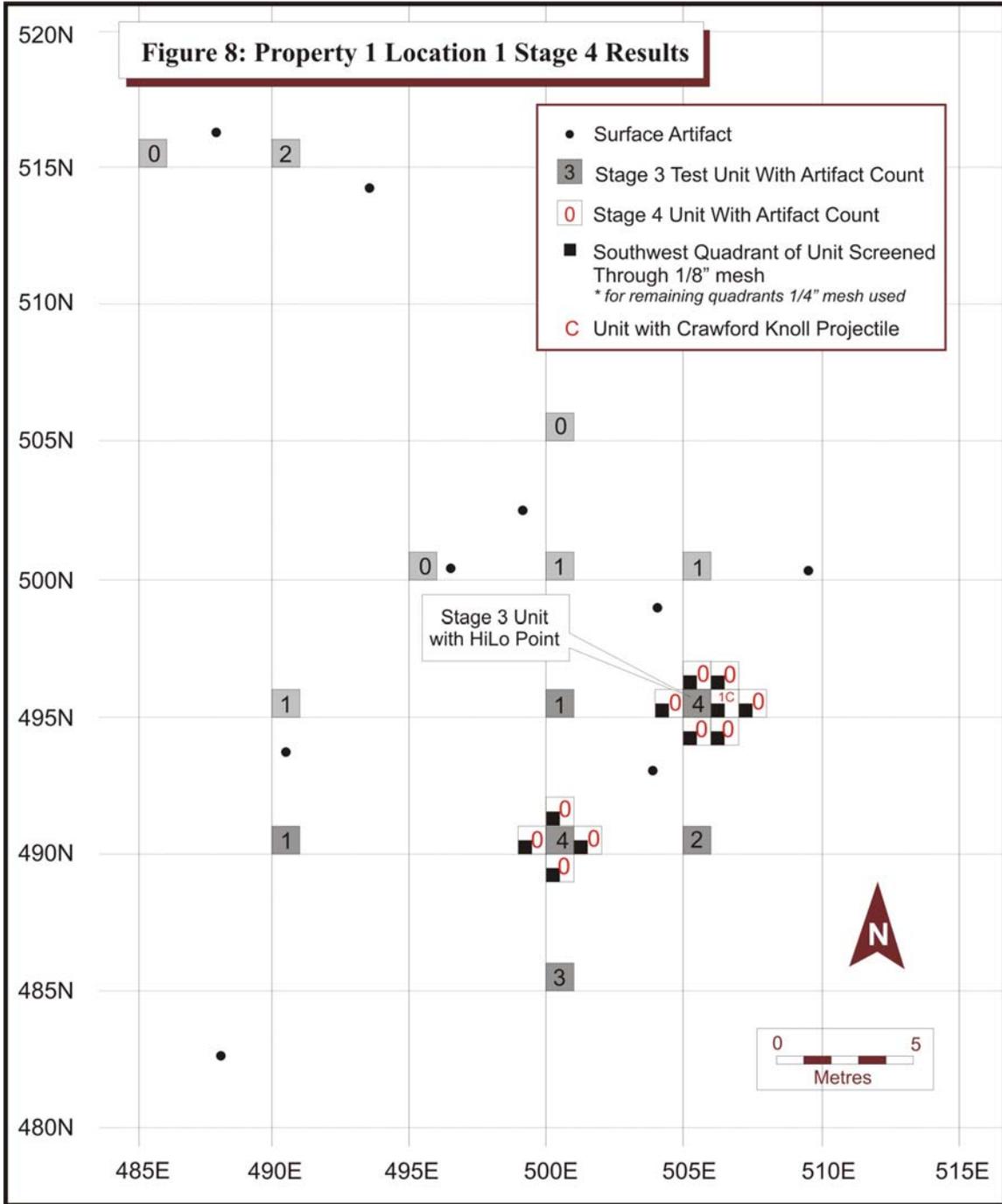


Figure 6: Close Up of Mesh Used For Water Screening



Figure 7: Completely Excavated Stage 4 Unit





The sole artifact recovered is manufactured on Kettle Point chert, a common raw material type that outcrops along Lake Huron near Stony Point and Kettle Point. The length of the projectile is 30.2 mm, the maximum width is 16.3 mm, the basal width is 15.2 mm, and the thickness is 5.3 mm (Figure 9). This complete point resembles known Late Archaic (ca. 1500 – 900 B.C.) Crawford Knoll projectiles, as defined by Kenyon (1980). Small side- or corner-notched Crawford Knoll projectiles are one of the several distinct point varieties found in Ontario during Terminal Archaic period (Ellis et al. 1990:106-109). In many respects they closely resemble the Merom Expanding Stemmed and Trimble Side Notched point types, associated with the Riverton culture in the central Wabash Valley, Illinois (Ellis et al. 2009:819). Several of Terminal Archaic sites and site components in southern Ontario have been excavated, including Bruce Boyd (Spence and Fox 1986), Knechtel I (Wright 1972), and Sunnysdale (Martelle 2001). One of the best reported, the Crawford Knoll site, is located near Lake St. Clair in Kent County and has been dated to 1530 ±120 B.C. (Stothers 1993:35).

Figure 9: Projectile Point Recovered During the Stage 4 Mitigation of Location 1



6.0 SUMMARY AND RECOMMENDATIONS

A Stage 4 archaeological assessment was carried out for a Late Paleoindian and Late Archaic site (Location 1) within Property 1 of the proposed St. Clair Solar Farm. The hand excavation of 11 one-metre units using ¼" hardware cloth and water screening through 1/8" metal mesh resulted in the recovery of only one diagnostic artifact, a Crawford Knoll projectile point. No other cultural material was recovered during hand excavations or water screening. As such, the site is a small, discrete and low-density artifact scatter that has now been adequately documented. No further archaeological investigations are warranted and the site area should be considered free of archaeological concern.



Since archaeological assessment methods cannot guarantee the detection of deeply buried archaeological deposits, if these are identified during construction the Ministry of Culture should be notified immediately at (519) 675-7742. Upon the discovery of human remains during construction, the proponent should immediately contact a representative of Timmins Martelle Heritage Consultants, the Ministry of Culture, as well as the Registrar of Cemeteries, Michael D'Mello, in the Cemeteries Regulation Unit of the Ministry of Consumer and Commercial Relations (416) 326-8392.

The Ministry of Culture is asked to review the information presented in this report and issue a letter of clearance for the development application. All correspondence should be forwarded to both Eric Hyatt of First Solar Inc. and Holly Martelle of Timmins Martelle Heritage Consultants Inc.

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Ministry of Culture, Tourism and Recreation (MCTR)

Cultural Programs Branch, Archaeology and Heritage Planning

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Toronto.

Natural Resources Canada

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Timmins Martelle Heritage Consultants Inc. (TMHC)

2008 *Stage 1 Archaeological Assessment, St. Clair Solar Farm, Geographic Townships of Moore and Sombra, Lambton County, Ontario*. Report on file with the Ministry of Culture, Toronto.

2009 *Stage 2 and 3 Archaeological Assessment, St. Clair Solar Farm, Geographic Townships of Moore and Sombra, Lambton County, Ontario*. Report on file with the Ministry of Culture, Toronto.

Appendix A: Stage 4 Artifact Catalogue, Property 1 - Location 1

Cat.	Context	Artifact	n	Comments
18	495N 505E:2	projectile point	1	Kettle Point; Crawford Knoll; complete



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December 7, 2009

Dr. Holly Martelle
Timmins Martelle Heritage Consultants Inc.
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London, Ontario N5Y 3J1

Re: Review and Acceptance into the Provincial Register of Reports: Archaeological Assessment Report Entitled, "Stage 4 Archaeological Assessment, Location 1 Property 1, St. Clair Solar Farm, Geographic Townships of Moore, Lambton County, Ontario", August 2009, Received September 10, 2009, Licence/PIF # P064-275-2009, MCL File 38SP013

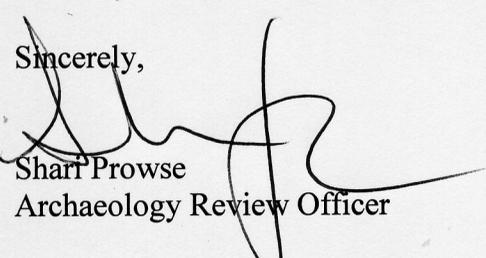
Dear Dr. Martelle,

This office has reviewed the above-mentioned report which has been submitted to this Ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. This review is to ensure that the licensed professional consultant archaeologist has met the terms and conditions of their archaeological licence, that archaeological sites have been identified and documented according to the 1993 technical guidelines set by the Ministry and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

As the result of our review, this Ministry accepts the above titled report into the Provincial register of archaeological reports. The report details the Stage 4 mitigation of Location 1 (Property 1) and, based on this work, it is recommended that this archaeological site should be considered sufficiently documented. This Ministry concurs with this recommendation and that the provincial interest for Location 1 (Property 1) has been addressed.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,


Shari Prowse
Archaeology Review Officer

cc. Archaeological Licensing Office
Ms. Kayleigh Enders, First Solar Development (Canada) Inc.

**Stage 4 Archaeological Assessment
Property 1 Location 2 – AfHo-37
St. Clair Solar Farm
Lot 26, Concession 9
Geographic Township of Moore
Lambton County, Ontario**

Submitted to

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and

The Ontario Ministry of Tourism and Culture

Prepared by



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Archaeological License Number: P064
Our File: 2009-091
CIF Number: P064-306-2009

January 2010

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TMHC would like to thank the following staff members who contributed to this project:

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Acknowledgements

TMHC would like to acknowledge the assistance of the following individuals:

Eric Hyatt

*Project Development Technologist
First Solar Development (Canada) Inc.*



Project Summary

A Stage 1 archaeological assessment was previously conducted for five Lambton County agricultural properties (numbered 1 through 5) that are the focus of a proposed new solar farm (TMHC 2008), near the community of Corunna, in Moore Township and the community of Sombra, in Sombra Township. The project will include the installation of numerous ground-mounted solar panels. The Stage 1 background review indicated the properties had potential for the discovery of archaeological resources. As such, a Stage 2 field survey was recommended for the various properties. Property 1, the focus of this report and comprising part of Lots 25 and 26, Concession 9 of Moore Township, was found to contain four artifact locations, including one scatter of precontact native lithic artifacts and three 19th to 20th century Euro-Canadian sites (TMHC 2009a). Of the latter, two sites (Locations 1 and 2) were deemed potentially significant and warranted Stage 3 testing. Location 1 formerly underwent Stage 3 testing and Stage 4 mitigation and was reported on separately (TMHC 2009a, b). Property 1 Location 2 (AfHo-37), a mid-19th century historic scatter, also underwent Stage 3 testing in 2009 (TMHC 2009c) and was subsequently recommended for Stage 4 mitigation. Based on the provincial standards, pre-1870 sites are significant, particularly on the interior lands of the St. Clair clay plain where the majority of historic sites documented are late 19th and early 20th century. In the fall of 2009, Timmins Martelle Heritage Consultants Inc. was hired to carry out a full Stage 4 excavation of Location 2 as a decision was made to not avoid the site or protect it for the long-term. Our work is being carried out for planning and environmental approvals for the project.

The Stage 4 assessment of AfHo-37 involved the hand excavation of 15 additional one-by-one metre units across the site area, followed by mechanical topsoil removal using an excavator with straight-edged ditching bucket. One subsurface cultural feature was identified and excavated during our Stage 4 mitigation of AfHo-37. A total of 1,574 artifacts were recovered from combined unit and feature excavations. The Stage 4 work confirmed our previous conclusions that the site is a typical mid-19th century domestic occupation, likely related to one of the earliest settlers in the township – Samuel Edwards.

The Ministry of Tourism and Culture is asked to review the results presented in this report, issue comment, and accept the report into the provincial register. This correspondence should be directed to Eric Hyatt of First Solar Inc. (fax: 519-344-8113) and copied to Holly Martelle of Timmins Martelle Heritage Consultants Inc. (fax: 519-641-7220).



**Stage 4 Archaeological Assessment
Property 1 Location 2 – AfHo-37
St. Clair Solar Farm
Lot 26, Concession 9
Geographic Township of Moore
Lambton County, Ontario**

1.0 INTRODUCTION

A Stage 1 archaeological assessment was previously conducted for five Lambton County agricultural properties (numbered 1 through 5) that are the focus of a proposed new solar farm (TMHC 2008), near the community of Corunna, in Moore Township and the community of Sombra, in Sombra Township. The project will include the installation of numerous ground-mounted solar panels. The Stage 1 background review indicated the properties had potential for the discovery of archaeological resources. As such, a Stage 2 field survey was recommended for the various properties. Property 1, the focus of this report and comprising part of Lots 25 and 26, Concession 9 of Moore Township, was found to contain four artifact locations, including one scatter of precontact native lithic artifacts and three 19th to 20th century Euro-Canadian sites (TMHC 2009a). Of the latter, two sites (Locations 1 and 2) were deemed potentially significant and warranted Stage 3 testing. Location 1 formerly underwent Stage 3 testing and Stage 4 mitigation and was reported on separately (TMHC 2009a, b). Property 1 Location 2 (AfHo-37), a mid-19th century historic scatter, also underwent Stage 3 testing in 2009 (TMHC 2009c) and was subsequently recommended for Stage 4 mitigation. Based on the provincial standards, pre-1870 sites are significant, particularly on the interior lands of the St. Clair clay plain where the majority of historic sites documented are late 19th and early 20th century. In the fall of 2009, Timmins Martelle Heritage Consultants Inc. was hired to carry out a full Stage 4 excavation of Location 2 as a decision was made to not avoid the site or protect it for the long-term. Our work is being carried out for planning and environmental approvals for the project.

The Stage 4 assessment of AfHo-37 took place on October 16, 19, 20, 21, 22, 28, and 29, 2009 in typical fall weather conditions that varied from clear and sunny to overcast and cool. Our work was once interrupted by rain that made screening of the clay soils difficult. It was delayed and suspended until better conditions were realized. Apart from those described in the body of this report, there were no conditions encountered that prohibited the identification and recovery of artifacts. All archaeological consulting activities were performed under the Professional Archaeological License of Dr. Holly Martelle (P064), in accordance with the *Archaeological Assessment Technical Guidelines* of the Ministry of Culture (MCTR 1993) (now Ministry of Tourism and Culture). Permission to carry out our assessment was given by Eric Hyatt of First Solar Inc. The artifacts recovered during our work will be stored at the office of Timmins Martelle

Heritage Consultants Inc. until arrangements can be made for their transfer to the Ministry of Culture (Toronto) or another appropriate curatorial facility.

2.0 PURPOSE

The *Ontario Heritage Act* makes provisions for the protection and conservation of heritage resources in the Province of Ontario. Our archaeological assessment work is part of an environmental review which is intended to identify areas of environmental interest as specified in the *Provincial Policy Statement*. Heritage concerns are recognized as a matter of provincial interest in Section 2.6.2 of the *Provincial Policy Statement* which states:

“*development and site alteration shall only be permitted on lands containing archaeological resources or areas of archaeological potential if the significant archaeological resources have been conserved by removal and documentation, or by preservation on site. Where significant archaeological resources must be preserved on site, only development and site alteration which maintain the heritage integrity of the site may be permitted.*” (emphasis in the original)

The purpose of a Stage 1 background study is to determine if there is potential for cultural resources to be found on lands for which a change in land use or construction is pending. It is used to determine the need for a Stage 2 field assessment involving the search for archaeological sites. In accordance with *Provincial Policy Statement 2.6*, if significant sites are found, a strategy (usually avoidance, preservation or excavation) must be put forth for their mitigation.

As part of the assessment process, all archaeological resources identified during Stage 2 site survey are evaluated based on provincially defined criteria. Sites that are deemed to be potentially significant based on the type, quantity and nature of artifacts produced, are recommended for a site-specific Stage 3 assessment. The purpose of the Stage 3 assessment was to collect better information about the resource so that a determination of significance can be made alongside a recommendation for or against mitigation of construction impacts. The Stage 3 assessment determined that AfHo-37 is a historically significant site and must be mitigated through either long-term protection and avoidance or complete excavation (i.e., a Stage 4 assessment is carried out).

The avoidance of AfHo-37 was not a viable option therefore, the Stage 4 assessment of Property 1 Location 2 was undertaken in order to fulfill the requirements of the Ministry of Tourism and Culture standards and precedents for pre-1870 historical sites.



3.0 PROJECT DESCRIPTION AND PREVIOUS INVESTIGATIONS

Five properties were subject to proposed solar farms within the northwestern portion of Moore Township and west-central Sombra Township, in Lambton County, Ontario. The solar farms are now only proposed on two of the five original properties: properties 1 and 3. The solar farm's construction will result in the production of additional electricity generating capacity and is in accordance with provincial commitments to increase renewable energy sources in Ontario. In keeping with our previous project documentation, these properties have been numbered 1 through 5. Properties 1 and 2 are situated south of Petrolia Line and north of Moore Line, between Saint Clair Parkway and Ladysmith Road. These fall within Concessions 8 and 9 of the Geographic Township of Moore. Properties 3, 4 and 5 are situated south of Bentpath Line and north of Ward Line, between Baseline Road and Modeland Road (Hwy. 40) in Concessions 8, 9, 10 and 11 of the Geographic Township of Sombra. All five properties are primarily in agricultural in nature.

In the summer of 2008, Timmins Martelle Heritage Consultants Inc. (TMHC) was hired by OptiSolar Farms Canada Inc. to carry out a Stage 1 archaeological assessment of the proposed project lands. This work determined that all of the properties showed potential for the discovery of archaeological resources (TMHC 2008). In the fall of 2008, TMHC was contracted by OptiSolar Farms Canada Inc. to complete the Stage 2 field survey which continued into the spring of 2009, with some small areas still outstanding. Three sites identified during Stage 2 survey were recommended for Stage 3 follow up investigations. These included Locations 1 and 2 on Property 1 (native and historic sites, respectively) and Location 2 on Property 3 (a 19th century historic homestead). The Stage 3 work on Location 1 Property 1 (Late Paleoindian native site) and Location 2 Property 3 (19th century historic homestead) was summarized in combination with the Stage 2 work in a report entitled *Stage 2 and 3 Archaeological Assessment, St. Clair Solar Farm, Geographic Townships of Moore and Sombra, Lambton County, Ontario* (TMHC 2009a).

Our investigations on Property 1, containing the potentially significant site that is the subject of this report, involved a pedestrian survey of ploughed agricultural lands and a test pit survey of a grassed area containing recently demolished farm buildings. Four artifact locations were discovered on the property. Three of these were scatters of 19th and 20th century EuroCanadian artifacts. Of the latter, two (Locations 3 and 4) were deemed sufficiently recent enough to not warrant further assessment, whereas Location 2 (AfHo-37) was recommended for Stage 3 testing given its potential mid-19th century date and relationship to the early municipal settlement period in Lambton County. The fourth site discovered was a precontact native site (Location 1) that was subsequently mitigated during a Stage 4 assessment and reported on separately (TMHC 2009b).

The Stage 3 testing of the mid-19th century Location 2 on Property 1 (AfHo-37) took place in the summer of 2009 (TMHC 2009c). It involved the mapping and collection of 190 surface artifacts and the hand excavation of 25 one-metre test units. This resulted in the recovery of 596 artifacts. A review of extant land registry records was also carried



out and indicated that the site likely related to the residence of Samuel Edwards, who held the easterly 50 acres of the east half of Lot 26 from 1838 to 1855. Given that the site appeared to represent a discrete mid-19th century domestic occupation it was deemed provincially significant. The site dates to the period of early municipal settlement in Lambton County. As such, Stage 4 mitigation of construction impacts was recommended.

In the fall of 2009, First Solar Inc. made the decision to excavate the site as it could not be avoided and protected over the long term. Timmins Martelle Heritage Consultants Inc. was hired to carry out the Stage 4 excavation and proceeded with the fieldwork in late October. The Stage 4 work on AfHo-37 is the focus of this report.

It should be noted that in April of 2009, OptiSolar Farms Canada Inc. was purchased by First Solar Development (Canada) Inc. and our 2009 fieldwork was carried out under the direction of the latter firm.

4.0 SITE OVERVIEW AND PHYSICAL SETTING

Property 1 is a 300 acre agricultural parcel occupying the majority of the northwest corner of the intersection of Rokeby Line and Modeland Road (Hwy. 40) southeast of Corunna, Ontario (Figures 1 and 2). There is a railway along the north edge of the property and a hydro-electric power line along its western boundary. The lands sit south of the Nova Chemicals plant. The property consists primarily of active agricultural land, although there is a woodlot along the north boundary and a grassed former farmstead in the southwest corner. The headwaters of Baby Creek occur 230 metres to the west of the western boundary of this property and Marsh Creek passes through agricultural and industrial lands to the north. The property comprises most of Lots 25 and 26, Concession 9 in the Geographic Township of Moore. AfHo-37 (Location 2) is situated in the southeast corner of Lot 26, immediately north of Rokeby Line, in a flat area west of the edge of an agricultural field. It is situated east of a former and recently demolished homestead on the lot. Figure 3 illustrates the general site setting.

The property falls within the St. Clair Clay Plains physiographic region, an extensive clay plain covering over 2,000 square miles east of the St. Clair River and south of the Lake Huron shoreline (Chapman and Putnam 1966:240). The plain shows very little notable relief yet minor elevation changes have a marked effect on soils and vegetation (Chapman and Putnam 1966:240). The St. Clair Clay Plain was formerly the bed of glacial lakes Whittlesey and Warren (Chapman and Putnam 1966:241) and the former shorelines of these ancient water bodies have been documented along the eastern edge of the plain, near Alvinston and Watford. The soils within Property 1 are Caistor clay, a fine textured calcareous till containing shale and with imperfect drainage (Matthews et. al. 1957).



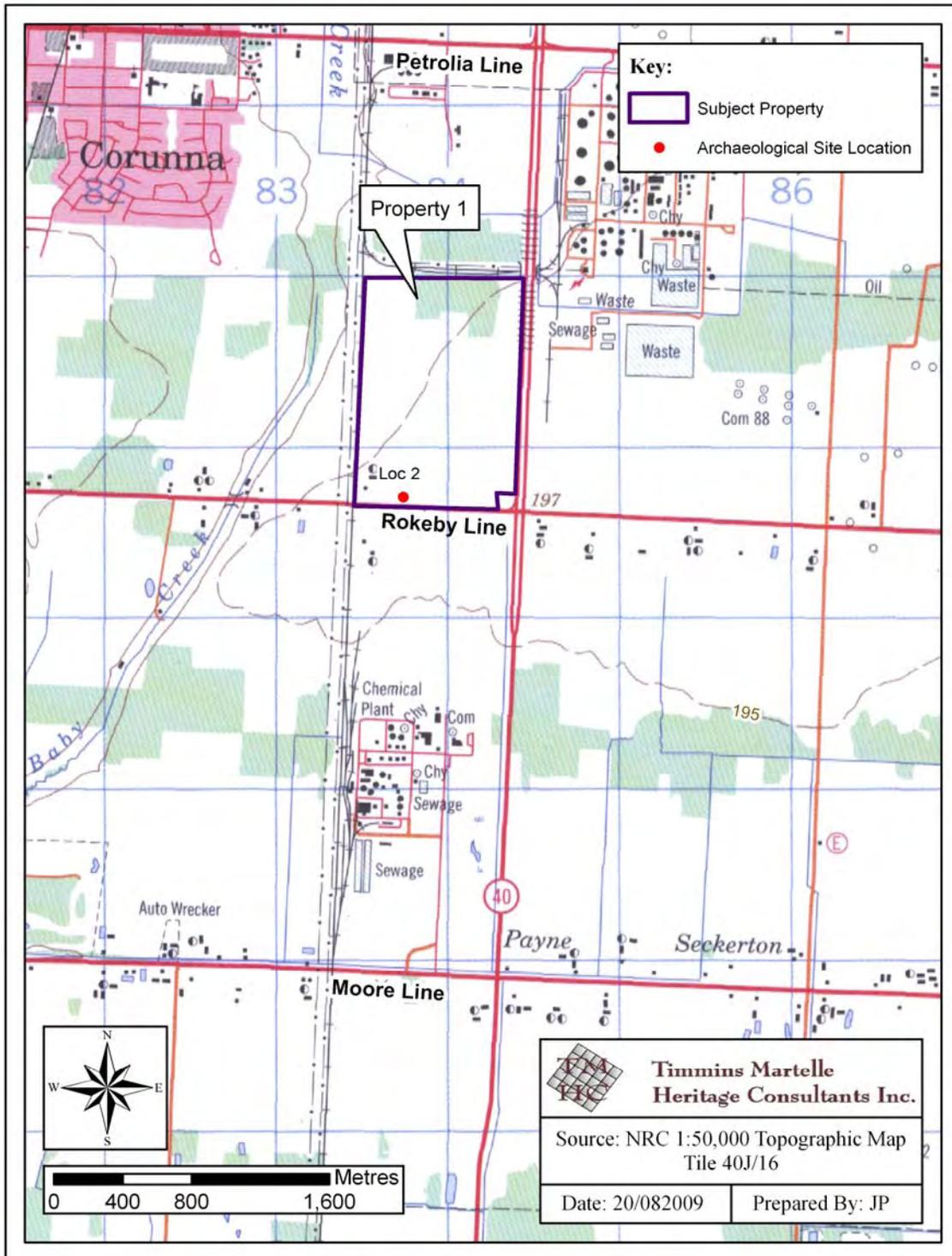


Figure 1: Location of St. Clair Solar Farm Property 1 Near Corunna, ON





Figure 2: Aerial Photograph Showing the Location of AfHo-37



5.0 STAGE 4 ASSESSMENT – PROPERTY 1 LOCATION 2 (AfHo-37)

5.1 Methods

The grid from the previous Stage 3 testing was re-established using a total station and measuring tape (Figure 3). After relocating the Stage 3 datum along the southern edge of the site, a five metre grid was laid over the site area. Each five by five metre grid block was given an alphanumeric identifier based on the north and east grid references of its southwest corner. Each major grid unit was then subdivided into 25 individual one-metre squares that were given sub-unit designations of 1 to 25 by working sequentially from west to east along each row, then moving northward.

Additional one-metre units were excavated across the site area in an effort to increase the artifact sample from the site and conduct further investigations prior to topsoil stripping. It is not uncommon for sites of this age to have been associated with very flimsy structures that leave few subsurface traces. Thus, additional unit excavation is an important element of any Stage 4 work on a site of this period. The topsoil from each one-metre unit was excavated by hand and passed through ¼” hardware cloth (Figures 4 and 5). Artifacts were bagged by one-metre provenience units and taken to the laboratory for processing. For each one-metre unit, artifacts belonging to the same class were grouped and given a single catalogue number. Unit locations, soil depth and conditions were recorded. Photographs of representative units were taken.

After the completion of hand excavation of additional one-metre units, an excavator with a smooth-edged (ditching) bucket was used to mechanically remove the topsoil from the site area (Figure 6). Any apparent stains on the subsoil surface were shovel-shined to determine if they were cultural or natural in origin. The location of features and extent of topsoil stripping was mapped using a total station. Once our investigations concluded the site area was backfilled and bulldozed.

5.2 Results

5.2.1 Unit Excavation

Fifteen one-metre test units were excavated (Figure 7), which resulted in the recovery of an additional 1,556 historic artifacts. Artifact counts for individual units ranged from a low of 30 to a high of 182. Topsoil depths ranged from a minimum of 20 cm to a maximum of 33 cm, with unit fill composed of medium brown exceptionally heavy clay topsoil, underlain by yellowish brown hard packed clay subsoil.

5.2.2 Features

One small subsurface cultural feature, designated Feature 1, was noted during topsoil stripping. It is a medium size irregularly shaped pit located in the extreme



Figure 3: Site Setting – Re-establishing Grid Using a Total Station (looking northwest)



Figure 4: Stage 4 One-Metre Unit Excavation in Progress (looking south)



Figure 5: Stage 4 One-Metre Unit (looking north)



Figure 6: Stage 4 Mechanical Topsoil Removal in Progress (looking east)



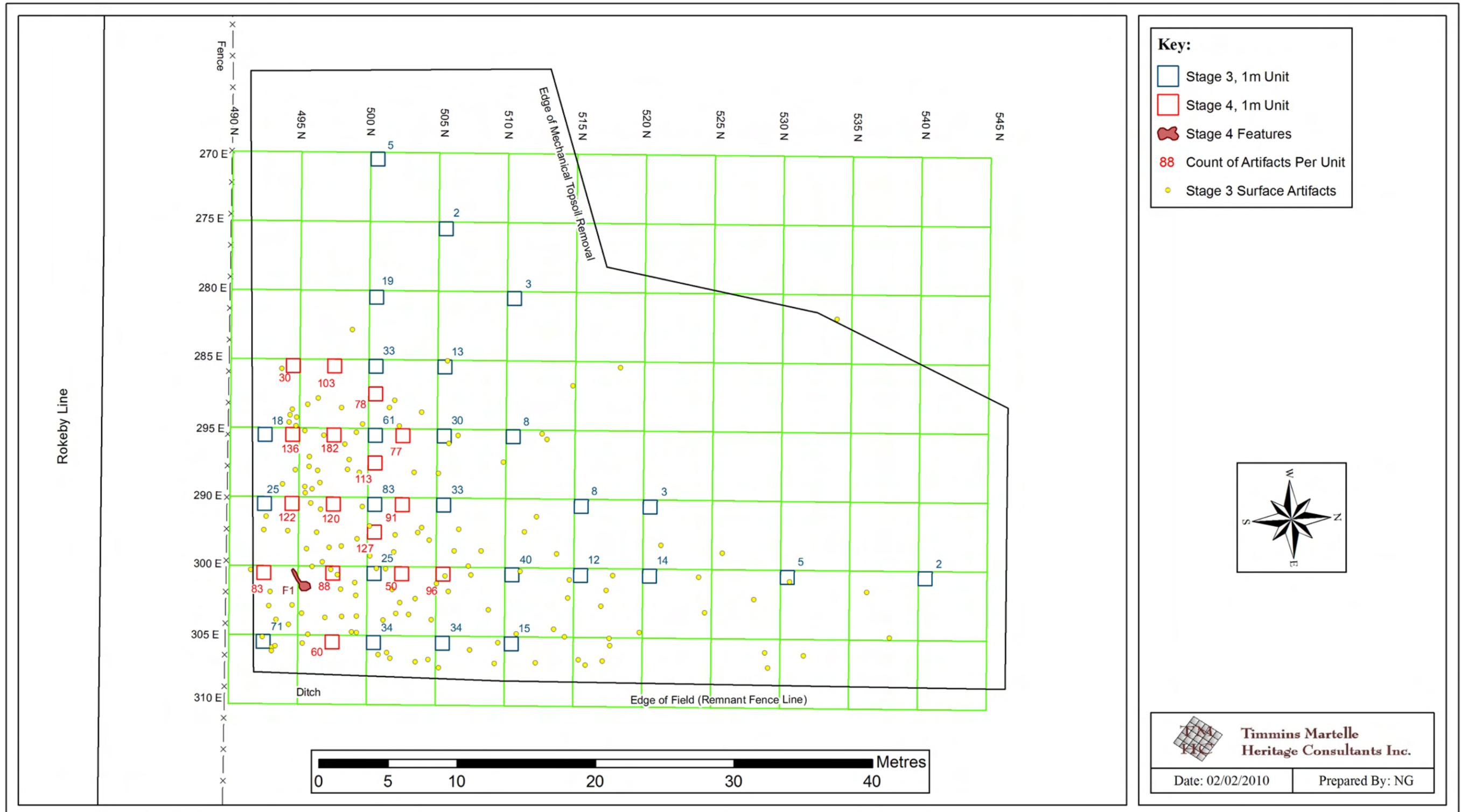
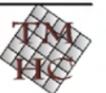


Figure 7: Stage 4 Results for AfHo-37



southeastern corner of the site. It had an irregular plan, was 195 cm long, and had a maximum width of 78 cm (Figures 8 and 9). Upon excavation it proved to have a relatively shallow, basin shaped profile and was 33 cm deep (Figure 10).

Feature 1 yielded only 11 artifacts, including four aqua tinted fragments of window glass, five nail shafts, one bone comb fragment and one undecorated piece of whiteware. This material can be attributed to the mid-19th century occupation. The feature matrix contained large number of red brick fragments. The form, feature profile and recovered cultural material suggest that it is likely a small refuse filled depression.

Figure 8: Feature 1 Top Plan and Profile

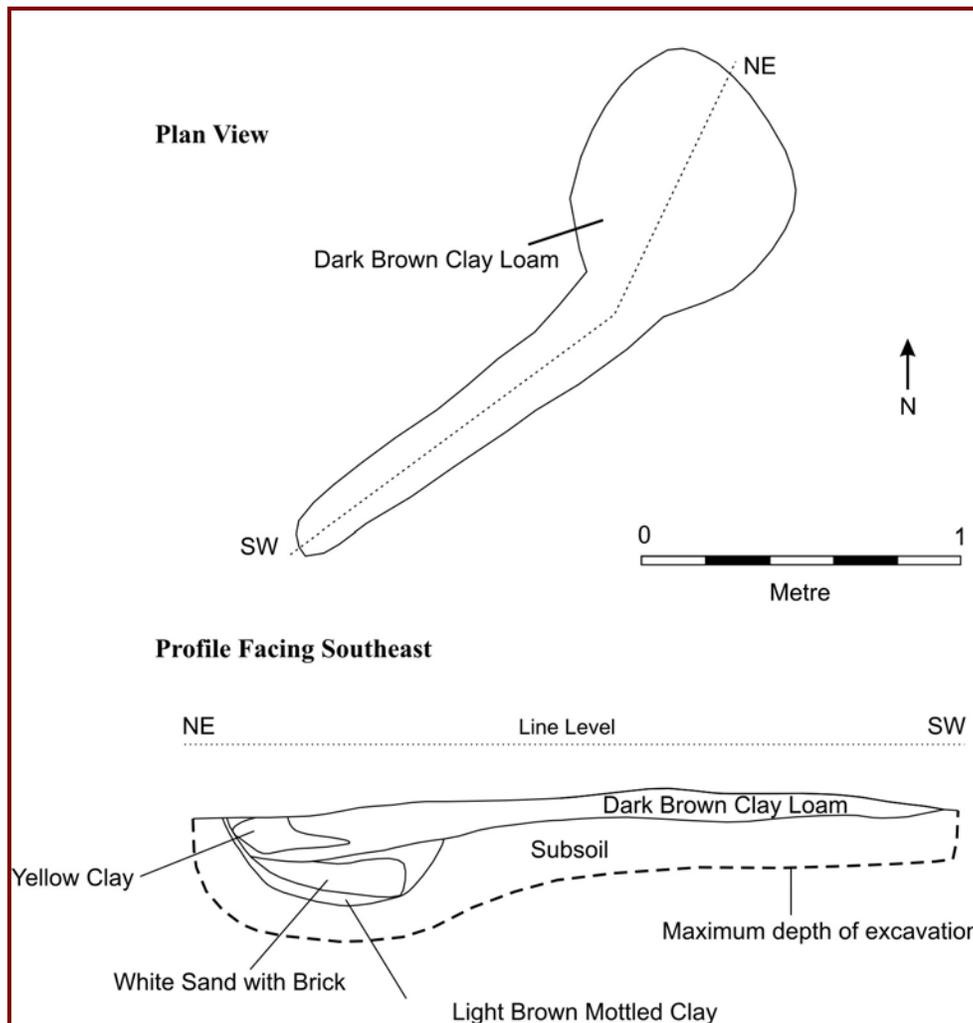


Figure 9: AfHo-37 Stage 4 Feature 1 Recording in Progress (looking southeast)



Figure 10: AfHo-37 Stage 4 Feature 1 Profile (looking southeast)



5.2.3 Artifacts

A total of 1, 574 artifacts were collected from one-metre square and feature excavations, as well as from the topsoil surface during stripping. These artifacts include structural remains (n = 517; 32.85%), ceramic tablewares (n = 763; 48.48%), kitchen-related items and animal bone (n = 205; 13.02%), personal and clothing related items (n = 30; 1.91%), barn and tack-related items (n = 4; 0.25%), precontact native artifacts (n = 4; 0.25%), and other miscellaneous items (n = 51; 3.24%). A tabular summary of these artifact classes appears in Table 1 and more detailed descriptions are provided below.

Structural Remains

Of the 517 structural remains, 337 (21.41 %) are window glass and 174 (11.05 %) are nails. Of the latter, machine cut nails account for 65 (4.13 %) items. The nail category also includes 108 (6.86 %) nail shafts (likely from machine cut specimens) and one (0.06 %) hand wrought nail. The remaining structural materials include two pieces of red brick (0.13 %), two pieces of mortar (0.13 %) and two wood screws (0.13 %). A representative sample of the structural remains recovered from AfHo-37 during our Stage 4 mitigation is illustrated in Figure 11 below.

The presence of window glass, nails, brick and mortar indicates that there was likely a structure of some kind on the site at one time. Given the lack of root cellars, foundations and massive quantities of brick, the structure was most likely a small, simple one, either a shanty or log home. This type of structure was commonly built during the early years of homesteading, until funds could be gathered to erect a more substantial dwelling, often of brick.

Structural remains can also be temporally diagnostic. For example, window glass thickness is time sensitive and can provide an approximate date or date range for the occupation. Generally, glass that is greater than 1.5 mm thick is indicative of a post-1850 manufacturing date, while thinner glass is typical of pre-1850 production (Kenyon 1980). Window glass from Location 2 ranges from 0.77 to 2.68 mm, suggesting both a pre- and post-1850 occupation.

Nail varieties can be similarly used as temporal indicators. Hand wrought nails were the only available nail type prior to 1830 (Adams et al. 1994). Although invented earlier, machine cut nails became common after 1830 and were used well into the 19th century when they were replaced by wire nails in the 1880s and 1890s. The very low incidence of hand wrought nails (n = 1) suggests an initial occupation date later than 1830. The presence of machine cut nails (n = 65) indicate that the site was occupied well into the 19th century, but the absence of wire nails suggests that the occupation did not extend beyond circa 1880.



Table 1: AfHo-37 Stage 4 Artifact Summary

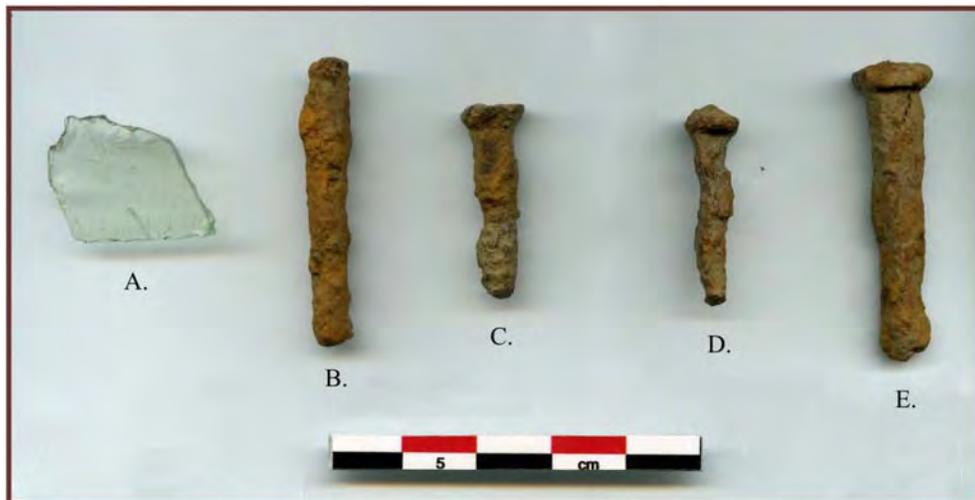
Artifact	Units		Surface/Feature		Total	
	n	%	n	%	n	%
Structural Remains						
window glass	333	21.40	4	22.22	337	21.41
nail shafts	103	6.62	5	27.78	108	6.86
nails (machine cut)	65	4.18			65	4.13
brick	2	0.13			2	0.13
mortar	2	0.13			2	0.13
screw	2	0.13			2	0.13
nails (hand wrought)	1	0.06			1	0.06
Total	508	32.65	9	50.00	517	32.85
Tablewares						
whiteware, undecorated	404	25.96	1	5.56	405	25.73
whiteware, transfer printed	228	14.65	5	27.78	233	14.80
whiteware, flow transfer printed	28	1.80	1	5.56	29	1.84
whiteware, sponged	28	1.80			28	1.78
whiteware, painted	23	1.48			23	1.46
whiteware, edged	13	0.84			13	0.83
whiteware, banded	12	0.77			12	0.76
ironstone, undecorated	8	0.51			8	0.51
whiteware, rockingham glazed	7	0.45			7	0.44
lustreware	2	0.13			2	0.13
whiteware, moulded	2	0.13			2	0.13
porcelain, moulded	1	0.06			1	0.06
Total	756	48.59	7	38.89	763	48.48
Kitchen Related Items and Faunal Remains						
faunal remains	90	5.78			90	5.72
bottle glass	57	3.66			57	3.62
yellowware, undecorated	16	1.03			16	1.02
earthenware, red	14	0.90			14	0.89
stoneware, undetermined	11	0.71			11	0.70
yellowware, rockingham glazed	5	0.32			5	0.32
stoneware, salt glazed	4	0.26			4	0.25
shell	3	0.19			3	0.19
earthenware, yellow	3	0.19			3	0.19
yellowware, banded	2	0.13			2	0.13
Total	205	13.17			205	13.02
Personal and Clothing Related Items						
white clay pipe	18	1.16			18	1.14
button	2	0.13	1	5.56	3	0.19
glass bead	3	0.19			3	0.19
red clay pipe	2	0.13			2	0.13
clay marble	2	0.13			2	0.13
comb			1	5.56	1	0.06
coin	1	0.06			1	0.06
Total	28	1.80	2	11.11	30	1.91
Barn & Tack						
horseshoe nail	2	0.13			2	0.13
wire fencing	1	0.06			1	0.06
wire	1	0.06			1	0.06
Total	4	0.26			4	0.25



Table 1: AfHo-37 Stage 4 Artifact Summary (continued)

Artifact	Units		Surface/Feature		Total	
	n	%	n	%	n	%
<i>Miscellaneous Items</i>						
glass, molten	20	1.29			20	1.27
slate pencil	9	0.58			9	0.57
metal, miscellaneous	6	0.39			6	0.38
glass, undetermined	6	0.39			6	0.38
slate pencil	3	0.19			3	0.19
coal/clinker	3	0.19			3	0.19
glass, chimney	2	0.13			2	0.13
miscellaneous hardware	2	0.13			2	0.13
Total	51	3.28			51	3.24
<i>Precontact Native Artifacts</i>						
biface	2	0.13			2	0.13
chipping detritus	2	0.13			2	0.13
Total	4	0.26			4	0.25
TOTAL	1556	100.00	18	100.00	1574	100.00

Figure 11: AfHo-37 Stage 4 Structural Remains



A. Window glass, cat. 377; B. Nail - type undetermined, cat. 332; C. Screw, cat. 576; D. Wrought Nail, cat. 609; E. Cut Nail, cat. 575

Tablewares

Ceramic tablewares comprise 763 items or 48.48 % of the Stage 4 assemblage. The ceramics include whiteware (refined white earthenware; n = 752; 98.6% of the tablewares), ironstone (n = 8; 1%), lustreware (n = 1), and porcelain (n = 1; moulded). The ceramic tablewares are largely tea sets, serving dishes and plates. A representative sample of tableware artifacts is illustrated in Figure 12 below.



Figure 12: AfHo-37 Stage 4 Recovered Tableware Artifacts



A. Undecorated Whiteware, cat. 459; B. Transfer Printed Whiteware, cat. 382; C. Transfer Printed Whiteware, cat. 623; D. Transfer Printed Whiteware, cat. 544; E. Banded Whiteware, cat. 466; F. Banded Whiteware, cat. 350; G. Rockingham Glaze Whiteware, cat. 286; H. Stamped Whiteware, cat. 501; I. Undecorated Ironstone, cat. 375; J. Flow Transfer Printed Whiteware, cat. 264; K. Flow Transfer Printed Whiteware, cat. 620; L. Flow Transfer Printed Whiteware, cat. 596; M. Edged Whiteware, cat. 274; N. Edged Whiteware, cat. 417; O. Lustreware, cat. 461; P. Moulded Whiteware, cat. 291; Q. Painted Whiteware, cat. 415; R. Sponged Whiteware, cat. 440; S. Moulded Porcelain, cat. 595

Of the whiteware items, 405 are undecorated and 347 are decorated. In descending order of occurrence, the decorative types include transfer printed (n = 233), flow transfer printed (n = 29), sponged (n = 28), hand painted (n = 23), edged (n = 13), banded or slipped (n = 12), rockingham glazed (n = 7), and moulded (n = 2).



Transfer printing on earthenware began in 1780 and subsequently took the English potteries by storm. The development of the technique was precipitated by a number of events, including the invention of the Fourdrinier paper-making machine which allowed the manufacture of a thin, but durable tissue paper that could be used to transfer an inked design from an engraved copper plate to the surface of ceramic (Coysch 1974:7). Prior to the late 1820s, all transfer printing was done in blue or black; blue was one of the only ink colours that would hold up in the glost kiln. By 1830s, the use of brilliant cobalt blue in transfer printing became old hat and printing in other colours (black, green, pink, grey, brown) became fashionable following the development of improved firing methods. The AfHo-37 transfer printed sherds occur in light blue (n = 225), and black (n = 8), and contain floral, geometric and/or scenic patterns that are typical of the mid-19th century. Many of the blue printed sherds incorporate oriental-inspired designs. Chinoiserie or “pseudo-Chinese” patterns gained popularity in the last decades of the 18th century when Chinese porcelain was readily exported into Britain. British potteries attempted to mimic the oriental designs in both transfer printed and hand painted wares. Chinoiserie patterns were popular in transfer printing in the 19th century. One of the most popular patterns was known as “Blue Willow.”

Flow transfer printing was created when the ink from the printed design was allowed to “spread” or fuse into the glaze, producing a blurred effect (Lockett 1972:54). This “flow” was accomplished through the addition of lime or ammonia chloride to the kiln, which caused a chemical reaction with the ink and caused it to blur (Lenzner 2002). Some say the technique found its origins in a manufacturing “accident” while others claim that intentioned experiments led to the development of the technique. The earliest flow printed ceramics date to the 1830s and 1840s, with the technique’s popularity gaining after 1840. By the mid-19th century, flow printed vessels were “all the rage.” The technique lost the interest of consumers after 1879 but saw a resurgence between 1885 and 1920. After 1850, flow prints occur more commonly on ironstone, a more vitrified white bodied ceramic. The flow transfer printed pieces from AfHo-37 are largely blue although there is one example of flown mulberry print on whiteware. Mulberry printing was popular between 1830 and 1850 (Jouppien 1980:27).

Sponged tablewares were not available for popular consumption until the 1840s, after which time they become one of the cheapest forms of tableware available, in contrast to printed wares which were very expensive. In sponging, paint was applied directly to the bisque surface through the use of a cut sponge. Spongedwares typically have no pattern to their design (except where distinct bands or panels of a certain colour are applied) and usually the entire surface of the piece was covered. Typical ink colours included light blue, dark blue, purple, green and pink. Given the increased demand for cheap spongedware after its inception, manufacturers began to devote less time to their decoration and the patterns tend to become more sloppy and “open” (i.e., having less surface coverage) in their texture. Thus, early sponged wares can often be identified by the “tightness” of the sponging, whereas later wares are more coarse. Within the AfHo-37



collection, sponging occurs in blue only, with most examples containing tight sponging rather than the coarse, typical of the mid- rather than late-19th century.

Hand painted designs were popular beginning the late 18th century and carried through into the 20th century. The late 18th century pieces are primarily on pearlware, with many incorporating oriental inspired designs. Originally, all hand painting was done in blue; only this colour could withstand and maintain its colours against the high heat of the glost kiln. Potters eventually came to control other metallic-based colours for underglaze use around the 1820s but the colour palette was still very limited. Early on, tin, lead and antimony were used to produce yellow; cobalt for blue; and lead and copper for greens. The earliest used colours – brown, green, orange, yellow, purple and sometimes black – are referred to as the “Early Palette” colours and signal a manufacturing date prior to 1830. Late Palette colours are more common after this time and include dark black, red or pink and brilliant green, among others. Late Palette hand painted pieces typically occur on whiteware, except in the late 19th century when they also occur on more vitrified white earthenware (i.e., ironstone). The hand painted pieces from AfHo-37 all occur on whiteware and are painted in Late Palette colours. They have red, black, blue and green rim lines, with red, black, blue and green floral patterns.

Thirteen tableware pieces in this collection have edged decoration, sometimes also referred to as “shell” or “feather” edged. The technique was an attempt to imitate the edges of common marine shells. After its inception as a tableware decorative type in the late 1700s, edgeware becomes one of the most common types of ceramic tableware. Early edged pieces were coloured in both green and blue, with the popularity of green waning by 1830. Other colours (i.e., black, mulberry, red, yellow and brown) occur but rarely. The characteristics of both the molded edge and the painting technique on edgeware change through time. Painting varies from finely and individually painted feathered lines to the application of a broad, simple band around the edge of the rim. Molded designs also vary in terms of the degree of relief (shallow to well defined moulding) and the motifs used (e.g., floral, leaf, scroll, geometric designs). As a general (but not perfect) rule, the quality of edgeware declines through time. Generally, scalloped or shell-edged rims are predominant in the early 19th century whereas straight or plain rims are increasingly popular after 1830. Fine feather painting wanes after 1805, coincident with an extremely high demand for the ware (Noel Hume 1969:131). The more complex moulded designs are typical abandoned by the early decades of the 1800s. The AfHo-37 pieces with edged decoration have various degrees of moulding, but are typical of the mid-19th century. There are no examples of fancy moulded designs but, at the same time, no examples of late expedient edging either.

Banded or industrial slipped wares are late 18th century to 20th century table and utilitarian wares incorporating a variety of brilliant colours. Late 18th and early 19th century banded pieces often incorporate a rouletted band around the rim that is covered in a brilliant green glaze. Some have lathe cut or engine turned motifs. In general banded wares have a central coloured panel (blue, green, grey, brown, orange) that forms the



boundary for a more specific pattern created in typically brighter glaze colours. These patterns can include cat's eye, worm, or agate motifs, as well as seaweed designs. The central panel may be bordered by concentric rings or bands of one or more colours and thicknesses of slip. The banded pieces in this collection are very small and so their overall decoration is impossible to interpret. Nonetheless, they include blue, olive and beige paneled pieces with baby blue and brown bands. These colours are typical of the mid-19th century.

Seven tableware sherds are whiteware with a rockingham glaze. The latter is a butterscotch coloured glaze consisting of a mixture of flint, feldspar, red lead or iron oxides and clay (Brewer 1996). To create a rockingham glazed piece, a bisque was either dipped into a vat full of the glaze or the glaze was spattered or brushed onto it, in either case often producing a mottled or "dripped" effect. Rockingham pieces were first manufactured in England in 1785 and actively produced by American potters by 1820. However, rockingham did not reach its peak in popularity until 1840-1850, the time when it typically first appears on domestic sites in Ontario. Seven rockingham glazed sherds were collected during our work, all of which are likely from one vessel.

The remaining tableware pieces include one moulded porcelain fragment, eight ironstone sherds (undecorated) and two pieces of lustreware. Ironstone is a dense white earthenware with a hardness and colour resembling Chinese porcelain. The ware was an improvement on earlier, more fragile refined white earthenwares and become popular because of its durability. Although ironstone recipes were developed in the early part of the 19th century, the ware did not become popular until after 1840. By 1870 it dominated the tableware market. Sites with a predominance of ironstone date to post-1870. Lustreware gets its name from its metallic appearance and was commercially produced in Britain beginning in 1805 (Miller 2001). It is a particularly rare ceramic type but typically appears in the form of creamers, cups and pitchers.

In sum, the tableware assemblage from AfHo-37 is very typical of a mid-19th century occupation. The absence of pearlware and creamware and early 19th century decorative traditions (i.e., rouletted/green washed banded ware, fancy moulded edgedware, Early Palette painted ware) indicates that the site was not likely occupied until after 1830. The low quantity of ironstone, a tableware that dominated the market by the last quarter of the 19th century, indicates that the occupation likely did not extend beyond 1870. The prevalence of whiteware is consistent with an 1840-1870 span of occupation. The decorative traditions associated with the whiteware sherds (sponging, Late Palette painting, etc.) are also very characteristic of the 1840-1860 temporal span.

Kitchen-Related Items and Animal Bone

Kitchen-related items and animal bone account for 13.02 % (n = 205) of the artifacts collected during Stage 4 excavations. A total of 55 are utilitarian ceramics and crockery (yellowware bowls, coarse red and yellow earthenware vessels, salt glazed stoneware crocks) are present, in addition to 57 bottle and container glass fragments (24



aqua; 18 olive; 11 colourless; 2 amber; and 2 amethyst), 90 faunal remains (n = 90), and 3 pieces of shell. Some of the yelloware sherds are banded or rockingham glazed. The bottle glass assemblage includes primarily beverage bottles and possibly tonic bottles as well. The pieces are very fragmentary. The faunal remains are primarily mammal, with several burnt and calcined pieces present. Figure 13 provides a sample of pieces in this category.

Figure 13: AfHo-37 Stage 4 Recovered Kitchen Related Artifacts



A. Bottle Glass, cat. 612; B. Undecorated Yellowware, cat. 346; C. Red Earthenware, cat. 614; D. Stoneware, cat. 457; E. Rockingham Glaze Yellowware, cat. 270; F. Salt Glazed Stoneware, cat. 392; G. Yellow Earthenware, cat. 474; H. Banded Yellowware, cat. 366

Personal and Clothing Related Items (Figure 14)

A total of 30 items have been placed in a personal items category and represent only 1.91 % of the entire assemblage. These items include 20 clay pipe fragments, three buttons, three glass beads, two clay marbles, one comb fragment and one coin. The pipe assemblage includes 18 white clay specimens and two of red clay. Of the white clay pieces, 11 are bowl fragments (three decorated; 8 plain) and 7 are stem pieces (one glazed mouth piece). The decorated bowl fragments include one human effigy, one with a floral pattern and one with a confirmed thistle motif (Kenyon 1983a). The red clay pipe bowl



fragments include an undecorated bowl and one short stem with a flared lip/mouthpiece. The pipe fragments are all small and contain few diagnostic features.

One small fragment of a double-edged fine tooth bone lice comb was recovered from Feature 1. Bone and ivory combs are the most common type found on early and mid-19th century Euro-Canadian sites (Kenyon 1983b). The three buttons in the collection include one metal one-piece button (plain), one small white glass/agate button and one green agate button. The two latter are likely from fine pieces of ladies' or childrens' clothing. The glass beads include one longer, smooth cylindrical bead, one round bead and one smaller cylindrical faceted bead, all in black glass. The clay marbles include two complete or nearly complete marbles and one fragment. The coin (Figure 15) is an 1875 one-cent piece known as an "Indian Head Penny." The obverse of the coin contains a representation of Liberty wearing a feather headdress. The reverse contains the words "ONE CENT" inside a laurel wreath (Bressett 2007:110-113). These coins were often forged and the smooth edges of this piece may indicate it is a reproduction. The 1875 date is suspicious for this site which produced no post 1870 (or even post 1860 material). However, the coin was found in unit excavations and may be an incidental inclusion.

Miscellaneous Artifacts

A total of 51 artifacts have been placed in a miscellaneous category. These include eight (0.51%) miscellaneous and unidentifiable metal scraps and hardware items, 26 (1.65 %) unclassifiable and molten glass fragments, two (0.13%) colourless fragments of chimney glass, three (0.19%) slate fragments, three (0.19%) coal/clinker fragments, and nine (0.57%) pieces of slate pencil. The miscellaneous metal consists mainly of unidentifiable ferrous scraps and some potential tool fragments, although identification is made difficult by the extensively corroded and fragmented state of the material. The slate fragments are flat but small and could be either roofing slate or writing slate, with the latter classification seeming more likely.

Barn & Tack

Barn and tack items account for 0.25 % (n = 4) of the artifacts collected during Stage 4 investigations. These include two horseshoe nails, one piece of wire fencing (barb wire) and one piece of wire.

Precontact Native Artifacts

Two pieces chipping detritus, one complete biface, and one biface fragment were recovered during Stage 4 one-meter square excavations. Both flakes are of Kettle Point chert. The complete biface is an ovate blank made of Onondaga chert and measures 40.7 mm in length, 31.2 mm in width, and 8.9 mm in thickness. The second biface is a small (basal ?) fragment of light grey Onondaga chert measuring 20.3 mm long, 8.6 mm wide,



Figure 14: AfHo-37 Stage 4 Recovered Personal and Clothing Related Artifacts



A. Red Clay Pipe, cat. 406; B. Button, cat. 617; C. Button, cat. 517; D. Button, cat. 389; E. Bead, cat. 445; F. Bead, cat. 558; G. Bead, cat. 393; H. Comb, cat. 300; I. White Clay Pipe, cat. 534; J. White Clay Pipe, cat. 262; K. White Clay Pipe, cat. 421; L. Clay Marble, cat. 518

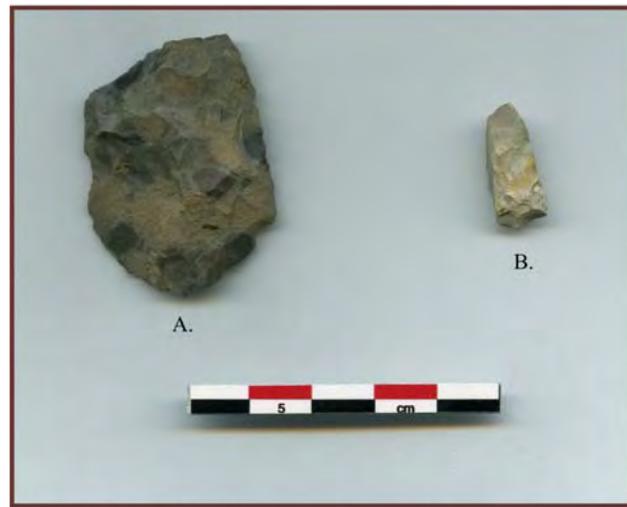
Figure 15: AfHo-37 Stage 4 Recovered Coin



A. Coin, cat. 604



Figure 16: AfHo-37 Precontact Native Artifacts



A. Biface, cat. 334; B. Biface fragment, cat. 616

and 3.8 mm thick. None of the precontact artifacts are diagnostic, so their age and cultural affiliation remains unknown.

5.2.4 Historical Review

The previous Stage 3 report presented some preliminary information regarding the potential identity of the site's occupant(s). Some of the previously summarized historical information is presented here, although with some new details regarding the property and its likely owner during the circa late 1830s through 1860 period.

AfHo-37 falls within the southeast corner of the east half of Lot 26, Concession 9, Moore Township. The original patent for east half of Lot 26, Concession 9 was granted in 1836 to Thomas Parsons. The parcel was purchased by William McCrae in August 1836 who was awarded the patent for the west half of the lot. Neither of these individuals appear in any of the earlier township records and were likely absentee landowners who received free land grants from the Crown. They may have also been ex-military men, possibly officers, as many Crown patents were awarded to retired army and navy commanders. Many of these individuals never settled on their land grants and later sold their properties for profit once land became desirable.

The lands were later bought by and sold to a number of subsequent owners until Samuel Edwards obtains the property in October of 1838. Samuel Edwards is among a list of the earliest Moore Township settlers (Lauriston 1949:39). He served as a private in the local militia, a group of all able bodied men between the ages of 16 and 60 who were summoned for service during the Rebellion of 1837-1838. His name appears on the pay



list of the First Company of Moore Volunteers noting his service between December 25, 1837 and January 6, 1838 (LCBOGS 2000:1). The company was commanded by Lieutenant Thomas Fisher and was stationed at the River St. Clair during this time. Edwards was a private and received the standard pay rate for his class, namely one pound, 15 shillings and two pence. He is also known to have served in the Third Company Moore Militia, commanded by William Graham and stationed on the St. Clair River (LCBOGS 2000:8). Edwards served as a private between June 26 and July 6 of 1838, for which he earned a pay of one pound, 12 shillings and 10 pence. Edwards' appearance in the militia pay lists is not surprising, as most earlier residents of the township were required to offer service.

In 1848 Samuel Edwards sells half of his landholdings (the westernmost 50 acres of the east part of the lot) to one Mark Edwards, presumably a relative. No additional information could be found about Mark. Samuel's son James has a son named Mark, who was one year of age in 1861. Perhaps Samuel's grandson was named after the Mark to whom he sold his land. In 1855, Samuel sells his remaining 50 acres (the east 50 of the east half of Lot 26) to Francis Creighton and assumes a mortgage on the property. In 1861, Creighton sells the property to James Fleihoft (?) who retains it for four years and then sells in 1865 to Abraim D. Cuvney, at which time a mortgage is registered on the parcel. Cuvney's landholdings are deeded to William Turnbull in 1868. Turnbull remains on the property for some time as it is his name that appears on the 1880 historic atlas. William Turnbull was the first of his family to come to Canada, as a native of Galashiels, Scotland. With his wife Agnes (Huggins), he ventured to Canada settling first in Toronto and later moving to Moore Township where he was one of its first settlers. Turnbull was an ardent Reformer and had once been a member of Scotland's Congregational Church. He had 10 children and owned several properties in the township (J. H. Beers & Co. 1906:255-256). The 1860 assessment rolls for Moore Township list Turnbull as a yeoman (farmer). He, too, served in the local militia. Between December 2 of 1837 and January 6 of 1838 he served in the Second Company of Moore Volunteers commanded by Lieutenant Alexander Sinclair (LCBOGS 200:2). Between June 23 and July 6 of 1838 he served as a private in the Third Company Moore Militia, alongside Samuel Edwards.

Based on the land registry information, it seems likely that AfHo-37 relates to the occupation of the property by Samuel Edwards, or at least a member of his family. Edwards held the easterly 50 acres of the east half of Lot 26 from 1838 to 1855. This date range is consistent with the artifacts from the site. It seems likely that Edwards erected a structure in the southeast corner of his original property (east 100 acres of Lot 26) then divided his landholdings to retain the easterly 50 acres containing his house, selling the rest to Mark Edwards. When Samuel Edwards eventually sells his property in 1855 it is possible that his house continued to be used until William Turnbull took possession of the parcel and demolished the building, erecting a more substantial brick structure. Turnbull's new residence is likely that shown on the 1880 historic map. Since our site did not produce post-1870 material, Turnbull's 1880 house on the historic atlas map cannot be Edwards' earlier structure.



A few more details about Samuel Edwards were learned. First, the 1860 Moore Township assessment rolls list Edwards' occupation as a mason and it indicates that he owned two lots in the Corunna town plot. From this it seems likely that he relocated to Corunna after selling the last of his farm in 1855. The 1861 census indicates that Samuel was 71 years old by this time. He is listed as a "plasterer" and member of the Church of England. It appears that he must have immigrated from England originally. In 1861 Samuel's family is listed as Susan (wife; 67 years old) and son James Edwards (35, also from England). One David Edward is also listed as having a separate family and landholdings. He is three years younger than James and may have been his brother. David and his wife Celina (25 years old in 1861) have several children, including a son, Mark, who was one year old at that time.

Samuel Edwards is one of many militia privates who settled in the interior of Moore Township during its early settlement years. As noted by Lauriston (1949:39) the river front and the interior township lands were separated by swamp but essentially settled by two very different classes of people. Retired military officers settled along the riverfront, often on free land grants issued by the Crown. The riverside population also included more well-off individuals, including businessmen, physicians and master mechanics. In contrast, the interior lands were settled by militia privates, labourers, farmers, shepherds, sailors, fisherman and artisans, most of whom had the hard toll of clearing the inhospitable and almost uninhabitable lands.

In sum, AfHo-37 represents the vestiges of one of the earliest farmstead sites in Moore Township and provides a very rare glimpse into early municipal settlement. From the collected assemblage, it seems that a rather flimsy shanty or log cabin occupied the site until the property was sold and abandoned by Edwards in 1855. Alternatively, it would have been occupied for a short period of time by William Turnbull after he purchased the property but it was definitely torn down and replaced by a more substantial structure shortly thereafter.

6.0 SUMMARY AND RECOMMENDATIONS

A Stage 4 archaeological assessment was carried out for a EuroCanadian historic era domestic site (Location 2 – AfHo-37) on Property 1 of the proposed St. Clair Solar Farm. Our hand excavation of fifteen one-metre test units and one subsurface cultural feature resulted in the recovery of 1,574 pieces of predominantly mid-19th century material, dating to circa 1838 to 1855. A review of the land registry records for the east half of Lot 26, Concession 9 of Moore Township, containing the subject site, indicates that the archaeological material may relate to a residence erected on the property by Samuel Edwards who owned the parcel during this period. Edwards was one of the earliest settlers in Moore Township and an active member of the local militia during the Canadian Rebellion of 1837 – 1838.



The AfHo-37 is now completely mitigated and there are no outstanding archaeological concerns for the subject property.

This report is submitted to the Minister of Tourism and Culture 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 the licensed consultant archaeologist has met the terms and conditions of their archaeological license, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

Should previously undocumented (i.e., unknown or deeply buried) 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 requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries, Ministry of Small Business and Consumer Services. The Registrar of Cemeteries, Cemeteries Regulation Unit can be reached at (416)326-8404 or (416)326-8393.

The Ministry of Tourism and Culture is asked to review the results presented in this report, issue comment, and accept the report into the provincial register. This correspondence should be directed to Eric Hyatt of First Solar Inc. (fax: 519-344-8113) and copied to Holly Martelle of Timmins Martelle Heritage Consultants Inc. (fax: 519-641-7220).



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2009c *Stage 3 Archaeological Assessment, Location 2 Property 1 – AfHo-37, St. Clair Solar Farm, Lot 26, Concession 9, Geographic Twp. of Moore, Lambton County, Ontario*. Report on file with the Ministry of Culture, Toronto.



**Appendix A:
Stage 4 Artifact Catalogue, AfHo-37**

Cat.	Context	Depth	Artifact	n	Comments
249	495N295E:11	0-26cm	clay marble	1	
250	495N295E:11	0-26cm	glass, bottle	3	olive, 2 burnt
251	495N295E:11	0-26cm	glass, molten	3	1 olive; 1 aqua; 1 colourless
252	495N295E:11	0-26cm	slate pencil	1	
253	495N295E:11	0-26cm	nails, undetermined	4	
254	495N295E:11	0-26cm	nails, cut	3	
255	495N295E:11	0-26cm	faunal remains	6	2 burnt; 2 calcined; mammal
256	Feature 1	0-33cm	glass, window	4	aqua tint; 0.9mm to 1.0mm to 1.1mm
257	495N295E:11	0-26cm	yellowware, undecorated	2	bowl base
258	495N295E:11	0-26cm	whiteware, painted	3	green
259	495N295E:11	0-26cm	whiteware, painted	1	red rim line; blue
260	Feature 1	0-33cm	nails, undetermined	5	
261	495N295E:11	0-26cm	white clay pipe	1	stem/shank fragment
262	495N295E:11	0-26cm	white clay pipe	1	bowl fragment; moulded thistle motif
263	495N295E:11	0-26cm	whiteware, banded	1	blue panel
264	495N295E:11	0-26cm	whiteware, flow transfer printed	1	mulberry; burnt
265	495N295E:11	0-26cm	glass, chimney	1	amethyst tint
266	495N295E:11	0-26cm	glass, bottle	3	aqua
267	495N295E:11	0-26cm	whiteware, rockingham glaze	1	
268	495N295E:11	0-26cm	whiteware, transfer printed	3	blue; 1 burnt; 2 mend
269	495N295E:11	0-26cm	white clay pipe	1	bowl fragment
270	495N295E:11	0-26cm	yellowware, rockingham glaze	2	sponged
271	495N295E:11	0-26cm	whiteware, sponged	2	blue; tight
272	495N295E:11	0-26cm	glass, window	24	aqua tint; 1.2mm to 1.6mm to 1.8mm
273	495N295E:11	0-26cm	whiteware, flow transfer printed	3	blue
274	495N295E:11	0-26cm	whiteware, edged	1	blue; moulded; straight edged
275	495N295E:11	0-26cm	whiteware, painted	1	green line
276	495N295E:11	0-26cm	whiteware, transfer printed	10	blue; 2 burnt
277	495N295E:11	0-26cm	whiteware, transfer printed	2	blue; Chinoiserie
278	495N295E:11	0-26cm	red clay pipe	1	bowl fragment
279	495N295E:11	0-26cm	whiteware, undecorated	27	2 burnt
280	495N295E:11	0-26cm	whiteware, banded	1	olive
281	495N295E:11	0-26cm	whiteware, undecorated	6	1 burnt
282	500N290E:3	0-27cm	whiteware, sponged	4	blue; 3 tight; 1 coarse; 1 burnt
283	500N290E:3	0-27cm	yellowware, undecorated	1	cream glaze?
284	500N290E:3	0-27cm	nails, undetermined	9	
285	500N290E:3	0-27cm	whiteware, transfer printed	8	blue; 3 burnt
286	500N290E:3	0-27cm	whiteware, rockingham glaze	1	
287	500N290E:3	0-27cm	whiteware, undecorated	21	
288	500N290E:3	0-27cm	whiteware, transfer printed	1	blue; moulded
289	500N290E:3	0-27cm	whiteware, transfer printed	7	blue
290	500N290E:3	0-27cm	whiteware, transfer printed	2	blue; Chinoiserie
291	500N290E:3	0-27cm	whiteware, moulded	1	
292	500N290E:3	0-27cm	white clay pipe	2	bowl fragments
293	500N290E:3	0-27cm	yellowware, undecorated	1	
294	500N290E:3	0-27cm	glass, window	22	aqua tint; 1.1mm to 1.5mm to 1.9mm



295	500N290E:3	0-27cm	glass, bottle	2	aqua
296	500N290E:3	0-27cm	glass, bottle	3	colourless
297	500N290E:3	0-27cm	whiteware, painted	1	green; burnt
298	500N290E:3	0-27cm	glass, undetermined	1	aqua
299	500N290E:3	0-27cm	glass, molten	4	1 colourless; 1 olive; 2 aqua
300	Feature 1	0-33cm	comb	1	bone
301	Feature 1	0-33cm	whiteware, undecorated	1	
302	500N290E:3	0-27cm	yelloware, rockingham glaze	1	sponged
303	500N290E:3	0-27cm	stoneware	1	burnt
304	500N290E:3	0-27cm	glass, bottle	1	amber
305	500N290E:3	0-27cm	faunal remains	7	1 burnt; 2 calcined; mammal
306	discard - modern				
307	500N290E:3	0-27cm	chipping detritus	1	Kettle Point
308	500N290E:3	0-27cm	whiteware, undecorated	6	
309	500N290E:3	0-27cm	nails, cut	5	
310	500N295E:3	0-22cm	whiteware, undecorated	12	
311	500N295E:3	0-22cm	yelloware, undecorated	1	
312	500N295E:3	0-22cm	whiteware, transfer printed	2	blue; Chinoiserie
313	500N295E:3	0-22cm	whiteware, transfer printed	6	blue; 1 burnt
314	500N295E:3	0-22cm	faunal remains	16	3 teeth fragments; 6 calcined; mammal
315	500N295E:3	0-22cm	nails, cut	8	
316	500N295E:3	0-22cm	whiteware, undecorated	19	1 burnt
317	500N295E:3	0-22cm	glass, molten	3	2 aqua; 1 colourless
318	500N295E:3	0-22cm	whiteware, painted	1	green
319	500N295E:3	0-22cm	whiteware, sponged	1	blue; tight
320	500N295E:3	0-22cm	whiteware, transfer printed	1	blue; peacock motif
321	500N295E:3	0-22cm	glass, window	28	aqua tint; 1.0mm to 1.8mm to 2.4mm
322	500N295E:3	0-22cm	white clay pipe	1	bowl fragment
323	500N295E:3	0-22cm	whiteware, transfer printed	1	black
324	500N295E:3	0-22cm	whiteware, transfer printed	1	blue
325	500N295E:3	0-22cm	earthenware, red	1	burnt
326	500N295E:3	0-22cm	mortar	1	
327	500N295E:3	0-22cm	brick	2	red
328	500N295E:3	0-22cm	glass, bottle	2	colourless
329	500N295E:3	0-22cm	glass, bottle	1	olive
330	500N295E:3	0-22cm	whiteware, edged	1	blue; straight edged
331	500N295E:3	0-22cm	metal, miscellaneous	3	
332	500N295E:3	0-22cm	nails, undetermined	13	
333	500N295E:3	0-22cm	metal, wire	1	
334	500N295E:3	0-22cm	biface	1	Onondaga; ovate; basal section, tip missing
335	495N305E:11	0-22cm	whiteware, flow transfer printed	1	blue
336	495N305E:11	0-22cm	yelloware, undecorated	1	
337	495N305E:11	0-22cm	whiteware, undecorated	11	1 burnt
338	495N305E:11	0-22cm	glass, window	23	aqua tint; 1.2mm to 1.6mm to 1.9mm
339	495N305E:11	0-22cm	glass, bottle	2	colourless
340	495N305E:11	0-22cm	whiteware, sponged	1	blue; tight
341	495N305E:11	0-22cm	whiteware, undecorated	2	
342	495N305E:11	0-22cm	glass, bottle	2	aqua
343	495N305E:11	0-22cm	faunal remains	1	mammal
344	495N305E:11	0-22cm	whiteware, transfer printed	4	blue
345	495N305E:11	0-22cm	stoneware	1	grey glaze
346	495N305E:11	0-22cm	yelloware, undecorated	2	



347	495N305E:11	0-22cm	glass, molten	1	aqua
348	495N305E:11	0-22cm	slate pencil	2	1 burnt
349	495N305E:11	0-22cm	slate pencil	1	
350	495N305E:11	0-22cm	whiteware, banded	1	baby blue bands
351	495N305E:11	0-22cm	whiteware, banded	1	olive panel
352	495N305E:11	0-22cm	nails, cut	3	
353	495N300E:11	0-19cm	whiteware, flow transfer printed	2	blue
354	495N300E:11	0-19cm	whiteware, undecorated	19	1 burnt
355	495N300E:11	0-19cm	faunal remains	5	1 calcined; mammal
356	495N300E:11	0-19cm	nails, cut	5	
357	495N300E:11	0-19cm	nails, undetermined	10	
358	495N300E:11	0-19cm	nails, horseshoe	1	
359	495N300E:11	0-19cm	metal, miscellaneous	1	
360	495N300E:11	0-19cm	whiteware, transfer printed	3	blue
361	495N300E:11	0-19cm	glass, bottle	2	aqua
362	495N300E:11	0-19cm	shell	1	
363	495N300E:11	0-19cm	white clay pipe	2	stem fragments
364	495N300E:11	0-19cm	ironstone, undecorated	2	
365	495N300E:11	0-19cm	whiteware, edged	1	blue
366	495N300E:11	0-19cm	yellowware, banded	1	white band
367	495N300E:11	0-19cm	yellowware, undecorated	1	
368	495N300E:11	0-19cm	whiteware, rockingham glaze	1	
369	495N300E:11	0-19cm	slate pencil	1	
370	495N300E:11	0-19cm	glass, window	29	aqua tint; 0.8mm to 1.3mm to 2.5mm
371	495N300E:11	0-19cm	glass, undetermined	1	purple and white opaque twist; stirring rod?
372	500N295E:11	0-31cm	whiteware, transfer printed	5	blue
373	500N295E:11	0-31cm	nails, undetermined	12	
374	500N295E:11	0-31cm	nails, cut	1	
375	500N295E:11	0-31cm	ironstone, undecorated	1	
376	500N295E:11	0-31cm	whiteware, undecorated	20	6 burnt
377	500N295E:11	0-31cm	glass, window	23	aqua tint; 1.2mm to 1.5mm to 2.2mm
378	500N295E:11	0-31cm	whiteware, edged	2	blue; moulded; straight edged
379	500N295E:11	0-31cm	whiteware, transfer printed	2	blue; Chinoiserie
380	500N295E:11	0-31cm	whiteware, transfer printed	1	blue; Chinoiserie
381	500N295E:11	0-31cm	whiteware, transfer printed	4	blue
382	500N295E:11	0-31cm	whiteware, transfer printed	1	black
383	500N295E:11	0-31cm	glass, chimney	1	amethyst tint
384	500N295E:11	0-31cm	whiteware, sponged	2	blue; tight
385	500N295E:11	0-31cm	whiteware, sponged	1	blue; tight
386	500N295E:11	0-31cm	white clay pipe	1	stem fragment
387	500N295E:11	0-31cm	glass, bottle	2	aqua
388	500N295E:11	0-31cm	earthenware, red	1	burnt
389	500N295E:11	0-31cm	button	1	copper alloy; backing and loop section; "EXTRA... QUALITY"
390	500N295E:11	0-31cm	faunal remains	5	2 calcined; 2 burnt
391	500N295E:11	0-31cm	glass, undetermined	1	colourless
392	500N295E:11	0-31cm	stoneware, salt glazed	2	grey glaze exterior; Albany slip interior
393	500N295E:11	0-31cm	glass, bead	1	black; faceted
394	500N295E:11	0-31cm	whiteware, undecorated	1	perforated; possible pepper pot
395	495N290E:11	0-32cm	whiteware, undecorated	41	4 with unidentified blue; 4 burnt
396	495N290E:11	0-32cm	glass, molten	5	1 colourless; 1 aqua; 3 olive
397	495N290E:11	0-32cm	slate pencil	1	



398	495N290E:11	0-32cm	nails, cut	11	
399	495N290E:11	0-32cm	nails, undetermined	5	
400	495N290E:11	0-32cm	nails, horseshoe	1	
401	495N290E:11	0-32cm	faunal remains	11	mammal; 5 calcined; 1 burnt
402	495N290E:11	0-32cm	whiteware, undecorated	5	
403	495N290E:11	0-32cm	glass, bottle	3	aqua
404	495N290E:11	0-32cm	whiteware, flow transfer printed	1	blue
405	495N290E:11	0-32cm	glass, bottle	1	amber
406	495N290E:11	0-32cm	red clay pipe	1	stem/shank/bite fragment; short stem; flared lip
407	495N290E:11	0-32cm	glass, bottle	3	olive
408	495N290E:11	0-32cm	whiteware, transfer printed	22	7 burnt; blue
409	495N290E:11	0-32cm	whiteware, sponged	2	blue; tight
410	495N290E:11	0-32cm	whiteware, painted	1	green; burnt
411	495N290E:11	0-32cm	whiteware, painted	1	red
412	495N290E:11	0-32cm	glass, window	37	36 aqua tint; 1 amethyst tint; 0.7mm to 1.6mm to 2.5mm
413	495N290E:11	0-32cm	whiteware, transfer printed	5	blue; Chinoiserie
414	495N290E:11	0-32cm	whiteware, transfer printed	5	black
415	495N290E:11	0-32cm	whiteware, painted	1	red; blue
416	495N290E:11	0-32cm	whiteware, painted	2	green; red; burnt
417	495N290E:11	0-32cm	whiteware, edged	1	blue rouletting on shoulder
418	495N290E:11	0-32cm	whiteware, banded	1	black and white swirls on beige panel
419	495N290E:11	0-32cm	stoneware	2	dark brown glaze exterior; mends
420	495N290E:11	0-32cm	whiteware, banded	1	brown band?; burnt
421	495N290E:11	0-32cm	white clay pipe	1	bowl fragment; moulded floral design
422	495N290E:11	0-32cm	mortar	1	
423	495N290E:11	0-32cm	whiteware, edged	1	blue; straight edged
424	495N290E:11	0-32cm	stoneware	2	brown glaze exterior and interior
425	495N290E:11	0-32cm	earthenware, red	3	green glaze
426	495N290E:11	0-32cm	yellowware, undecorated	1	
427	495N290E:11	0-32cm	stoneware	1	clear green glaze
428	495N290E:11	0-32cm	glass, bottle	1	amethyst tint
429	490N285E:21	0-28cm	nails, undetermined	2	
430	490N285E:21	0-28cm	nails, cut	1	
431	490N285E:21	0-28cm	glass, undetermined	2	aqua
432	490N285E:21	0-28cm	glass, bottle	1	olive
433	490N285E:21	0-28cm	whiteware, undecorated	6	1 burnt
434	490N285E:21	0-28cm	coal/clinker	1	
435	490N285E:21	0-28cm	whiteware, painted	1	blue; green; burnt
436	490N285E:21	0-28cm	glass, window	5	4 aqua tint; 1 colourless; 1.3mm to 2.0mm to 2.3mm
437	490N285E:21	0-28cm	whiteware, transfer printed	1	blue; Chinoiserie
438	490N285E:21	0-28cm	whiteware, transfer printed	5	blue; 1 burnt
439	490N285E:21	0-28cm	whiteware, edged	1	blue
440	490N285E:21	0-28cm	whiteware, sponged	1	blue; tight
441	490N285E:21	0-28cm	whiteware, painted	1	blue; rim lines; possibly part of a printed piece
442	505N300E:1	0-22cm	earthenware, yellow	1	cream glaze
443	505N300E:1	0-22cm	yellowware, undecorated	2	
444	505N300E:1	0-22cm	slate pencil	1	
445	505N300E:1	0-22cm	glass, bead	1	black; spherical



446	505N300E:1	0-22cm	faunal remains	8	4 calcined; mammal
447	505N300E:1	0-22cm	nails, undetermined	11	
448	505N300E:1	0-22cm	metal, screw	1	
449	505N300E:1	0-22cm	nails, cut	6	
450	505N300E:1	0-22cm	earthenware, red	1	brown glaze
451	505N300E:1	0-22cm	whiteware, undecorated	17	1 with unidentified blue; 3 burnt
452	505N300E:1	0-22cm	whiteware, transfer printed	7	blue
453	505N300E:1	0-22cm	whiteware, edged	1	blue; straight edged
454	505N300E:1	0-22cm	whiteware, transfer printed	1	blue; Chinoiserie
455	505N300E:1	0-22cm	whiteware, flow transfer printed	1	mulberry
456	505N300E:1	0-22cm	whiteware, flow transfer printed	1	blue
457	505N300E:1	0-22cm	stoneware	1	dark brown glaze exterior
458	505N300E:1	0-22cm	glass, bottle	4	colourless
459	505N300E:1	0-22cm	whiteware, undecorated	5	3 burnt
460	505N300E:1	0-22cm	earthenware, red	1	burnt
461	505N300E:1	0-22cm	lustreware?	2	orange slip under clear glaze; refined not coarse red body
462	505N300E:1	0-22cm	glass, bottle	1	aqua
463	505N300E:1	0-22cm	whiteware, sponged	2	blue; tight
464	505N300E:1	0-22cm	glass, window	17	aqua tint; 0.9mm to 1.6mm to 2.6mm
465	490N300E:11	0-20cm	whiteware, banded	1	olive
466	490N300E:11	0-20cm	whiteware, banded	1	blue bands
467	490N300E:11	0-20cm	faunal remains	8	2 teeth fragments; 3 calcined
468	490N300E:11	0-20cm	nails, undetermined	1	
469	490N300E:11	0-20cm	nails, cut	5	
470	490N300E:11	0-20cm	miscellaneous hardware	1	cast iron - moulded corner fragment
471	490N300E:11	0-20cm	whiteware, sponged	2	blue; tight; mends
472	490N300E:11	0-20cm	whiteware, flow transfer printed	2	blue; mends
473	490N300E:11	0-20cm	shell	2	
474	490N300E:11	0-20cm	earthenware, yellow	1	burnt
475	490N300E:11	0-20cm	stoneware	1	dark brown glaze exterior; burnt
476	490N300E:11	0-20cm	yellowware, undecorated	2	
477	490N300E:11	0-20cm	whiteware, undecorated	17	3 burnt; 2 with blue
478	490N300E:11	0-20cm	whiteware, transfer printed	2	blue
479	490N300E:11	0-20cm	whiteware, transfer printed	1	black
480	490N300E:11	0-20cm	whiteware, painted	1	red; green
481	490N300E:11	0-20cm	whiteware, banded	1	blue panel
482	490N300E:11	0-20cm	whiteware, painted	1	blue
483	490N300E:11	0-20cm	chipping detritus	1	Kettle Point
484	490N300E:11	0-20cm	glass, bottle	1	amethyst tint
485	490N300E:11	0-20cm	glass, bottle	1	aqua
486	490N300E:11	0-20cm	glass, bottle	1	olive
487	490N300E:11	0-20cm	white clay pipe	1	stem/shank fragment
488	490N300E:11	0-20cm	slate pencil	1	
489	490N300E:11	0-20cm	glass, window	27	aqua tint; 0.7mm to 1.7mm to 2.4mm
490	490N290E:21	0-33cm	nails, cut	8	
491	490N290E:21	0-33cm	whiteware, undecorated	4	
492	490N290E:21	0-33cm	whiteware, transfer printed	1	blue; burnt
493	490N290E:21	0-33cm	whiteware, transfer printed	22	blue; 8 burnt
494	490N290E:21	0-33cm	whiteware, rockingham glaze	1	
495	490N290E:21	0-33cm	earthenware, yellow	1	
496	490N290E:21	0-33cm	stoneware, salt glazed	2	grey glaze exterior; Albany slip interior



497	490N290E:21	0-33cm	nails, undetermined	6	
498	490N290E:21	0-33cm	whiteware, undecorated	37	5 burnt; 1 with blue
499	490N290E:21	0-33cm	whiteware, transfer printed	3	blue; Chinoiserie; 1 burnt
500	490N290E:21	0-33cm	whiteware, sponged	4	blue; tight
501	490N290E:21	0-33cm	whiteware, sponged	1	blue; coarse sponge stamping
502	490N290E:21	0-33cm	stoneware	2	remnant glaze; burnt
503	490N290E:21	0-33cm	glass, window	24	aqua tint; 1.1mm to 1.8mm to 2.6mm
504	490N290E:21	0-33cm	glass, bottle	2	aqua
505	490N290E:21	0-33cm	glass, bottle	2	olive
506	490N290E:21	0-33cm	whiteware, painted	1	black stem; blue/red flower; green leaves; burnt
507	490N290E:21	0-33cm	whiteware, banded	1	blue bands
508	490N290E:21	0-33cm	whiteware, banded	1	baby blue bands
509	490N290E:21	0-33cm	whiteware, edged	1	blue; moulded; straight edged
510	490N290E:21	0-33cm	earthenware, red	1	green glaze
511	490N290E:21	0-33cm	white clay pipe	2	bowl fragments
512	490N290E:21	0-33cm	faunal remains	3	mammal
513	490N290E:21	0-33cm	slate	1	
514	490N290E:21	0-33cm	slate pencil	1	
515	490N290E:21	0-33cm	white clay pipe	1	stem fragment - mouthpiece; orange glaze
516	490N290E:21	0-33cm	coal/clinker	1	
517	490N290E:21	0-33cm	button	1	white glass; 95% complete; 4 holes; beaded edge
518	490N290E:21	0-33cm	clay marble	1	in 2 mending pieces
519	500N300E:11	0-20cm	glass, window	7	aqua tint; 1.3mm to 2.0mm to 2.2mm
520	500N300E:11	0-20cm	glass, molten	1	olive
521	500N300E:11	0-20cm	faunal remains	4	calcined
522	500N300E:11	0-20cm	nails, undetermined	3	
523	500N300E:11	0-20cm	nails, cut	1	
524	500N300E:11	0-20cm	metal, fencing wire	1	barbed
525	500N300E:11	0-20cm	whiteware, painted	1	blue; possibly part of a stamped flower
526	500N300E:11	0-20cm	whiteware, transfer printed	2	blue; Chinoiserie
527	500N300E:11	0-20cm	whiteware, transfer printed	7	blue
528	500N300E:11	0-20cm	whiteware, flow transfer printed	1	mulberry
529	500N300E:11	0-20cm	whiteware, moulded	1	
530	500N300E:11	0-20cm	whiteware, flow transfer printed	2	blue; mends
531	500N300E:11	0-20cm	whiteware, undecorated	1	
532	500N300E:11	0-20cm	whiteware, undecorated	18	1 burnt
533	500N290E:11	0-29cm	white clay pipe	1	bowl fragment
534	500N290E:11	0-29cm	white clay pipe	1	bowl fragment; moulded hair lines - effigy
535	500N290E:11	0-29cm	earthenware, red	1	green glaze
536	500N290E:11	0-29cm	yellowware, rockingham glaze	1	sponged
537	500N290E:11	0-29cm	whiteware, rockingham glaze	2	
538	500N290E:11	0-29cm	whiteware, painted	1	red and green
539	500N290E:11	0-29cm	faunal remains	2	1 calcined
540	500N290E:11	0-29cm	whiteware, transfer printed	8	blue; 4 burnt
541	500N290E:11	0-29cm	whiteware, banded	1	blue panel; dark brown band
542	500N290E:11	0-29cm	whiteware, flow transfer printed	1	crisp black design on blue
543	500N290E:11	0-29cm	whiteware, sponged	3	blue; tight
544	500N290E:11	0-29cm	whiteware, transfer printed	3	blue; 2 mend
545	500N290E:11	0-29cm	whiteware, flow transfer printed	2	blue
546	500N290E:11	0-29cm	whiteware, transfer printed	6	blue; Chinoiserie



547	500N290E:11	0-29cm	coal/clinker	1	
548	500N290E:11	0-29cm	nails, undetermined	5	
549	500N290E:11	0-29cm	whiteware, undecorated	29	2 burnt
550	500N290E:11	0-29cm	ironstone, undecorated	1	
551	500N290E:11	0-29cm	glass, window	5	aqua tint; 1.4mm to 1.6mm
552	500N290E:11	0-29cm	glass, undetermined	1	colourless; burnt?
553	500N290E:11	0-29cm	glass, bottle	2	aqua tint
554	500N285E:3	0-27cm	whiteware, transfer printed	9	blue
555	500N285E:3	0-27cm	whiteware, transfer printed	2	peacock motif; blue
556	500N285E:3	0-27cm	white clay pipe	1	bowl fragment
557	500N285E:3	0-27cm	faunal remains	2	tooth fragments
558	500N285E:3	0-27cm	glass, bead	1	black glass; rounded cylinder
559	500N285E:3	0-27cm	nails, cut	4	
560	500N285E:3	0-27cm	nails, undetermined	6	
561	500N285E:3	0-27cm	glass, bottle	2	olive
562	500N285E:3	0-27cm	whiteware, undecorated	27	7 burnt
563	500N285E:3	0-27cm	whiteware, transfer printed	1	blue; Chinoiserie
564	500N285E:3	0-27cm	yellowware, undecorated	1	
565	500N285E:3	0-27cm	whiteware, edged	1	blue; moulded; straight edged
566	500N285E:3	0-27cm	whiteware, rockingham glaze	1	
567	500N285E:3	0-27cm	earthenware, red	2	green glaze
568	500N285E:3	0-27cm	whiteware, transfer printed	6	blue
569	500N285E:3	0-27cm	glass, window	10	aqua tint; 1.2mm to 1.7mm to 1.9mm
570	500N285E:3	0-27cm	glass, bottle	2	aqua
571	490N295E:21	0-21cm	miscellaneous hardware	1	flattened, curved bar
572	490N295E:21	0-21cm	faunal remains	4	1 burnt; mammal
573	490N295E:21	0-21cm	slate	2	
574	490N295E:21	0-21cm	nails, undetermined	8	
575	490N295E:21	0-21cm	nails, cut	4	
576	490N295E:21	0-21cm	metal, screw	1	
577	490N295E:21	0-21cm	whiteware, edged	2	blue; straight edged
578	490N295E:21	0-21cm	whiteware, undecorated	25	3 burnt; 3 with blue
579	490N295E:21	0-21cm	white clay pipe	1	stem fragment
580	490N295E:21	0-21cm	whiteware, transfer printed	1	blue; Chinoiserie
581	490N295E:21	0-21cm	whiteware, transfer printed	11	blue; 3 burnt
582	490N295E:21	0-21cm	metal, miscellaneous	2	
583	490N295E:21	0-21cm	ironstone, undecorated	4	
584	490N295E:21	0-21cm	whiteware, flow transfer printed	1	blue; crisp design on flown background
585	490N295E:21	0-21cm	whiteware, flow transfer printed	6	blue
586	490N295E:21	0-21cm	whiteware, painted	1	green rim line
587	490N295E:21	0-21cm	whiteware, painted	1	blue; green rim line
588	490N295E:21	0-21cm	whiteware, painted	1	blue
589	490N295E:21	0-21cm	whiteware, painted	1	black
590	490N295E:21	0-21cm	yellowware, rockingham glaze	1	
591	490N295E:21	0-21cm	glass, bottle	1	aqua
592	490N295E:21	0-21cm	yellowware, banded	1	white band
593	490N295E:21	0-21cm	yellowware, undecorated	1	
594	490N295E:21	0-21cm	whiteware, transfer printed	2	blue
595	490N295E:21	0-21cm	porcelain, moulded	1	blue over moulding
596	490N295E:21	0-21cm	whiteware, flow transfer printed	1	black
597	490N295E:21	0-21cm	glass, molten	1	aqua
598	490N295E:21	0-21cm	glass, bottle	2	olive



599	490N295E:21	0-21cm	glass, window	34	aqua tint; 0.9mm to 1.9mm to 2.4mm
600	495N285E:11	0-33cm	glass, molten	2	1 aqua; 1 olive
601	495N285E:11	0-33cm	whiteware, transfer printed	19	6 burnt; blue
602	495N285E:11	0-33cm	whiteware, transfer printed	2	blue; Chinoiserie; 1 burnt
603	495N285E:11	0-33cm	faunal remains	8	mammal; 2 teeth fragments; 2 calcined; 1 burnt
604	495N285E:11	0-33cm	coin	1	"ONE CENT" "1875 UNIT...AMERICA"
605	495N285E:11	0-33cm	glass, bottle	1	aqua; complete finish
606	495N285E:11	0-33cm	whiteware, undecorated	3	
607	495N285E:11	0-33cm	whiteware, undecorated	25	9 burnt
608	495N285E:11	0-33cm	whiteware, sponged	2	blue; tight
609	495N285E:11	0-33cm	nails, wrought	1	
610	495N285E:11	0-33cm	nails, undetermined	8	
611	495N285E:11	0-33cm	glass, window	18	aqua tint; 1.1mm to 1.6mm to 2.1mm
612	495N285E:11	0-33cm	glass, bottle	3	olive
613	495N285E:11	0-33cm	whiteware, flow transfer printed	2	blue
614	495N285E:11	0-33cm	earthenware, red	3	green glaze
615	495N285E:11	0-33cm	whiteware, transfer printed	4	blue
616	495N285E:11	0-33cm	biface	1	Onondaga; base
617	surface/backdirt	surface	button	1	green glass; complete; 4 holes
618	surface/backdirt	surface	whiteware, transfer printed	3	blue
619	surface/backdirt	surface	whiteware, transfer printed	2	blue
620	surface/backdirt	surface	whiteware, flow transfer printed	1	blue
621	495N290E:11	0-32cm	whiteware, transfer printed	1	blue
622	505N300E:1	0-22cm	whiteware, transfer printed	3	blue
623	490N285E:21	0-28cm	whiteware, transfer printed	2	blue; Chinoiserie
			TOTAL	1574	



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May 6, 2010

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RE: Review and Acceptance into the Provincial Register of Reports: Archaeological Assessment Report Entitled, “Stage 4 Archaeological Assessment, Property 1 Location 2 – AfHo-37, St. Clair Solar Farm, Lot 26, Concession 9, Geographic Township of Moore, Lambton County, Ontario”, January 2010, Received March 1, 2010, Licence/PIF # P064-306-2009, MCL File 38SP013

Dear Dr. Martelle:

This office has reviewed the above-mentioned report which has been submitted to this Ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. This review is to ensure that the licensed professional consultant archaeologist has met the terms and conditions of their archaeological licence, that archaeological sites have been identified and documented according to the 1993 technical guidelines set by the Ministry and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

As the result of our review, this Ministry accepts the above titled report into the Provincial register of archaeological reports. The report details the Stage 4 mitigation of the archaeological site AfHo-37 (Location 2 - Property 1) and, based on this work it is recommended that this archaeological site be considered sufficiently documented. This Ministry concurs with this recommendation and that the provincial interest for AfHo-37 has been addressed.

I trust this information is of assistance. Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

Shari Prowse
Archaeology Review Office

cc. MTC Archaeology Licence Office
First Solar Development (Canada) Inc.

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June 25, 2010

First Solar Development (Canada) Inc.
5115 Blackwell Sideroad
Sarnia, Ontario
N7T 7H3

RE: St. Clair – Moore Solar Farm, Part of Lot 25 and Lot 26, Concession 9, Township of St. Clair, Lambton County, Ontario, RESOP File 12979 and 12982, MTC File 38SP013, PIF # P064-219-2008, P064-230-2008, P064-275-2009, P064-276-2009 and P064-306-2009

Dear Proponent:

This letter constitutes the Ministry of Tourism and Culture's written comments as required by s. 22(3)(a) of O. Reg. 359/09 under the *Environmental Protection Act* regarding archaeological assessments undertaken for the above project.

Based on the information contained in the reports you have submitted for this project, the Ministry believes the archaeological assessment complies with the *Ontario Heritage Act's* licensing requirements, including the licence terms and conditions and the Ministry's 1993 Archaeological Assessment Technical Guidelines. Please note that the Ministry makes no representation or warranty as to the completeness, accuracy or quality of the Reports.*

The reports recommend the following:

Stage 1 Report (P064-219-2008)

A Stage 2 archaeological assessment will be required prior to construction to determine if archaeological sites are present.

Since typical archaeological assessment methods cannot always detect deeply buried archaeological deposits, if these are found at any point during construction, the Ministry of Culture should be notified immediately at (519) 675-6898. Upon the discovery of human remains during construction, the proponent should immediately contact a representative of Timmins Martelle Heritage Consultants, the Ministry of Culture as well as the Registrar of Cemeteries,

Michael D'Mello, in the Cemeteries Regulation Unit of the Ministry of Consumer and Commercial Relations (416) 326-8392.

Stage 2-3 Report (P064-219-2008 and P064-230-2008)

A combined test pit and pedestrian survey documented four archaeological find spots. Two of these (Locations 3 and 4) were not recommended for Stage 3 testing. Stage 3 testing was carried out on Location 1 and demonstrated the presence of a highly significant Late Paleoindian Hi-Lo site. This site requires Stage 4 mitigation through avoidance and long term protection or complete excavation. Location 2 is a scatter of 19th century artifacts and has yet to undergo Stage 3 testing.

Outstanding Archaeological Concerns: The woodlot in the north end of the property was not assessed and is currently not incorporated into the planned construction area. If construction plans change to include impacts to the woodlot, Stage 2 survey will be required. Formal protection measures will need to be negotiated with the Ministry of Culture and the local municipality.

Since typical archaeological assessment methods cannot always detect deeply buried archaeological deposits, if these are found at any point during construction, the Ministry of Culture should be notified immediately at (519) 675-6898. Upon the discovery of human remains during construction, the proponent should immediately contact a representative of Timmins Martelle Heritage Consultants, the Ministry of Culture as well as the Registrar of Cemeteries, Michael D'Mello, in the Cemeteries Regulation Unit of the Ministry of Consumer and Commercial Relations (416) 326-8392.

Stage 4 Report (P064-275-2009)

A Stage 4 archaeological assessment was carried out for a Late Paleoindian and Late Archaic site (Location 1) within Property 1 of the proposed St. Clair Solar Farm.

No further archaeological investigations are warranted and the site area should be considered free of archaeological concern.

Since archaeological assessment methods cannot guarantee the detection of deeply buried archaeological deposits, if these are identified during construction, the Ministry of Culture should be notified immediately at (519) 675-7742. Upon the discovery of human remains during construction, the proponent should immediately contact a representative of Timmins Martelle Heritage Consultants, the Ministry of Culture as well as the Registrar of Cemeteries, Michael D'Mello, in the Cemeteries Regulation Unit of the Ministry of Consumer and Commercial Relations (416) 326-8392.

Stage 3 Report (P064-276-2009)

A Stage 3 archaeological assessment was carried out for a EuroCanadian historic era domestic site (Location 2-AfHo-37) on Property 1 of the proposed St. Clair Solar Farm.

Given that the site dates to the earliest settlement period of Moore Township it is deemed to be a significant cultural heritage resource and full Stage 4 mitigation of construction impacts is recommended.

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

Any persons discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Small Business and Consumer Services. The Heritage Operations of the Ministry of Culture can be reached at (416) 314-7148. The Registrar of Cemeteries, Cemeteries Regulation Unit can be reached at (416) 326-8404 or (416) 326-8393.

Stage 4 Report (P064-306-2009)

A Stage 4 archaeological assessment was carried out for a EuroCanadian historic era domestic site (Location 2-AfHo-37) on Property 1 of the proposed St. Clair Solar Farm.

The AfHo-37 is now completely mitigated and there are no outstanding archaeological concerns for the subject property.

Should previously undocumented (i.e., unknown or deeply buried) archaeological resources be discovered, they may be a new archaeological site(s) and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The Cemeteries Act requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries, Ministry of Small Business and Consumer Services. The Registrar of Cemeteries, Cemeteries Regulation Unit can be reached at (416) 326-8404 or (416) 326-8393.

The Ministry is satisfied with these recommendations.

This letter does not waive any requirements which you may have under the *Ontario Heritage Act*. A separate letter addressing archaeological licensing obligations under the Act will be sent to the archaeologist who completed the assessment and will be copied to you.

This letter does not constitute approval of the renewable energy project. Approvals of the project may be required under other statutes and regulations. It is your responsibility to obtain any necessary approvals or licences.

Please feel free to contact me if you have questions or require additional information.

Sincerely,

Shari Prowse
Archaeology Review Officer

cc. Dr. Holly Martelle, Timmins Martelle Heritage Consultants Inc.

*In no way will the Ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.