

Stage 1 & 2 Archaeological Assessments
Dated: June 6, 2012

ERRATA

It is of note that since the Project commenced the Study Area has been revised. The Feeder Line was originally proposed along Kerwood Road with the connection point at the Corner of Munn St. & Kerwood Rd. The Feeder Line has since been removed from the Project (the Project will connect directly into the Grid at the switching station). The Study Area specified in the Natural Heritage Assessment Report/EIS and the Archaeological and Cultural Heritage Reports has not been updated as these reports were completed under the original study area scenario.



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**Stage 1 and 2 Archaeological Assessments
Napier Wind Project
FIT F-002194-WIN-130-601
Parts of Lots 8 and 10, Concession 4 SER
Geographic Township of Adelaide
Township of Adelaide Metcalfe
Middlesex County, Ontario**

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PIF #P007-381-2011 and #P007-385-2011

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Revised Report

EXECUTIVE SUMMARY

Under a contract awarded by wpd Canada Corporation in October 2011, Archaeological Research Associates Ltd. carried out Stage 1 and 2 archaeological assessments of lands with the potential to be impacted by the proposed Napier Wind Project in the Township of Adelaide Metcalfe, Middlesex County, Ontario. The Stage 1 and 2 assessments were conducted in December 2011 under Ministry of Tourism, Culture and Sport licence #P007, PIF #P007-381-2011 (Stage 1) and #P007-385-2011 (Stage 2). This report documents the background research, fieldwork and artifact processing involved in these assessments, and presents conclusions and recommendations pertaining to archaeological concerns within the study area.

The proponent has secured a 5.4 MW contract to sell power to the Ontario Power Authority under the Feed-In-Tariff program (F-002194-WIN-130-601), and is preparing their Renewable Energy Approval application in accordance with the requirements set out in Ontario Regulation 359/09 made under Part V.0.1 of the *Environmental Protection Act*. The proposed project location consists of two MM92 turbines (Turbines r1 and r2), two crane pads/laydown areas, two access roads/crane paths, one switching station, two collector lines and one feeder line to tie into the Hydro One distribution network. The archaeological assessments documented in this report were completed as a component of the Renewable Energy Approval application, in compliance with the requirements set out in Section 22 of Ontario Regulation 359/09.

The results of the Stage 1 background study indicated that only two areas within the study area had potential for Pre-Contact and Euro-Canadian archaeological materials. Numerous features of archaeological potential were present in the vicinity of the study area, including several water sources and historically-surveyed roadways, but past construction activities had resulted in disturbances within the right-of-ways for established roads. The areas of archaeological potential that could be impacted by the proposed project clearly warranted a Stage 2 assessment.

The Stage 2 property assessment considered all areas with archaeological potential that could be impacted by the proposed crane pads/laydown areas, access roads/crane paths, switching station, collector lines and feeder line. Legal permission to enter and conduct all necessary fieldwork activities within the study area was granted by the property owners. This assessment, completed under optimal conditions, resulted in the identification of two archaeological findspots (Findspots 1 and 2). Findspot 1 consisted of an isolated lithic artifact, and Findspot 2 (Galbraith; AfHk-32) comprised a 78 x 40 m scatter of 400+ Euro-Canadian artifacts. The artifacts from Findspot 2 date to the 19th and early 20th century, and the scatter appears to have been a site locality/midden associated with a demolished structure.

Both assemblages were compared against the criteria established by the Ministry of Tourism, Culture and Sport for determining whether an archaeological site warrants further assessment (MTC 2011:39–40). Findspot 1 did not meet any of the criteria, and the site was found to be of no further cultural heritage value or interest. Findspot 2, on the other hand, consisted of a minimum of 20 pre-1900 Euro-Canadian artifacts, and therefore met one of the established criteria. Since Findspot 2 was of further cultural heritage value or interest, Archaeological Research Associates Ltd. recommended that the site be avoided or, if that were not possible, that it be subjected to a Stage 3 site-specific assessment.

In order to avoid impacts to this site, the proponent modified the project location. In accordance with the direction set out in Section 7.8.5 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:140–141), a buffer of 70 m now exists between Findspot 2 (Galbraith; AfHk-32) and any potential areas of impact.

Archaeological Research Associates Ltd. is satisfied with these avoidance measures, and recommends that no further archaeological assessment be required within the project location. In the event that the project location is modified in the future (i.e. it is altered to accommodate new proposed infrastructure), further archaeological work may be required. Archaeological Research Associates Ltd. also recommends that a Stage 3 site-specific assessment be conducted if any future developments are planned in the vicinity of Findspot 2 (Galbraith; AfHk-32). A *Letter of Review and Acceptance into the Provincial Register of Reports* is requested, as provided for in Section 65.1 of the *Ontario Heritage Act*.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
GLOSSARY OF ABBREVIATIONS	VI
PERSONNEL	VII
1.0 PROJECT CONTEXT	1
1.1 Development Context	1
1.2 Historical Context	2
1.2.1 Pre-Contact	2
1.2.1.1 Palaeo-Indian Period	2
1.2.1.2 Archaic Period	2
1.2.1.3 Early and Middle Woodland Periods	3
1.2.1.4 Late Woodland Period	4
1.2.2 Early Contact	6
1.2.2.1 European Explorers	6
1.2.2.2 Trading Contacts and Conflict	6
1.2.2.3 Five Nations Invasion	7
1.2.2.4 Anishinabeg Influx	8
1.2.2.5 Relations and Ambitions	9
1.2.3 The Euro-Canadian Era	10
1.2.3.1 British Colonialism	10
1.2.3.2 Middlesex County	11
1.2.3.3 Township of Adelaide	14
1.2.3.4 Lots 8 and 10, Concession 4 SER	17
1.2.3.5 Summary of Past and Present Land Use	20
1.3 Archaeological Context	21
1.3.1 Summary of Registered Archaeological Sites	21
1.3.2 Previous Archaeological Work	21
1.3.3 Natural Environment	21
1.3.4 Archaeological Fieldwork and Property Conditions	23
2.0 STAGE 1 BACKGROUND STUDY	24
2.1 Summary	24
2.2 Field Methods (Property Inspection)	24
2.3 Analysis and Conclusions	25
2.4 Recommendations	27
3.0 STAGE 2 PROPERTY ASSESSMENT	28
3.1 Field Methods	28
3.2 Summary of Results	29

3.3	Record of Finds	30
3.3.1	Findspot 1	30
3.3.1.1	Overview	30
3.3.1.2	Description	30
3.3.2	Findspot 2 (Galbraith; AfHk-32)	30
3.3.2.1	Overview	30
3.3.2.2	Description	30
3.3.3	Inventory of the Documentary Record	32
3.4	Analysis and Conclusions	32
3.4.1	Findspot 1	32
3.4.2	Findspot 2 (Galbraith; AfHk-32)	33
3.4.2.1	Architectural Group	33
3.4.2.2	Ceramic Group	34
3.4.2.3	Faunal Group	38
3.4.2.4	Glass Group	39
3.4.2.5	‘Other’ Group	41
3.4.2.6	Interpretation and Evaluation	41
3.5	Recommendations	41
3.5.1	Findspot 1	41
3.5.2	Findspot 2 (Galbraith; AfHk-32)	42
4.0	SYNTHESIS OF CONCLUSIONS AND RECOMMENDATIONS	42
5.0	ADVICE ON COMPLIANCE WITH LEGISLATION	44
6.0	BIBLIOGRAPHY AND SOURCES	45
7.0	IMAGES	52
8.0	MAPS	66

LIST OF IMAGES

Image 1: Aerial Photograph of the Village of Kerwood (1957)	52
Image 2: Area of No Archaeological Potential – Disturbed Lands	52
Image 3: Area of No Archaeological Potential – Disturbed Lands	53
Image 4: Area of No Archaeological Potential – Disturbed Lands	53
Image 5: Area of No Archaeological Potential – Disturbed Lands	54
Image 6: Area of No Archaeological Potential – Disturbed Lands	54
Image 7: Area of No Archaeological Potential – Disturbed Lands	55
Image 8: Area of No Archaeological Potential – Disturbed Lands	55
Image 9: Area of No Archaeological Potential – Disturbed Lands	56
Image 10: Area of No Archaeological Potential – Disturbed Lands	56
Image 11: Area of No Archaeological Potential – Disturbed Lands	57

Image 12: Area of No Archaeological Potential – Disturbed Lands	57
Image 13: Area of No Archaeological Potential – Disturbed Lands	58
Image 14: View of Soil Conditions at the Time of the Pedestrian Survey	58
Image 15: View of Crewmember Conducting Pedestrian Survey at a Maximum Interval of 5 m	59
Image 16: View of Crewmembers Test Pitting at a Maximum Interval of 5 m	59
Image 17: View of Typical Test Pit Excavated into Subsoil	60
Image 18: View of Crewmember Screening Soil through 6 mm Mesh	60
Image 19: Secondary Flake of Onondaga Chert from Findspot 1	61
Image 20: Sample of Bricks	62
Image 21: Sample of Architectural Artifacts from Findspot 2	63
Image 22: Sample of Ceramic Group Artifacts	64
Image 23: Sample of Glass Group Artifacts	65

LIST OF MAPS

Map 1: Location of the Study Area in the Province of Ontario	66
Map 2: General View of the Study Area in the Township of Adelaide Metcalfe	67
Map 3: Detail View of the Study Area, Showing Areas of Archaeological Assessment	68
Map 4: Map of Middle Woodland Period Complexes	69
Map 5: Pre-Contact Iroquoian Site Clusters	69
Map 6: Detail from S. de Champlain's <i>Carte de la Nouvelle France</i> (1632)	70
Map 7: Detail from N. Sanson's <i>Le Canada, ou Nouvelle France</i> (1656)	70
Map 8: Detail from the Map of Galinée's <i>Voyage</i> (1670)	71
Map 9: Detail from H. Pople's <i>A Map of the British Empire in America</i> (1733)	71
Map 10: Detail from D. and G. Robert de Vaugondy's <i>Nouvelle France ou le Canada</i> (1755)	72
Map 11: Detail from R. Sayer and J. Bennett's <i>General Map of the Middle British Colonies in America</i> (1776)	72
Map 12: Detail from D.W. Smyth's <i>A Map of the Province of Upper Canada</i> (1800)	73
Map 13: Detail from J. Purdy's <i>A Map of Cabotia</i> (1814)	73
Map 14: Detail from J. Arrowsmith's <i>Upper Canada</i> (1837)	74
Map 15: Detail from J. Bouchette's <i>Map of the Provinces of Canada</i> (1846)	74
Map 16: Detail from G.W. Colton's <i>Canada West</i> (1856)	75
Map 17: Map of Middlesex County from W.J. Gage and Co.'s <i>County Atlas</i> (1886)	75
Map 18: Map of the Township of Adelaide from H.R. Page & Co.'s <i>Illustrated Historical Atlas of Middlesex County, Ontario</i> (1878)	76
Map 19: Plan of the Village of Strathroy from G.R. and G.M. Tremaines' <i>Map of Middlesex County, Canada West</i> (1862)	76
Map 20: Detail of the Township of Adelaide from H.R. Page & Co.'s <i>Illustrated Historical Atlas of Middlesex County, Ontario</i> (1878), Showing the Study Area	77

Map 21: Results of the Stage 1 Assessment – Archaeological Potential Modelling	78
Map 22: Results of the Stage 1 Assessment – Detail View of Disturbed Areas	79
Map 23: Results of the Stage 1 Assessment – Detail View of Disturbed Areas	80
Map 24: Results of the Stage 1 Assessment – Detail View of Disturbed Areas	81
Map 25: Results of the Stage 1 Assessment – Detail View of Disturbed Areas	82
Map 26: Results of the Stage 1 Assessment – Detail View of Disturbed Areas	83
Map 27: Results of the Stage 1 Assessment – Detail View of Disturbed Areas	84
Map 28: Results of the Stage 1 Assessment – Detail View of Disturbed Areas	85
Map 29: Results of the Stage 1 Assessment – Detail View of Disturbed Areas	86
Map 30: Results of the Stage 1 Assessment – Detail View of Disturbed Areas	87
Map 31: Results of the Stage 2 Assessment – Field Methods and Results	88

LIST OF TABLES

Table 1: Summary of Amiens, Crathie, Mullifarry and Napperton from 1905–1914	16
Table 2: Land Transactions for the West Half of Lot 8, Concession 4 SER	18
Table 3: Land Transactions for the West Half of Lot 10, Concession 4 SER	19
Table 4: Summary of Artifacts Collected from Findspot 2	31
Table 5: Documentary Record – Inventory	32
Table 6: Summary of Diagnostic Architectural Group Artifacts	33
Table 7: Summary of Diagnostic Ceramic Group Artifacts	35
Table 8: Summary of Diagnostic Glass Group Artifacts	39

LIST OF APPENDICES

Appendix A: Project Location for the Napier Wind Project (February 7, 2012)	90
Appendix B: Artifact Registry	91

GLOSSARY OF ABBREVIATIONS

ARA – Archaeological Research Associates Ltd.
CHVI – Cultural Heritage Value or Interest
FIT – Feed-in Tariff
MTC – (Former) Ministry of Tourism and Culture
MTCS – Ministry of Tourism, Culture and Sport
O. Reg. – Ontario Regulation
PIF – Project Information Form
ROW – Right of Way
SER – South of Egremont Road

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1.0 PROJECT CONTEXT

1.1 Development Context

Under a contract awarded by wpd Canada Corporation in October 2011, ARA carried out Stage 1 and 2 archaeological assessments of lands with the potential to be impacted by the proposed Napier Wind Project in the Township of Adelaide Metcalfe, Middlesex County, Ontario. This report documents the background research, fieldwork and artifact processing involved in these assessments, and presents conclusions and recommendations pertaining to archaeological concerns within the study area.

The proponent has secured a 5.4 MW contract to sell power to the Ontario Power Authority under the FIT program (F-002194-WIN-130-601), and is preparing their REA application in accordance with the requirements set out in O. Reg. 359/09 made under Part V.0.1 of the *Environmental Protection Act*. The proposed project location consists of two MM92 turbines (Turbines r1 and r2), two crane pads/laydown areas, two access roads/crane paths, one switching station, two collector lines and one feeder line to tie into the Hydro One distribution network (see Appendix A). The archaeological assessments documented in this report were completed as a component of the REA application, in compliance with the requirements set out in Section 22 of O. Reg. 359/09.

The study area consists of a 41.65 ha parcel of land northeast of the intersection of Napperton Drive and Brown Road, a 38.85 ha parcel of land northeast of Kerwood Road and Napperton Drive, and a 7.74 ha corridor extending along the ROWs of Brown Road, Napperton Drive and Kerwood Road (see Map 1 and Map 2). In legal terms, the majority of the study area falls on parts of Lots 8 and 10, Concession 4 SER in the Geographic Township of Adelaide. The remainder falls within three historic road allowances laid out between Lots 7–10, Concessions 4–5 SER and Lots 6–7, Concessions 5–6 SER in the Geographic Township of Adelaide.

The archaeological assessments were conducted in December 2011 under MTCS licence #P007, PIF #P007-381-2011 (Stage 1) and #P007-385-2011 (Stage 2). The Stage 2 assessment was limited to the areas of archaeological potential that could be impacted by the proposed project (see Map 3). In compliance with the objectives set out in Sections 1.0 and 2.0 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:13–41), these investigations were carried out in order to:

- Provide information concerning the study area's geography, history and current land condition;
- Determine the presence of known archaeological sites in the study area;
- Evaluate in detail the study area's archaeological potential;
- Empirically document all archaeological resources on the property;
- Determine whether the property contains resources requiring further assessment; and
- Recommend appropriate Stage 3 assessment strategies for identified archaeological sites.

The assessments were conducted in accordance with the provisions of the *Ontario Heritage Act*, R.S.O. 1990, c. O.18. All notes, photographs and records pertaining to the project are currently

housed in ARA's processing facility located at 154 Otonabee Drive, Kitchener. Subsequent long-term storage will occur at ARA's head office located at 97 Gatewood Road, Kitchener. The MTCS is asked to review the results and recommendations presented in this report and provide their endorsement through a *Letter of Review and Acceptance into the Provincial Register of Reports*.

1.2 Historical Context

After a century of archaeological work in southern Ontario, scholarly understanding of the historic usage of lands in Middlesex County has become very well-developed. What follows is a detailed summary of the archaeological cultures that have settled in the vicinity of the study area over the past 11,000 years; from the earliest Palaeo-Indian hunters to the most recent Euro-Canadian farmers.

1.2.1 Pre-Contact

1.2.1.1 Palaeo-Indian Period

The first documented evidence of occupation in southern Ontario dates to around 9000 BC, after the retreat of the Wisconsinan glaciers and the formation of Lake Algonquin, Early Lake Erie and Early Lake Ontario (Jarrow and Warner 1990; Jackson et al. 2000:416–419). At that time small Palaeo-Indian bands moved into the region, leading mobile lives based on the communal hunting of large game and the collection of plant-based food resources (Ellis and Deller 1990:38; MCL 1997:34). Current understanding suggests that Palaeo-Indian peoples ranged over very wide territories in order to live sustainably in a post-glacial environment with low biotic productivity. This environment changed considerably during this period, developing from a sub-arctic spruce forest to a boreal forest dominated by pine (Ellis and Deller 1990:52–54, 60).

An Early Palaeo-Indian period (ca. 9000–8400 BC) and a Late Palaeo-Indian period (ca. 8400–7800 BC) are discernable amongst the lithic spear and dart points. Early points are characterized by grooves or 'flutes' near the base while the later examples lack such fluting. All types would have been used to hunt caribou and other 'big game'. Archaeological sites from both time-periods typically served as small campsites or 'way-stations' (occasionally with hearths or fire-pits), where tool manufacture/maintenance and hide processing would have taken place. For the most part, these sites tend to be small (less than 200 sq. m) and ephemeral (Ellis and Deller 1990:51–52, 60–62). Many parts of the Palaeo-Indian lifeway remain unknown.

1.2.1.2 Archaic Period

Beginning in the early 8th millennium BC, the biotic productivity of the environment began to increase as the climate warmed and southern Ontario was colonized by deciduous forests. This caused the fauna of the area to change as well, and ancient peoples developed new forms of tools and alternate hunting practices to better exploit both animal and plant-based food sources. These new archaeological cultures are referred to as 'Archaic'. Thousands of years of gradual change in stone tool styles allows for the recognition of Early (7800–6000 BC), Middle (6000–3000 BC) and Late Archaic periods (3000–900 BC) (MCL 1997:34).

The Early and Middle Archaic periods are characterized by substantial increases in the number of archaeological sites and a growing diversity amongst stone tool types and exploited raw materials. Notable changes in Archaic assemblages include a shift to notched or stemmed projectile points, a growing prominence of net-sinkers (notched pebbles) and an increased reliance on artifacts like bone fish hooks and harpoons. In addition to these smaller items, archaeologists also begin to find evidence of more massive wood working tools such as ground stone axes and chisels (Ellis et al. 1990:65–67).

Towards the end of the Middle Archaic (ca. 3500 BC), the archaeological evidence suggests that populations were 1) increasing in size, 2) paying more attention to ritual activities, 3) engaging in long distance exchange (e.g. in items such as copper) and 4) becoming less mobile (Ellis et al. 1990:93; MCL 1997:34). Late Archaic peoples typically made use of shoreline/riverine sites located in rich environmental zones during the spring, summer and early fall, and moved further inland to deer hunting and fruit-gathering sites during late fall and winter (Ellis et al. 1990:114).

During the Late Archaic these developments continued, and new types of projectile points appear along with the first true cemeteries. Excavations of burials from this time-frame indicate that human remains were often cremated and interred with numerous grave goods, including items such as projectile points, stone tools, red ochre, materials for fire-making kits, copper beads, bracelets, beaver incisors, and bear maxilla masks (Ellis et al. 1990:115–117). Interestingly, these true cemeteries may have been established in an attempt to solidify territorial claims, linking a given band or collection of bands to a specific geographic location.

From the tools unearthed at Archaic period sites it is clear that these people had an encyclopaedic understanding of the environment that they inhabited. The number and density of the sites that have been found suggest that the environment was exploited in a successful and sustainable way over a considerable period of time. The success of Archaic lifeways is attested to by clear evidence of steady population increases over time. Eventually, these increases set the stage for the final period of Pre-Contact occupation – the Woodland Period (Ellis et al. 1990:120).

1.2.1.3 Early and Middle Woodland Periods

The beginning of the Woodland period is primarily distinguished from the earlier Archaic by the widespread appearance of pottery. Although this difference stands out prominently amongst the archaeological remains, it is widely believed that hunting and gathering remained the primary subsistence strategy throughout the Early Woodland period (900–400 BC) and well into the Middle Woodland period (400 BC–AD 600). In addition to adopting ceramics, communities also grew in size during this period and participated in developed and widespread trade relations (Spence et al. 1990; MCL 1997:34).

The first peoples to adopt ceramics in the vicinity of the study area are associated with the Meadowood archaeological culture. This culture is characterized by distinctive Meadowood preforms, side-notched Meadowood points and Vinette 1 ceramics (thick and crude handmade pottery with cord-marked decoration). Meadowood peoples are believed to have been organized in bands of roughly 35 people, and some of the best documented sites are fall camps geared towards the hunting of deer and the gathering of nuts (Spence et al. 1990:128–137).

Ceramic traditions continued to develop during the subsequent Middle Woodland period, and three distinct archaeological cultures emerged in southern Ontario: ‘Point Peninsula’ north and northeast of Lake Ontario, ‘Couture’ near Lake St. Clair and ‘Saugeen’ in the rest of southwestern Ontario (see Map 4). These cultures all shared a similar method of decorating pottery, using either dentate or pseudo-scallop shell stamp impressions, but they differed in terms of preferred vessel shape, zones of decoration and surface finish (Spence et al. 1990:142–43).

The local Saugeen complex, which appears to have extended from Lake Huron to as far east as the Humber River, is characterized by stamped pottery, distinctive projectile points, cobble spall scrapers and a lifeway geared towards the exploitation of seasonally-available resources such as game, nuts and fish (Spence et al. 1990:147–156). Although relatively distant from the study area, the Donaldson site along the Saugeen River may be representative of a typical Saugeen settlement; it was occupied in the spring by multiple bands that came to exploit spawning fish and bury members who had died elsewhere during the year (Finlayson 1977:563–578). The archaeological remains from this site include post-holes, hearth pits, garbage-dumps (middens), cemeteries and even a few identifiable rectangular structures (Finlayson 1977:234–514).

During the Middle to Late Woodland transition (AD 600–900), the first rudimentary evidence of maize (corn) horticulture appears in southern Ontario. Based on the available archaeological evidence, which comes primarily from the vicinity of the Grand and Credit Rivers, this pivotal development was not particularly widespread (Fox 1990:171, Figure 6.1). The adoption of maize horticulture instead appears to be linked to the emergence of the Princess Point complex, whose material remains include decorated ceramics (combining cord roughening, impressed lines and punctuate designs), triangular projectile points, T-based drills, steatite and ceramic pipes, and ground stone chisels and adzes (Fox 1990:174–188).

The distinctive artifacts and horticultural practices of Princess Point peoples have led to the suggestion that they were directly ancestral to the later Iroquoian-speaking populations of southern Ontario (Warrick 2000:427). These artifacts have not been found in the vicinity of the study area, however, suggesting that a gradual transition between Saugeen and Early Iroquoian lifeways may have taken place here instead.

1.2.1.4 Late Woodland Period

In the Late Woodland period (ca. AD 900–1600), the practice of maize horticulture spread beyond the western end of Lake Ontario, allowing for population increases which in turn led to larger settlement sizes, higher settlement density and increased social complexity among the peoples involved. These developments are believed to be linked to the spread of Iroquoian-speaking populations in the area; ancestors of the historically-documented Huron, Neutral and Haudenosaunee Nations. Other parts of southern Ontario, including the Georgian Bay littoral, the Bruce Peninsula and the vicinity of Lake St. Clair, were inhabited by Algonkian-speaking peoples, who were much less agriculturally-oriented. Late Woodland archaeological remains from the greater vicinity of the study area show three major stages of cultural development prior to European contact: ‘Early Iroquoian’, ‘Middle Iroquoian’ and ‘Late Iroquoian’ (Dodd et al. 1990; Lennox and Fitzgerald 1990; Williamson 1990).

Early Iroquoians (AD 900–1300) lived in small villages (ca. 0.4 ha) of between 75 and 200 people, and each settlement consisted of four or five longhouses up to 15 m in length. The houses contained central hearths and pits for storing maize (which made up 20–30% of their diet), and the people produced distinctive pottery with decorative incised rims (Warrick 2000:434–438). The best documented Early Iroquoian culture in the local area is the Glen Meyer complex, which is characterized by well-made and thin-walled pottery, ceramic pipes, gaming discs, and a variety of stone, bone, shell and copper artifacts (Williamson 1990:295–304).

Over the next century (AD 1300–1400), Middle Iroquoian culture became dominant in southwestern Ontario, and distinct ‘Uren’ and ‘Middleport’ stages of development have been identified. Both houses and villages dramatically increased in size during this time: longhouses grew to as much as 33 m in length, settlements expanded to 1.2 ha in size and village populations swelled to as many as 600 people. Middle Iroquoian villages were also better planned, suggesting emerging clan organization, and most seem to have been occupied for perhaps 30 years prior to abandonment (Dodd et al. 1990:356–359; Warrick 2000:439–446).

During the Late Iroquoian period (AD 1400–1600), the phase just prior to widespread European contact, it becomes possible to differentiate between the archaeologically-represented groups that would become the Huron and the Neutral Nations. The study area itself lies within the territorial boundaries of the Pre-Contact Neutral Nation, documented in lands as far west as Chatham and as far east as New York State.

The Neutral Nation is well represented archaeologically: typical artifacts include ceramic vessels and pipes, lithic chipped stone tools, ground stone tools, worked bone, antler and teeth, and exotic goods obtained through trade with other Aboriginal (and later European) groups (Lennox and Fitzgerald 1990:411–437). The population growth so characteristic of earlier Middleport times appears to have slowed considerably during the Late Iroquoian period, and the Pre-Contact Neutral population likely stabilized at around 20,000 by the early 16th century (Warrick 2000:446).

Pre-Contact Neutral villages were much larger than Middleport villages, with average sizes in the neighbourhood of 1.7 ha. Exceptional examples of these could reach 5 ha in size, containing longhouses over 100 m in length and housing 2,500 individuals. This seemingly rapid settlement growth is thought to have been linked to Middleport ‘baby boomers’ starting their own families and needing additional living space (Warrick 2000:446–449).

It has been suggested that the size of these villages, along with the necessary croplands to sustain them, may have had some enduring impacts on the landscapes that surrounded them. In particular, there has been a correlation postulated between Pre-Contact era corn fields and modern stands of white pine (Janusas 1987:69–70, Figure 7). Aside from these villages, the Pre-Contact Neutral also made use of hamlets, agricultural field cabins, specialized camps (e.g. fishing camps) and cemeteries (MCL 1997:35; Warrick 2000:449).

For the most part, Pre-Contact Neutral archaeological sites occur in isolated clusters defined by some sort of geographic region, usually within a watershed or another well-defined topographic

feature (see Map 5). It has been suggested that these clusters represent distinct tribal units, which may have been organized as a larger confederacy akin to the historic Five Nations Iroquois (Lennox and Fitzgerald 1990:410). Nineteen main clusters of villages have been identified, the closest manifestation of which is known simply as the “London Cluster”. This cluster, located roughly 32.2 km east of the study area, appears to have flourished primarily in the 15th century (Lennox and Fitzgerald 1990:Table 13.1).

The end of the Late Woodland period can be conveniently linked to the arrival and spread of European fur traders in southern Ontario, and a terminus of AD 1600 effectively serves to demarcate some substantial changes in Aboriginal material culture. Prior to the establishment of the fur trade, items of European manufacture are extremely rare on Pre-Contact Neutral sites, save for small quantities of reused metal scrap. With the onset of the fur trade ca. AD 1580, European trade goods appear in ever-increasing numbers, and glass beads, copper kettles, iron axes and iron knives have all been found during excavations (Lennox and Fitzgerald 1990:425–432).

1.2.2 Early Contact

1.2.2.1 European Explorers

The first European to venture into what would become southern Ontario was Étienne Brûlé, who was sent by Samuel de Champlain in the summer of 1610 to accomplish three goals: 1) to consolidate an emerging friendship between the French and the First Nations, 2) to learn their languages, and 3) to better understand their unfamiliar customs. Other Europeans would subsequently be sent by the French to train as interpreters. These men became *coureurs de bois*, “living Indian-style ... on the margins of French society” (Gervais 2004:182). Such ‘woodsmen’ played an essential role in all later communications with the First Nations.

Champlain himself made two trips to Ontario: in 1613, he journeyed up the Ottawa River searching for the North Sea, and in 1615, he travelled up the Mattawa River and descended to Lake Nipissing and Lake Huron to explore Huronia (Gervais 2004:182–185). He learned about many First Nations groups during his travels, including prominent Iroquoian-speaking peoples such as the Wendat (Huron), Petun (Tobacco) and ‘*la nation neutre*’ (the Neutrals), and a variety of Algonkian-speaking Anishinabeg bands. Champlain’s map of *Nouvelle France* from 1632 encapsulates his accumulated knowledge of the area (see Map 6). Although the distribution of the Great Lakes is clearly an abstraction, prolific Neutral village sites can be seen ‘west’ of *Lac St. Louis* (Lake Ontario).

1.2.2.2 Trading Contacts and Conflict

The first half of the 17th century saw a marked increase in trading contacts between the First Nations and European colonists, especially in southern Ontario. Archaeologically, these burgeoning relations are clearly manifested in the widespread appearance of items of European manufacture by AD 1630, including artifacts such as red and turquoise glass beads, scissors, drinking glasses, keys, coins, firearms, ladles and medallions. During this time, many artifacts such as projectile points and scrapers began to be manufactured from brass, copper and iron

scrap, and some European-made implements completely replaced more traditional tools (Lennox and Fitzgerald 1990:432–437).

Nicholas Sanson's *Le Canada, ou Nouvelle France* (1656) provides an excellent representation of southern Ontario at this time of heightened contact. Here the lands of the Neutral Nation are clearly labelled with the French rendering of their Huron name, 'Attawandaron' (see Map 7). Unfortunately, this increased contact had the disastrous consequence of introducing European diseases into First Nations communities. These progressed from localized outbreaks to much more widespread epidemics (MCL 1997:35; Warrick 2000:457). Archaeological evidence of disease-related population reduction appears in the form of reduced longhouse sizes, the growth of multi-ossuary cemeteries and the loss of traditional craft knowledge and production skills (Lennox and Fitzgerald 1990:432–433).

1.2.2.3 *Five Nations Invasion*

The importance of European trading contacts eventually led to increasing factionalism and tension between the First Nations, and different groups began to vie for control of the lucrative fur trade (itself a subject of competition between the French and British). In what would become Ontario, the Huron, the Petun, and their Anishinabeg trading partners allied themselves with the French. In what would become New York, the League of the Haudenosaunee (the Five Nations Iroquois at that time) allied themselves with the British. The latter alliance may have stemmed from Champlain's involvement in Anishinabeg and Huron attacks against Iroquoian strongholds in 1609 and 1615, which engendered enmity against the French (Lajeunesse 1960:xxix). Interposed between the belligerents, the members of the Neutral Nation refused to become involved in the conflict.

Numerous military engagements occurred between the two opposing groups during the first half of the 17th century, as competition over territories rich in fur-bearing animals increased. These tensions boiled over in the middle of the 17th century, leading to full-scale regional warfare (MNCFN 2010:5). In a situation likely exacerbated by epidemics brought by the Europeans and the decimation of their population, a party of roughly 1,000 Mohawk and Seneca warriors set upon Huronia in March 1649. The Iroquois desired to remove the Huron Nation altogether, as they were a significant obstacle to controlling the northern fur trade (Hunt 1940:91–92).

The Huron met their defeat in towns such as Saint Ignace and Saint Louis, and Sainte-Marie was abandoned and burned in the spring of 1649. Those that were not killed were either adopted in the Five Nations as captives or dispersed to neighbouring regions and groups (Ramsden 1990:384). The Petun shared a similar fate, and the remnants of the affected groups formed new communities outside of the disputed area, settling in Quebec (modern-day Wendake), in the area of Michilimackinac and near Lake St. Clair (where they were known as the Wyandot).

Anishinabeg populations from southern Ontario, including the Ojibway, Odawa, and Pottawatomi, fled westward to escape the Iroquois (Schmalz 1977:2). The Neutral were targeted in 1650 and 1651, and the Iroquois took multiple frontier villages (one with over 1,600 men) and numerous captives (Coyne 1895:18). The advance of the Iroquois led to demise of the Neutral Nation as a distinct cultural entity (Lennox and Fitzgerald 1990:456).

For the next four decades, southern Ontario remained an underpopulated wilderness (Coyne 1895:20). This rich hunting ground was exploited by the Haudenosaunee to secure furs for trade with the Dutch and the English, and settlements were established along the north shore of Lake Ontario at places like Teiaiaagon on the Humber River and Ganatswekwyagon on the Rouge River (Williamson 2008:51). The Haudenosaunee are also known to have traded with the northern Anishinabeg during the second half of the 17th century (Smith 1987:19).

Due to their mutually violent history, the Haudenosaunee did not permit French explorers and missionaries to travel directly into southern Ontario for much of the 17th century. Instead, they had to journey up the Ottawa River to Lake Nipissing and then paddle down the French River into Georgian Bay (Lajeunesse 1960:xxix). New France was consequently slow to develop in southern Ontario, at least until the fall of several Iroquoian strongholds in 1666 and the opening of the St. Lawrence and Lake Ontario route to the interior (Lajeunesse 1960:xxxii).

In 1669, the Haudenosaunee allowed an expedition of 21 men to pass through their territory. This expedition, which included François Dollier de Casson (a Sulpician priest) and René Bréhant de Galinée, managed to reach and explore the Grand River, which they named *le Rapide* after the swiftness of its current. These men descended the Grand to reach Lake Erie, and they wintered at the future site of Port Dover (Coyne 1895:21). Galinée's map is one of the earliest documented representations of the interior of southwestern Ontario (see Map 8). In it, he notes the locations of several former Neutral villages at the western end of Lake Ontario, likely consisting of abandoned ruins.

1.2.2.4 Anishinabeg Influx

The fortunes of the Five Nations began to change in the 1690s, as disease and casualties from battles with the French took a toll on the formerly-robust group (Smith 1987:19). On July 19, 1701, the Haudenosaunee ceded lands in southern Ontario to King William III with the provision that they could still hunt freely in their former territory (Coyne 1895:28). However, this agreement appears to have lacked any sort of binding formality.

According to the traditions of the Algonkian-speaking Anishinabeg, Ojibway, Odawa and Potawatomi bands began to mount an organized counter-offensive against the Iroquois in the late 17th century (MNCFN 2010:5). Around the turn of the 18th century, the Anishinabeg of the Great Lakes expanded into Haudenosaunee lands, and attempted to trade directly with the French and the English (Smith 1987:19). This led to a series of battles between the opposing groups, in which the Anishinabeg were more successful (Coyne 1895:28).

Haudenosaunee populations subsequently withdrew into New York State, and Anishinabeg bands established themselves in southern Ontario. Many of these bands were mistakenly grouped together by the immigrating Europeans under the generalized designations of 'Chippewa/Ojibway' and 'Mississauga'. 'Mississauga', for example, quickly became a term applied to many Algonkian-speaking groups around Lake Erie and Lake Ontario (Smith 1987:19), despite the fact that the Mississaugas were but one part of the larger Ojibway Nation (MNCFN 2010:3).

The Anishinabeg are known to have taken advantage of the competition between the English and French over the fur trade, and they were consequently well-supplied with European goods. The

Mississaugas, for example, traded primarily with the French and received “everything from buttons, shirts, ribbons to combs, knives, looking glasses, and axes” (Smith 1987:22). The British, on the other hand, were well-rooted in New York State and enjoyed mutually beneficial relations with the Haudenosaunee.

As part of this influx, many members of the Algonkian-speaking Ojibway, Potawatomi and Odawa First Nations came back to Lake Huron littoral. Collectively, these people came to be known as the Chippewas of Saugeen Ojibway Territory (also Saugeen Ojibway Nation). These Algonkian-speakers established themselves in the Bruce Peninsula, all of Bruce and Grey Counties, and parts of Huron, Dufferin, Wellington, and Simcoe Counties (Schmalz 1977:233).

Throughout the 1700s and into the 1800s, Anishinabeg populations hunted, fished, gardened and camped along the rivers, floodplains and forests of southern Ontario (Warrick 2005:2). However, their ‘footprint’ was exceedingly light, and associated archaeological sites are both rare and difficult to detect. Historical records often play a pivotal role in reconstructing Anishinabeg lifeways during the timeframe, as the first European colonists often wrote about the locations of Aboriginal camps and hunting grounds.

Historical maps from the 18th century likewise shed valuable light on the contemporary cultural landscape. H. Popple’s *A Map of the British Empire in America* (1733), for example, does not show any prominent settlements in the vicinity of the study area, which is a result of the ephemeral environmental impact of the mobile Ojibway (see Map 9). Interestingly, this map demonstrates that the area of the Thames River was poorly documented at that time, especially in comparison to the Lake St. Clair and Detroit River areas. D. and G. Robert de Vaugondy’s *Nouvelle France ou le Canada* (1755) depicts the Thames River with more accuracy, indicating that European understanding of the interior had increased substantially in the interim (see Map 10).

1.2.2.5 *Relations and Ambitions*

The late 17th and early 18th centuries bore witness to the continued growth and spread of the fur trade across all of what would become the Province of Ontario. The French, for example, established and maintained trading posts along the Upper Great Lakes, offering enticements to attract fur traders from the First Nations. Even further north, Britain’s Hudson Bay Company dominated the fur trade. Violence was common between the two parties, and peace was only achieved with the Treaty of Utrecht in 1713 (Ray 2012). Developments such as these resulted in an ever-increasing level of contact between European traders and local Aboriginal communities.

As the number of European men living in Ontario increased, so too did the frequency of their relations with Aboriginal women. Male employees and former employees of French and British companies began to establish families with these women, a process which resulted in the ethnogenesis of a distinct Aboriginal people: the Métis. Comprised of the descendants of those born from such relations (and subsequent intermarriage), the Métis emerged as a distinct Aboriginal people during the 1700s (MNO 2011).

Métis settlements developed along freighting waterways and watersheds, and were tightly linked to the spread and growth of the fur trade. These settlements were part of larger regional

communities, connected by “the highly mobile lifestyle of the Métis, the fur trade network, seasonal rounds, extensive kinship connections and a shared collective history and identity” (MNO 2011).

In 1754, hostilities over trade and the territorial ambitions of the French and the British led to the Seven Years’ War (often called the French and Indian War in North America), in which many Anishinabeg bands fought on behalf of the French. After the French surrender in 1760, these bands adapted their trading relationships accordingly, and formed a new alliance with the British (Smith 1987:22). In addition to cementing British control over the Province of Quebec, the Crown’s victory over the French also proved pivotal in catalyzing the Euro-Canadian settlement process. The resulting population influx caused the demographics of many areas to change considerably.

R. Sayer and J. Bennett’s *General Map of the Middle British Colonies in America* (1776) provides an excellent view of the ethnic landscape of southern Ontario prior to the widespread arrival of European settlers. This map clearly depicts the Thames River (‘the Long River without Falls’), the settlements of Mississaugas, Potawatomis and Ottawas near Lake St. Clair, and the virtually untouched lands of southern Ontario (see Map 11).

1.2.3 The Euro-Canadian Era

1.2.3.1 British Colonialism

With the establishment of absolute British control came a new era of land acquisition and organized settlement. In the *Royal Proclamation* of 1763, which followed the Treaty of Paris, the British government recognized the title of the First Nations to the land they occupied. In essence, the ‘right of soil’ had to be purchased by the Crown prior to European settlement (Lajeunesse 1960:cix). Numerous treaties and land surrenders were accordingly arranged by the Crown, and great swaths of territory were acquired from the Ojibway and other First Nations. These first purchases established a pattern “for the subsequent extinction of Indian title” (Gentilcore and Head 1984:78).

The first land purchases in Ontario took place along the shores of Lake Ontario and Lake Erie, as well as in the immediate ‘back country’. Such acquisitions began in August 1764, when a strip of land along the Niagara River was surrendered by Six Nations, Chippewa and Mississauga chiefs (NRC 2010a). Although many similar territories were purchased by the Crown in subsequent years, it was only with the conclusion of the American Revolutionary War (1775–1783) that the British began to feel a pressing need for additional land. In the aftermath of the conflict, waves of United Empire Loyalists came to settle in the Province of Quebec, driving the Crown to seek out property for those who had been displaced. This influx had the devastating side effect of sparking the slow death of the fur trade, which was a primary source of income for many First Nations groups.

By the mid-1780s, the British recognized the need to 1) secure a military communication route from Lake Ontario to Lake Huron other than the vulnerable passage through Niagara, Lake Erie and Lake St. Clair; 2) acquire additional land for the United Empire Loyalists; and 3) modify the administrative structure of the Province of Quebec to accommodate future growth. The first two

concerns were addressed through the negotiation of numerous ‘land surrenders’ with Anishinabeg groups north and west of Lake Ontario, and the third concern was mitigated by the establishment of the first administrative districts in the Province of Quebec.

On July 24, 1788, Sir Guy Carleton, Baron of Dorchester and Governor-General of British North America, divided the Province of Quebec into the administrative districts of Hesse, Nassau, Mecklenburg and Lunenburg (Archives of Ontario 2009). The vicinity of the study area fell within the district of Hesse at this time, which consisted of a massive tract of land encompassing all of the western and inland parts of the province extending due north from the tip of Long Point on Lake Erie in the east. According to early historians, “this division was purely conventional and nominal, as the country was sparsely inhabited ... the necessity for minute and accurate boundary lines had not become pressing” (Mulvany et al. 1885:13).

Further change came in December 1791, when the Parliament of Great Britain’s *Constitutional Act* created the Provinces of Upper Canada and Lower Canada from the former Province of Quebec. Colonel John Graves Simcoe was appointed as Lieutenant-Governor of Upper Canada, and he became responsible for governing the new province, directing its settlement and establishing a constitutional government modelled after that of Britain (Coyne 1895:33).

Simcoe initiated several schemes to populate and protect the newly-created province, employing a settlement strategy that relied on the creation of shoreline communities with effective transportation links between them. These communities, inevitably, would be composed of lands obtained from the First Nations, and many more purchases were subsequently arranged. In July 1792, Simcoe divided the province into 19 counties consisting of previously-settled lands, new lands open for settlement and lands not yet acquired by the Crown. These new counties stretched from Essex in the west to Glengarry in the east. Three months later, in October 1792, an Act of Parliament was passed whereby the four districts established by Lord Dorchester were renamed as the Western, Home, Midland and Eastern Districts (Archives of Ontario 2009).

The vicinity of the study area nominally fell within the boundaries of Kent County at this time, which comprised all of the territory of Upper Canada that was not included in the other 18 counties (Archives of Ontario 2009). In essence, Kent was the largest county ever created, stretching from Lake Erie to Hudson’s Bay (McGeorge 1939:36). This arrangement would not last, however, and the ‘northern’ parts of Kent County would soon be sectioned off to form separate counties. D.W. Smyth’s *A Map of the Province of Upper Canada* (1800) clearly shows the layout of the earliest townships north of Lake Ontario, and demonstrates that the vicinity of the study area remained largely untouched by early British colonialism (see Map 12).

1.2.3.2 Middlesex County

Shortly after the creation of Upper Canada, the original arrangement of the province’s districts and counties was deemed inadequate. As population levels increased, smaller administrative bodies became desirable, resulting in the division of the largest units into more ‘manageable’ component parts. The first major changes in the southwest took place in 1798, when an Act of Parliament called for the realignment of the Home and Western Districts and the formation of the London and Niagara Districts. Many new counties and townships were subsequently created (Archives of Ontario 2009).

The vicinity of the study area nominally became part of the London District at this time, but the bulk of settlement occurred in the previously-surveyed townships to the south and southeast. In these areas substantial communities had already developed, as well as preliminary infrastructure. Dundas Street connected London and York, for example, and the Talbot Road linked the inland townships to those along the shore of Lake Erie (ATHG 2001:1). J. Purdy's *A Map of Cabotia* (1814) provides an excellent view of Middlesex, Oxford and Norfolk Counties during these early years (see Map 13).

Middlesex County initially comprised the Townships of Aldborough, Dunwich, Southwold, Yarmouth, Malahide, Bayham, Delaware, Westminster, Dorchester and London. This arrangement lasted for the majority of the early 19th century, and the county was unaffected by the creation of the Gore District from parts of the Home and Niagara Districts in 1816 (Archives of Ontario 2009).

Between 1815 and 1824, heavy immigration from the Old World resulted in the doubling of the non-Aboriginal population of Upper Canada from 75,000 to 150,000. This dramatic increase was a result of the outcome of the War of 1812 and the Crown's efforts to populate the province's interior. A total of six major land-cession agreements were then pursued, which would yield nearly 3,000,000 ha of lands for Euro-Canadian settlement (Surtees 1994:112).

In October 1818, John Askin, Superintendent of Indian Affairs at Amherstburg, was sent to the Thames River area between London and Chatham in order to arrange for the purchase of a large tract of land to the north. Askin met with the chiefs of the Ojibway bands of the Chenal Ecarté, the St. Clair River, Bear Creek, the Sable River and the Thames River, and began negotiations for lands on the Thames River and on Lake Huron just north of the Sable River, extending inland as far as the Grand River Tract. The Ojibway leaders agreed to sell the land, and stipulated that 1) six reserves be set aside for them and that 2) a blacksmith and farm instructor be stationed near the reserves (Surtees 1994:117).

Based on Askin's report, the government decided to purchase the subject tract through two agreements: the 'Long Woods Purchase' and the 'Huron Tract Purchase'. The Long Woods area interested the Crown the most, as it was immediately north of the Thames River and was the next logical destination for Euro-Canadian settlers. Askin met with the Ojibway in 1819, and a provisional agreement was created which involved the surrender of 210,000 ha in exchange for an annuity of 600 pounds in currency and goods. The Huron Tract provisional agreement was also negotiated that same year, in which over 1,000,000 ha were to be sold for an annuity of 1,375 pounds in currency and goods (Surtees 1994:117–118).

Neither agreement was executed, however, as objections over the nature of the cash payments led to the revision of both proposals. The Long Woods Purchase was finally completed on November 28, 1822, and almost 552,190 ha were exchanged for 600 pounds in currency (NRC 2010a). Specifically, a *per capita* payment of 2 pounds 10 shillings was agreed upon, to a maximum of 240 persons (Surtees 1994:118). The Huron Tract Purchase took longer to settle, and it was not pursued in earnest until John Galt's Canada Company began to materialize. This purchase was completed on July 10, 1827 for 1,375 pounds in currency (NRC 2010a).

In 1821, prior to the formal completion of the Long Woods Purchase, the London District was enlarged through the addition of new townships in the northwest (Lobo, Caradoc, Metcalfe, Ekfrid and Mosa) and northeast (Nissouri and Zorra). In 1826, the district was slightly reduced when the easternmost Townships of Walpole and Rainham were transferred to the Haldimand District (Archives of Ontario 2009). The Village of London was formally laid out at this time (Smith 1846:99), but the area that would be the Township of Adelaide remained unincorporated.

In the late 1820s, the government realized that new roads were needed in the southwestern part of the province in order to accommodate increasing immigration from Great Britain and to supplement Dundas Street, the Talbot Road, the Huron Road and Yonge Street (ATHG 2001:3). In response to this need, the future Egremont Road was planned, running from east to west through the unsurveyed and unnamed Townships of Adelaide, Warwick and beyond. Peter Robinson, Commissioner of Crown Lands and Surveyor General of Woods, was dispatched to open up and sell these new lands, and Roswell Mount of Delaware was assigned as his agent for immigrants (ATHG 2001:3). Following the completion of surveys in October 1832, the Townships of Adelaide and Warwick were opened for settlement (see Map 14). In 1834, the Township of Adelaide was formally annexed to Middlesex County (Archives of Ontario 2009).

In 1837 and 1838, the layout of what would become southwestern Ontario was significantly altered through the creation of the Huron, Brock, Wellington, Talbot and Simcoe Districts (Archives of Ontario 2009). The London District came to consist solely of Middlesex County at this time, as Oxford County became part of the Brock District and Norfolk County became part of the Talbot District. In February 1841, all of these districts became part of Canada West in the new United Province of Canada.

By 1842, the population of Middlesex County had reached 31,350. The area developed at a great pace, and over the next two years roughly 7,290 ha (18,000 acres) were brought under cultivation. By 1844, the county's agricultural lands amounted to 52,783 ha (130,329 acres), and there were 35 grist mills and 93 saw mills in operation (Smith 1846:99). Middlesex County was known for its many good roads at this time, including those to Brantford and Hamilton, Galt and Guelph, Goderich, Chatham, Port Sarnia and Port Stanley, the latter of which was planked and passed through St. Thomas (Smith 1846:99). In 1845, Middlesex County was slightly enlarged by the addition of the Township of Williams in the northeast.

Between 1846 and 1849, Middlesex County comprised the Townships of Adelaide, Aldborough, Bayham, Caradoc, Delaware, Dorchester, Dunwich, Ekfrid, Lobo, London, Metcalfe, Mosa, Malahide, Southwold, Westminster, Williams, Yarmouth and the Town of London (see Map 15). The Townships of Yarmouth, London, Westminster, Southwold and Malahide were the best settled, and on the whole the county contained many good farms with large clearings and expansive orchards (Smith 1846:99).

Following the abolishment of the district system in 1849, the counties of Canada West were reconfigured once again. The southern part of Middlesex County was reduced by the creation of Elgin County, but the Township of West Nissouri was added in the northeast (see Map 16). By the late 19th century, Middlesex County consisted of the Townships of Mosa, Ekfrid, Caradoc,

Delaware, Westminster, North Dorchester, Metcalfe, Adelaide, Lobo, London, West Nissouri, West Williams, East Williams, McGillivray and Biddulph (see Map 17).

1.2.3.3 Township of Adelaide

In historic times, the Township of Adelaide was bounded by the Township of Williams to the north, the Township of Warwick to the west, the Townships of Metcalfe and Caradoc to the south and east, and the Township of Lobo to the northeast. Numerous waterways traversed this area, including tributaries of Hardy Creek in the southwest; tributaries of the Sydenham River in the southeast; tributaries of the Ausable River in the northwest; Adelaide Creek and its tributaries in the centre and north; and Mud Creek and its tributaries in the northeast (see Map 18). On the whole, the township was known for its excellent land and good farms (Smith 1846:1).

Unlike the remainder of Middlesex County, the Township of Adelaide was settled relatively late in the Euro-Canadian period. Peter Robinson, who was given the task of opening up the northern parts of the Western and London Districts after the completion of the Long Woods Purchase, was instrumental in this settlement process. The principal artery for settlement was to be the Egremont Road, and after much planning and the occasional discussion with Colonel Talbot, Robinson sent Peter Carroll to survey the area (ATHG 2001:4).

Carroll first explored the area in June 1831, and was accompanied by militia captain James Nevilles. The men started at Marvel White's tavern on the Lobo-Caradoc townline and set out westerly into the forest. After several days of exploration, they identified the best route to Lake Huron. The survey began in July 1831, and Carroll followed a routine in which he blazed the line for the road across six to eight lots on one day, and then established the road line between Concessions 2 and 3 to the south on the next day. On the third day, the group repeated the procedure on the north side of the main road. Following this method, the roads through the Townships of AA (later Adelaide) and AB (later Warwick) were surveyed by the end of August, with three ties of lots on either side of the main road (ATHG 2001:5-6).

In the spring of 1832, Robinson sent Carroll back to the Townships of Adelaide, Warwick and Plympton to finalize the surveys and prepare the individual 100 acre lots for the coming population influx. Carroll finished the Township of Adelaide in July 1832, and completed the remaining surveys in October 1832. Interestingly, even while he was conducting the surveys, settlers began to converge on the new lots (ATHG 2001:6-7).

The first settlers in the Township of Adelaide included 1) a small group of wealthy gentlemen from Ireland who purchased several hundred acres of property; 2) roughly 400 settlers from southern England sent out by the Petworth Emigration Society; 3) discharged soldiers from Great Britain who commuted their pensions for cash to purchase land; and 4) sons and daughters of United Empire Loyalists who received free grants of land (ATHG 2001:7).

The 'Irish Gentlemen' included William and Thomas Radcliff, who arrived with their wives and each purchased 400 acres along the Main Road adjacent to the Town Plot of Adelaide, and Dr. Thomas Phillips, who was granted a lot within the Town Plot. Dr. Phillip's house was the first to be built in the township, and it consisted of a main floor, a room downstairs and a room upstairs (ATHG 2001:8).

These wealthy landowners formed a stark contrast to the poor settlers that arrived from southern England around the same time. The travel expenses for these newcomers were supplemented by the Petworth Emigration Society and by George Wyndham, Third Earl of Egremont, as part of an emigration scheme designed to relieve population pressure, unemployment and poverty in England. The new arrivals included the Bakers, Carvers, Coopers, Downers, Goatchers, Hasletts, Hasted, Hiltons, Hoares, Humphries, Joiners, Knights, Manns, Nappers, Pannells, Parkers, Pays, Philippses, Pulboroughs, Pullens, Randalls, Rapleys, Thomases, Vineys and Whites (ATHG 2001:8–12).

The two remaining groups comprised army pensioners and Loyalist descendants. Settling the pensioners was very problematic for Roswell Mount, particularly when nearly 1,000 of them arrived at Port Stanley in August in the midst of a cholera outbreak. He could not find anyone to shelter the new arrivals, and had to pay to transport them to their destinations by renting wagons. Over 130 ‘military land grants’ were made for properties in the Township of Adelaide (ATHG 2001:12–13). The Loyalist descendants who received grants between 1831 and 1838 included the Barkleys, Barnums, Connors, Cunninghams, Dells, Grens, Hicks, Hills, McLeans, Millers, Ryersons, Stovers, Van Everys, Willsons and Youngs (ATHG 2001:20).

The new population set about clearing the dense forest, and Roswell Mount assigned surveyors to direct them and experienced woodsmen to train them. Mount also assisted in erecting houses prior to the onset of winter, and 250 log homes were built in the Townships of Adelaide and Warwick at a government expense of nearly 1,000 pounds (to be repaid by each settler once established). In October 1832, he settled accounts with 386 people who had been employed to open the roads, but still had to issue free rations to many families to sustain them over the winter (ATHG 2001:15).

Following the harsh winter, the Town Plot of Adelaide was surveyed and sales were held in March 1833. The lots were purchased by the Wilsons, Dillons, Hoares, Westlakes, Durands, Marrills, Robertsons, Neilsons, Clarks, Dickinsons, Harls and Wellwoods (ATHG 2001:15–17). In Mount’s report to Sir John Colborne in August 1833, he states that the population of Adelaide had reached 1,138 persons, but notes that hundreds had temporarily left to find paid employment in adjoining settlements. A total of 1,630 acres had been cleared by that time. Mount died in January 1834 (ATHG 2001:17–18).

By 1846, there were two saw mills and one grist mill in the township, roughly 32,272 acres had been taken up, and approximately 4,025 acres were under cultivation (Smith 1846:1). In 1851 the population of the township was 1,979 (ATHG 2001:27), and in 1888 it reached 2,963 (Goodspeed 1889:443). The principal settlements included Adelaide, Strathroy, Kerwood and Keyser, and smaller communities were located at Amiens, Crathie, Mullifarry and Napperton.

The central Village of Adelaide was the first to develop, and by 1851 it had a population of roughly 150. In 1856, the Grand Trunk Railway Line from London to Sarnia was built through Strathroy instead of Adelaide, as the rail company experienced difficulties in acquiring a right-of-way through the village. As a result, Adelaide began to decline, and a population shift ensued (ATHG 2001:505). Strathroy, which had a population of 14 in 1840, grew to 3,000 by 1870 (see Map 19). Despite its decline, Adelaide still comprised several general stores, a saw mill, a

hotel, several shoemakers, a blacksmith, a carpenter and a post office in the late 19th century (Goodspeed 1889:448).

Kerwood developed along the southwestern corridor of the study area, and was founded during the construction of the railway in the late 1850s. William Kerr, a woodcutter, came to the area to cut timber to make ties for the line, and the settlement was accordingly named 'Kerrwood' (eventually becoming Kerwood). The land initially belonged to John McKenzie of Hamilton, who laid out the streets and lots of the settlement. By 1862, Kerwood was a thriving village of 50 persons, and plans were made for the construction of a railway station house. At that time, Kerwood consisted of a dozen houses, a post office, a general store, two hotels, a blacksmith shop, a boot and shoe store, and a carpenter shop (ATHG 2001:511). By 1888, the village contained approximately 300 people, and had gained additional general stores, a saw mill, a brick- and tile-yard, a carriage and wagon shop, and a cheese factory (Goodspeed 1889:453). In 1925, the population of Kerwood was 250, and for the remainder of the 20th century the community continued to prosper (see Image 1).

Historic Keyser, located in the northwestern part of the township, was a small hamlet that never reached the status of an incorporated village. Named after several different Keyser families who settled in the area in the 1830s, Keyser (or Keyser's Corner) gained a post office in August 1864 (ATHG 2001:514). During the 1870s, Keyser was noted for its cheese factory and a brick- and tile-yard (Goodspeed 1889:454; ATHG 2001:515). The settlement's population peaked at 200 in 1871, and subsequently declined to 60 in 1880 and 45 in 1891. The post office was closed in October 1913 (ATHG 2001:514).

The small communities of Amiens, Crathie, Mullifarry and Napperton were also of historical note in the Township of Adelaide. A summary of these settlements and their most prominent services, compiled from business directories of the towns and villages of Middlesex County by the Adelaide Township Heritage Group, appears in Table 1.

Table 1: Summary of Amiens, Crathie, Mullifarry and Napperton from 1905–1914
(ATHG 2001:517–518)

Settlement	Proximity to Study Area	1905		1910		1914	
		Pop.	Notable Services	Pop.	Notable Services	Pop.	Notable Services
Amiens	13.8 km northeast of study area	40	Apiarist (beekeeper), 3 builders and contractors, postmaster and general agent, auctioneer, cattle dealer	40	Post office and general store	No Record	No Record
Crathie	9.9 km northeast of study area	50	Postmaster, blacksmith, carpenter and builder,	50	Magistrate, butcher, 2 carpenters, postmaster,	No Record	No Record

			magistrate, saw mill		saw mill		
Mullifarry	3.7 km northeast of study area	40	Post office	40	Post office	No Record	No Record
Napperton	1.8 km east of study area	50	Justice and government agent, piano and organ dealer, insurance agent and township treasurer, grain thresher	50	Farmers' agent, drover, post master, pianos, health officer, insurance agent and treasurer	1910 entry repeated	1910 entry repeated

The modern Township of Adelaide Metcalfe was formed on January 1, 2001 through the amalgamation of the former Townships of Adelaide and Metcalfe. The 2011 census profile for Adelaide Metcalfe shows a population of 3,028 and a total of 1,064 private dwellings (Statistics Canada 2012).

1.2.3.4 Lots 8 and 10, Concession 4 SER

As discussed in Section 1.1, the study area for these Stage 1 and 2 assessments falls primarily on parts of Lots 8 and 10, Concession 4 SER in the Geographic Township of Adelaide. The remainder falls within three historic road allowances laid out between Lots 7–10, Concessions 4–5 SER and Lots 6–7, Concessions 5–6 SER. The layout and boundaries of these lots were established during the initial survey of the townships in the early 1830s, and the area was very well-settled for the majority of the Euro-Canadian era.

In an attempt to reconstruct the historic land use of the study area, ARA examined a historical map that documented past residents, structures (e.g. homes, businesses and public buildings) and features during the late 19th century. This map, published in Page & Co.'s *Illustrated Atlas of the County of Middlesex, Ontario* (1878), was of the most detailed scale available (i.e. 60 chains to 1 inch). A georeferenced version displaying the spatial location of the study area appears in Map 20 (McGill University 2001).

This map indicates that every lot and concession in the vicinity of the study area was settled by 1878. The western 96 acres of Lot 8, Concession 4 SER was occupied by Robert Galbraith's heirs, and the Galbraith homestead is depicted in the southern part of the parcel near Napperton Drive. The western 100 acres of Lot 10, Concession 4 SER was owned by William H. Early (Early), and the Early homestead appears in the southeastern part of the parcel off of Napperton Drive (see Map 20). Few biographical details were included in the *Illustrated Atlas* for these individuals, although both appear to have had their mail delivered to the Kerwood post office (McGill University 2001).

In order to gain a comprehensive understanding of the historic land use of the study area in the 19th century and the early 20th centuries, ARA consulted the land registry records for Lots 8 and 10, Concession 4 SER. These records indicate that both lots were consistently dealt with in two halves, and that each half was typically owned by a separate individual. The principal transactions associated with the western parts of Lots 8 and 10, Concession 4 SER appear in Table 2 and Table 3, respectively.

Table 2: Land Transactions for the West Half of Lot 8, Concession 4 SER

Date	Transaction	Grantor	Grantee	Amount
March 13, 1837	Patent	The Crown	Adam West	200 Acres
October 8, 1839	B & S	Adam West	Samuel Munn	200 Acres
April 9, 1857	B & S	Samuel Munn	Robert Munn	96 Acres (W 1/2)
September 21, 1857	Mortgage	Robert Munn	William Johnston	96 Acres (W 1/2)
October 17, 1857	A of M	William Johnston	Thomas Irving	96 Acres (W 1/2)
January 7, 1861	Final Order of Foreclosure	Court of Chancery	Thomas Irving	96 Acres (W 1/2)
October 8, 1862	B & S	Samuel Munn	Matilda Munn	4 Acres (SW Part of W 1/2)
January 29, 1864	B & S	Thomas Irving	Robert Galbraith	96 Acres (W 1/2)
August 22, 1889	B & S	Matilda Munn	John Munn	4 Acres (SW Part of W 1/2)
March 22, 1902	B & S	Mary Jane Patterson (Widow of R. Galbraith)	William Armstrong	96 Acres (W 1/2)
April 10, 1905	B & S	William Armstrong	Albert Early	96 Acres (W 1/2)
August 5, 1911	B & S	John Munn	Robert Wilkinson	4 Acres (SW Part of W 1/2)
January 13, 1919	Grant	Robert Wilkinson	William Gimblett	4 Acres (SW Part of W 1/2)
December 22, 1919	Grant	William Gimblett	Charles and Annie Murby	4 Acres (SW Part of W 1/2)
November 3, 1925	Grant	Charles and Annie Murby	Pat Walsh	4 Acres (SW Part of W 1/2)
November 7, 1929	Grant	Daisy Maher (for Pat Walsh)	Daisy Maher	4 Acres (SW Part of W 1/2)
April 23, 1930	Grant	Daisy Maher	Elmer Morgan	4 Acres (SW Part of W 1/2)
August 3, 1946	Grant	Elmer Morgan	Harold Jordan	4 Acres (SW Part of W 1/2)
September 14, 1946	Quit Claim	Annie Murby	Elmer Morgan	4 Acres (SW Part of W 1/2)
March 15, 1948	Grant	Albert Early	Clarence Patterson	96 Acres (W 1/2)

Date	Transaction	Grantor	Grantee	Amount
November 15, 1954	Quit Claim	Harold Jordan	Canadian Oil Co. Ltd.	4 Acres (SW Part of W 1/2)
May 24, 1955	Grant	Canadian Oil Co. Ltd.	Clarence Patterson	4 Acres (SW Part of W 1/2)
April 6, 1962	Grant	Clarence Patterson	Dana Rutledge	4 Acres (SW Part of W 1/2)
June 24, 1969	Grant	Dana Rutledge	Vernice and Eileen Paff	4 Acres (SW Part of W 1/2)
July 28, 1978	Grant	Clarence Patterson	Robert Patterson	96 Acres (W 1/2)

The full extent of Lot 8, Concession 4 SER (200 acres) was first patented to Adam West in 1837. In 1839, West sold the land to Samuel Munn, and Samuel Munn parted the property in 1857 and sold the western half to Robert Munn. Robert Munn mortgaged part of the property to William Johnston five months later, and the following month Thomas Irving received the mortgage through alienation. After a final order of foreclosure in 1861, Irving received the title to the 96 acre parcel. In 1862, Samuel Munn sold his small 4 acre parcel in the southwest to Matilda Munn, and this property (which fall outside of the study area) changed hands numerous times after 1889. In 1864, the remaining 96 acres of the parcel were sold to Robert Galbraith, and in 1902 Galbraith's widow (Mary Jane Patterson) sold the land to William Armstrong. In 1905, Armstrong sold the parcel to Albert Early, who retained possession until 1948 when the land was granted to Clarence Patterson. In 1978, Patterson granted the 96 acre parcel to Robert Patterson.

Table 3: Land Transactions for the West Half of Lot 10, Concession 4 SER

Date	Transaction	Grantor	Grantee	Amount
November 30, 1835	Patent	The Crown	George Hamilton	200 Acres
July 11, 1845	B & S	George Hamilton	Ronald McKinnon	200 Acres
September 26, 1847	B & S	Ronald McKinnon	James Early	100 Acres (W 1/2)
August 29, 1874	Conveyance	James Early	Fawcett Early	50 Acres (W 1/2 of W 1/2)
July 26, 1875	Deed	Fawcett Early	William Early	50 Acres (W 1/2 of W 1/2)
December 3, 1875	Conveyance	James Early	William Early	50 Acres (E 1/2 of W 1/2)
December 5, 1878	Deed	William Early	James Early	50 Acres (E 1/2 of W 1/2)
March 6, 1879	Will	James Early	William Early	50 Acres (E 1/2 of W 1/2)
September 6, 1880	Deed	William Early	John Morgan	50 Acres (E 1/2 of W 1/2)
December 14, 1895	Deed	John Morgan	Clara Morgan	50 Acres (E 1/2 of W 1/2)

Date	Transaction	Grantor	Grantee	Amount
November, 1906	B & S	Clara Morgan	Caroline Alexander	50 Acres (E 1/2 of W 1/2)
December 3, 1906	B & S	Caroline Alexander	Ernest Early	50 Acres (E 1/2 of W 1/2)
April 12, 1924	Grant	William Early	Ernest Early	50 Acres (W 1/2 of W 1/2)
May 19, 1951	Grant	Catherine Early (Widow of E. Early)	Robert Patterson	50 Acres (E 1/2 of W 1/2)
May 22, 1951	Grant	Catherine Early (Widow of E. Early)	Clarence Patterson	50 Acres (W 1/2 of W 1/2)
December 3, 1955	Grant	Clarence Patterson	Robert Patterson	50 Acres (W 1/2 of W 1/2)
February 17, 1960	Grant	Robert Patterson	Clarence Patterson	50 Acres (E 1/2 of W 1/2)
January 6, 1964	Grant	Robert Patterson	Robert & Anne Cox	50 Acres (W 1/2 of W 1/2)

George Hamilton received the patent for Lot 10, Concession 4 SER (200 acres) in 1835. In 1845, Hamilton sold the parcel to Ronald McKinnon, and in 1847, McKinnon parted the lot and sold the western half (100 acres) to James Early. Early retained the full parcel until 1874, at which time the ‘western half of the western half’ (50 acres) was conveyed to Fawcett Early. In 1875, William Early acquired both the western and eastern 50 acre parcels, but in 1878 he deeded the eastern parcel to James Early. James Early willed this part back to William Early in 1879, and William deeded the land to John Morgan the following year. The ‘eastern half of the western half’ passed to Clara Morgan in 1895, Caroline Alexander in November 1906 and Ernest Early in December 1906. Ernest Early gained the western parcel in 1924, and became the owner of the entire western half of Lot 10, Concession 4 SER (100 acres). In 1951, after Ernest Early’s death, his widow Catherine Early granted the eastern half to Robert Patterson and the western half to Clarence Patterson. In 1955, the western half passed to Robert Patterson as well, but in 1960 he granted the eastern half back to Clarence Patterson. In 1964, Robert Patterson granted the western half to Robert and Anne Cox.

1.2.3.5 Summary of Past and Present Land Use

During Pre-Contact and Early Contact times, the study area would have comprised a mixture of deciduous trees and open areas. It seems clear that the First Nations managed the landscape to some extent, but the degree of such management is unknown. During the early 19th century, Euro-Canadian settlers arrived in the vicinity of the study area and began to clear the forests for agricultural purposes. Over the course of the Euro-Canadian era, the study area would have comprised a mixture of agricultural lands (on the northern properties) and historically-surveyed road allowances (along Brown Road, Napperton Drive and Kerwood Road). Presently, the study area consists of a mixture of agricultural lands and municipal road allowances.

1.3 Archaeological Context

1.3.1 Summary of Registered Archaeological Sites

An archival search was conducted using the MTCS's Ontario Archaeological Sites Database in order to determine the presence of any registered archaeological resources which might be located within a 1 km radius of the study area. No registered sites were found within these limits.

The complete lack of identified archaeological sites in the immediate vicinity of the study area should not be taken as an indicator that the area was unattractive or undesirable for human occupation. Instead, this absence of sites is more likely related to a lack of local archaeological exploration.

1.3.2 Previous Archaeological Work

In accordance with the requirements set out in Section 7.5.8 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:125), ARA submitted an inquiry to the MTCS in order to determine whether any archaeological assessments had been previously conducted within the limits of, or immediately adjacent to the study area. In a response provided by the Archaeology Data Coordinator on November 22, 2011, ARA learned that no such assessments are on record at the MTCS.

1.3.3 Natural Environment

Environmental factors played a substantial role in shaping early land-use and site selection processes, particularly in small Pre-Contact societies with non-complex, subsistence-oriented economies. Euro-Canadian settlers also gravitated towards favourable environments, particularly those with agriculturally-suitable soils and a moderate climate. In order to fully comprehend the archaeological context of the study area, the following five features of the local natural environment must be considered: 1) forests; 2) drainage systems; 3) climatic conditions; 4) physiography; and 5) soil types.

The study area lies within the deciduous forest, an ecological zone described as having the most diverse forest life in Ontario. The region is characterized by a wide range of tree and shrub species, including eastern white pine, red pine, eastern hemlock, white cedar, yellow birch, sugar and red maple, basswood, red oak, black walnut, butternut, tulip, magnolia, black gum, and many types of oaks and hickories. A number of rare species of mammals, birds, plants and insects reside in the deciduous forest, including sassafras and tulip trees, southern flying squirrels, and red-bellied woodpeckers. Today, over 90% of Ontario's population lives in this small region (MNR 2012).

Relatively little of the original forest cover remains standing today, however, as early Euro-Canadian agriculturalists conducted large-scale clearing operations to prepare the land for cultivation—only scattered woodlots remain in areas that are otherwise too poor for agriculture (MNR 2012). In Pre-Contact times, however, these dense forests would have been particularly bountiful. It is believed that the First Nations of the Great Lakes region exploited close to 500 plant species for food, beverages, food flavourings, medicines, smoking, building materials,

fibres, dyes and basketry (Mason 1981:59–60). Furthermore, this diverse vegetation would have served as both home and food for a wide range of game animals, including white tailed deer, turkey, passenger pigeon, cottontail rabbit, elk, muskrat and beaver (Mason 1981:60).

In terms of local drainage systems, the western part of the study area falls within the Brown Creek watershed, while the eastern part falls within the Upper Sydenham watershed. The Brown Creek watershed covers roughly 15,500 ha and consists of Brown Creek, Hardy Creek and Hair Creek. The Upper Sydenham watershed encompasses an area of 22,900 ha and includes Campbell Creek, Spring Creek, Dortmans Creek and part of the Sydenham River (SCRCA 2012). A minor tributary of the Sydenham River traverses the southeastern part of the eastern parcel, and a grassed waterway draining into Hardy Creek traverses the northern part of the western parcel. The Sydenham River is located roughly 5.0 km southeast of the study area, and Hardy Creek flows approximately 3.0 km to the west.

The local climatic region is that of the Lake Erie Counties, which is located southwest of the South Slopes region and north of the Lake Erie shoreline. In general, this area experiences average daily minimum temperatures of between -8 °C and -9 °C in January and average daily maximum temperatures of between 27 °C and 28 °C in July. The frost-free period ranges from 150 to 155 days in length, with the latest spring frost occurring between May 8 and May 12. The mean annual precipitation level for the region varies between 840 and 910 mm, with anywhere from 360 to 400 mm falling during the growing season (Hagerty and Kingston 1992:16). On the whole, this climate would have been ideal for the common grain and forage crops grown during the Euro-Canadian period.

Physiographically, the study area lies in the region known as the Ekfrid Clay Plain, which is located southwest of the Caradoc Sand Plain and northeast of the Bothwell Sand Plain. The plain comprises stratified clays, and the surface is nearly level save for those areas cut by the Thames and Sydenham Rivers. Knolls or low ridges of sand and gravel are superimposed on the clay in several areas, and the clay beds are thinnest between the Thames River and St. Thomas (Chapman and Putnam 1984:146–147). These physiographic elements have accumulated over grey shale and limestone bedrock belonging to the Middle Devonian Hamilton Group formation (Davidson 1989:42).

The study area consists primarily of Brantford soils, although Huron soils are present in the northernmost parts of the two rectilinear parcels. Eroded channels cut by small streams also traverse the southeastern corner of the easternmost parcel. Brantford soils occur throughout the ROW corridors along Napperton Drive and Kerwood Road, although Brant soils can be found south of Kerwood. Brantford soils are moderately well-drained and consist of silty clay loam and silty clay glaciolacustrine material. Huron soils, which are likewise moderately well-drained, comprise silty clay loam, silty clay, and occasionally clay loam glacial till. Brant soils are well-to imperfectly drained, and consist of silt loam, very sandy loam and loam glaciolacustrine material (Hagerty and Kingston 1992:Sheets 1–2).

In sum, the study area possesses a number of environmental characteristics which would have made it attractive to both Pre-Contact and Euro-Canadian populations. The vibrant deciduous forest and the nearby waterways would have attracted a wide variety of game animals, and

consequently, early hunters. The well-drained soils would have been ideal for the maize horticulture of Middle to Late Woodland peoples and the mixed agriculture practiced by later Euro-Canadian populations. Finally, the proximity of the study area to the Sydenham River would also have influenced its settlement and land-use history. Such major waterways functioned as principal transportation routes in both Pre- and Post-Contact times.

1.3.4 Archaeological Fieldwork and Property Conditions

The Stage 1 and 2 assessments were carried out on December 2 and 8, 2011 under MTCS licence #P007, PIF #P007-381-2011 and # P007-385-2011. These assessments encompassed all parts of the study area that could be impacted by the proposed project, and involved the on-site documentation of all areas of no archaeological potential. Legal permission to enter and conduct all necessary fieldwork activities within the study area was granted by the property owners.

Key personnel involved during the assessments were P.J. Racher, Project Director; C.E. Gohm, Project Manager; P. Hoskins, Assistant Project Manager; T. White, Aboriginal Monitor; A Wong, Field Director; L. Cavers, Assistant Field Director; H. Brown, Field Cartographer (GPS); and six additional crewmembers.

The required minimum weather and lighting conditions set forth in Section 2.1 of the *Standards and Guidelines for Consultant Archeologists* (MTC 2011:29) were not met on December 2, 2011 due to light snow accumulation, and so the crewmembers were limited to flagging the limits of the project location for later assessment. On December 8, 2011 the conditions improved considerably, with relatively clear skies, excellent visibility, well-weathered soils in the ploughed lands, and dry soil for screening.

No unusual physical features were encountered during the Stage 2 assessment that affected fieldwork strategy decisions or the identification of artifacts or cultural features (e.g. dense root mats, boulders, rubble, etc.).

2.0 STAGE 1 BACKGROUND STUDY

2.1 Summary

The Stage 1 assessment of the study area, conducted under MTCS licence #P007, PIF #P007-381-2011, was accomplished through an examination of the archaeology, history, geography and current land condition of the vicinity of the study area. This background study was carried out using archival sources (e.g. historical publications and records) and current academic and archaeological publications (e.g. archaeological studies and reports). It also included the analysis of modern topographic maps (at a 1:50,000 scale), recent satellite imagery, and historical maps/atlas of the most detailed scale available (i.e. 60 chains to 1 inch).

With occupation beginning in the Palaeo-Indian period approximately 11,000 years ago, the greater vicinity of the study area comprises a complex chronology of Pre-Contact and Euro-Canadian histories (see Section 1.2). Evidence of Archaic period, Woodland period and Early Contact period remains are well-attested in Middlesex County, and Euro-Canadian archaeological sites dating to pre-1900 and post-1900 contexts are likewise well-attested. The complete lack of documented archaeological sites in the immediate vicinity of the study area should not be taken as an indicator that the area was unattractive or undesirable for human occupation. Instead, this absence of sites is more likely related to a lack of local archaeological exploration (see Section 1.3.1).

As mentioned in Section 1.3.3, the natural environment of the study area would have been attractive to both Pre-Contact and Euro-Canadian populations as a result of proximity to several water sources. The well-drained soils and diverse vegetation of the vicinity of the study area would also have encouraged settlement throughout Ontario's lengthy history. Euro-Canadian populations would have been particularly drawn to Brown Road, Napperton Road and Kerwood Road, all of which were surveyed in the 1830s (see Section 2.3).

In summary, the Stage 1 background study included an up-to-date listing of sites from the MTCS's archaeological sites database (in a 1 km radius around the study area), the consideration of previous archaeological field work in the area (in a 50 m radius around the study area), the analysis of topographic maps and historic settlement maps (at the most detailed scale available), and the study of aerial photographs/satellite imagery. In this manner, the standards for background research set out in Section 1.1 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:14–15) were met.

2.2 Field Methods (Property Inspection)

A Stage 1 property inspection was not conducted for this background study. Instead, all on-site documentation was carried out over the course of the Stage 2 property survey, in keeping with Standards 2a–b in Section 2.1 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:28). As mentioned in Section 1.3.4, legal permission to enter and conduct all necessary fieldwork activities within the study area was granted by the property owners. This on-site documentation of the study area resulted in the identification of numerous zones of no archaeological potential, which are discussed below.

2.3 Analysis and Conclusions

In addition to the relevant historical sources and the results of past excavations and surveys (see Sections 1.2–1.3), the archaeological potential of a property can be assessed using its soils, hydrology and landforms as considerations. What follows is an in-depth analysis of the archaeological potential of the study area, which incorporates the results of the on-site documentation conducted in December 2011.

Throughout southern Ontario, scholars have noted a strong association between site locations and waterways. Young, Horne, Varley, Racher and Clish, for example, state that "either the number of streams and/or stream order is always a significant factor in the positive prediction of site presence" (1995:23). They further note that certain types of landforms, such as moraines, seem to have been favoured by different groups throughout prehistory (Young et al. 1995:33). According to Janusas (1988:1), "the location of early settlements tended to be dominated by the proximity to reliable and potable water resources." Site potential modeling studies (Peters 1986; Pihl 1986) have found that most prehistoric archaeological sites are located within 300 m of either extant water sources or former bodies of water, such as post-glacial lakes.

While many of these studies do not go into detail as to the basis for this pattern, Young, Horne, Varley, Racher and Clish (1995) suggest that the presence of streams would have been a significant attractor for a host of plant, game and fish species, encouraging localized human exploitation and settlement. Additionally, lands in close proximity to streams and other water courses were highly valued for the access they provided to transportation and communication routes. Primary water sources (e.g. lakes, rivers, streams and creeks) and secondary water sources (e.g. intermittent streams and creeks, springs, marshes and swamps) are therefore of pivotal importance for identifying archaeological potential (MTC 2011:17).

Section 1.3.1 of the *Standards and Guidelines for Consultant Archaeologists* emphasizes the following six features/characteristics as being additional indicators of positive potential for Pre-Contact archaeological materials: 1) features associated with extinct water sources (glacial lake shorelines, relic river channels, shorelines of drained lakes, etc.); 2) the presence of pockets of well-drained soils (for habitation and agriculture); 3) elevated topography (e.g. drumlins, eskers, moraines, knolls, etc.); 4) distinctive landforms that may have been utilized as spiritual sites (waterfalls, rocky outcrops, caverns, promontories, etc.); 5) proximity to valued raw materials (quartz, ochre, copper, chert outcrops, medicinal flora, etc.); and 6) accessibility of plant and animal food sources (spawning areas, migratory routes, prairie lands, etc.) (MTC 2011:17–18).

Conversely, it must be understood that non-habitational sites (e.g. burials, lithic quarries, kill sites, etc.) may be located anywhere. Potential modeling appears to break down when it comes to these idiosyncratic sites, many of which have more significance than their habitational counterparts due to their relative rarity. The Stage 1 archaeological assessment practices outlined in Section 1.4.1 of the *Standards and Guidelines for Consultant Archaeologist* ensure that these important sites are not missed in Ontario, as no area can be exempted from further archaeological work unless it has been subjected to a Stage 1 property inspection or Stage 2 on-site documentation (MTC 2011:20–21).

With the development of integrated 'complex' economies in the Euro-Canadian era, settlement tended to become less dependent upon local resource procurement/production and more tied to wider economic networks. As such, proximity to transportation routes (roads, canals, etc.) became the most significant predictor of site location, especially for Euro-Canadian populations. In the early Euro-Canadian era (pre-1850), when transport by water was the norm, sites tended to be situated along major rivers and creeks—the 'highways' of their day. With the opening of the interior of the Province of Ontario to settlement after about 1850, sites tended to be more commonly located along historically-surveyed roads. Section 1.3.1 of the *Standards and Guidelines for Consultant Archaeologists* recognizes trails, passes, roads, railways and portage routes as examples of such early historical transportation routes (MTC 2011:18).

In addition to transportation routes, Section 1.3.1 of the *Standards and Guidelines for Consultant Archaeologists* emphasizes three other indicators of positive potential for Euro-Canadian archaeological materials: 1) areas of early settlement (military outposts, pioneer homesteads or cabins, early wharfs or dock complexes, pioneer churches, early cemeteries, etc.); 2) properties listed on a municipal register, designated under the *Ontario Heritage Act* or otherwise categorized as a federal, provincial or municipal historic landmark/site; and 3) properties identified with possible archaeological sites, historical events, activities or occupations, as identified by local histories or informants (MTC 2011:18).

Based on the location, drainage and topography of the subject lands and the application of land-use modelling, it seems clear that the study area, in its pristine state, would have potential for Pre-Contact and Euro-Canadian archaeological sites. Indicators of archaeological potential include the unnamed tributaries of the Sydenham River and Hardy Creek, Brown Road, Napperton Drive and Kerwood Road. The Grand Trunk Railway Line from London to Sarnia, which traverses the southern part of the study area, would also have attracted Euro-Canadian settlement.

In its current state, however, the study area retains only part of this original archaeological potential. Section 1.3.2 of the *Standards and Guidelines for Consultant Archaeologists* states that archaeological potential can be considered to be removed if the entire study area or parts of the study area have been subject to extensive and deep land alterations, including quarrying, major landscaping, building footprints, and sewage and infrastructure development (MTC 2011:18–19). Furthermore, Section 2.1 states that areas that are permanently wet, consist of exposed bedrock and/or have steep slopes greater than 20° can be considered to have no archaeological potential (MTC 2011:28).

ARA's on-site documentation demonstrated that archaeological potential had been removed from all parts of the study area located within the ROWs of existing roads. Specifically, the corridors along Brown Road, Napperton Drive and Kerwood Road were completely disturbed by past construction activities associated with infrastructural development (see Image 2–Image 13). One permanently wet area was also identified in the eastern half of the eastern rectilinear parcel, associated with the unnamed tributary of the Sydenham River. ARA's comprehensive evaluation of the archaeological potential of the study area appears in Map 21–Map 30. In total, 9.45% (8.44 ha) of the 89.32 ha Stage 1 study area was found to have no archaeological potential.

2.4 Recommendations

The results of the Stage 1 archaeological assessment indicated that the study area, in its pristine state, would have clear potential for Pre-Contact and Euro-Canadian archaeological sites. On-site documentation, however, identified multiple areas of no archaeological potential within the ROWs of existing roads and one permanently wet area. In their current condition, therefore, the study area consists of a mixture of areas of archaeological potential and areas of no archaeological potential. The areas of archaeological potential that could be impacted by the proposed project clearly warranted a Stage 2 archaeological assessment.

3.0 STAGE 2 PROPERTY ASSESSMENT

3.1 Field Methods

Given that the areas of archaeological potential that could be impacted by the proposed project consisted of actively or recently cultivated fields and lands where ploughing was not possible or viable, it was necessary to utilize both the pedestrian survey and test pit survey methods to complete the Stage 2 property assessment.

In the actively or recently cultivated parts of the study area, the archaeological assessment was carried out using the pedestrian survey method. Section 2.1.1 of the *Standards and Guidelines for Consultant Archaeologists* provides clear requirements for the condition of such lands prior to the commencement of fieldwork: all fields must be recently ploughed; all soils must be well-weathered; and at least 80% of the ploughed ground surface must be visible (MTC 2011:30). These conditions were met during the pedestrian survey component of the Stage 2 assessment (see Image 14).

Following the standard strategy for pedestrian survey outlined in Section 2.1.1 *Standards and Guidelines for Consultant Archaeologists*, ARA crewmembers traversed the study area along parallel transects established at a maximum interval of 5 m, yielding at least 20 survey transects per hectare (see Image 15). If archaeological materials were encountered in the course of the pedestrian survey, the transect interval would be closed to 1 m and a close inspection of the ground would be conducted for 20 m in all directions. All diagnostic artifacts and a representative sample of non-diagnostic artifacts would then be collected for analysis. All remaining artifacts would be left *in situ* until a proper Stage 3 Controlled Surface Pickup could be carried out.

In those parts of the study area that physically could not be ploughed or where ploughing was not viable, the assessment was conducted using the test pit survey method (sometimes referred to as shovel-testing). In this method, ARA crewmembers hand-excavated small regular test pits with a minimum diameter of 30 cm at prescribed intervals across the study area. Section 2.1.2 of the *Standards and Guidelines for Consultant Archaeologists* stipulates that lands within 300 m of any feature of archaeological potential be examined at a maximum interval of 5 m, and any lands more than 300 m from such features be examined at a maximum interval of 10 m (MTC 2011:31–32). Given the presence of multiple indicators of archaeological potential in the vicinity of the study area (e.g. water sources and historically surveyed roadways), a 5 m interval was adopted for the property assessment (see Image 16).

In accordance with Section 2.1.2 of the *Standards and Guidelines for Consultant Archaeologists*, each test pit was excavated into the first 5 cm of subsoil (MTC 2011:32). The resultant pits were then examined for stratigraphy, cultural features and/or evidence of fill (see Image 17). The soil from each test pit was screened through 6 mm mesh and examined for archaeological materials (see Image 18). If archaeological materials were encountered over the course of the test pitting survey, each Positive Test Pit would be documented and all artifacts would be collected according to their associated test pit. All test pits were backfilled upon completion, as per the property owners' instruction (MTC 2011:32).

Artifacts that may indicate the presence of significant cultural deposits include bone, charcoal, lithics (stone tools and refuse generated by their production and use), ceramics, glass and metal. Archaeological features such as pits, foundations and other non-portable remains may also be detected during a Stage 2 property assessment. All archaeological materials with potential CHVI are documented, whether associated with Pre-Contact Aboriginal groups or Post-Contact First Nations, Métis and Euro-Canadian populations. Artifact locations are recorded on topographic maps, in field notes and at +/- 2 m accuracy on a Garmin eTrex Legend, WAAS-enabled, GPS handheld unit (using the UTM17 NAD83 coordinate system). In situations where greater accuracy is needed, ARA employs a Topcon GRS-1 Dual Frequency RTK GNSS Receiver and Field Controller capable of network-corrected measurements to 1 cm accuracy (also using the UTM17 NAD83 coordinate system).

All areas of archaeological potential that could be impacted by the proposed project were assessed according to these methods (see Map 31). In fulfillment of the requirements set out in Section 7.8.1 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:137), the field methods utilized during the Stage 2 assessment can be summarized as follows:

- Area of Stage 2 Assessment: 100% (12.17 ha)
- Property assessed by test pit survey at a maximum interval of 5 m: 1.23% (0.15 ha)
- Property assessed by pedestrian survey at a maximum interval of 5 m: 98.52% (11.99 ha)
- Property not assessed because of areas of no archaeological potential: 0.25% (0.03 ha)
- Property assessed where standard survey intervals could not be maintained: 0% (0 ha)

3.2 Summary of Results

The Stage 2 property assessment, completed under optimal conditions, resulted in the identification of two archaeological findspots within the study area (Findspots 1 and 2). Findspot 1 consisted of an isolated secondary flake of an undetermined Pre-Contact date, whereas Findspot 2 was a large Euro-Canadian artifact scatter dating to the 19th and early 20th century.

In keeping with the requirements set out in Sections 7.8.2–7.8.4 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:137–139), the comprehensive documentation of these archaeological findspots is presented in Sections 3.3–3.5. These sections comprise a comprehensive record of finds, a discussion of analysis and conclusions, and the presentation of ARA's recommendation for each site.

3.3 Record of Finds

3.3.1 Findspot 1

3.3.1.1 Overview

Site Type: An isolated findspot

Property: Lot 8, Concession 4 SER in the Geographic Township of Adelaide

GPS Co-ordinates: See Supplementary Documentation Section 1.1

Site Location: See Supplementary Documentation Section 2.0

Total No. of Artifacts: 1

Materials Identified: Onondaga chert

No. of Artifacts Collected: 1

No. of Diagnostic Artifacts: 0

3.3.1.2 Description

Findspot 1 consists of an isolated secondary flake of Onondaga chert located in the northwestern part of the Stage 2 study area. Despite an intensified pedestrian survey of all lands within 20 m of this artifact, no other archaeological materials were identified. The secondary flake was collected for laboratory analysis, and is fully documented in Appendix B – Record 1 (see Image 19).

3.3.2 Findspot 2 (Galbraith; AfHk-32)

3.3.2.1 Overview

Site Type: A 78 m x 40 m Euro-Canadian artifact scatter

Property: Lot 8, Concession 4 SER in the Geographic Township of Adelaide

GPS Co-ordinates: See Supplementary Documentation Section 1.1

Site Location: See Supplementary Documentation Section 2.0

Total No. of Artifacts: 400+

Materials Identified: Brick, ceramic, glass, metal and faunal

No. of Artifacts Collected: 137

No. of Diagnostic Artifacts: 100

3.3.2.2 Description

Findspot 2 consists of a scatter containing over 400 Euro-Canadian artifacts located in the western part of the Stage 2 study area. The intensified pedestrian survey determined that 1) the majority of the artifacts were concentrated on a gentle hill in the western part of the scatter; and 2) the western limits of the scatter extend beyond the area surveyed for the Stage 2 assessment.

All formal artifact types and diagnostic categories were collected for laboratory analysis, in addition to a sufficient sample of refined ceramic sherds to form the basis for accurate dating. Specifically, a total of 137 artifacts were collected for analysis, which are fully documented in Appendix B – Records 2–78 (see Image 20–Image 23). A summary of the artifacts collected from

Findspot 2 appears in Table 4. The remaining 263+ artifacts were left in the field to assist in site re-location, if necessary.

Although only a representative sample was collected, this scatter contained many yellow and red bricks, both whole and fragmentary. Few mortar fragments were identified in the field, however, and no structural remains or foundations were found during the pedestrian survey. Interestingly, many of the broken ceramic sherds were quite large, which is somewhat usual for this type of Euro-Canadian deposit.

Table 4: Summary of Artifacts Collected from Findspot 2

Category	Group	Freq.	% of Total Assemblage
Architectural	Construction Material	6	4.38%
	Metal	6	4.38%
	Window Pane Glass	4	2.92%
	Ceramic	1	0.73%
	Composite	1	0.73%
	<i>Architectural Total</i>	18	13.14%
Ceramic	Tableware	80	58.39%
	Cooking and Storage	14	10.22%
	Furnishings	1	0.73%
	<i>Ceramic Total</i>	95	69.34%
Faunal	Bone	3	2.19%
	Dentition	2	1.46%
	<i>Faunal Total</i>	5	3.70%
Glass	Glass Storage Container	7	5.11%
	Glass Tableware	5	3.70%
	Glass Beverage Container	3	2.19%
	<i>Glass Total</i>	15	10.95%
Other	Slate	2	1.46%
	Coal	2	1.46%
	<i>Other Total</i>	4	2.92%
<i>Total Artifacts</i>		137	100.00%

3.3.3 Inventory of the Documentary Record

As part of the Stage 1 and 2 assessments, all field data were removed from the study area with permission from the property owners. The photographs, mapping materials, field notes and artifacts relating to the assessment were safely transported to ARA's facility located at 154 Otonabee Drive, Kitchener, Ontario for processing and storage (see Table 5).

Table 5: Documentary Record – Inventory

Field Documents	Total	Nature	Location
Photographs	98 photos	Digital	On server at 154 Otonabee Drive, Kitchener; Folders P007-381-2011 and P007-385-2011
Field Notes	7 pages	Digital and hard copy	Filed and on server at 154 Otonabee Drive, Kitchener; P007-381-2011 and P007-385-2011
Field Maps	11 pages	Digital and hard copy	Filed and on server at 154 Otonabee Drive, Kitchener; P007-381-2011 and P007-385-2011
Artifacts	137 artifacts	1 Box; 11" x 12.25" x 16"	Filed at 154 Otonabee Drive, Kitchener; P007-385-2011 – Box 1

3.4 Analysis and Conclusions

3.4.1 Findspot 1

The analysis of the secondary flake did not result in the recognition of any diagnostic features, and the artifact could not be positively identified beyond its basic designation. Accordingly, a specific determination of the date of Findspot 1 is not possible, save for the generalized designation of 'Pre-Contact'. This secondary flake was found in an isolated context, and it is unclear as to how it entered the archaeological record.

According to the criteria set out in Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists*, a Pre-Contact site requires further assessment when at least one diagnostic artifact/fire cracked rock and at least two non-diagnostic artifacts are found within a 10 x 10 m pedestrian survey area, or at least 10 non-diagnostic artifacts are found within a similarly-sized area (MTC 2011:39–40). Given that only one non-diagnostic artifact was found at Findspot 1, this site does not meet either of these criteria. Based on these findings, it is the considered opinion of ARA that Findspot 1 does not warrant further archaeological investigation (i.e. a Stage 3 site-specific assessment and/or Stage 4 mitigation of development impacts).

3.4.2 Findspot 2 (Galbraith; AfHk-32)

Of the 137 artifacts collected from Findspot 2, a total of 100 (72.99% of the total assemblage) can be confidently dated based on the presence of recognizable diagnostic characteristics. The traits and chronological significance of these diagnostic artifacts, which can be effectively classified into ‘architectural’, ‘ceramic’, ‘faunal’, ‘glass’ and ‘other’ groups, are fully discussed in Sections 3.4.2.1–3.4.2.5. The remaining non-diagnostic artifacts, comprising non-specific fragments of glass storage vessels, brick, bone and coarse red earthenware, are also described in these contexts. Section 3.4.2.6 presents an interpretation and evaluation of these finds as they pertain to the function and CHVI of Findspot 2.

3.4.2.1 Architectural Group

Architectural artifacts accounted for 18 of the 137 artifacts (13.14%) collected from Findspot 2. These artifacts include 5 brick fragments (3 red and 2 yellow), 3 cut nails, 2 wire nails, 1 cut architectural staple, 4 pane glass fragments, 1 piece of mortar, 1 glass and metal electrical insulator, and half of a white porcelain door knob (see Table 6; Image 20–Image 21).

Table 6: Summary of Diagnostic Architectural Group Artifacts

Group	Artifact	Datable Attribute	Freq.	% of Diagnostic Assemblage	Date Range (Manufacture)	Date Range (Popularity)	Reference
Architectural	Nails	Cut	3	3.00%	1790–1880	1830–1890	Nelson 1968
		Wire	2	2.00%	Post-1880		Nelson 1968
	Architectural Staple	Cut	1	1.00%	1790–1880	1830–1890	Nelson 1968
	Glass Insulator	“BROOKFIELD”	1	1.00%	1869–1912	1880s	Whitten 2012
	Architectural Total			7	7.00%		

Bricks are manufactured using clay that has been mined, ground with the facilitation of water, shaped using moulds or cutting wire, and then dried and heated with a kiln (Kreh 2003:25). The colour and durability of the various brick types are indicative of the nature of the raw materials used in their production. Bricks are often a reflection of locally available clays, but during times when there is limited availability, bricks are imported from other outlying areas (Kreh 2003:25). Based on the nature of the raw material and the strength of the firing process, bricks come in a variety of colors ranging from white to grey, varying shades of brown, yellow, orange, and mostly commonly, red (Kreh 2003:31).

There are three main types of bricks, including common bricks, face bricks, and thinner paving bricks (du Toit 2009:178). Common bricks are fired at a lower temperature with less-refined clay than face bricks. These bricks often are more porous and weather more rapidly, but they are cheaper to produce, and therefore are often used as interior bricks or exterior bricks that are plastered for protection (du Toit 2009:179). Face bricks are made of more refined clay and are heated at higher temperatures, creating a stronger and more weather-resistant brick (du Toit

2009:179). These kinds of brick are rarely plastered, and are used for the exteriors of buildings and occasionally for foundations.

The red brick fragments collected from Findspot 2 are common bricks and, judging from their porous nature and deteriorated state, were most likely used for the interior of a building. The yellow brick fragments are heavier, less porous and not overly weathered, and one retains evidence of black glaze. This brick can be considered a face brick that was most likely used for the exterior of a building.

Cut nails became popular in the early 1800s and quickly replaced earlier wrought nails. Cut nails were made by slicing thin sheets of iron, and are accordingly characterized by a rectangular cross-section (Nelson 1968). They were manufactured throughout the 19th century, but began to decline when the production of wire nails began in the 1890s (Adams 1995:104). Due to their inexpensiveness, wire nails replaced cut nails during the early 20th century (Nelson 1968). The cut nails and the cut architectural staple from Findspot 2 date to roughly the same time period, and they account for 2.92% of the total assemblage. The two examples of wire nails account for 1.46% of the total assemblage.

Only four small fragments of pane glass were collected from the site. These pieces were highly fragmentary, and they could not be identified with any certainty. However, based on the thin nature of the glass, they most likely date to the 20th century. One ceramic architectural fragment was also found: a porcelain doorknob. These fixtures were used over a very long period of time (even into the present) and cannot be dated with any precision.

One mostly complete electrical insulator was recovered from the scatter. This composite item consists of a dark green/blue glass with some ferrous-based metal attached (probably wire). The insulator is also embossed with the name “BROOKFIELD”. This company started out as the Bushwick Glass Company and made bottles in Brooklyn, New York. The company was sold to James Brookfield in 1869, at which time it acquired its name. It was not until the late 1860s and 1870s that their production of glass insulators started increasing, and in the 1880s most of the company’s work involved making insulators. The company had deals with many utility companies and produced over 100 different styles of insulators, reportedly being the second largest producer of glass electrical insulators (Whitten 2012).

3.4.2.2 Ceramic Group

A total of 95 ceramic fragments were collected during the assessment of Findspot 2, accounting for 69.34% of the total artifact assemblage. Only 14 of these fragments were non-diagnostic, and the remaining 81 diagnostics comprised 59.12% of the total assemblage. The ceramic group consisted of both cooking/storage wares and tableware (see Image 22). A summary of the diagnostic ceramic types appears in Table 7, and a more detailed discussion of the different wares follows.

Table 7: Summary of Diagnostic Ceramic Group Artifacts

Group	Artifact	Datable Attribute	Freq.	% of Diagnostic Assemblage	Date Range (Manufacture)	Date Range (Popularity)	Reference
Ceramic Cooking/ Storage	Coarse Stoneware	Albany Slip	2	2.00%	1805–1920		Miller 2000:10
	Yellowware	Rockingham	1	1.00%	1830– 1930	1850–1870	Ketchum 1983:11-12
	Ceramic Cooking/ Storage Total		3	3.00%			
Tableware	Pearlware	Shell-Edged	3	3.00%	c.1813–c.1834		Miller 2000:3
		Blue Willow	2	2.00%	1795–1830		Miller 2000:13
	Refined White EW – Flow	Black	1	1.00%	1845–1890		Adams 1995:101
	Refined White EW – Blue Transfer	Blue	3	3.00%	Post-1830	1840–1850	Stelle 2001
		Blue Willow	6	6.00%	Post-1830		Kenyon 1985:50
	Refined White EW – Other Transfer	Black Transfer	2	2.00%	Post-1830		Adams 1995:103
		Green Transfer	2	2.00%	Post-1830		Adams 1995:103
	Refined White EW – Shell-Edge	Unscalped, unmolded	1	1.00%	1865–1895		Miller 2000:13
		Scalloped, incised lines	1	1.00%	1840–1860		Miller 2000:13
	Refined White EW – Painted	Blue	1	1.00%	Post-1830		Adams 1995:102
		Late Palette	2	2.00%	Post-1830	1830–1870	Adams 1995:102
	Refined White EW – Sponged	Blue	1	1.00%	1840–1870		Adams 1995:103
	Refined White EW – Stamped	Blue Stamped	1	1.00%	1845–1930		Miller 2000:13
		Purple Stamped	1	1.00%	1845–1930		Miller 2000:13
	Refined White EW	“T S & Co.” Makers Mark	1	1.00%	1840–1857		Cushion 1983:268
	Vitrified Earthenware	Plain	34	34.00%	Post-1840	1870–1880	Adams 1995:102
		Moulded	5	5.00%	Post-1840	1870–1880	Adams 1995:102
		Green Transfer	3	3.00%	Post-1840	1870–1880	Adams 1995:102
		Brown Transfer	1	1.00%	Post-1840	1870–1880	Adams 1995:102
		Painted – Late Palette	1	1.00%	Post-1840	1870–1880	Adams 1995:102
Wheat Moulded Pattern		2	2.00%	Post-1858		Adams 1995:102	
Wheat and Hops Moulded Pattern		1	1.00%	Post-1875		Dieringer and Dieringer 2001:127	
Porcelaneous ware	Porcelaneous ware	2	2.00%	1820–Present		Aultman et al. 2006	

Group	Artifact	Datable Attribute	Freq.	% of Diagnostic Assemblage	Date Range (Manufacture)	Date Range (Popularity)	Reference
	Bone China	Decalcomania	1	1.00%	1890–Present		Miller 2000:13
	Tableware Total		78	78.00%			
	Ceramic Total		81	81.00%			

The cooking/storage vessels include two fragments of coarse stoneware (1.46% of the total assemblage) and one fragment of yellowware (0.73% of the total assemblage). Coarse salt glazed stoneware with Albany slip interior dates from 1805–1920 (Miller 2000:10). Albany slip is made from natural clays and is a thick dark chocolate brown; it can be applied to the interior, exterior, or both (Stelle 2001). Yellowwares are ceramics with a yellow fabric; they originally gained in popularity in the 1840s and been produced ever since (Adams 1995:101). Rockingham glazed yellowware became available in the 1830s in North America, but did not gain in popularity until 1850–1870. Rockingham stayed in production into the 1930s (Ketchum 1983:11–12).

The majority of non-diagnostic ceramics from Findspot 2 consisted of fragments of glazed coarse red earthenware. Due to the prolonged period of use for this ceramic type, unless they are marked or otherwise decorated, they are not useful for dating a Euro-Canadian assemblage.

Tablewares were very well-represented in the assemblage, and 78 fragments were collected. Examples of pearlware, many types of refined white earthenware, vitrified earthenware, porcelainous ware and bone china were found.

Shell-edged designs originally occurred on creamwares, but as pearlware began to replace creamware, this design became the most common decorative style for pearlware (Richardson 2011). Shell-edging is most commonly found on flatwares and occurs in blue, green, and sometimes red (Richardson 2011). Shell-edged pearlware is dated mainly from 1780–1840, with earlier examples displaying brush strokes that are drawn in from the edge (creating a feathery appearance) and later examples commonly showing brush strokes sweeping along the edge laterally (producing a stripe) (Richardson 2011).

The dating for shell-edged pearlware can be narrowed to a more specific time frame based on 1) colour and 2) the presence/absence of impressed, moulded, or scalloped decoration. Generally, even-scalloped blue or green shell-edged pearlware with impressed patterns appears from 1800–1835 (Miller 2000:13). More specifically, the ‘bud motif’ that appears on the pieces of shell-edged pearlware from Findspot 2 can be dated to c.1813–c.1834 (Miller 2000:3).

The ‘Blue Willow’ pattern is commonly found on pearlwares and porcelain (Richardson 2011). Thomas Minton first developed the ‘willow’ pattern in 1792 in imitation of Chinese ceramic patterns; the pattern can be identified by the inclusion of a bridge, a cottage or mini-pagoda, three figures, a boat, two birds, and a geometric border design (Richardson 2011). Often, the Chinese version of the pattern is found on porcelain, where the English versions usually occur on blue transfer-printed earthenwares (Richardson 2011). When it appears on pearlware, this pattern

is dated to 1795–1830, with a peak of popularity ca. 1818 (Miller 2000:13; Richardson 2011). Two fragments of pearlware with blue-transfer printed willow pattern decoration were collected from Findspot 2, comprising 2.92% of the total assemblage.

Flow decorated ceramics are a type of transfer ware where the colour of the transfer has been intentionally allowed to bleed in an attempt to create a specific style of decoration (Adams 1995: 103). Although this style was first introduced in the 1830s, it became popular in the 1840s and 1850s (Samford 1997:24) and experienced a later resurgence in the 1890s (Adams 1995:104). One fragment of black flow refined white earthenware was found at Findspot 2.

Once refined white earthenware vessels were introduced, they received the same kinds of decoration that adorned earlier creamwares and pearlwares—one of the most common of which were transfer decorations. Blue and black transfer prints were commonly used on tea ware in the early 19th century, becoming a popular decoration for dinnerware by the 1830s and continuing to be produced throughout the 19th century (Kenyon 1985:46). In the 1830s and 1840s, transfer-prints in colours such as light blue, red, green and purple were introduced, but only blue, black and brown were common between 1850 and 1890 (Adams 1995:103). After 1890, many bright colours, often used in combination, were used as transfer colours (Adams 1995: 103). The ‘Blue Willow’ pattern (discussed above) has been a popular decoration for refined white earthenwares since the 1830s, and it still occurs today (Kenyon 1985:50). Many fragments of transfer printed refined white earthenwares were collected from Findspot 2, including six ‘Blue Willow’ pieces, three blue pieces, two black pieces and two green pieces.

The earlier decorative method of shell-edging was also adopting for refined white earthenwares. As mentioned above, the style of the lines and type of scallop can aid in dating the ceramic: unscalped blue shell-edging with simple repeating lightly-impressed patterns occur between 1840–1860, and unscalped and unmolded blue shell-edging occurs from 1865–1895 (Miller 2000:13). A fragmentary example of each of these types was collected from Findspot 2.

The application of blue paint to ceramics was a common and inexpensive method of decoration that first appeared on pearlwares (Adams 1995:102). This decorative style continued with the introduction of refined white earthenwares, and blue painted refined white earthenwares date from 1830–present (Adams 1995:102). One piece of blue painted refined white earthenware was recovered at Findspot 2, which is not overly useful for any kind of precision dating. Two late palette painted ceramic fragments were also collected from Findspot 2, which are typically painted with a wider variation of colours (including reds, blacks and many bright colours) and date to post-1830 contexts (Kenyon 1985).

Sponge decorations—created by dipping a sponge into a pigment and then pressing it onto the ceramic—represent another popular type of inexpensive decoration (Adams 1995:102–103). One fragment of light blue ‘all-over sponged ware’ was collected from Findspot 2, which was popular from the 1840s–1870s (Adams 1995:103). Stamped wares are another type of sponged ware in which the sponge is cut into a specific pattern (usually simple floral designs or geometric shapes). This ‘stamp’ is then dipped into a pigment and repeatedly applied to the ceramic to form a pattern (Adams 1995:103). Stamped or cut-sponge decorated refined white earthenwares were popular from 1845–1930 (Miller 2000: 13), and one blue stamped fragment and one purple

stamped fragment with a hand painted yellow band around the rim were found in the scatter (representing 1.46% of the total assemblage).

Only one fragment of refined white earthenware from Findspot 2 was decorated with a maker's mark. Although only partial, this mark reads "T S & Co" and therefore was produced by Thomas Shirley & Co. when the company was in business between 1840 and 1857 (Cushion 1983:268). This company was based in Greenock, Renfrewshire, Scotland and the head of the company, William Shirley, had previously been a pottery engraver. Using his skills, the company specialized in transfer wares (Shirley Association 2012).

Ironstone is by far the best-represented component of the assemblage from Findspot 2 (34.31% of the total assemblage), and a total of 34 plain fragments, 5 moulded pieces, 3 fragments with green transfer, 1 with brown transfer, 1 with late palette painted flowers, 2 with wheat pattern moulding and 1 with 'Wheat and Hops' moulding were found. Unlike ordinary white earthenwares, Ironstone is often characterized by having a harder and thicker body, and it typically has a slightly bluish glaze. In comparison to earlier pearlware, however, this glaze is smooth rather than rippled.

Ironstone first appeared in Ontario in the 1840s, and during the 1870s and 1880s it became the most popular choice for tableware as a cheaper and more easily massed-produced alternative to porcelain (Adams 1995:102). This type of ware began to decline in popularity in the 1890s, although it continued to be used in the household (Carter N.D.). Wheat pattern Ironstone was first developed in 1858 and remained extremely popular until the early 20th (Adams 1995:102). The 'Wheat and Hops' design, on the other hand, dates to post-1875 and is therefore a late 19th century manifestation (Dieringer and Dieringer 2001:127).

One fragment of plain porcelaneous ware was collected from Findspot 2. This ware type is distinguished by its entirely vitrified dense body that is similar to English porcelain, but is not translucent. Porcelaneous ware dates from ca. 1820 to the present, and is often used in fine table/tea wares and toiletry wares (NATAMU 2012).

One fragment of Decalcomania ware was found at Findspot 2. Decalcomania is a specific style of transfer ware, where a 'decal' of almost any image and/or colour can be cut out of an extremely thin piece of paper and then applied/fixed to ceramics or other objects. In the case of ceramics, a glaze can be placed on the vessel either before or after the decal is applied (Mackenzie 1865:465). This technique first appeared with ceramics in 1890, and the technique is still used today (Miller 2000:13).

3.4.2.3 Faunal Group

The assemblage comprises three pieces of unidentified mammal bone and two pieces of mammal dentition. These non-diagnostic artifacts account for 3.65% of the total collected assemblage.

3.4.2.4 Glass Group

A total of 15 non-architectural fragments of glass were collected from Findspot 2 (10.95% of the total assemblage). Of these, 12 artifacts were found to be diagnostic, including 7 storage container fragments, 3 tableware fragments, and 2 beverage containers fragments (see Table 8; Image 23).

Table 8: Summary of Diagnostic Glass Group Artifacts

Group	Artifact	Datable Attribute	Freq.	% of Total Diagnostic Assemblage	Date Range (Manufacture)	Date Range (Popularity)	Reference
Glass	Glass Storage Containers	Hand Tooled Finish	3	3.00%	Post-1825		Miller 2000:8
		Solarised/Manganese	2	2.00%	1880–1918		Stelle 2001
		Machine Made	1	1.00%	1893–Present		Miller 2000:8
		“Hamilton Glass Company”	1	1.00%	1880–1898		King 1987:58
	Glass Tableware	Pressed	2	2.00%	ca. 1825		Miller 2000:7
		Solarised/Manganese	1	1.00%	1880–1918		Stelle 2001
	Glass Beverage Containers	Brandy and Wine Finish	1	1.00%	1860s–1920s		Lindsey 2011
		Oil and Ring Finish	1	1.00%	1830s–1920s	1850–1920	Lindsey 2011
	Total Diagnostic Glass			12	12.00%		

Three fragments of bottlenecks were collected that displayed hand tooled striation marks. Hand-tooled finishes refer to a type of bottle which has a lip that was finished by hand with a tool after re-heating the glass, without adding additional glass. These hand-tooled finishes usually display a rougher edge and striations (Lindsey 2011). The earliest forms of hand-tooled finishes appear in post-1825 contexts (Miller 2000:8).

Two solarized/manganese glass fragments were also recovered from Findspot 2. Solarized/manganese glass refers to a type of glass that has been turned from colourless to varying shades of pink or amethyst. This colour change is caused by a reaction between ultraviolet light and decolourizing agents such as manganese dioxide, selenium dioxide and/or arsenic oxide (Lindsey 2011). According to Lindsey, manganese dioxide decolourized bottles may date as early as the 1820s or as late as the 1930s, although the majority were made between 1890 and 1920. Lockhart, on the other hand, argues that the popular use of solarized glass began in the mid-1870s and continued somewhat into the early 1930s (2006:54). One of the pieces from Findspot 2 was part of a machine made wide mouthed external-threaded screw cap jar.

The externally threaded screw cap jar dominated the market by the 1920s (Lindsey 2011). Wide mouth external thread finishes are most commonly found on canning or food storage jars, and were introduced with the production of the Mason fruit jar in 1858 (Lindsey 2011). Machine made wide mouthed externally-threaded jars were produced from 1900–1915, during the

transition from handmade to machine made glass (Lindsey 2011). The bulk of mouth-blown bottles were made from 1820–1915 (Lindsey 2011). One fragment from Findspot 2 had visible machine made scars.

The Hamilton Glass Company, previously known as The Hamilton Glass Works, was a large glass manufacturer operating out of Hamilton, Ontario (King 1987:58). It was incorporated on January 14, 1880, after which the company title appeared on their products. In the 1886 *Industries of Canada*, the company is listed as having an extensive glass factory employing 150 men, reportedly capable of producing any kind of bottle needed (King 1987:59). In 1891, the company was bought by the Diamond Glass Company, although they continued to operate under their own name at this time. The company was shut down in 1898, and the equipment and employees were all transferred to the Toronto Glass Company Ltd. (King 1987:61).

The invention of the pressing machine in the 1820s at least tripled the production of pressed tableware (Spillman 1982:12). Early on, due to the cold metal moulds used in the pressing machine, ‘chill’ wrinkles were produced on the surface of the glass. This was later corrected with the introduction of heated moulds in the 1840s. Early glass tableware sets were colourless and fairly simple in design. Handles were usually hand applied and larger pieces, such as vases, were made in separate parts and fused while hot.

Pressed glass was often made to imitate the latest designs of cut glass. Mass production of pressed glass began ca. 1875 with the intention of providing an inexpensive alternative to crystal, but declined after the 1930s with the closure of many glass tableware companies (King 1987:179–183; Miller 2000:7). Pressed glass continued to be produced until the late 1970s, but often these were reproductions of earlier pressed glass tableware styles (King 1987:179–183). Two fragments of blue coloured pressed glass were collected from Findspot 2, accounting for 1.46% of the total assemblage.

One piece of solarised/manganese glass tableware displaying the characteristic pink/purple colouration was also found in the scatter. As mentioned above, manganese dioxide decolourized artifacts may date as early as the 1820s or as late as the 1930s, although the majority were made between 1890 and 1920. Lockhart, on the other hand, argues that the popular use of solarized glass began in the mid-1870s and continued somewhat into the early 1930s (2006:54).

Two hand tool finished beverage bottle fragments were collected from Findspot 2 that had very specific finishes. One was a green coloured bottle fragment with a ring or oil finish, and the other an amber bottle fragment with a brandy finish. The ring or oil finish was one of the most commonly utilized finishes from the 1830s until the 1920s, when it was replaced by the external thread finish (Lindsey 2011). This finish is distinguished by its height being of equal or more than its width, with a gradual wider taper towards the base. The outer surface finish can be flat, though it is often slightly concave or with a very slight rounding (Lindsey 2011). The brandy finish, on the other hand, was a common style from the 1860s to the 1920s (Lindsey 2011). This finish is commonly found on all types and sizes of liquor bottles, flasks and medicinal bottles (Lindsey 2011).

3.4.2.5 'Other' Group

A total of two pieces of slate and two pieces of coal were recovered during the Stage 2 assessment. The function of these artifacts is unclear, but the slate could potentially have been used as a writing board or as a roofing material, and the coal could have been used for fuel.

3.4.2.6 Interpretation and Evaluation

The diagnostic artifacts collected from Findspot 2 date primarily to the 19th and early 20th century, although several earlier and later pieces are also present in the assemblage. On the whole, the assemblage is quite diverse, and is reminiscent of a mid-19th to early 20th century Euro-Canadian domestic assemblage that includes both earlier heirlooms and architectural elements possibly associated with a demolished homestead.

Interestingly, the location of this scatter appears to roughly correlate with that of the Galbraith homestead discussed in Section 1.2.3.4, which would have stood to the west (see Map 20). Given the dates of the artifacts, it seems logical to assume that this scatter represents a site locality/midden created by the demolition of the very structure depicted in Page & Co.'s *Illustrated Atlas of the County of Middlesex, Ontario* (1878). This demolition could have occurred at any time in the early 20th century.

According to the criteria set out in Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists*, a Post-Contact archaeological site requires further assessment when it consists of a minimum of 20 pre-1900 Euro-Canadian artifacts and/or a 20th century assemblage with possible CHVI (MTC 2011:41). Given that over 20 pre-1900 Euro-Canadian artifacts were found at Findspot 2, this site meets the first criterion. Based on these findings, it is the considered opinion of ARA that Findspot 2 warrants further archaeological investigation (i.e. a Stage 3 site-specific assessment) if any future developments are planned here, or if the project location is revised at a later date to include this area.

3.5 Recommendations

3.5.1 Findspot 1

Findspot 1 did not meet any of the criteria defined in Section 7.12 of the *Standards and Guidelines for Consultant Archaeologists* for determining whether an archaeological site warrants a Site Record Form (MTC 2011:160–161). Accordingly, it has not been assigned a Borden number.

When compared against the criteria in Section 2.2 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:39–40), this archaeological site was found to be of no further CHVI. ARA recommends that no further archaeological assessment of Findspot 1 be required.

3.5.2 Findspot 2 (Galbraith; AfHk-32)

Findspot 2 met at least one of the criteria defined in Section 7.12 of the *Standards and Guidelines for Consultant Archaeologists* for determining whether an archaeological site warrants a Site Record Form (MTC 2011:160–161). Accordingly, it has been assigned Borden No. AfHk-32 and designated as the Galbraith Site.

Based on the diversity of the artifacts collected and the potential historic association with the Galbraith homestead, Findspot 2 is clearly of further CHVI and requires further assessment. An appropriate Stage 3 assessment strategy would involve a Controlled Surface Pickup of the remaining artifacts and the excavation of an array of 1 x 1 m test units along a 5 m grid across the 78 x 40 m scatter.

In order to avoid impacts to this site, the proponent modified the project location. In accordance with the direction set out in Section 7.8.5 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:140–141), a buffer of 70 m now exists between Findspot 2 (Galbraith; AfHk-32) and any potential areas of impact (see Supplementary Documentation Section 2.0). Although these avoidance measures will prevent any project impacts associated with the Napier Wind Project, ARA recommends that a Stage 3 site-specific assessment be conducted if any future developments are planned in the vicinity of the Galbraith site.

4.0 SYNTHESIS OF CONCLUSIONS AND RECOMMENDATIONS

The Stage 1 and 2 archaeological assessments of the study area were completed in December 2011. The Stage 1 assessment demonstrated that only the two rectilinear parcels in the northwestern and northeastern parts of the study area had archaeological potential, as the other areas within the ROWs of existing roadways were completely disturbed. The Stage 2 property assessment encompassed all areas of archaeological potential that could be impacted by the proposed project.

The Stage 2 assessment, conducted under optimal conditions, resulted in the identification of two archaeological findspots (Findspots 1 and 2). Findspot 1 consisted of an isolated lithic artifact, and Findspot 2 (Galbraith; AfHk-32) comprised a 78 x 40 m scatter of 400+ Euro-Canadian artifacts. The artifacts from Findspot 2 date to the 19th and early 20th century, and the scatter is believed to be a site locality/midden associated with the demolished Galbraith homestead.

Both assemblages were compared against the criteria established by the MTCS for determining whether an archaeological site warrants further assessment (MTC 2011:39–40). Findspot 1 did not meet any of the criteria, and the site was found to be of no further CHVI. Findspot 2, on the other hand, consisted of a minimum of 20 pre-1900 Euro-Canadian artifacts, and therefore met one of the established criteria. Since Findspot 2 was of further CHVI, ARA recommended that the site be avoided, or, if avoidance were not possible, that it be subjected to a Stage 3 site-specific assessment.

In order to avoid impacts to this site, the proponent modified the project location. In accordance with the direction set out in Section 7.8.5 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:140–141), a buffer of 70 m now exists between Findspot 2 (Galbraith; AfHk-32) and any potential areas of impact.

ARA is satisfied with these avoidance measures, and recommends that no further archaeological assessment be required within the project location. In the event that the project location is modified in the future (i.e. it is altered to accommodate new proposed infrastructure), further archaeological work may be required. ARA also recommends that a Stage 3 site-specific assessment be conducted if any future developments are planned in the vicinity of Findspot 2 (Galbraith; AfHk-32). A *Letter of Review and Acceptance into the Provincial Register of Reports* is requested, as provided for in Section 65.1 of the *Ontario Heritage Act*.

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

Section 7.5.9 of the *Standards and Guidelines for Consultant Archaeologists* requires that the following information be provided for the benefit of the proponent and approval authority in the land use planning and development process (MTC 2011:126–127):

- This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.
- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.
- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.
- Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.
- The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

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