

18



Stage 1 Archaeological Assessment Proposed Reconstruction and Roadway Widening on Angeline Street from Colborne Street to Roosevelt Street, City of Kawartha Lakes, Formerly Township of Ops, Victoria County

ORIGINAL REPORT

2401 5th Line East, Campbellford, ON K0L 1L0
Telephone: 705.201.1066 Facsimile: 866.231.6071 Email: lmcrae@centralarchaeology.ca



Stage 1 Archaeological Assessment Proposed Reconstruction and Roadway Widening on Angeline Street from Colborne Street to Roosevelt Street, City of Kawartha Lakes, Formerly Township of Ops, Victoria County

Original Report - March 31, 2021

Submitted to:

Scott Reynolds
Senior Environmental Planner
Ainley Graham & Associates Ltd.
45 South Front Street
Belleville, ON K8N 2Y5
Ph: 613.966.4243 x105
E: reynolds@ainleygroup.com

PIF No. P248-0332-2018
Laura McRae (License No. P248)

The Central Archaeology Group Inc.
2401 5th Line East
Campbellford, ON K0L 1L0
Ph: 705.868.2697
Fax: 866.231.6071
E: lmcræ@centralarchaeology.ca

CAGI Project No. CAGI-2018-LM21

Report in PDF format distribution:

Ainley Graham & Associates Ltd.
City of Kawartha Lakes
Ministry of Tourism, Culture and Sport



Bringing the **past**
to the **present**
for the **future**

PROJECT PERSONNEL

Field and Project Director

Laura McRae, P248

Client Contacts

Scott Reynolds and Sam Wilson, Ainley Graham & Associates

Archival Research

Derek Paauw

Fieldwork

Laura McRae

Derek Paauw

Mapping

Laura McRae

Report Preparation

Laura McRae

Report Reviewer

Derek Paauw

ACKNOWLEDGEMENTS

The Central Archaeology Group Inc. would like to extend their gratitude to the following individuals and parties:

- * Sam Wilson and Scott Reynolds, Ainley Graham & Associates.
- * Rob von Bitter, Ministry of Tourism, Culture and Sport.
- * The Victoria County Land Registry Office.
- * The staff at the Trent University Maps and Geospatial Resources section of the Bata Library, Peterborough.

ACRONYMS

a.s.l.	above sea level
AG	Ainley Graham & Associates
AP	Archaeological Potential
cm	centimeter (s)
CAGI	Central Archaeology Group Inc.
CoKL	City of Kawartha Lakes
MSIFN	Mississauga of Scugog Island First Nation
CR	County Road
GToO	Geographic Township of Ops
Hwy	Highway
km	kilometre (s)
m	metre (s)
MTCS	Ministry of Tourism, Culture and Sport
NAP	No Archaeological Potential
VC	Victoria County

EXECUTIVE SUMMARY

The Central Archaeology Group Inc. (CAGI) was retained by Ainley Graham & Associates (AG) to conduct a Stage 1 archaeological assessment in anticipation of the reconstruction and roadway widening of Angeline Street North in the Geographic Township of Ops (GToO), Victoria County (VC). The purpose of this study therefore, is to provide a baseline level of data on known and potential cultural heritage resources within the subject property and to delineate the archaeological potential of the project area.

This study involved the examination of records such as historic settlement maps, land titles and documents, historical land use and ownership records, primary and secondary sources, and the Ministry of Tourism, Culture and Sport's archaeological sites database. This report also outlines the First Nations pre-contact and historic archaeological sequence, the Euro-Canadian historic settlement record for the area, physiography of the project area and determines archaeological potential based on the analysis of this information.

The property project area was visited on August 28, 2018. The survey revealed that portions of the project area were disturbed. Archaeological recommendations have been made based on the background historic research, locations of known or registered archaeological sites and previous archaeological assessments. These recommendations include the following:

- 1) A Stage 2 archaeological assessment will be conducted by a licensed consultant archaeologist using the test pit survey method at 5 m intervals in all areas along the corridor which have not been recently ploughed or do not have appropriate conditions for pedestrian survey at the time of the Stage 2 assessment (as illustrated by the areas marked in red on Maps 9 and 10). Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts be recovered their location should be recorded with a GPS unit and test pit intervals reduced to 2.5 metres within 5 metres of the positive test pit, as well as a one-metre test unit if necessary;
- 2) No further archaeological assessments are recommended for areas which have been determined to be disturbed (as illustrated by the areas marked in gray on Maps 9 and 10);
- 3) The Stage 2 archaeological assessment will follow the requirements set out in the 2011 Standards and Guidelines for Consultant Archaeologists (MTC 2011).
- 4) Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development

activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport should be immediately notified.

The MTCS is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

TABLE OF CONTENTS

PROJECT PERSONNEL	i
ACKNOWLEDGEMENTS	ii
ACRONYMS	ii
EXECUTIVE SUMMARY	iii
TABLE OF CONTENTS	v
1.0 PROJECT CONTEXT	1
1.1 Objectives	1
1.2. Development Context	1
1.3 Historical Context	1
1.3.1 Historic Documentation	1
1.3.2 Pre-Contact Period	2
1.3.3 Post-Contact Period	13
1.3.4 Study Area History	15
1.3.5 Summary	15
1.4 Archaeological Context	15
1.4.1 Current Conditions	15
1.4.2 Physiography	15
1.4.3 Previous Archaeological Assessments	23
1.4.4 Registered Archaeological Sites	24
1.4.5 Historical Plaques	24
1.4.6 Summary	24
2.0 FIELD METHODS	26
3.0 ANALYSIS AND CONCLUSIONS	28
3.1 Archaeological Potential	28
3.2 Archaeological Integrity	30
3.3 Conclusions	31

4.0 RECOMMENDATIONS	32
5.0 ADVICE ON COMPLIANCE WITH LEGISLATION	33
6.0 BIBLIOGRAPHY AND SOURCES	34
7.0 PLANS	39
8.0 MAPS	48
9.0 IMAGES	58
10.0 GLOSSARY OF TERMS	64

PLANS

Plan 1	Angeline Street, from STA 16+000 to 16+040 and STA 18+108 to 18+185.	39
Plan 2	Angeline Street, from STA 18+185 to 18+308.	40
Plan 3	Angeline Street North.	41
Plan 4	Angeline Street North.	42
Plan 5	Angeline Street North.	43
Plan 6	Angeline Street North.	44
Plan 7	Angeline Street North.	45
Plan 8	Angeline Street North.	46
Plan 9	Angeline Street North; project area limits to the south.	47

MAPS

Map 1	Location of the project area.	48
Map 2	Historical atlas illustration of VC, GToO and a close up of the project area (Belden 1880).	49
Map 3	Terrestrial ecozones of Canada (Ecological Stratification Working Group 1996).	50
Map 4	Bedrock geology of the project and surrounding area.	51
Map 5	Surficial geology of the project and surrounding area.	52

Map 6	Soils of the project and surrounding area.	53
Map 7	Watersheds of Canada.	54
Map 8	Site conditions for Angeline Street North.	55
Map 9	Archaeological potential for Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.	56
Map 10	Archaeological potential for Angeline Street North from 200 metres north of Kent Street West to the northernmost limits of the Project Area.	57

IMAGES

Image 1	Orthographic image of the project area (Google Earth 2016).	58
Image 2	The Victoria County Gaol <i>circa</i> 1865 (Old Gaol Museum 2019).	59
Image 3	Facade of the Victoria County Gaol <i>circa</i> 1920 (Old Gaol Museum 2019).	59
Image 4	Viewing south along Angeline Street North from its intersection with Colborne Street West.	60
Image 5	Viewing south.	60
Image 6	Viewing north.	61
Image 7	Viewing north.	61
Image 8	Viewing southeast at the Angeline Street North / Kent Street West intersection.	62
Image 9	Viewing north from the south side of the Angeline Street North / Kent Street West intersection.	62
Image 10	Viewing northwest from the Roosevelt Street / Angeline Street North intersection.	63

TABLES

Table 1	Summary of the First Nations archaeological sequence in southern Ontario.	12
Table 2	Major stadial and interstadial periods, including timelines and features, of the Wisconsinan glaciation (taken from Remmel 2009:20-23).	16
Table 3	Soil characteristics of the project and immediately surrounding area.	22
Table 4	Photo # and description.	27

1.0 PROJECT CONTEXT

1.1 Objectives

The objectives of a Stage 1 background study, as outlined by the *Standards and Guidelines for Consultant Archaeologists* (2011:13), are as follows:

- ✳️ Provide information on the subject property's geography, history, previous archaeological fieldwork and current land condition;
- ✳️ Evaluate the archaeological potential for the property and support recommendations for a Stage 2 survey; and,
- ✳️ Recommend appropriate strategies for future assessments within the property.

1.2. Development Context

The Central Archaeology Group Inc. (CAGI) was retained by Ainley Graham & Associates (AG) to conduct a Stage 1 archaeological assessment in anticipation of the reconstruction and roadway widening of Angeline Street North in the Geographic Township of Ops (GToO), Victoria County (VC) (Plan 1; Map 1; Image 1). The purpose of this study is to provide a baseline level of data on known and potential cultural heritage resources within the subject property and to conduct a property survey on the expansion area.

Permission for access to conduct the archaeological assessment was granted by Sam Wilson (AG); no limits were placed on this access.

The archaeological assessment was undertaken in accordance with the requirements of the Ontario Heritage Act (R.S.O. 1990), the *Standards and Guidelines for Consultant Archaeologists* (2011) and the Environmental Assessment Act (1990). All archaeological consulting activities were performed under the Professional Archaeological License of Laura McRae (P248). The Ontario Ministry of Tourism, Culture and Sport has designated this assessment as PIF P248-0332-2018. This project is further identified as CAGI-2018-LM21 under CAGI records.

1.3 Historical Context

1.3.1 Historic Documentation

There are several histories of Victoria County, from its use by the pre-contact First Nations peoples through to the English period, Loyalist migration and Euro-Canadian settlement.

Some of the more useful documents include: *Victoria Supplement in Illustrated Atlas of the County of Victoria, Ontario* (Belden 1881), *Peterborough and the Kawarthas* (Brunger 1975), *Trent Waterway Archaeological Survey* (Hakas 1967), *Historic Lindsay* (Capon 1974), *Land of Plenty* (Carr 1968) and *County of Victoria Centennial History* (Kirkconnell 1967).

There are also a significant number of consultant reports (archaeological and built heritage) available for consultation from the City of Kawartha Lakes, the Ministry of Tourism, Culture and Sport and the local historical societies.

In addition to historical literature and consultant reports, historical maps and plans, fire insurance plans, orthographic images and photographs from the National Air Photo Library (NAPL).

The study area is situated within the Former Township of Ops, now referred to as the City of Kawartha Lakes, created in 2001 by the Provincial government by amalgamating Victoria County and its constituent municipalities. The history of the area will be discussed below.

1.3.2 Pre-Contact Period

Although eastern Ontario has a unique deglaciation history, which would have prohibited early occupation, some of the work done further to the west, in the Great Lakes region can be extrapolated. In the 1970s archaeologists in southern Ontario began looking at ancient glacial lake beaches for Palaeoamerican and Archaic archaeological sites with positive results (Jackson et al. 2000, Storck 2004). Traditionally, and which is still common practice to this date, archaeological investigations in eastern Ontario were being conducted at modern water levels and archaeologists were only testing easily accessible areas which yielded “likely” locations of past human occupation (Hurley 1971a; 1971b), overlooking the drastic environmental changes that occurred over the past 10,000 years. Some archaeologists are just beginning to realize that sites can be found further inland on the former beaches of the Champlain Sea and the Fossmill outlet (Kennett and Branson 1999:97). Since very little investigation have been undertaken in these areas (Watson 1999:38), thus far, only a small number of Palaeoamerican sites and few Archaic and Woodland period sites have been found.

In the first half of the twentieth century, the focus of research in First Nations culture in Canada was primarily on linguistics and ethnology (Trigger 2006:312). As a result, it is not until the beginning of the latter half of the twentieth century did archaeological undertakings begin to focus on building cultural chronologies, primarily technological innovation (Mason 1981:161). In Ontario, three broad cultural periods have been identified based on the material culture that has been left behind by past individuals and cultural groups. These cultural periods are: the Palaeoamerican Period (ca. 11,000-8000 BCE), Archaic Period (ca. 8,000-800

BCE), and the Woodland Period (ca. 800 BCE– 1650 CE). Pollock (2005:9) has recently adjusted the dates for eastern Ontario, including the Ottawa Valley and they include: the Palaeoamerican Period (ca. 11,000-6,000 BCE), Archaic Period (ca. 6,000-500 BCE), and Woodland Period (ca. 500 BCE-1600 CE). A cultural summary of these periods, largely focusing on technology, is provided below.

Palaeoamerican (ca. 11,000-6,000 BCE). Only a handful of Palaeoamerican sites and suspected Palaeoamerican sites have been found in eastern Ontario (Gordon and McAndrews 1992:80; Pollock 2005:10). If 9,000 BP (approximately 8,000BC) is accepted by archaeologists as the end of the Palaeoamerican period in eastern Ontario, given the glacial history associated with the formation of the Champlain Sea and methods of field research traditionally used by archaeologists in Ontario, to date, there have only a handful of Palaeoamerican sites found in eastern Ontario (Watson 1999a:38). To find such sites, archaeologists must study local geological events that altered lake levels and shorelines (Storck 1997; 2004).

During the height of the Wisconsinian glacial period the Laurentian Ice sheet covered most of Canada and extended as far south as New York City (Watson 1999a:28). The retreat of the Laurentide glacier from the St. Lawrence River and the Ottawa Valley began approximately 11,000 BP. As the ice receded, the Atlantic Ocean flooded the St. Lawrence Valley and portions of the Ottawa Valley, creating the Champlain Sea. It is on these ancient shores of the Champlain Sea, where there will be significant potential for the discovery of Late Palaeoamerican people, who likely subsisted off of maritime resources for part of the year. Therefore, given the deglaciation process as discussed in greater detail elsewhere in this report, palaeo shorelines, especially those associated with Champlain Sea can today be found inland on elevated topography, upwards of several hundred kilometres east and west of the present course of the St. Lawrence River and Ottawa River. Therefore, given the deglaciation process as discussed in greater detail elsewhere in this report, palaeo shorelines, especially those associated with Champlain Sea can today be found inland on elevated topography, upwards of several hundred kilometres east and west of the present course of these two rivers.

Given isostatic rebound, shoreline destruction, and inundation, little is known about the maritime adaption of Palaeoamerican people. For the most part, it can be posited from other places in North America (Faught 1996; 2004; Faught and Brinnen 1998; Faught and Donoghue 1997; Faught and Gusick 2011; Gusick and Faught 2011; Marks and Faught 2003). Nonetheless, in general, Palaeoamericans are distinguished by the distances they travelled over land and their lithic assemblage. Artifacts have been recovered from archaeological sites in Ontario that were made from high quality cherts found hundreds of kilometers from where they were finally deposited (Storck 2004:33).

Palaeoamericans produced lance-shaped points which lacked the notches and stemming crafted by later peoples for hafting purposes (Ellis and Deller 1990:38). Since Palaeoamerican groups traveled significant distances away from their chert sources, they produced heavily re-sharpened and retouched tools (Dickson 2011:52; Ellis and Deller 1990:45), such as end-scrapers, side-scrapers, knives, graters, and drills (Ellis and Deller 1990:49, 59). Assemblages found on sites vary depending on the proximity to the chert source used for lithic manufacture (Dickson 2011:52). Archaeological sites that are a fair distance away from a chert source will have no evidence of core reduction or early stage preform reduction. This activity was usually undertaken at or near quarry sites (Dickson 2011:52; Ellis and Deller 1990:45).

Ultimately these tools assisted Palaeoamericans in day-to-day activities, in particular, food and resource extraction. A variety of subsistence options were available in eastern Ontario at the time. The land would have supplied large game like caribou and whales (white, humpback, and common finback), harbour porpoise, harp seal, and bladder-nose seal as well as shore birds, ducks, and several fish species (Watson 1999a:33). There is evidence from other Palaeoamerican sites in southern Ontario that fish was processed (Storck 1997:278). Most of these resources would have been found along the shore of the Champlain Sea. It is likely that the Palaeoamerican groups that inhabited eastern Ontario practiced a seasonal transhumance, relying on maritime resources during certain parts of the year and travelling inland, perhaps during the winter, to hunt migratory and herd-based species. This subsistence pattern is more inline with maritime-based Palaeoamerican groups found along the east coast of North America, rather than the traditional inland based subsistence economy subscribed to by many archaeologists for southwest Ontario.

To date, there have been three types of Palaeoamerican sites found in Ontario by archaeologists. These are dropped point sites, quarry sites, and short occupation camp sites. Palaeoamerican sites have been found near Perth (Pilon 2005:14, Watson 1999a:34) and in Lanark County (Branson and Kennett 1999:77).

Early Archaic (ca. 6000-5000 BCE). During the later Palaeoamerican Period, people began to settle and develop a pattern of movement within specific geographic ranges (Stock 2004:125). Eventually, it is believed, movements became seasonal in pursuit of food resources (Storck 2004:126). This seasonal resource economy continued and became commonplace during the Archaic Period. Lakes and river shores formed an important ecotone for human occupation (Ellis et al. 1990:68, 91; Gordon and McAndrews 1992:80; GRAO 2011:16; Wright 1972:33). These locations would have been easy to access by people travelling in watercraft (Wright 1972:36). Travel between sites would have been quicker, improving communication and trade between people. In addition, more could be transported in a boat than carrying overland.

The Archaic period is characterized by the exploitation of a wide range of raw materials for tool manufacture (Clermont and Chapdelaine 1998; Ellis et al. 1990:65, 66). Unlike Palaeoamericans, who used high quality cherts for their lithic assemblage, during the Archaic Period localized materials and glacial till were also used for tool construction. Projectile points were being notched and stemmed and the larger flakes produced during the earliest stages of tool production were now being used as expedient tools (Dickson 2011:52; Ellis and Deller 1990:45; Ellis et al. 1990:66). A new technique in tool production, grinding and pecking, produced ground stone implements (Ellis et al. 1990:65).

Like the Palaeoamerican Period, the Early Archaic in eastern Ontario is not well known. It is believed that Early Archaic sites diminish in number north of Lake Ontario as these Early Archaic groups were contemporaneous with Late Palaeoamerican groups (Ellis et al. 1990:68). It is not until the Middle Archaic that there is evidence of Archaic people in eastern Ontario.

Middle Archaic (ca. 5000-2500 BCE). The Middle Archaic is characterized by a decrease in mobility across the landscape and a greater use of local stone for lithic production. Therefore, overall there is a decrease in the size of the territories being exploited. For example, groups resided for longer periods of time in one place, and multiple interments found on sites, have lead archeologists to believe that people were returning to the same locations for a number of years to exploit a single or multiple resources in the locale.

Eastern Ontario is further defined in the literature as being inhabited by the Laurentian Archaic groups. The Laurentian Archaic people made a number of distinct ground stone tools. These include: stemmed points, bayonets, and semi-lunar knives (Ellis et al. 1990:84; Wright 1995:224;). They also extensively produced tools made of bone and thus, little remains in the archaeological record, especially in areas where soil acidity is high. These tools include stemmed, socketed and barbed points, unilaterally barbed harpoons with holes, pointed awls, gouges, fish hooks, bipointed gorges, whistles, flutes, beaver incisors used as scrapers or knives, and large and small needles (Clermont 1999:49; Clermont and Chapdelaine 1998; Ellis et al. 1990:87; Mason 1981:166; Wright 1995:219). Due to the environment and the limited availability of plant food resources in the Canadian Biotic Province, Laurentian Archaic sites yield less plant processing tools, and show a heavier reliance on hunting and fishing activities (Ellis et al. 1990:91).

Many of the bone tools listed above, have counterparts made from copper (Ellis et al. 1990:88). The appearance of copper artefacts represents far reaching trade networks. Copper artefacts found on Laurentian Archaic sites indicate trade with Shield Archaic peoples who exploited the copper resources around Lake Superior. The Shield Archaic, as the name implies, represents the cultural remains of a people living in the Canadian Shield. The Shield culture covers a large territory from the southwestern portion of the Northwest Territories, most of Manitoba, northern Ontario, northern Québec and Labrador (Wright 1972:1995).

Given the location of the project area, the region likely witnessed influence by both Laurentian and Shield Archaic groups.

Unlike the archaeological assemblages found on the Laurentian Archaic sites of eastern Ontario, early Shield Archaic sites have an absence of ground stone tools (Wright 1995:262). Their settlement pattern and distant trade patterns suggest the use of watercraft. The people of the Shield Archaic made side-notched, stemmed and lanceolate projectile points, end-scrapers, side-scrapers and flake scrapers, wedges, bifacial cores, preforms, bifacial and unifacial flakes, knives, drills, hammers, awls etc. These tools were commonly made out of quartz, some chert varieties, and copper. Throughout pre-European contact, settlement patterns and subsistence activities remain largely unchanged for the Shield Archaic (Wright 1999:705). Nonetheless, the extent of divergence between the Shield and Laurentian Archaic groups is limited to the tool assemblage. Laurentian Archaic tool artifacts have been found in territories often associated with the Shield Archaic and vice versa. In northeastern Ontario on the Abitibi Narrows, a ground slate point, a projectile point of the Laurentian Archaic, was found with stemmed and lanceolate point forms, which belong to be Shield Archaic. Therefore, clearly interaction between these two technologically distinct groups was taking place. A mixture of both Laurentian and Archaic tools can then be expected in the artifact assemblage in archaeological sites located along the perceived boundary between the two technological traditions.

Late Archaic (ca. 2500-800 BCE). Late Archaic sites in southern Ontario are larger and more frequent in the archaeological record than the Early and Middle Archaic periods. Around 4500 BP water levels in the Great Lakes and the Ottawa River Valley began to assume modern day levels and it is at these levels on islands, near the mouths of rivers, rapids, and near marshlands that larger camp sites are found. Populations increased and people began to aggregate in much larger groups along bigger bodies of water. They stayed on these lakes and rivers during spring, summer and early fall, then broke into smaller familiar groups moved into the interior for the winter.

In Ontario, three Late Archaic cultural complexes are defined based on the style of projectile points: Narrow Point (ca. 4500-3800 BP), Broad Point (ca. 4500-3500 BP), and Small Point (ca. 3500-3000 BP). However, in eastern Ontario, there are no distinctive projectile points for this time period. Laurentian cultural material begins to appear with different styles of projectile points that have been expediently made and are difficult to assign to any particular time period or cultural group. The reduction in size of projectile points could indicate the beginning of bow and arrow use (Ellis et al. 1990:106).

During the Late Archaic period and carrying on into the Woodland period there is evidence of extensive trade networks operating in eastern Ontario. Copper tools were exchanged in the Early and Middle Archaic periods but by the Late Archaic there is evidence of non-utilitarian

goods made out of material like copper and marine shell still be traded (Spence et al. 1990:166). Since populations are presumably getting larger, some raw materials that use to be exploited by a variety of groups are now found in a single group's territory (Spence et al. 1990:166). Therefore, trade becomes essential to obtain valued resources. With populations increasing, inter-band marriage was also likely and gifts between bands could have been made to establish and secure relationships. Near the end of the Middle Archaic, at the Leamy Park (BiFw-20) site in Gatineau, copper tools become rare and projectile points of the Lamoka (Narrow Point) and Susquehanna (Broad Point) types begin to appear beside Brewerton points and some ground slate points typical of the Laurentian Archaic (GRAO 2011:17).

Early Woodland (ca. 1000-50 BCE). The Early Woodland Period in most of Ontario is marked by the appearance of fired clay ceramics. Southern Ontario is described as having two complexes, Meadowood (ca. 900-400 BCE) and Middlesex (ca. 450-0 BCE). Ceramic vessels made during the Early Woodland, called Vinette I, are thick, have conoidal bases, and are believed to have been used for cooking and food storage (GRAO 2011:18; Spence et al. 1990:128; Watson 1999b:56).

The Meadowood tradition, known throughout the St. Lawrence Valley and as far north as Abitibi, has produced a wide range of artifacts that are found in both cemeteries and habitation sites (Spence et al. 1990:128). The northern limits of the Meadowood tradition are believed to extend to Rosebary Lake in Algonquin Park and the Deep River site on the Ottawa River (Spence et al. 1990:131). A common artifact of this tradition is a biface blade, often referred to as a cache blade, which is posited to have been used as a preform for the manufacture of various types of tools (Spence et al. 1990:128; Watson 1999b:57). Early Woodland peoples created side-notched points which were frequently recycled into other tool forms, such as end scrapers and perforators.

During the Early Woodland Period, people began to bury their dead in cemeteries, places exclusively reserved for the disposal of the dead. Burials indicative of this funerary tradition, called Middlesex, have been located in the Ottawa Valley. These burials are characterized by an absence of cremation, the presence of polished slate gorgets, tubular pipes, adzes and cylindrical copper pearl necklaces as burial goods,. Overall, the tradition has its origins in the states of Ohio and Michigan with the Adena complex. The Morrison Island site, found and excavated by Clyde Kennedy in 1958, had burials that dated to this period, and some of the burials contained copper beads, and copper bracelets (Clermon and Chapdelaine 1998:21, 22, 25).

Middle Woodland (ca. 50 BCE-950 CE). During the Middle Woodland Period, population sizes increase as does the duration of site occupation. This change is mirrored by a dramatic increase in the exploitation of wetland plants and animals (Lovis et al. 2001:628). Base camp sites, satellite sites, and gathering places are all represented in the archaeological record (Reid

and Rajnovich 1991:221). The social patterning of the Middle Woodland Period is also beginning to resemble what is reported on ethnographically in early European documentation. In Ontario, there are four main cultural complexes associated with the Middle Woodland Period: Point Peninsula, Saugeen, Couture, and Laurel. However, only the Point Peninsula and Laurel complexes pertain to the study area.

The Point Peninsula complex extends throughout south central and eastern Ontario, western and northern New York, and northwestern Vermont (Spence et al. 1990:157). Common tools recovered during this period are barbed bone and antler harpoons, decorated antler combs, bone fish hooks, antler-hafted beaver incisors, and a wide variety of projectile points, celts and gorgets. However, none of the aforementioned tools are exclusive to the Point Peninsula complex (Spence et al. 1990:159). The dead are increasingly buried or relocated to burial mounds. Each mound, or addition to a mound, is considered to represent the accumulated dead of one generation. Bodies were thought to be placed in primary burials, then exhumed at a later date, and relocated to the mounds.

Late Woodland Period (ca. 950-1500 CE). The beginning of the Late Woodland Period in the St. Lawrence Valley and the Upper Great Lakes is marked by the emergence of sedentary settlements. The cultural manifestations during this time period are believed to have been very similar to the ones witnessed by the first Europeans who visited the region. The earliest evidence of agriculture begins to appear around 700 years ago with year round settlement in small villages (GRAO 2011:19). Since sedentary villages are seen as a Woodland Period transition into the Iroquois Period of history in southern Ontario, and that the project area and the surrounding region has traditionally been Algonquin territory, these larger sedentary village sites are not expected in the archaeological record. Instead, it is believed that the Algonquin largely maintained a pattern of seasonal transhumance as witnessed in the early periods of Ontario history. Nonetheless, the project area does lie near the boundary with Iroquoian-speaking groups to the south, and it is possible, with the fluidity of the frontier, that Iroquoian-speaking groups, generally associated the St. Lawrence River watershed, may have inhabited or obtained resources in the region surrounding the project area.

During the Late Woodland period ceramics manufactured in the St. Lawrence River Valley begin to show a distinct regional style characterized by more complex decoration. The vessels have globular bodies and have a narrow neck with a flared rim decorated with castellations using the paddle and anvil technique. Pipes, beads and tokens are also made from ceramics. Stone tools are rare, bone and animal teeth (particularly beaver incisors) are more common materials used in the manufacture of tools (GRAO 2011:19). With trade routes extending north of the Great Lakes, this material culture can be expected in archaeological contexts in the Ottawa River watershed.

By the transition of the Terminal Woodland Period to the Early Iroquois Period (ca. 1500 CE), the Algonquin-speaking groups in eastern Ontario continue to practice a hunting and gathering subsistence economy that has not changed much since the Archaic. However, it is likely that some horticultural activities were undertaken. Although referred to as the Early Iroquois Period in Iroquois-speaking territory to the west, in eastern Ontario, this period is referred to in the literature as the Pickering Complex.

The Pickering Complex in eastern Ontario is defined by a distinct ceramic tradition, which shifts from cord impressions to linear and dentate stamps and exterior bossing along the neck and rim and ribbed paddle or checked stamps on the body of the vessel. Other distinctive technology during this period includes triangular shaped projectile points, bone awls and beads, and ceramic pipes. In addition, Iroquoian-like ceramic vessels appear in small numbers in northeastern Ontario and northwestern Québec (Guindon 2009:68). The presence of these ceramics suggests a change in the interaction network that had been in place between the residence of the Ottawa River watershed and the Canadian Shield since the Archaic period. In Québec archaeologists have defined a period, Mamiwinnik (1350 to 1650 CE), which is characterized by the rapid increase in the number of Iroquoian pots found on Algonquin sites in northwestern Québec (Guindon 2009:85). This is important to note since people would have travelled up and down the Ottawa River and may have stopped at the mouths of any of the major tributaries in eastern Ontario to camp, trade or perform subsistence activities.

Historic Period (ca. 1500 CE - to the present). With the arrival of Europeans, distinguishing specific cultural groups inhabiting the region becomes less arduous, since it is now possible to draw upon ethnohistoric accounts, which could include the journals of early explorers and visitors to the more in-depth accounts of missionaries, who were charged by the European authorities and the Church with converting the Aboriginal population, often to the detriment of the First Nations, and thus obligated to provide details to their progress. However, piecing together the post contact First Nations history for the project area still remains challenging simply because little effort has been made to date to consolidate the known resources into a logical and comprehensive history.

The predominate First Nations group inhabiting the region at the time of contact are the Michi Saagiig (Mississauga Anishinaabeg). The following write-up was provided to CAGI from Curve Lake First Nation. It was prepared by Gitiga Migizi, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation. It has been copied verbatim into this report so as to limit potential errors.

The Michi Saagiig Nation. The traditional homelands of the Michi Saagiig encompass a vast area of what is now known as southern Ontario. The Michi Saagiig are known as “the people of the big river mouths” and were also known as the “Salmon People” who occupied and

fished the north shore of Lake Ontario where the various tributaries emptied into the lake. Their territories extended north into and beyond the Kawarthas as winter hunting grounds on which they would break off into smaller social groups for the season, hunting and trapping on these lands, then returning to the lakeshore in spring for the summer months.

The Michi Saagiig were a highly mobile people, travelling vast distances to procure subsistence for their people. They were also known as the “Peacekeepers” among Indigenous nations. The Michi Saagiig homelands were located directly between two very powerful Confederacies: The Three Fires Confederacy to the north and the Haudenosaunee Confederacy to the south. The Michi Saagiig were the negotiators, the messengers, the diplomats, and they successfully mediated peace throughout this area of Ontario for countless generations.

Michi Saagiig oral histories speak to their people being in this area of Ontario for thousands of years. These stories recount the “Old Ones” who spoke an ancient Algonquian dialect. The histories explain that the current Ojibwa phonology is the 5th transformation of this language, demonstrating a linguistic connection that spans back into deep time. The Michi Saagiig of today are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods. They are the original inhabitants of southern Ontario, and they are still here today.

The traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands. This also includes all the tributaries that flow from the height of land north of Toronto like the Oak Ridges Moraine, and all of the rivers that flow into Lake Ontario (the Rideau, the Salmon, the Ganaraska, the Moira, the Trent, the Don, the Rouge, the Etobicoke, the Humber, and the Credit, as well as Wilmot and 16 Mile Creeks) through Burlington Bay and the Niagara region including the Welland and Niagara Rivers, and beyond. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie.

Michi Saagiig oral histories also speak to the occurrence of people coming into their territories sometime between 500-1000 A.D. seeking to establish villages and a corn growing economy – these newcomers included peoples that would later be known as the Huron-Wendat, Neutral, Petun/Tobacco Nations. The Michi Saagiig made Treaties with these newcomers and granted them permission to stay with the understanding that they were visitors in these lands. Wampum was made to record these contracts, ceremonies would have bound each nation to their respective responsibilities within the political relationship, and

these contracts would have been renewed annually (see Gitiga Migizi and Kapyrka 2015). These visitors were extremely successful as their corn economy grew as well as their populations. However, it was understood by all nations involved that this area of Ontario were the homeland territories of the Michi Saagiig.

The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people.

Problems arose for the Michi Saagiig in the 1600s when the European way of life was introduced into southern Ontario. Also, around the same time, the Haudenosaunee were given firearms by the colonial governments in New York and Albany which ultimately made an expansion possible for them into Michi Saagiig territories. There began skirmishes with the various nations living in Ontario at the time. The Haudenosaunee engaged in fighting with the Huron-Wendat and between that and the onslaught of European diseases, the Iroquoian speaking peoples in Ontario were decimated.

The onset of colonial settlement and missionary involvement severely disrupted the original relationships between these Indigenous nations. Disease and warfare had a devastating impact upon the Indigenous peoples of Ontario, especially the large sedentary villages, which mostly included Iroquoian speaking peoples. The Michi Saagiig were largely able to avoid the devastation caused by these processes by retreating to their wintering grounds to the north, essentially waiting for the smoke to clear.

Michi Saagiig Elder Gitiga Migizi (2017) recounts:

“We weren’t affected as much as the larger villages because we learned to paddle away for several years until everything settled down. And we came back and tried to bury the bones of the Huron but it was overwhelming, it was all over, there were bones all over – that is our story.

There is a misnomer here, that this area of Ontario is not our traditional territory and that we came in here after the Huron-Wendat left or were defeated, but that is not true. That is a big misconception of our history that needs to be corrected. We are the traditional people, we are the ones that signed treaties with the Crown. We are recognized as the ones who signed these treaties and we are the ones to be dealt with officially in any matters concerning territory in southern Ontario.

We had peacemakers go to the Haudenosaunee and live amongst them in order to change their ways. We had also diplomatically dealt with some of the strong chiefs to the north and tried to make peace as much as possible. So we are very important in terms of keeping the balance of relationships in harmony.

Some of the old leaders recognized that it became increasingly difficult to keep the peace after the Europeans introduced guns. But we still continued to meet, and we still continued to have some wampum, which doesn't mean we negated our territory or gave up our territory – we did not do that. We still consider ourselves a sovereign nation despite legal challenges against that. We still view ourselves as a nation and the government must negotiate from that basis.”

Often times, southern Ontario is described as being “vacant” after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation.

The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation.

The Michi Saagiig have been in Ontario for thousands of years, and they remain here to this day.

Table 1. Summary of the First Nations archaeological sequence in southern Ontario.

Date	Periods and Cultural Tradition
11,000 BCE - 6,000 BCE	Palaeoamerican
11,000 BCE - 8,000 BCE	Early Palaeoamerican
8,000 BCE - 6,000 BCE	Late Palaeoamerican
6,000 BCE - 800 BCE	Archaic
6,000 BCE - 5,000 BCE	Early Archaic
5,000 BCE - 2,500 BCE	Middle Archaic
2,500 BCE - 800 BCE	Late Archaic
1,000 BCE - 1,500 CE	Woodland
1,000 BCE - 50 BCE	Early Woodland
50 BCE - 950 CE	Middle Woodland
950 CE - 1,500 CE	Late Woodland
1,500 CE - Present	Historic

1.3.3 Post-Contact Period

The first recorded European visitor to the Trent Valley region was Samuel de Champlain in 1615, who travelled from Lake Simcoe to New York State with a party of Hurons on a military campaign against the Oneida Iroquois (Trigger 1985:157, 180). Champlain's exact route is a matter of contention, but he probably portaged from the Otonabee River to Chemong Lake (Brunger 1972:44). There are indications in the historical and archaeological records that the Trent Valley was used only as an occasional transportation corridor and hunting-fishing territory by the Hurons in the seventeenth century (Sutton 1990:3). At that time, the main transportation corridor was the Ottawa River drainage to the north, while the main focus of Huron occupation was west and north of Lake Simcoe (Huronian). These were the areas of concentration for the French fur trade, and eventually mission colonies. In 1649-50, the Huron's settlements were destroyed by the Iroquois, and the people dispersed.

For the remainder of the seventeenth century, the upper and middle Trent Valley remained as a buffer zone between Algonkians on the south edge of the Canadian Shield, and the New York Iroquois on Lake Ontario and the lower Trent, including reportedly Rice Lake, where they are rumoured to have had a fortified village (Brunger 1985:99; MCR 1981:58). By the 1690s, French supported Algonkian bands forced a southward retreat of the Iroquois (MCR 1981:58). Algonquian-speaking Mississauga Ojibway bands then migrated south from Georgian Bay and established a permanent presence in the Trent Valley (MCR 1981:61-65), which by this time, was of little interest to the French (Brunger 1985:99).

The construction of the French outpost of Fort Frontenac near the mouth of the Cataraqui River in 1673, resulted in a sporadic European presence at the eastern end of Lake Ontario during the late seventeenth and eighteenth centuries. The main function of the fort was to store supplies intended for the military and trading posts. It was often abandoned when circumstances forced the retreat of the French military garrison. Fort Frontenac was surrendered to a British force in 1758 during the Seven Years' War, and all of New France surrendered by 1760.

The end of the French regime of Canada in 1760, brought little change to the region and British settlement along the north bank of the upper St. Lawrence River and the eastern end of Lake Ontario did not begin in earnest until 1784 when the counties opposite the New York border were settled by refugees of the American Revolution (Moore 1984:236). The Trent Valley became incorporated within the Newcastle District in 1798 (Brunger 1985:99), and township land surveys were begun. The Trent Valley was an unexploited frontier during the early stages of British colonization and attention did not turn to the northern regions of the district until the Lake Ontario fringe began to fill with settlers.

Victoria County (Map 2). Permanent European settlement of Victoria County proceeded roughly from south to north – according to the relative productivity of soils for agriculture –

and saw several waves of immigrants from the British Isles. Ops Township was surveyed for settlement in 1828, and the first recorded homestead was that of Patrick O'Connell who settled on Lot 7, Concession 2 (Belden 1881:8). The rich farmland of the interlake area was in great demand and by the mid-1830s, most land suitable for agriculture was settled mainly by recent Irish immigrants (Capon 1974:9). Communities with services to support the new agriculturalists were generally oriented toward water bodies, with rapids being particularly important for the establishment of grist and sawmills, and eventually other services and industries. In this way, the village that would become Lindsay grew up above the rapids near the outlet of the Scugog River. The founders of the settlement were William Purdy and sons who had received a charter in 1829 to build mills on the future townsite (Belden 1881:8). The Purdy's mill dam raised the water level on the Scugog River by as much as three metres causing severe flooding on the low-lying land as far as the southern shore of Lake Scugog. A second mill dam built at Bobcaygeon soon after raised water levels of Sturgeon Lake and the widespread flooding sparked fever epidemics that plagued the area for decades. In the spring of 1838, flooded out farmers coming from as far south as Port Perry destroyed the Purdy dam by force with no opposition from the local authorities (Capon 1974:10). A new government dam was later built below the rapids of the river and the Purdy's were given special water privileges (Capon 1974:10). Somehow Lindsay survived in the early troubles and by 1852, the general census records 450 residents in the village.

Throughout the nineteenth and twentieth centuries, First Nation people maintain a presence in the middle Trent Valley. Treaty 20 gave title of the Newcastle District to the Crown in 1818, and reserves were established in 1829 for the Mississauga Ojibway at Scugog Lake, Curve Lake (the junction of Chemong and Buckhorn Lakes), Hiawatha on Rice Lake, and several on Lake Simcoe (Williams and McCue 1981:25). The total First Nation population of Mississauga in the region was thought to be about 1250 persons, with the residential affiliation remaining fluid throughout the reserves of the Kawartha Lakes (Hall 1990:155). These formerly northerly Algonkian peoples did not establish long term, continuously inhabited settlements at specific reserve locations until forced to do so by Indian agents following increasing immigration pressure and Canadian Confederation in the 1850s and 1860s (Hall 1990:152).

City of Kawartha Lakes. The City of Kawartha Lakes is the product of an amalgamation of the communities of Bobcaygeon, Fenelon Falls, Lindsay, Omemee and Woodville and the former Victoria County. The amalgamation came into effect in 2001 during the reign of Mike Harris, former Premier of the Province of Ontario. The name "Kawartha" is derived from the Anishinaabe *Kawatha* which means "land of reflections." This perfectly suits the area as it is comprised of a multitude of lakes, rivers, creeks and low-lying areas.

1.3.4 Study Area History

Town of Lindsay. Lindsay straddles the Scugog River and is the seat for the City of Kawartha Lakes (formerly Victoria County). It is situated within the Geographic Township of Ops which was surveyed in 1825 by Colonel Duncan McDonell. The area witnessed immediate movement into the area and settlement of the Village began shortly after the town site was surveyed. The village flourished around Purdy's mills (sawmill and grist mill) and grew into a lumbering and farming centre of the region.

The Port Hope, Lindsay and Beaverton Railway (PHL&B) reached the town in 1857 and provided an impetus for additional growth and development. The town was incorporated in the same year. A second railway made its way to the town in 1871. Known originally as the Fenelon Falls Railway, then as the Fenelon Falls & Ottawa River Valley Railway and then as the Victoria Railway, it connected with the Midland Railway at Victoria Junction on William Street North. The third railway was the Port Whitby & Port Perry Railway, which extended from Port Perry to Lindsay in 1876. By 1877, the railway was known as the Whitby, Port Perry & Lindsay Railway (WPP&L). By 1887, the Midland Railway made Lindsay its headquarters.

1.3.5 Summary

The land registries, census records and historic maps show that this area was mainly rural and had a low level of occupancy in the eighteenth and nineteenth centuries (and even the twentieth and twenty-first) centuries. Through historical background research, there is no evidence to suggest that any of the project area was occupied during the Euro-Canadian settlement of the township.

1.4 Archaeological Context

1.4.1 Current Conditions

The entire Project Area was comprised of road right-of-ways with residences, commercial and industrial buildings on either side of the corridors. Natural vegetation was not present and there were manicured lawns, ornamental trees and shrubs, asphalt pavement and concrete walkways present within the PA.

Images 4 to 10 illustrate the current conditions of Angeline Street North. These can be found in Section 8.0.

1.4.2 Physiography

The assessment of physical and environmental conditions of a region is important to the analysis of past human settlement behaviour as well as for the interpretation of features and site patterns on the landscape. The cultural development of every society is strongly

influenced by the surrounding natural environment which provides a finite set of resources that humans use to fulfill a variety of needs. Geomorphology, soils, water sources, climate, and vegetation are all significant factors in understanding patterns on the landscape. Changes in the landscape over time influences the types of cultural materials found during an archaeological assessment as well as their visibility.

Location. The project area is located within the City of Kawartha Lakes in the Geographic Township of Ops, Victoria County. The project area is flat but is surrounded by elevated areas (drumlins). Although drained by the Scugog River, which flows to the east, the PA are surrounded mostly by residence and commercial areas (Image 1).

Victoria County is located in central Ontario, north and east of Ontario County, north of the Geographic Township of Carden, northwest of the Geographic Township of Laxton, west of the Geographic Township of Digby and southwest of the Geographic Township of Longford. The Town of Lindsay is the closest urban centre, although there are a number of smaller towns and villages in the surrounding area such as Little Britain, Reaboro, Cunningham's Corners, Elm Tree Corners, O'Donnell Landing, Linden Valley and Cambray. The Geographic Township of Ops is situated within the southcentral portion of the county.

Glacial History and Geomorphology. Landscape features seen today are the result of the most recent period of glaciation. Beginning with the Illinoian glacier and ending with the Wisconsinan, the ice masses advanced as far south as Ohio and as far east as the continental shelf edges. The first interstadial period, the Sangamonian, witnessed ice retreat of the Illinoian glacier as far north as Hudson Bay. At this time, Easton (1992) posits that global temperatures were warmer or similar to that which we experience today. This period extended until approximately 75,000 years BP with the onset of the Wisconsinan glaciation.

The Wisconsinan glaciation is characterized by a series of advances (stadials) and retreats (interstadials), scouring, transporting and depositing surface materials across Ontario. Seven major stadials and six interstadials, along with several minor phases, have been recorded (Table 2).

Table 2. Major stadial and interstadial periods, including timelines and features, of the Wisconsinan glaciation (taken from Remmel 2009:20-23).

Period	Stadial / Interstadial	Years BP	Feature /s
Nicolet	Stadial	70,000	-blocked the St. Lawrence River -caused water to dam into Lake Scarborough -created the Scarborough Bluffs

ANGELINE STREET NORTH
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

St. Pierre	Interstadial	67,000	-St. Lawrence is free of ice -Great Lakes waters drain towards the Atlantic Ocean
Guildwood	Stadial	55,000	-ice covers all of Ontario and extends into northern US
Port Talbot	Interstadial	48,000 - 36,000	-two warm intervals separated by a cold phase -palynological studies indicate boreal tree taxa -meltwaters drain through present-day New York
Cherrytree	Stadial	35,000 - 28,000	-ice sheet covers most of Southern Ontario -formation of Glacial Lake Thorncliffe
Plum Point	Interstadial	27,000	-ice retreats across Ontario
Nissouri	Stadial	20,000	-ice sheet reaches maximum extent
Erie	Interstadial	15,000	-ice retreats -Lake Erie drains eastward through the St. Lawrence River
Port Bruce	Stadial	14,000	-ice advances across Ontario and into US
Mackinaw	Interstadial	13,000	-ice retreat causes splitting of ice lobes -split exposes a dome of higher land called Ontario Island -Proglacial Lakes Arkona I, II and III form at southern ice margins
Port Huron	Stadial	12,900	-short-lived advance -Glacial Lakes Lake Whittlesey, Warren I, Warren II, Wayne and Warren III form
North Bary	Interstadial	11,840 - 8,100	-warmer climate -ice retreats across Canadian Shield -drainage flows east -formation of Glacial Lake Grassmere

Driftwood	Stadial	8,200 - 8,100	-deposition of clay tills in the Lake Barlow-Ojibway region -about 8,000 Glacial Lakes Ojibway and Agassiz catastrophically drain into Hudson Bay
-----------	---------	---------------	--

The North Bay Interstadial, as it retreated across the landscape, exposed our project area.

Retreat during this phase was quite rapid and a number of post glacial lakes developed as a result of meltwater flow and drainage, ice dams and glacial deposits (i.e., Lake Algonquin, Lake Iroquois, Lake Erie and the Champlain Sea). Consequently, substantial areas would have been inundated by the copious flow of meltwaters at elevations well above modern sea levels before the formation of drainage outlets. Three major drainage outlets formed during this period: the Kirkfield Outlet (~11,500 BP) which drained Lake Algonquin into Lake Iroquois across the Kawarthas (just north of the project area); the Fossmill Outlet (~10,800) which drained Lake Algonquin into the Champlain Sea to the Atlantic Ocean through Algonquin Park by way of the Petawawa and Barron Rivers; and, the Mattawa Outlet was exposed as the glacier receded northward and exposed lower outlets (~10,000) which continued to drain Lake Algonquin into the Champlain Sea via the Mattawa River (Chapman and Putnam 1984:25-39; Larsen 1987:19; and Kaszycki 1985).

In existence from ~12,800 BP - 10,000 BP (Chapman and Putnam 1984:39; Gadd 1980), the Champlain Sea was a temporary inlet of the Atlantic Ocean. Although the maximum extent of this marine transgression is not yet known in specific terms, it has been posited that its eastern limits extended to the clay beds found within Leeds County and the Frontenac Axis, an eastern extension of the Canadian Shield which reaches into the Appalachian region of the United States. We also know that the northwestern arm of the Champlain Sea extended just north of Deep River (Barnett 1988). Unfortunately, because of the rocky nature of the region, the shoreline features of the western extension of the Champlain Sea remain unknown (Chapman and Putnam 1973:117).

As these glacial water sources drained, the zones created could have supported an extensive variety of animal, insect, bird, and vegetation species. Resource exploitation of these zones by early peoples is supported by the discovery of archaeological sites along the edges of ancient shorelines (palaeoshorelines) across North America.

Palaeoecology. The last ice age completely disturbed vegetational patterns throughout the Eastern Ontario. Climatic warming marked an official end to the Pleistocene Period and caused an abrupt change in the composition of forests, woodlands and parklands south of the ice sheets.

With deglaciation, vegetation migrated northwards and different species populated the ice free margins. Palynological analysis of pollen grains (Pielou 1991; Remmel 2009:30; Wright 1964) illustrates that more diversified vegetation developed with slight differences noted between the west side of the continent and the lowlands and east side of the continent. Furthermore, the process of recolonization depended on the production rates of different species and their ability to grow on freshly exposed terrain which may have reduced pH levels (Matthews 1992:122). Initially, species more common to herbaceous tundra environs grew (i.e., herbs, mosses and lichens) followed by shrub tundra communities (i.e., sedges and small shrubs) and then to spruce (*Picea* ssp.) and poplar (*Populus* ssp.) woodlands. Warming temperatures also encouraged deciduous growth like hemlock and beech and also caused treelines to shift northward, terrestrial and marine species to increase their range northward, and in the mountains, caused the above to shift to higher elevations.

Taxa noted within the project area is today, not much different from that which it would have been thousands of years ago. The project area lies within the Northern Hardwood Forest, which is within the Great Lakes-St. Lawrence Forest ecoregion. This is a transitional forest which illustrates an overlap of northern needle-leaved trees and southern broad-leaved deciduous trees and produces a mosaic of various vegetative communities controlled by local climate and soils.

Climatic upheavals wrought diverse changes amongst terrestrial and marine animal and bird migration patterns and habitats. It may be assumed that mammals typically found today in these environments, would have been present during the late Pleistocene and early Holocene Periods in the project area (i.e., caribou, bear, fox, hare, chipmunk, squirrel, mouse, weasel, lemming, vole, moose, porcupine and bat) (Remmel 2009:32). Today, mammals such as black bear (*Ursus americanus*), moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*) and wolf (*Canis lycaon*) are commonly seen throughout the region. Furthermore, marine fossils in the vicinity of the former Champlain Sea indicate large mammals such as whale, walrus and seal inhabited the area during the open-water season (Chapman and Putnam 1984; Cronin 1977; Loring 1980). As these mammals would have migrated into the region following their food sources, it is also safe to assume that smaller marine life, whose skeletal existence may not have survived to become part of the archaeological record, were present.

Moreover, as the prevailing climate of the time would likely have meant that the Champlain Sea would have frozen over during the winter season, marine mammals would have been forced to migrate into the Gulf of St. Lawrence, where the waters were open. However, as hypothesized by Loring (1980:35), “local populations of belugas or seals might have been trapped in areas of open water surrounded by ice and would have been easily killed by hunters...” This suggests that marine as well as terrestrial exploitation of food resources would have been an important aspect of subsistence practices of the local indigenous

populations. Therefore, the probability of at least a partial maritime- based economy in the region of the project area is high.

Physiography and Geology. The project area is located within the Mixed Wood Plains ecozone (Map 3). According to Natural Resources Canada (2011), the Mixed Wood Plains can be characterized by the following description:

“... topography ranges from extremely flat areas in the southwest and southeast to rugged terrain of the Niagara Escarpment. Vegetation is diverse, characterized by mixed deciduous- evergreen forests and tolerant hardwood forests including those forests known as Carolinian forests. Alvars and tallgrass prairies also occur. Wetlands are numerous in certain areas, although many wetlands have been drained. Carolinian Canada (the most southerly portion of this ecozone) boasts the highest concentration of species in Canada. The number of species at risk is also high.”

Bedrock geology within the project area is comprised of Ordovician rocks (Map 4). The Shield is broken into many sections, or “provinces.” Almost 3 billion years ago, these provinces began to rub against each other, causing friction and a build up of pressure. Many fissures and faults were created in the area as the Earth’s crust twisted, sheared, and folded. Molten material, specifically andesite, a dark grey coloured rock, was forced up through the fissures to the surface. As it reached the ground, the new rock, in some cases carrying precious metals such as gold and silver, cooled and became part of the landmass. These ancient folded rocks are known as Greenstone belts which eventually were overlain with more recent glacial sediments.

Sedimentary rocks of Paleozoic and Mesozoic age formed between approximately 570 to 66.4 million years ago, during a global warming period, when several periods of marine inundation of North America were responsible for the deposition of thick layers of sediments which eventually resulted in the formation of shale, limestone and sandstone (Eyles 2002:5).

The area surrounding the project area is composed of Upper Ordovician. Specifically, the project is located within a formation which includes such rocks as shale, limestone, dolostone and siltstone. These formations usually include chert formations. The project area is surrounded by rocks of this origin.

One of the most common characteristics of Palaeoamerican material assemblages is the prevalence of cherts and similarities of lithic tools across wide ranging regions (Mason 1981, 1986; Goodyear 1989). Chert is a fine-grained, siliceous material which is easy to knap and therefore commonly used in the production of stone tools. In addition to chert use, quartz materials were also widely utilized, particularly in more northern regions or within the Canadian Shield, where quartz and quartzite materials were more locally available.

The physiography of the study area encompasses one surficial geology type, till plains (drumlinized) (Map 5). However, it is surrounded by quite complex surficial deposits. These surficial types are the result of glacial recession and melting as well as inundation of the area by Lake Iroquois and include clay plains, kame moraines, sand plains, peat and muck and eskers.

Soils. Soil, in terms of its morphological characteristics, is defined as unconsolidated surface material forming “natural bodies” made up of mineral and organic materials as well as the living matter within them. It is a dynamic entity with materials continually and simultaneously absorbed, released and transformed.

The formation of soils is heavily influenced by its parent material, climate, topography, bio-activity and time, however, it is mainly the combined effects of climate and living matter that convert a material to soil. For example, in moisture-rich environs, the dampness and rich vegetation may lead to deep, richly organic soils, good for agricultural production. However, in desert areas, where precipitation is low, the lack of moisture and vegetation may lead to sparse soil development and where soils exist, they may be thin and highly mineral. Furthermore, human disturbances such as grave sites, dwellings, agricultural activities and garbage dumps may also affect soil development, giving it other unique characteristics.

The soils of the project area formed to their current composition over the past 10,000 years or so; since glacial melting at the end of the last ice age. Soils formed from glacial deposits vary in composition depending on the rock type over which the glacier travelled. Since glaciers advance and retreat with time, the composition and depositional environment of the parent material can be quite complex. Overall, the texture of soil produced in glacial deposits reflects the mode and distance of transport as well as the type of rock scoured. Shale and limestone scouring tends to produce a soil with relatively more clay and silt-size materials, whereas igneous and metamorphic rocks produce mostly sandy soils. Deposits beneath the ice usually result in finer textured, denser materials, whereas outwash and front and side deposits are generally coarser. Furthermore, glacial till, glaciofluvial and glaciolacustrine sediments often occur in close association. With time, soil horizons, or “zones within the soil that parallel the land surface and have distinctive physical, chemical and biological properties” develop (Holliday 2004:3). Soil horizons together, form a profile; a vertical arrangement of horizons seen in a two-dimensional arrangement (what we see during observations).

The soils of VC vary considerably across the County, with glacial surface deposits (i.e., drumlins, eskers, etc.) and deep, well-drained soils (Gillespie et al. 1981). The only limitations associated with the soils are depressional, wet and heavy areas and stoney areas of excessive drainage. The project area is comprised of a single soil type (Solmesville clay loam) but is closely situated to a number of others (Otonabee loam, Simcoe clay, Cramahe gravel, and muck) (Table 3; Map 6).

Table 3. Soil characteristics of the project and immediately surrounding area.

Soil Type	Texture	Topography	Drainage	Great Group
Solmesville clay loam (Socl)	few stones	undulating	imperfect	Gray-Brown Podzolic
Otonabee loam (Ol)	moderately stoney	rolling to hilly	good	Brown Forest
Simcoe clay (Sic)	stonefree	level	poor	Dark Gray Gleisolic
Cramahe gravel (Cg)	very stoney	hilly	excessive	Brown Forest
Muck	stonefree	depressional	poor	Organic

Hydrology. The modern watercourses we see today evolved as their ancestral waterways and their tributaries adjusted to the retreat of Lake Iroquois. During glacial melt and ice retreat at the end of the Pleistocene and beginning of the Holocene periods, there was a much larger flow of water through the project area than at present and on several occasions, rivers shifted into new channels. However, by approximately 8,000 years ago, modern drainage patterns were established (Kennedy 1970).

The project area is now located within the St. Lawrence watershed which is within the larger Atlantic Ocean drainage basin (Map 7), and is drained via a number of meandering waterways (Map 1; Image 1). Watersheds are typically defined by the topography of the surrounding landscape and includes such factors as shape, contours and elevations. They are comprised of streams, creeks, brooks, rivers, lakes, ponds, wetlands, estuaries, uplands, forests and meadows and also shorelines.

Present within, or within relative close vicinity to the project area today are lakes (i.e., Goose Lake, Balsam Lake, Pigeon Lake, etc.) rivers (i.e., Scugog River, Pigeon River, etc.), creeks and streams (i.e., McLaren Creek, Stony Creek, Emily Creek, Mariposa Brook, etc.) and a number of low-lying and wet areas identified as marsh or swamp. Although the geography of the area has been largely shaped by the geomorphology of the region, many of these watersheds have been altered by human intervention; a by-product of development.

Water routes played a very important role in the early development of Canada and served as a transportation route for pre-contact First Nations groups prior to European arrival. These water sources were used to traverse the interior of the province prior to the construction of railways and roads. The potential for the discovery of archaeological resources increases drastically in particularly difficult areas along these routes, such as at rapids or chutes, where a portage was necessary. In addition, the shores of rivers and creeks were particularly

attractive for temporary and semi-permanent settlement, especially in areas of the shore that were easily accessible by water. These areas were of particular interest, not only for their transportation value, but for access to potable water and foodstuffs, especially fish. The presence of secondary water sources, including permanently or seasonally inundated swamps, offered access to a variety of resources, including migratory birds, rice, and reeds for basket-making.

Climate. Modern climatic variation depends almost entirely upon location and human impacts on the environment. The project area, located in eastern Ontario, is influenced by the modifying factor of the Great Lakes. The Great Lakes tend to add moisture to the air in the autumn and winter in conjunction with protecting the region from the worst of the cold during the winter months, and during the spring and summer they act to moderate the temperature of the region. This produces an ideal environment for agricultural practices as the growing season tends to be longer and the cold months not as harsh as through the remainder of Canada.

1.4.3 Previous Archaeological Assessments

Archaeological research within Ontario is often limited to discoveries made during development activities. However, this does not necessarily reflect the known and unknown, yet unrecorded archaeological history of the area. Throughout the nineteenth and early twentieth century, as Euro- Canadian settlers and loggers penetrated the forests and lakes of the region, some would encounter and collect evidence of past First Nations activities, in the form of stone and copper tools, or organic paraphernalia. This practice continued well into the twentieth century and is still carried out to this day by cottagers, tourists, and local residents, some who have amassed significant collections. Furthermore, there are oral references to evidence of pre-contact First Nations occupation made by the first Euro-Canadian settlers to the region, which sometimes results in sites being “recreationally” excavated by non-professional archaeologists.

With increased sensitivity towards the need to preserve cultural heritage within the Province, hundreds of archaeological projects have been recently undertaken within Ontario. Often initiated by development projects, including infrastructure development and improvement, subdivision applications, and construction activity, First Nations and early Euro-Canadian history of the region is being revealed.

A search of the database of archaeological assessments found that no archaeological assessments have been conducted within 100 metres of the study area.

1.4.4 Registered Archaeological Sites

The Ontario Ministry of Tourism, Culture and Sport maintains a database (OASD) of all known registered archaeological sites in the Province. A search of the database (completed on August 27, 2018) within a one kilometre radius around the study area indicates the presence of three registered archaeological sites. These are the Kuypers site (BcGq-9), the Mason site (BcGq-11) and BcGq-12.

The Kuypers site (BcGq-9) was first recorded by Paul Racher in 1998. The site consisted of a number of nineteenth century, Euro-Canadian artifacts including ceramics, glass, metal, buttons, pipes, brick, bone, shell, slate and wood. No other information is provided for this site within the database.

The Mason site (BcGq-11) is an Archaic period campsite, first noted by David Robertson in 2005. The site is situated within a wetland which is only accessible during dry times of the year. Robertson identified the lithic artifact as being a Late Archaic Crawford Knoll type projectile point made of Onondaga chert. No other cultural materials were noted.

BcGq-12 is an Euro-Canadian farmstead site comprised of historic ceramics and glass artifacts. No further archaeological work was recommended

1.4.5 Historical Plaques

Aside from the presence of nearby registered archaeological sites, other indicators of the presence of extant archaeological remains are the proximity of historical plaques to the study area that commemorate important events in a region's past, whether it be the birth of an individual, the site a specific battle, or the construction of a unique building. Generally, historical plaques and markers point to a specific locale on the landscape that can be visited by the public. Although plaques and markers may not be placed in the exact location that the event has occurred, generally it is in close proximity, taking into consideration access to the public. In Ontario, historical plaques may be erected by the federal government through the Historic Sites and Monuments Board of Canada (HSMBC), the Ontario Heritage Trust (OHT), and local heritage agencies or historical societies. However, there are no historical plaques or markers within the study area.

1.4.6 Summary

Archaeological and cultural heritage work conducted in the immediately surrounding area has not provided any evidence of archaeological remains. However, the physical setting of the project area indicates that it may retain potential for extant cultural materials associated with pre-contact First Nations and Euro-Canadian settlement in the area.

Pre-contact First Nations groups migrated across Ontario, likely following the ice sheet as it receded northwards and adapting to the changing environment. The newly exposed landscape would have been a productive ecozone, with large numbers of terrestrial and marine mammals, birds, insects and vegetation populating the margins. This biomass would have been considerable and would have offered a readily available food source for migrating populations. Archaeological and cultural heritage work conducted in the surrounding area has provided evidence of archaeological remains, dating back to the Late Archaic period and extending into the Historic period.

2.0 FIELD METHODS

A Stage 1 property inspection of the Project Area was undertaken by Laura McRae and Derek Paauw on August 28, 2018 under the professional archaeological consulting license P248 (P248-0332-2018) in order to observe the current land conditions and evaluate the Project Area's archaeological potential. The inspection was undertaken to determine if there were any areas of disturbance which would affect archaeological potential and to determine appropriate survey strategies for the Stage 2 property survey.

The site inspection systematically covered the entire study area. As the study area was situated a road corridor within the City of Kawartha Lakes, it was easily accessible and the permission for conducting work within the project area was provided by Scott Reynolds, AG, following.

The weather on July 19, 2018 was hot, humid and overcast with a slight breeze and a temperature of approximately 35°C. At no time during the archaeological assessment were weather or lighting conditions detrimental to the observation of features of archaeological potential.

There is are no registered heritage properties within 50 m of the Project Area.

Topographic maps and orthographic images were examined to confirm if features of archaeological potential were present and if there were any areas of extensive disturbance which would have removed archaeological potential.

The property inspection started at the northern limits of Angeline Street North and extended southwards to Roosevelt Street.

Field notes and photographs of the study areas were taken during the inspection by Laura McRae. Image locations and orientations were noted and are illustrated on the site conditions maps (Maps 8 and 9).

The archaeological assessment was carried out following approval of project proposal by the proponent. Therefore, AG was able to provide plans of the study areas in advance of the archaeological assessment. These plans and a .kmz file (google earth) were used for base mapping of conditions, potential and results.

Table 4. Photographs and description.

Photo #	Description
4	Viewing south along Angeline Street North from its intersection with Colborne Street West.
5	Viewing south.
6	Viewing north.
7	Viewing north.
8	Viewing southeast at the Angeline Street North / Kent Street West intersection.
9	Viewing north from the south side of the Angeline Street North / Kent Street West intersection.
10	Viewing northwest from the Roosevelt Street / Angeline Street North intersection.

3.0 ANALYSIS AND CONCLUSIONS

3.1 Archaeological Potential

Levels of potential archaeological significance are assigned by applying provincial environmental assessment guidelines (Weiler 1980). The information includes the identification and evaluation of any feature that has one or more of the following attributes:

- * Potential can be determined via archaeological exploration, survey, or fieldwork. The information gleaned from these activities can provide answers to hypothesized questions (i.e., relate to particular times and places) regarding events and/or processes that occurred in the past, thereby adding to our knowledge and appreciation of history.
- * Potential may be determined through archaeological exploration, survey, and fieldwork that may contribute to testing the validity of anthropological principles, cultural change and ecological adaptation, thereby contributing to the understanding and appreciation of our human-made heritage.
- * The possibility that various technical, methodological, and theoretical advances might occur during archaeological investigation of a feature, alone or in association with other features exists. This therefore may contribute to the development of better scientific means of understanding and appreciating our human-made heritage.

Evaluating the archaeological potential of an area involves the assessment of various criteria. The most common criterion used to evaluate archaeological potential relates to its physical setting which may include potable water sources, elevated landforms, and well-drained areas to which First Nations settlement was often oriented, as well as the presence of fertile soils suitable for cultivation. Features and characteristics that indicate archaeological potential are defined within Section 1.3.1 of the S&Gs (MTCS 2011:17-18) and include:

- * Previously identified archaeological sites;
- * Water source:
 - * Primary water sources (e.g. lakes, rivers, streams, creeks);
 - * Secondary water sources (e.g. intermittent streams and creeks; springs; marshes; swamps);

- * Features indicating past water sources (e.g. glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels, shorelines of drained lakes or marshes and cobble beaches);
- * Accessible or inaccessible shoreline (e.g. high bluffs, swamps or marsh fields by the edge of a lake, sandbars stretching into marsh);
- * Elevated topography (eskers, drumlins, large knolls, plateaux);
- * Pockets of well drained sandy soil, especially near areas of heavy soil or rocky ground;
- * Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases;
- * Resource areas including:
 - * Food or medicinal plants;
 - * Scarce raw minerals (e.g., quartz, copper, ochre or outcrops of chert);
 - * Early Euro-Canadian industry (fur trade, logging, prospecting, mining);
- * Areas of early Euro-Canadian settlement including:
 - * Early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes);
 - * Early wharf or dock complexes, pioneer churches and early cemeteries;
- * Early historical transportation routes (e.g., trails, passes, roads, railways, portage routes);
- * Property listed on a municipal register or designated under the Ontario Heritage Act or that is a federal, provincial or municipal historic landmark or site;
- * Property that local histories or informants have identified with possible archaeological sites, historical events, activities or occupations.

Many of the above features of archaeological potential have a buffer assigned to them, extending the zone of archaeological potential beyond the physical feature. The following buffers are commonly accepted by the MTCS and specifically indicated in Section 1.4 of the S&Gs (MTCS 2011:20-21).

- * 300 metre buffer: previously identified archaeological site; areas of early Euro-Canadian settlement; or locations identified through local knowledge or informants;
- * 100 metre buffer: early historical transportation route;
- * No buffer, potential is restricted to the physical limits or the feature: elevated topography, pockets of well-drained sandy soil, distinctive land formations, resources areas, listed or designated properties and landmark properties.

Features of archaeological potential found on or in the vicinity of the Project Area include: water sources (modern and ancient), areas of early Euro-Canadian settlement and early historical transportation routes.

3.2 Archaeological Integrity

A negative indicator of archaeological potential is extensive below grade land disturbance. This includes widespread earth movement activities that would have eradicated or relocated any archaeological resources to such a degree that their information potential and cultural heritage value or interest has been lost.

Activities that are recognized to cause sufficient disturbance to remove archaeological potential include: quarrying, major landscaping involving grading below topsoil, building footprints and infrastructure development. Activities including agricultural cultivation, gardening, minor grading and landscaping do not necessarily remove archaeological potential (MTCS 2011:18).

Archaeological potential can be determined not to be present for either the entire property or a part(s) of it when the area under consideration has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources.

Natural physical features can also indicate that all or portions of a Project Area have low or no archaeological potential including: permanently wet areas, exposed bedrock and slopes greater than 20 degrees (except in locations likely to contain pictographs or petroglyphs).

3.3 Conclusions

The Stage 1 archaeological assessment of the Project Area determined that it had general archaeological potential to contain both pre-contact and Euro-Canadian archaeological resources (Maps 9 and 10). Following the criteria outlined above in section 3.1, a number of specific factors can be highlighted which suggest potential for both Pre- and Post-contact First Nations archaeological resources. This is the proximity of a potable water source - Scugog River - and the presence of the Kirkfield Outlet (and associated palaeoshorelines).

When these potential criteria are applied to the Project Area, it exhibits archaeological potential for both pre-contact and post-contact First Nations sites. While areas of previous disturbance eradicate the potential for the recovery of archaeological resources, areas of no or low disturbance retain their potential.

Following the criteria above (Section 3.1), to determine historical Euro-Canadian archaeological potential, a number of characteristics are indicated: potable water (Scugog River) the presence of historic concession roads (Colborne Street West and Angeline Street) the presence of early Euro-Canadian settlement (Town of Lindsay) and three registered archaeological sites within 300 metres. When applying the potential criteria, the Project Area exhibits archaeological potential for historic Euro-Canadian sites. As with pre and post-contact First Nations sites, while areas of previous disturbance eradicate the potential for the recovery of archaeological resources, areas of no or low disturbance retain their potential.

However, some disturbance has occurred within the portions of the Project Area through construction and maintenance of various infrastructure (i.e., water main, sewer main, storm main, etc.) and road corridors (Maps 9 and 10). This conclusion is consistent with the definition of “complete and intensive disturbance” described in Section 1.3.2 of the S&Gs (MTCS 2011:18).

4.0 RECOMMENDATIONS

Based on the background research and the results of the property survey, the archaeological assessment has provided the basis for the following recommendations:

- 1) A Stage 2 archaeological assessment will be conducted by a licensed consultant archaeologist using the test pit survey method at 5 m intervals in all areas along the corridor which have not been recently ploughed or do not have appropriate conditions for pedestrian survey at the time of the Stage 2 assessment (as illustrated by the areas marked in red on Maps 9 and 10). Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts be recovered their location should be recorded with a GPS unit and test pit intervals reduced to 2.5 metres within 5 metres of the positive test pit, as well as a one-metre test unit if necessary;
- 2) No further archaeological assessments are recommended for areas which have been determined to be disturbed (as illustrated by the areas marked in orange on Maps 9 and 10);
- 3) The Stage 2 archaeological assessment will follow the requirements set out in the 2011 Standards and Guidelines for Consultant Archaeologists (MTC 2011).
- 4) Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport should be immediately notified.
- 5) Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport should be immediately notified.

The MTCS is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, C. 0.18. The report is reviewed to ensure that 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 regards 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 Archaeological Report referred to in Section 65.1 of the *Ontario Heritage Act*.

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

The *Cemeteries Act*, R.S.O. 1990 C. 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.

6.0 BIBLIOGRAPHY AND SOURCES

Belden, H.

1881 *Illustrated Atlas of the County of Victoria, Ontario*. H. Belden and Co., Toronto.

Boyles, David

1897 Ontario Mounds. *Annual Archaeological Report of Ontario*. 1896-7:14-37.

Brunger, Alan G.

1975 The Cultural Landscape. In *Peterborough and the Kawarthas*, edited by P. Adams and C. Taylor, pp. 95-116. Heritage Publications, Peterborough.

Canada, Government of

2011 Atlas of Canada. Online resource, <http://atlas.nrcan.gc.ca/>, accessed Dec. 2011. Natural Resources Canada.

Chapman, D.F. and L.J. Putnam

1984 *The Physiography of Southern Ontario*. Third Edition. University of Toronto Press, Toronto.

City of Kawartha Lakes

2018 2018-71-CP *Design Services for Colborne Street West and Angeline Street North*. City of Kawartha Lakes, Lindsay.

Cole, Jean Murray

1993 *Origins: The History of Dummer Township*. Township of Dummer, Warsaw.

Cronin, Thomas M.

1977 Late-Wisconsin Marine Environments of the Champlain Valley. *Quaternary Research* 7:238-253.

Crozier, M.J.

1975 The Physical Landscape of Peterborough County. In *The Geography of the Peterborough Area*, edited by the Geography Department, pp. 7-12. Trent University, Department of Geography, Occasional Paper 1, Peterborough.

Curve Lake First Nation

2016 *Curve Lake First Nation Archaeological Protocol*. Curve Lake First Nation, Curve Lake.

Damkjar, Eric

1990 *The Coulter Site and Late Iroquoian Coalescence in the Upper Trent Valley*. Occasional Papers in Northeastern Archaeology No. 2. Copetown Press, Dundas.

Deal, M. and D. Rutherford

1991 The distribution and diversity of Nova Scotian Archaic sites and materials: a re-examination. Paper presented at the Annual Meeting of the Canadian Archaeological Association, St. John's.

Dean, William

1994 The Ontario Landscape, circa A.D. 1600. In *Aboriginal Ontario*, edited by Edward S. Rogers and Donald B. Smith, pp. 3-20. Ontario Historical Studies Series, Government of Ontario, Dundurn Press, Toronto.

Ellis, C.J., I.T. Kenyon and M. Spence

1990 The Archaic. In *The Archaeology of Southern Ontario to A.D. 1650*, Chris Ellis and Neal Ferris, eds. pp 65-124. London Chapter of the Ontario Archaeological Society Occasional Publications No. 5, London, Ontario.

Gillespie, John E. and C.J. Acton

1984 *Soil Survey of Peterborough County*. Report No. 45 of the Ontario Soil Survey. Agriculture Canada Research Branch. Ontario Ministry of Agriculture and Food. Department of Land Resource Science. University of Guelph, Guelph.

Goodyear, A.C.

1989 Tool Kit Entropy and Bipolar Reduction: A Study of Interassemblage Lithic Variability Among Paleo-Indian Sites in the Northeastern United States. *North America Archeologist* 14:1-24.

Government of Ontario

1990 *The Environmental Assessment Act*, R.S.O. 1990. Queen's Printer, Toronto.

1990 *The Heritage Act*, R.S.O. 1990. Queen's Printer, Toronto.

Hakas, D.K.

1967 *Trent Waterway Archaeological Survey*. Department of Anthropology, Trent University, Peterborough.

Holliday, Vance T.

2004 *Soils in Archaeological Research*. Oxford University Press, Oxford.

Jackson, Lawrence

1980 Dawson Creek: An Early Woodland Site in South-Central Ontario. *Ontario Archaeology* 33:13-32.

Johnston, Richard

1968 *The Archaeology of the Serpent Mounds Site*. ROM Art and Archaeology Occasional Paper 10, Toronto.

Kaszycki, C.A.

1985 History of glacial Lake Algonquin in the Haliburton region, south-central Ontario. In *Quaternary evolution of the Great Lakes*, edited by P.F. Karrow and P.E. Calkin, pp. 109 - 123. Geological Association of Canada, Special Paper 30, St. John's.

Kennedy, Clyde

1970 *The Upper Ottawa Valley*. Renfrew County Council, Pembroke.

Kershaw, Linda

2001 *Trees of Ontario*. Lone Pine Publishing, Edmonton.

2002 *Wildflowers of Ontario*. Lone Pine Publishing, Edmonton.

Larsen, Curtis E.

1987 Geological History of Glacial Lake Algonquin and the Upper Great Lakes. U.S. Geological Survey Bulletin 1801, Denver.

Leahey, A.

1961 The Soils of Canada from a Pedological Viewpoint. In *Soils in Canada: Geological, Pedological, and Engineering Studies*, edited by Robert F. Legget, pp. 147-157. The Royal Society of Canada, Special Publications No. 3. University of Toronto Press, Toronto.

Loring, Stephen

1980 Paleo-Indian Hunters and the Champlain Sea: a Presumed Association. *Man in the Northeast* 19:15-41.

Mason, R.J.

1981 *Great Lakes Archaeology*. Blackburn Press, New Jersey.

Matthews, John A.

1992 *The Ecology of Recently Deglaciated Terrain: A Geoecological Approach to Glacier Forelands and Primary Succession*. Cambridge University Press, Cambridge.

McGhee, Robert and James A. Tuck

1974 *An Archaic Sequence from the Strait of Belle Isle, Labrador*. National Museum of Man, Mercury Series, Archaeological Survey of Canada Paper No. 34, Ottawa.

Ministry of Tourism, Culture and Sport

2011 *Standards and Guidelines for Consultant Archaeologists: Heritage Policy and Program Development*, Toronto.

Pielou, E.C.

1991 *After the ice age: the return of life to glaciated North America*. University of Chicago Press, Chicago.

Peterborough Historical Atlas Foundation Ltd.

1975 *Illustrated Historical Atlas of Peterborough County, 1825 to 1875*. The Peterborough Historical Atlas Foundation Ltd., Canada.

Ramsden, Carole Nasmith

1989 *The Kirche Site: A 16th Century Huron Village in the Upper Trent Valley*. Occasional Papers in Northeastern Archaeology No. 1 Copetown Press, Dundas.

Ramsden, Peter

1990 The Hurons: Archaeology and Culture History. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by Christopher Ellis and Neal Ferris, pp. 361-384. Occasional Publications of the London Chapter of the Ontario Archaeological Society, London.

Rommel, Tarmo

2009 An Introduction to the Algonquin Park Ecosystem. In *Algonquin Park: the Human Impact*, edited by David Euler and Mike Wilton, pp. 14-35. Algonquin Eco Watch, Espanola.

Robinson, B.

2006 Burial Ritual, Technology and Cultural Landscape in the Far Northeast: 8600 - 3700 BP. In *The Archaic of the Far Northeast*, edited by D. Sanger and M.A.P. Renouf, pp. 341-382. The University of Main Press, Orono.

Sanger, David

2006 An Introduction to the Archaic of the Maritime Peninsula: the view from Central Maine. In *The Archaic of the Far Northeast*, edited by David Sanger and M.A.P. Renouf, pp. 221-252. The University of Main Press, Orono.

Spence, M.W., R.H. Phil and C.R. Murphy

1990 Cultural Complexes of the Early and Middle Woodland Periods. In *The Archaeology of Southern Ontario to A.D. 1650*, Chris Ellis and Neal Ferris, eds. pp. 125-170. London Chapter of the Ontario Archaeological Society Occasional Publications No. 5, London, Ontario.

Spence, Michael and J.R. Harper

1968 *The Cameron's Point Site*. ROM Art and Archaeology Occasional Paper 12, Toronto.

Stothers, David

1974 The East Sugar Island Burial Mound. *Pennsylvania Archaeologist* 44:20-25.

Suttie, Brent

2005 *Archaic Period Archaeological Research in the Interior of Southwestern New Brunswick*. Unpublished MA Thesis, Department of Anthropology, University of New Brunswick, Fredericton.

Sutton, Richard

1990 *Hidden Amidst the Hills: Middle and Late Iroquoian Occupations in the Middle Trent Valley*. Occasional Papers in the Northeastern Archaeology No. 3 Copetown Press, Dundas.

Trigger, Bruce G.

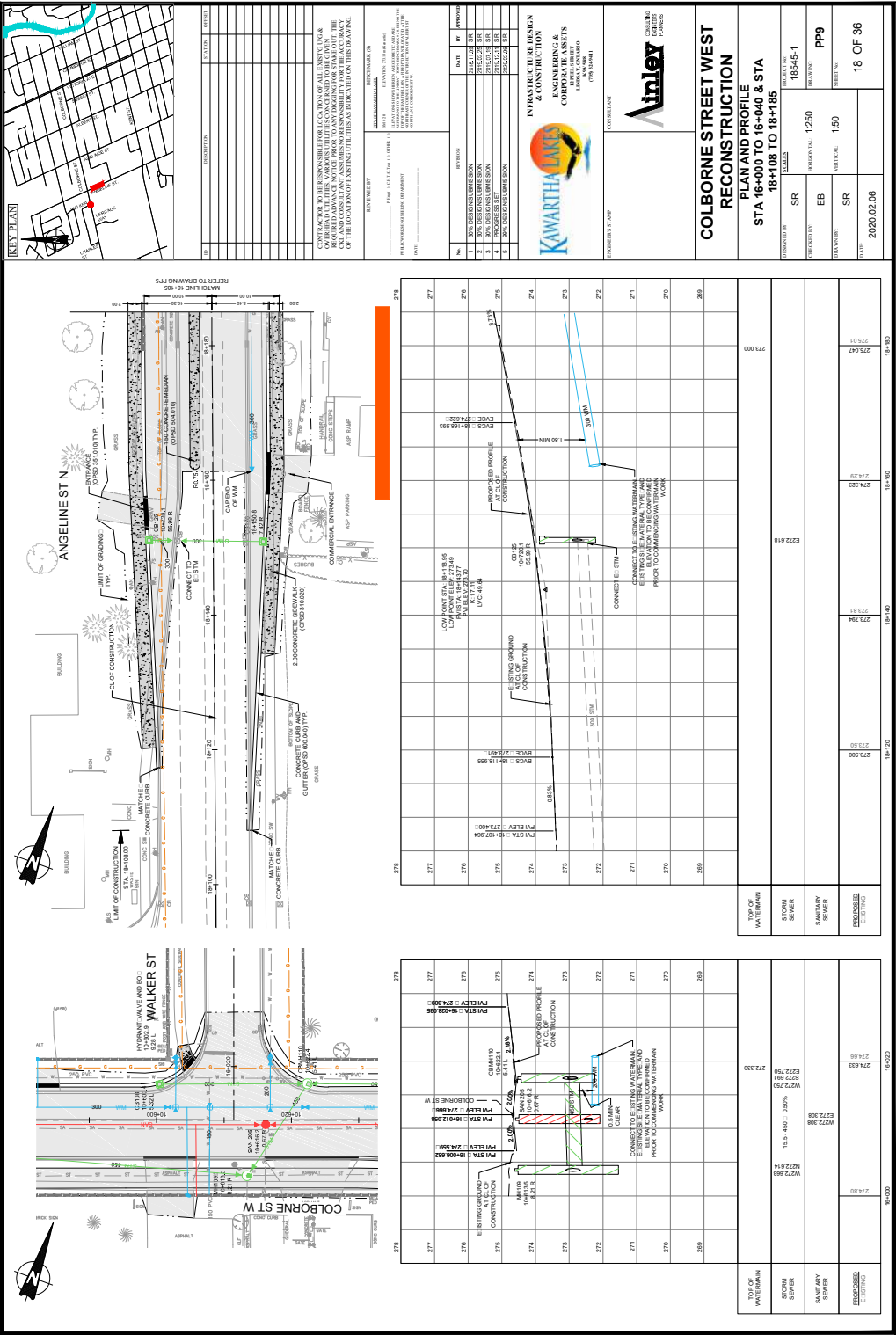
1976 *The Children of Aataensic: A History of the Huron People of 1660*. McGill-Queens University Press, Montreal.

Wright, Phillip

1990 Archaeological Assessment of Sites 416-9 (BiFv-9) and 416-10 (BiFv-10). Report on file, Ministry of Tourism, Culture and Sport, Toronto.

ANGELINE STREET NORTH
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

7.0 PLANS

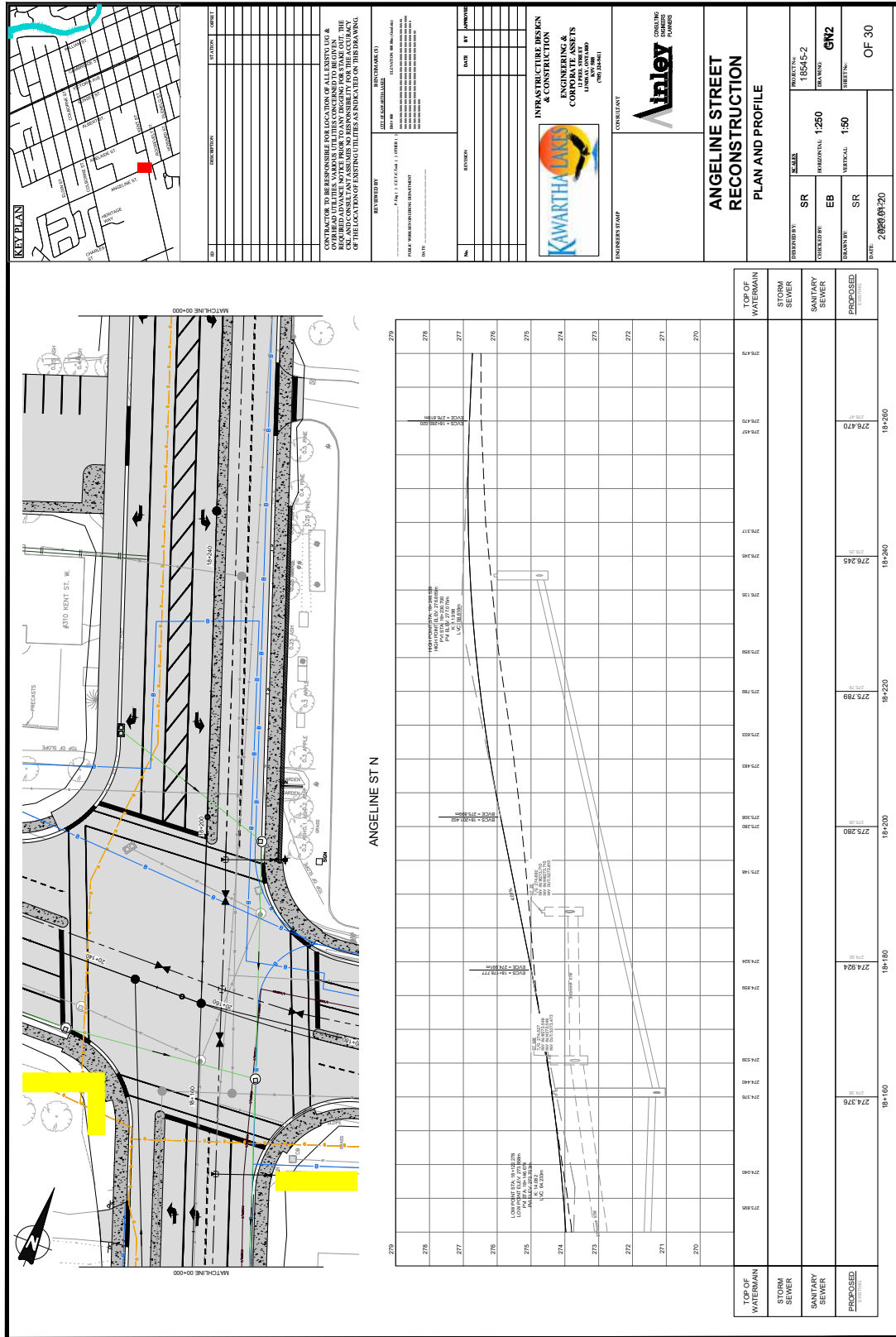


Plan 1. Angeline Street, from STA 16+000 to 16+040 and STA 18+108 to 18+185.

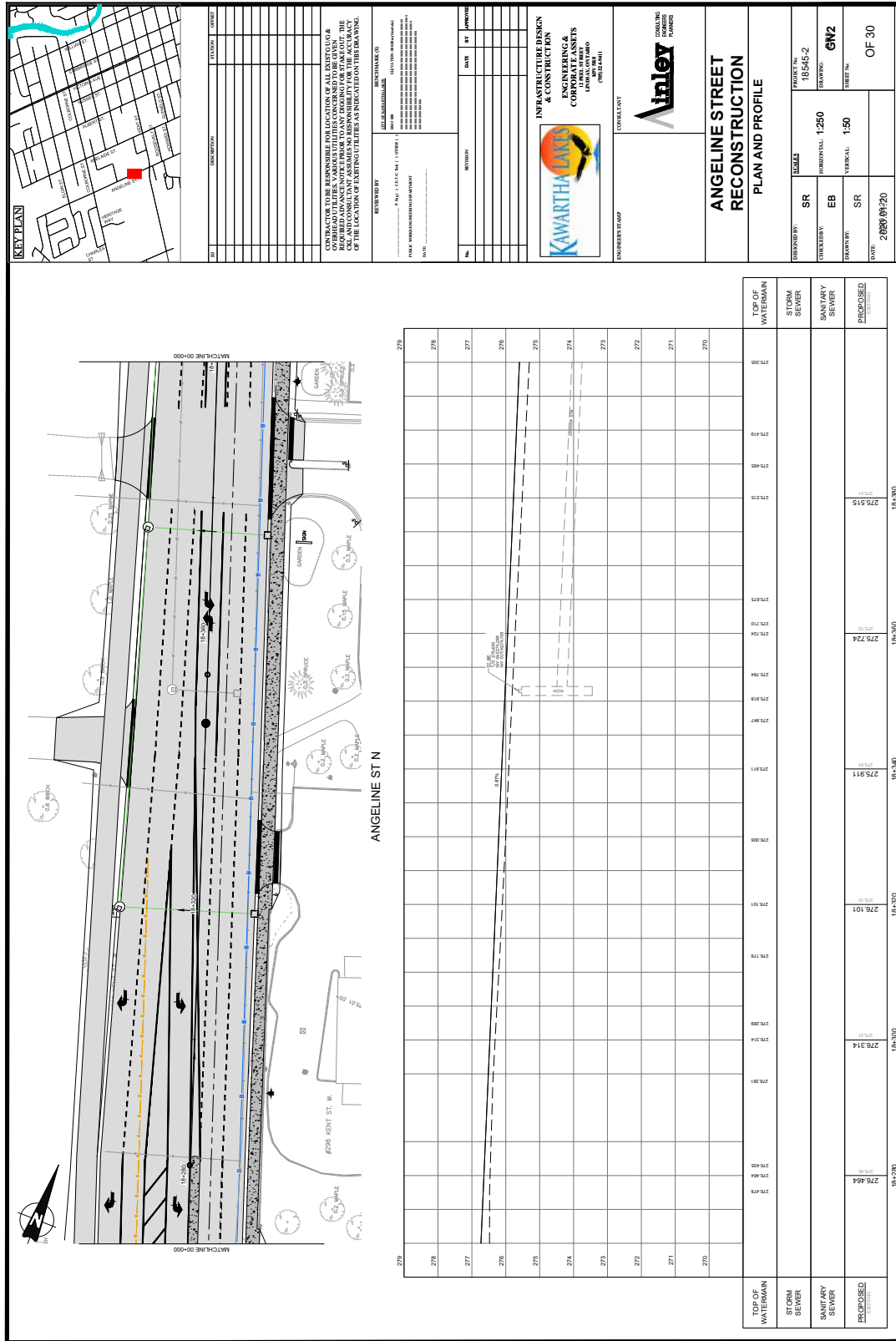
Plan 2. Angeline Street, from STA 18+185 to 18+308.



Plan 4. Angeline Street North.



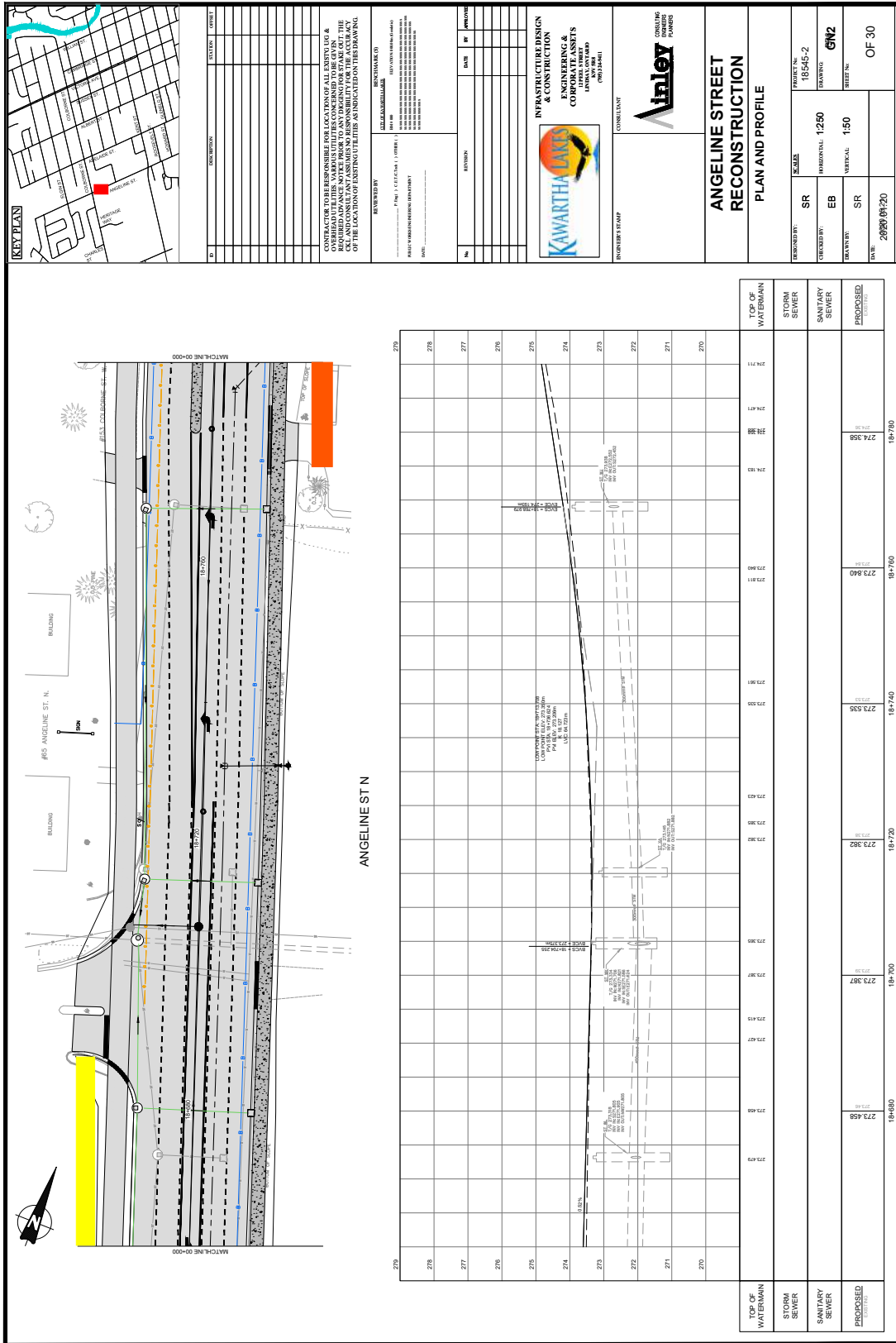
Plan 5. Angeline Street North.



THE CENTRAL ARCHAEOLOGY GROUP INC.

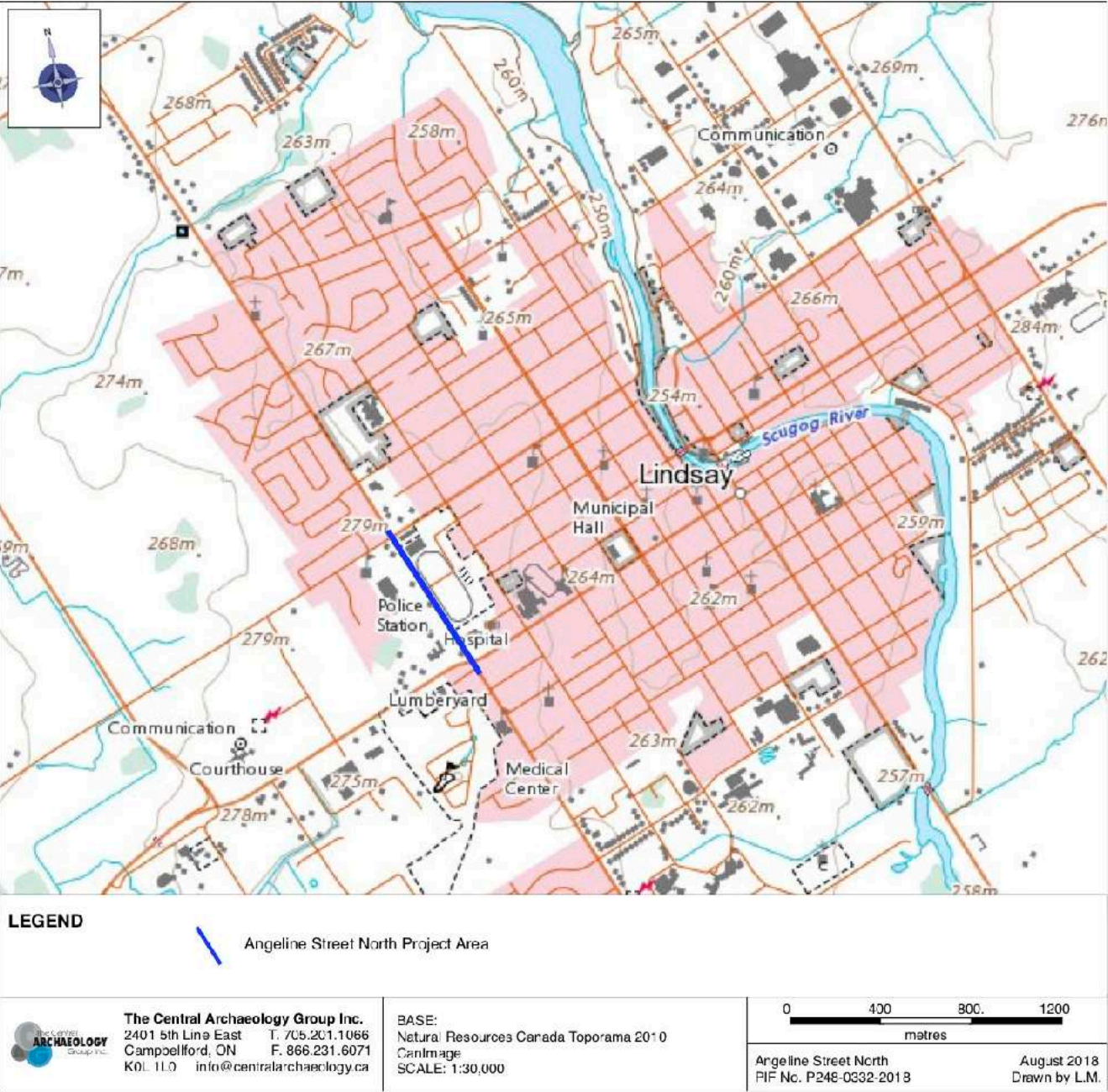


Plan 8. Angeline Street North.



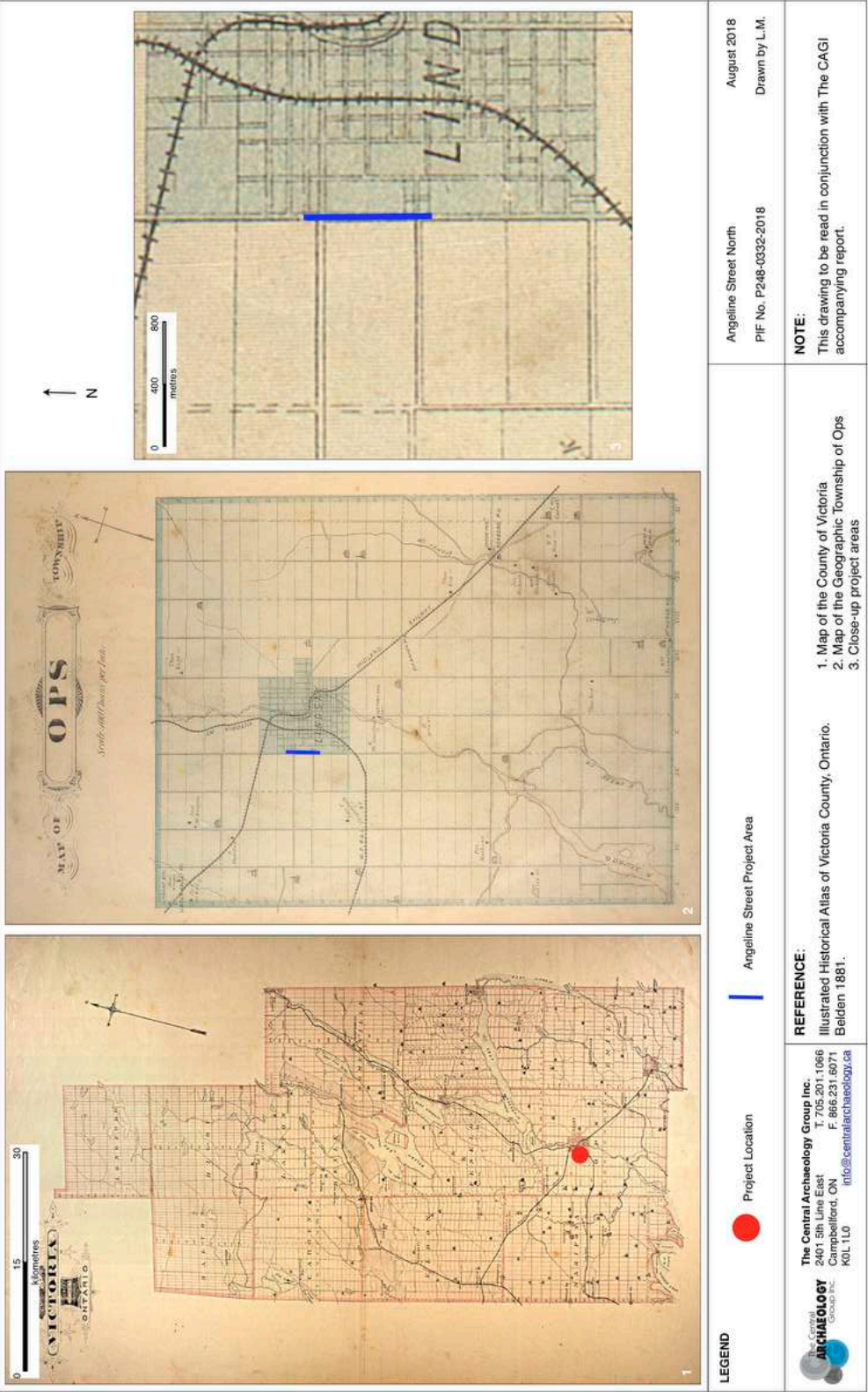
Plan 9. Angeline Street North; project area limits to the south.

8.0 MAPS

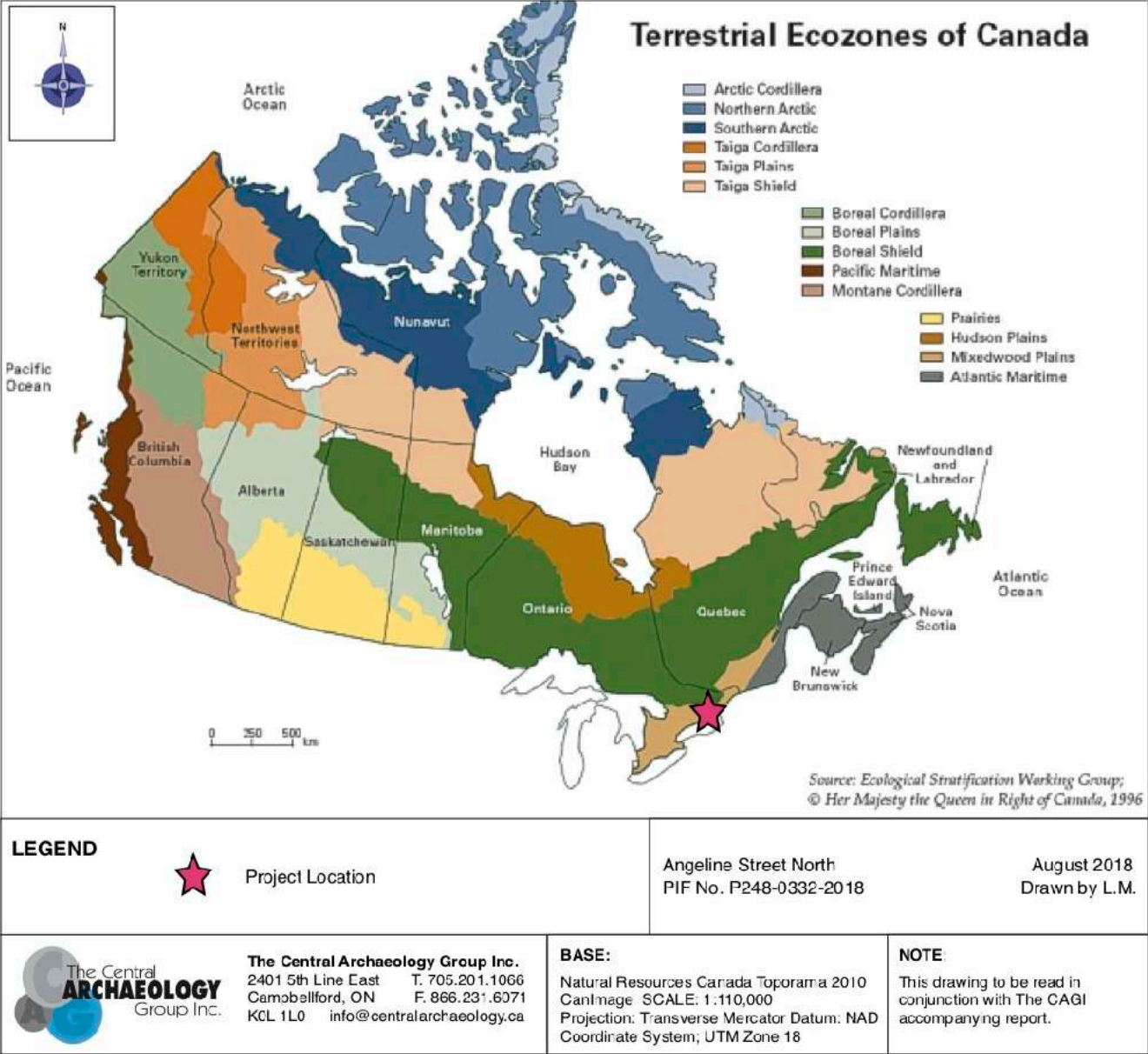


Map 1. Location of project area.

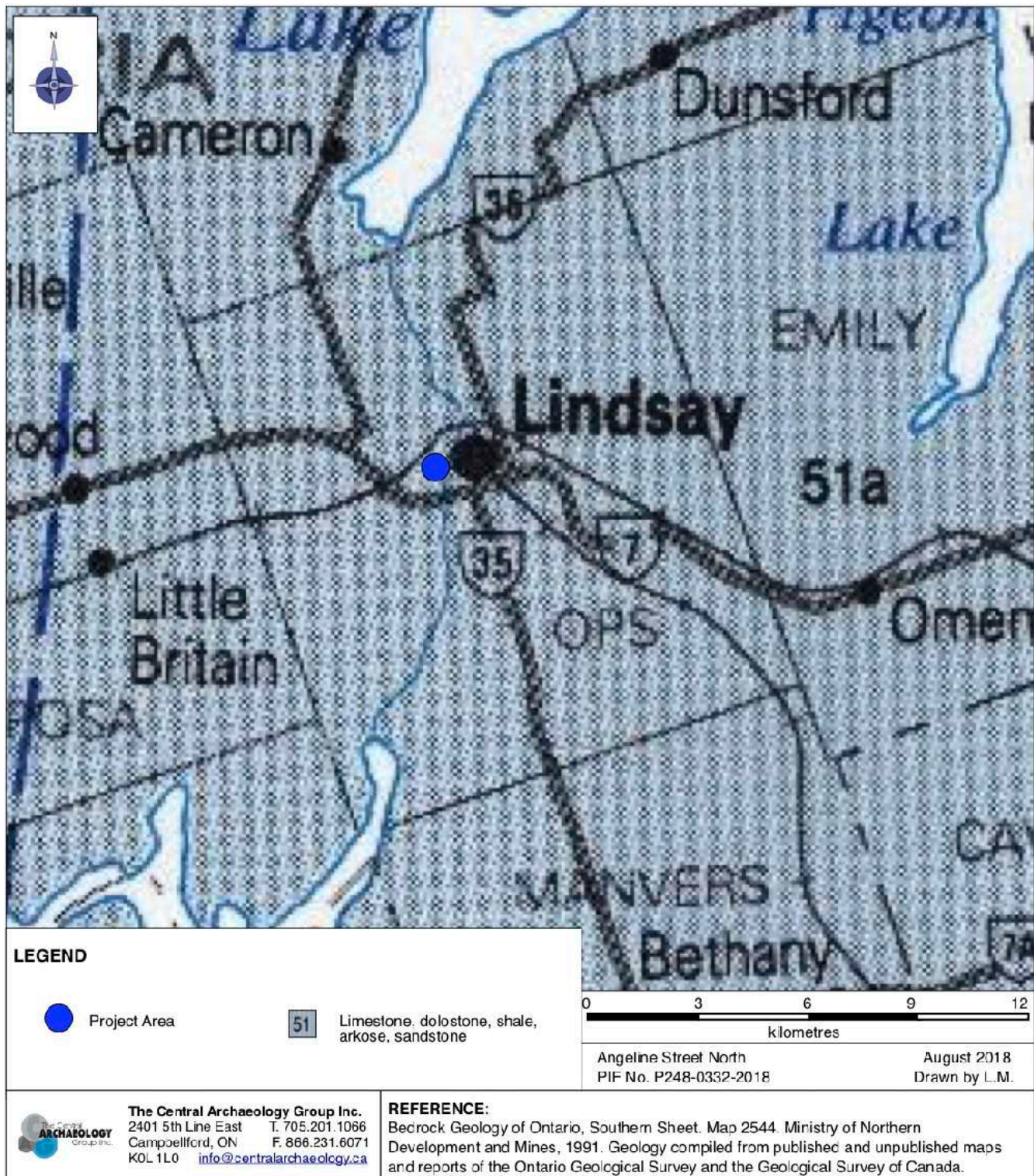
ANGELINE STREET NORTH
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



Map 2. Historical atlas illustration of VC, GToO and a close up of the project area (Belden 1881).

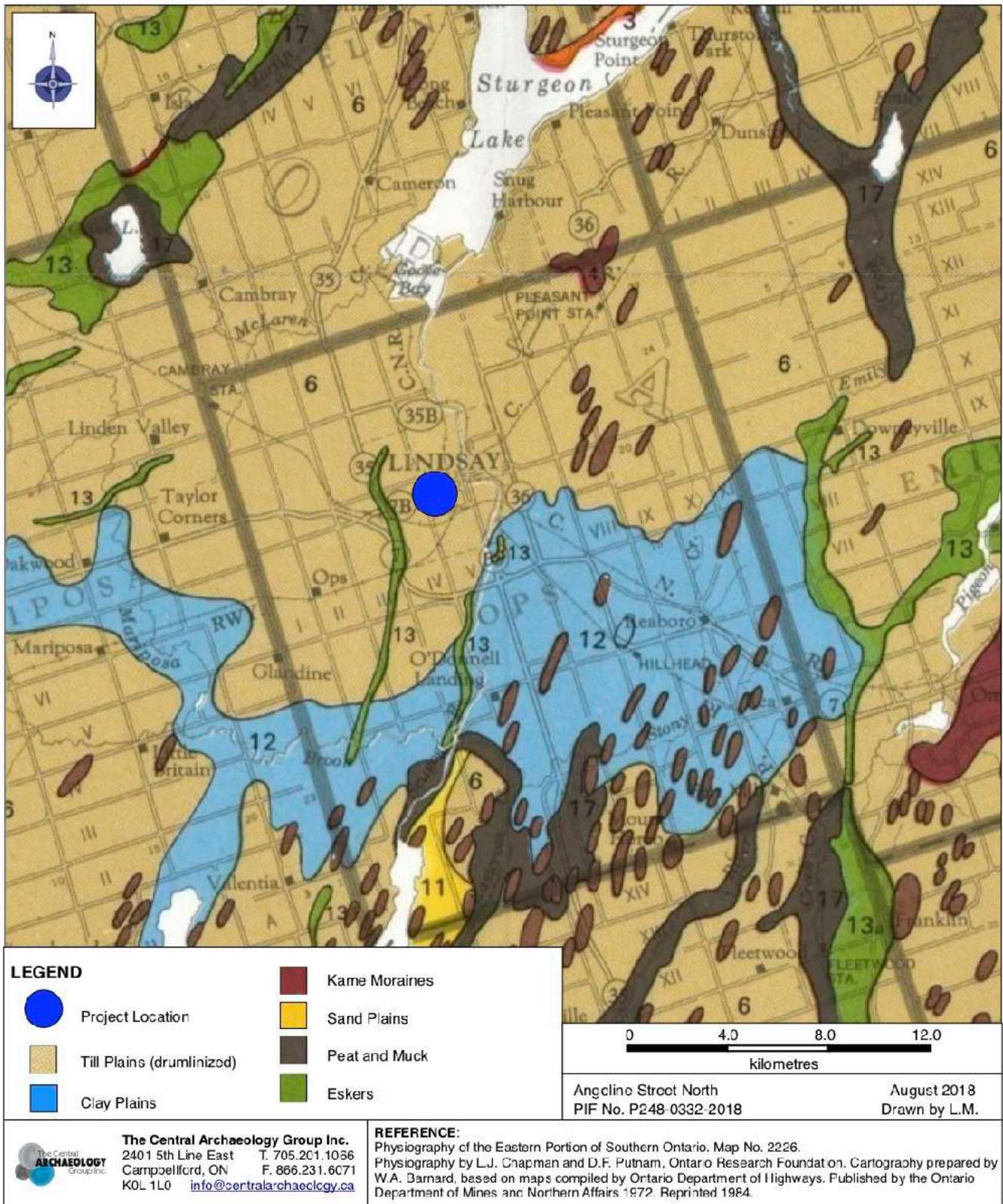


Map 3. Terrestrial ecozones of Canada (Ecological Stratification Working Group 1996).



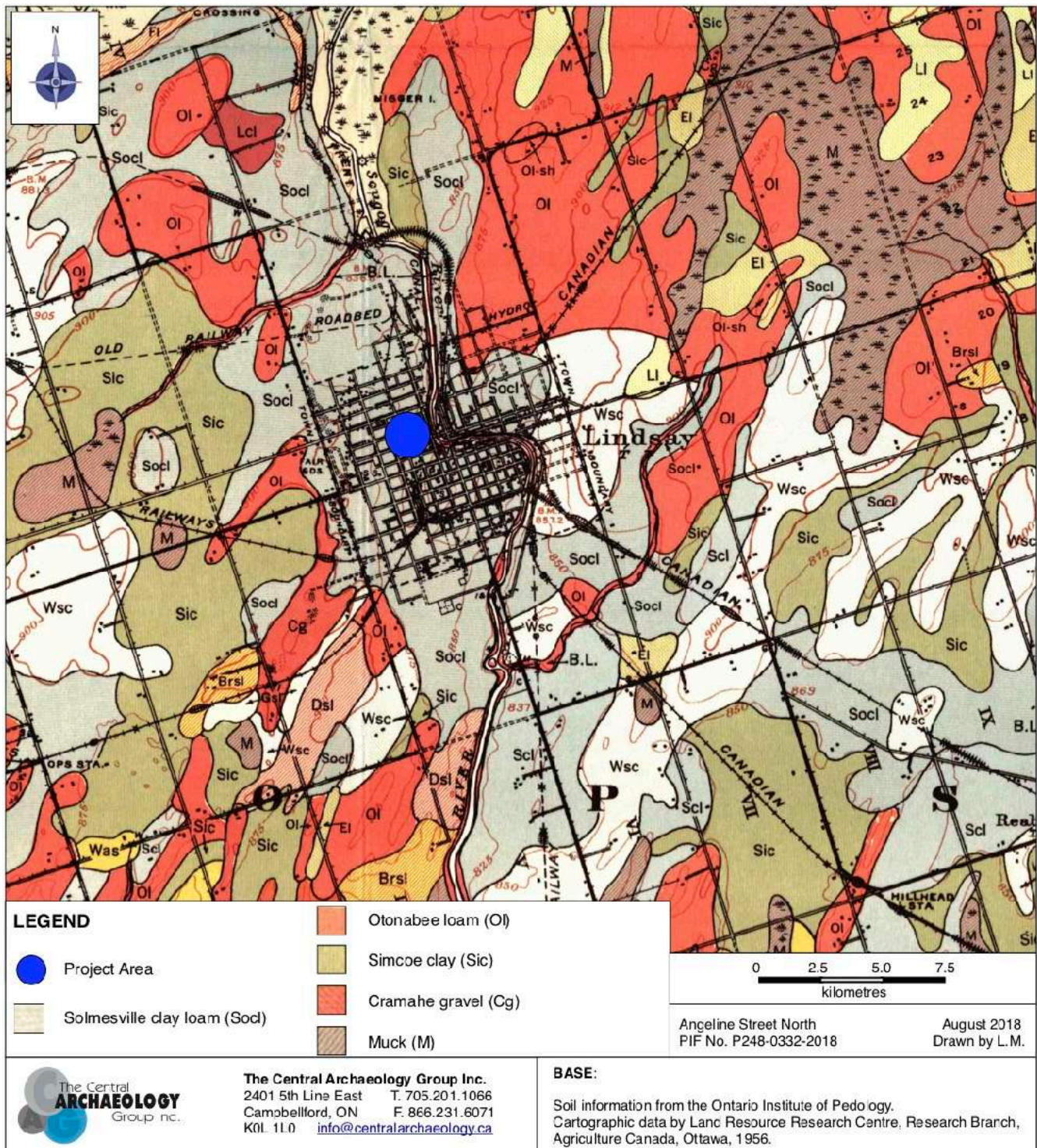
Map 4. Bedrock geology of the project and surrounding area.

ANGELINE STREET NORTH
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



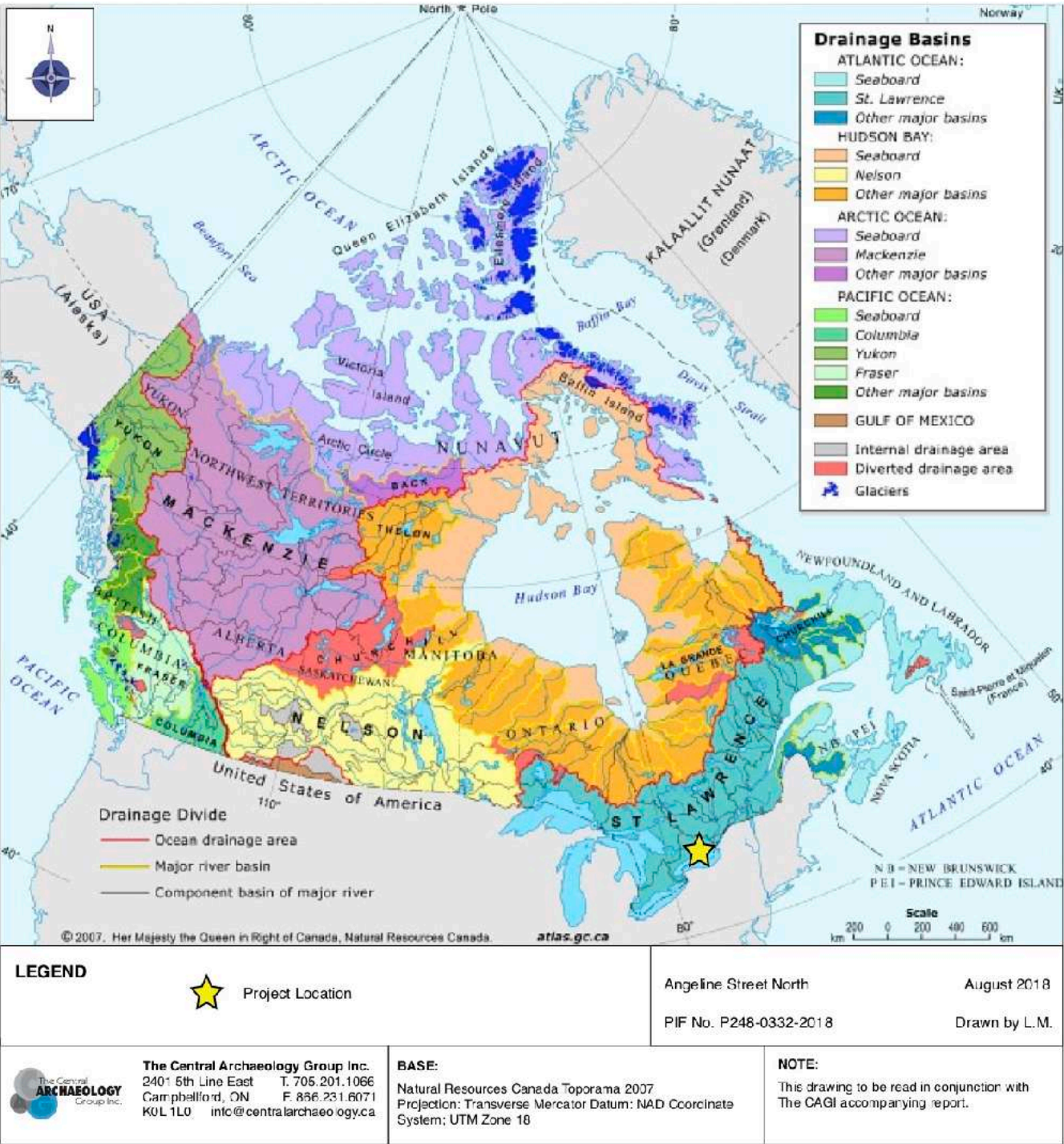
Map 5. Surficial geology in the project and surrounding area.

ANGELINE STREET NORTH
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



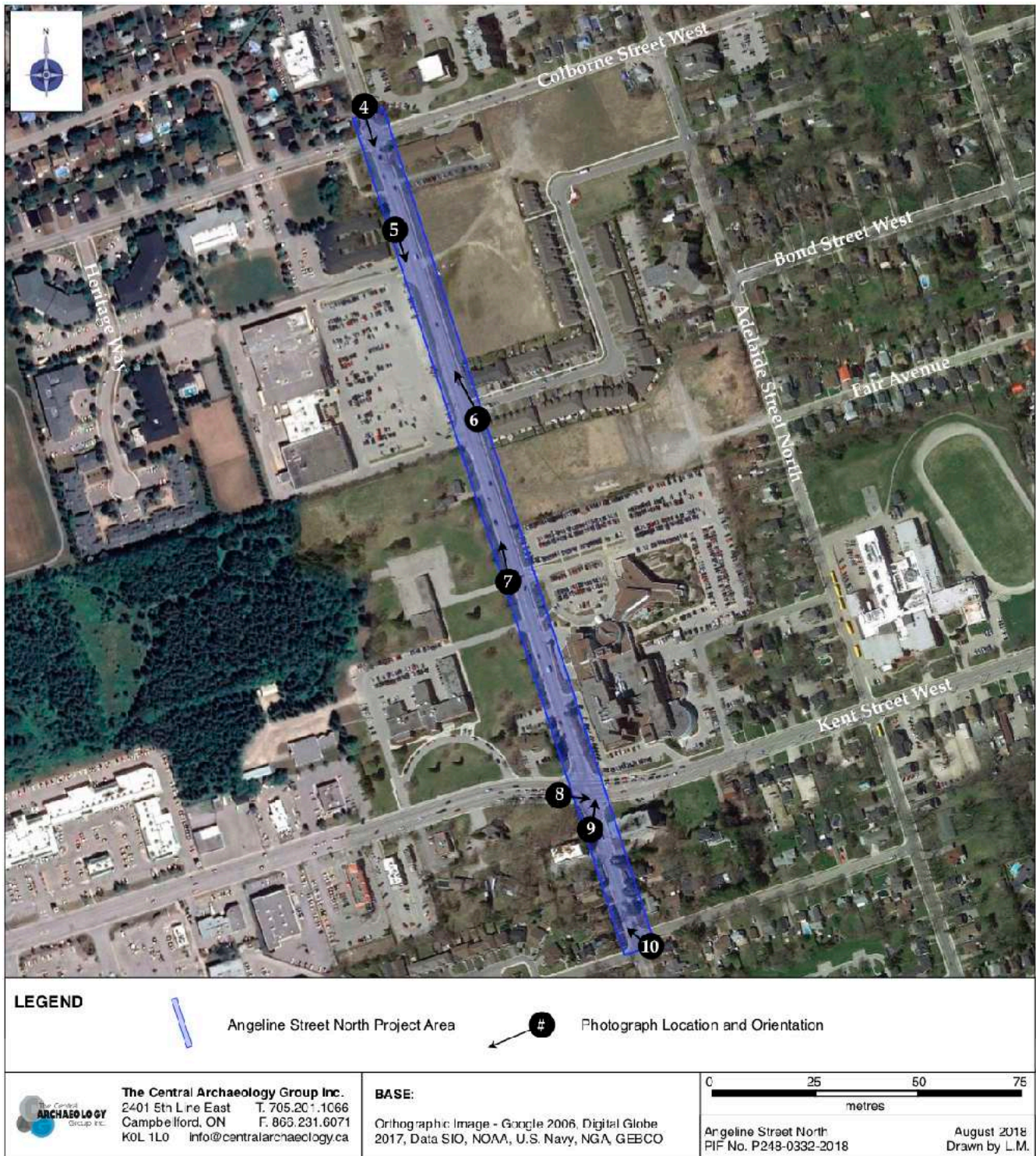
Map 6. Soils of the project and surrounding area.

ANGELINE STREET NORTH
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



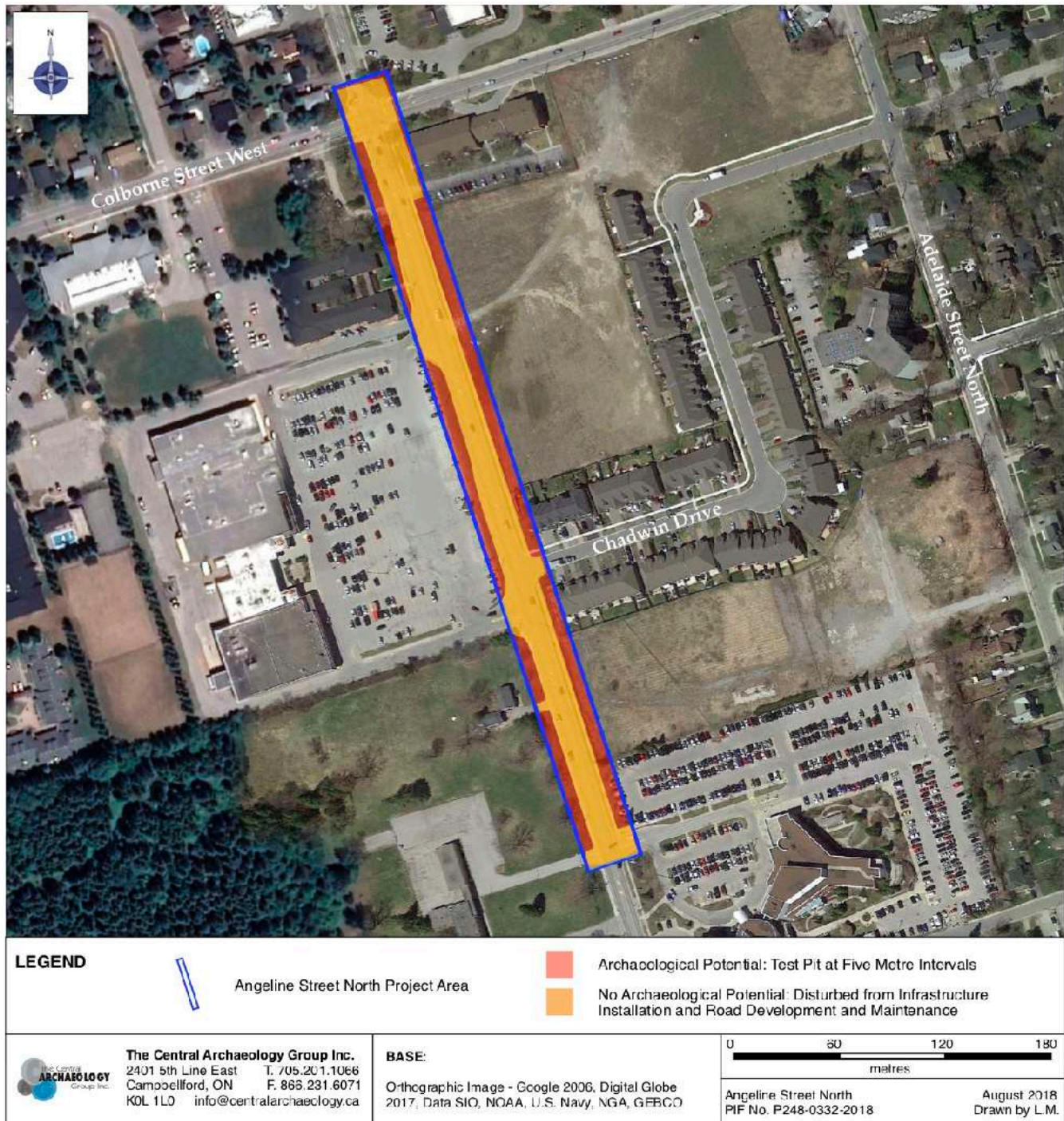
Map 7. Watersheds of Canada.

ANGELINE STREET NORTH
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



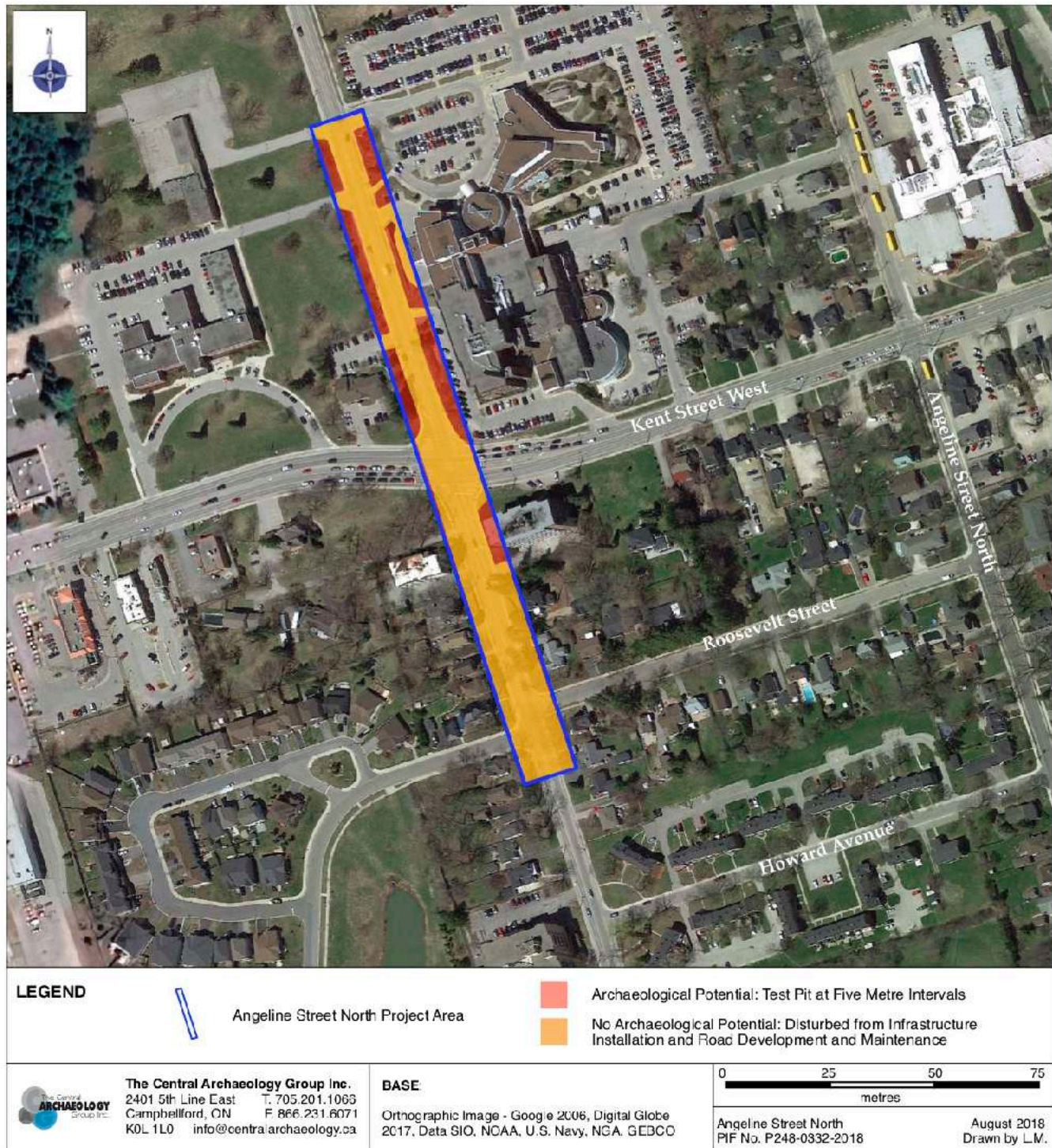
Map 8. Site conditions for Angeline Street North.

ANGELINE STREET NORTH
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



Map 9. Archaeological potential for Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.

ANGELINE STREET NORTH
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



Map 10. Archaeological potential for Angeline Street North from 200 metres north of Kent Street West to the northernmost limits of the Project Area.

9.0 IMAGES

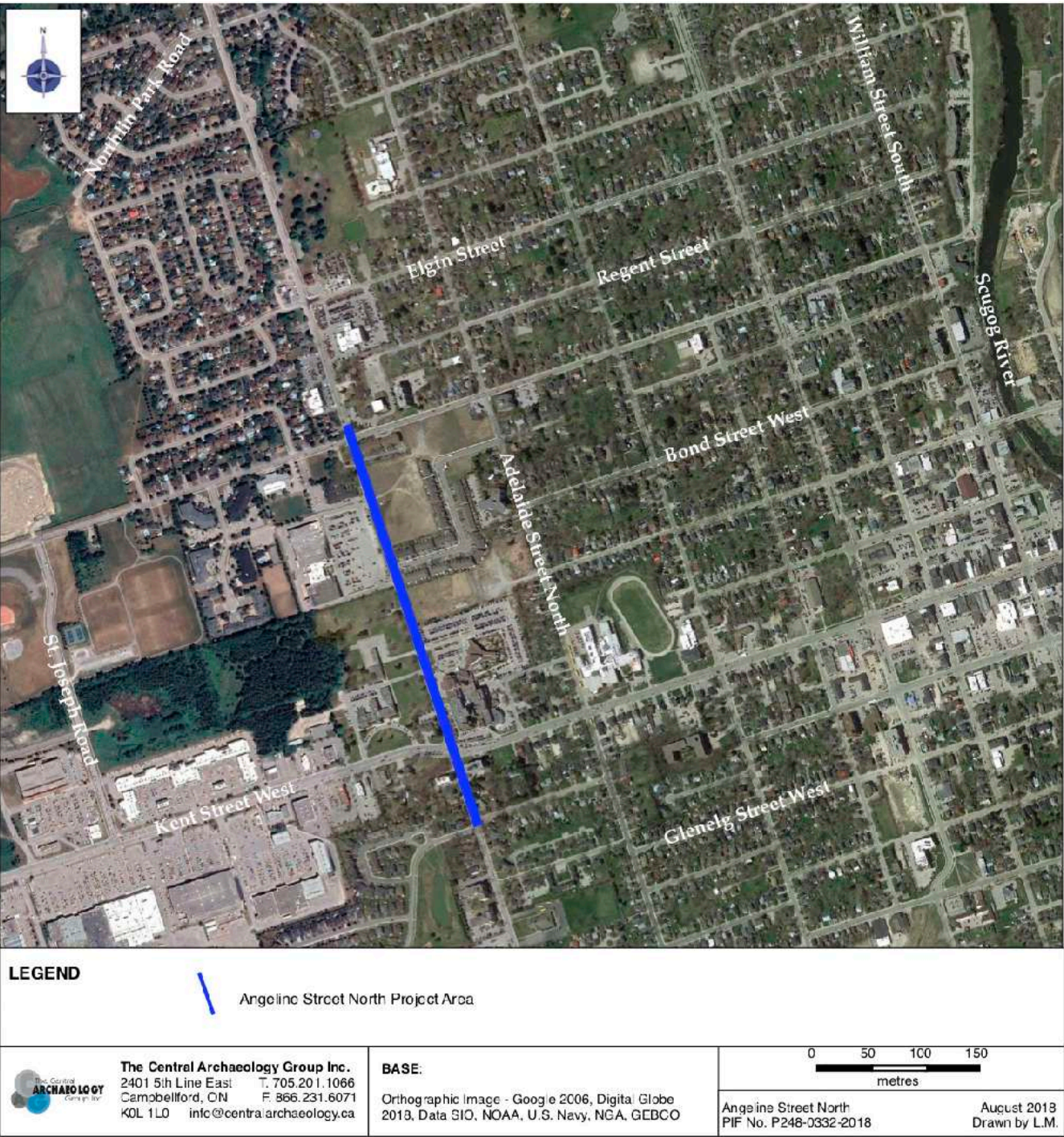


Image 1. Orthographic image of the project area (Google Earth 2016).

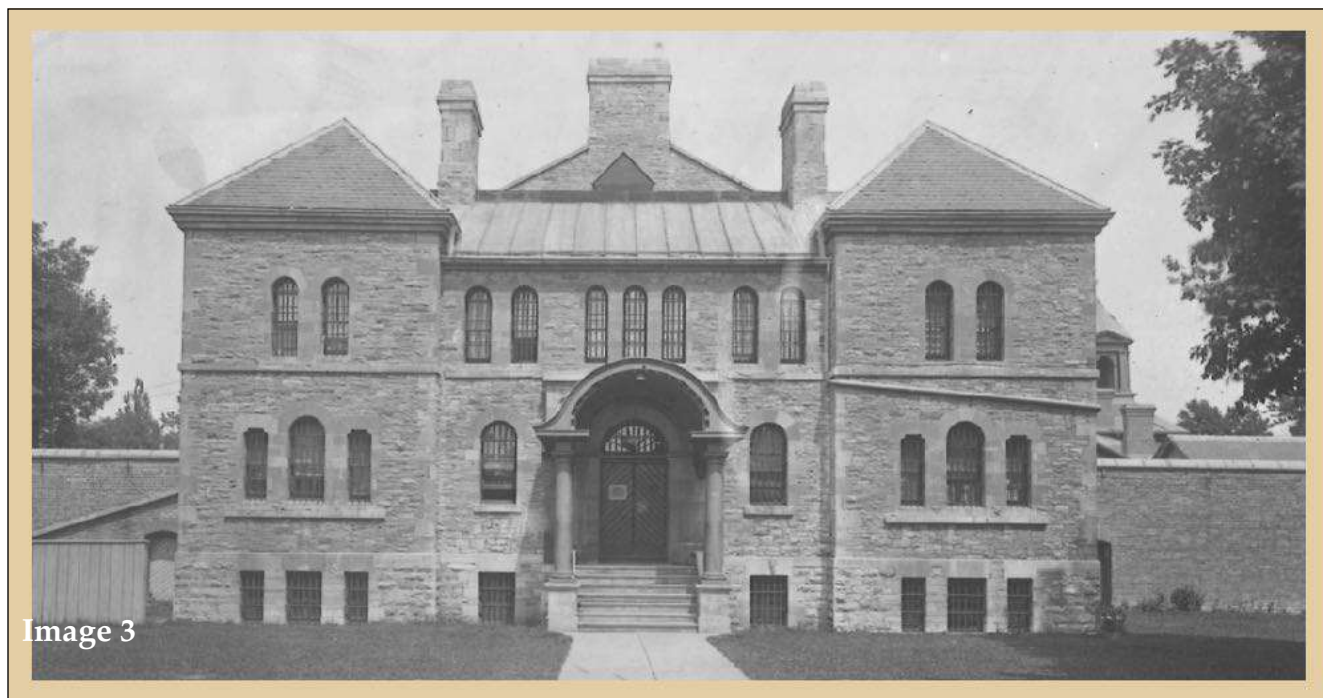




Image 4



Image 5







Image 10

10.0 GLOSSARY OF TERMS

A Horizon - mineral horizon at or near the ground surface (topsoil). May be dark brown due to accumulated humus (Ah) or grey or lighter brown when clay, iron and humus have been leached out (Ae). It is most commonly disturbed by human activities.

Archaeology - is the scientific study of the physical evidence of past human societies recovered through excavation.

Archaeological Site - is a place in which physical evidence of past human activity is preserved and which has been, or may be, investigated using the discipline of archaeology.

Archaic Period - in Ontario is characterized by the appearance of ground stone tools, notched or stemmed projectile points, the predominance of less extensively flaked stone tools, increased reliance on local chert resources, a lack of pottery and smoking pipes, and an increase in the numbers and sizes of sites.

Atlatl - a tool used to throw spears faster and with more accuracy. It consists of a short pole with a handle at one end and a hook for engaging the spear in the other.

B Horizon - below the A Horizon (subsoil). It could be enriched with iron (Bf), with iron and organic matter (Bhf), with organic matter (Bh) or with clay (Bt). If saturated for extended periods, B horizons show signs of gleying or mottling (Bfg, Btg, Bg).

Bioturbation - results in changes to the nature, form, and arrangement of archaeological deposits and sediments as a result of biological activity in the ground. This includes root action, animal activity, and the degeneration of organic matter.

BP - Before Present. Years before present (1950), used in dating sites and/or artifacts from an archaeological site.

Borden Number - a borden number is an identifier given to an archaeological site in Canada. It was created by Charles E. Borden and contains four letters and one to several numbers.

Burial Goods or Burial Paraphernalia - items interred with an individual (or group) burial that may give clues to their social and/or economic and/or political position within their culture.

Chert - is a fine-grained, sedimentary rock, similar to flint. In antiquity, chert was one of the universally preferred materials for making stone tools.

Contact Period - refers to the period when European and First Nations peoples were first exposed to one another. In Ontario from 450 BP to 200 BP.

Cultural Resources - are sites, structures, landscapes, and objects of particular importance to a culture or community.

Diagnostic - a distinguishing characteristic serving to identify or determine the artifact.

Disarticulated - this occurs when bones are found separated at the joints.

Disturbed - refers to a study area that has recently been excavated or altered from its original characteristics.

Ecozone - classification system that defines different parts of the environment with similar geography, vegetation, animals, climate, topography and water sources.

Environmental Assessment Act - sets up a process for reviewing the environmental impact of proposed activities prior to the granting of government funds.

Erratic - large rock or boulder that differs from the surrounding rock and is believed to have been transported a long distance as a result of glacial action.

Excavation - is the systematic digging and recording of an archaeological site. **Flake** - is a fragment of stone removed from a core or from another flake.

Feature - is a collection of one or more contexts representing some human activity that has a vertical characteristic to it in relation to site stratigraphy.

Fluted - grooved or channeled. A fluted point is a projectile point which has had one or more long thinning flakes removed from the base along one or both faces.

Glaciofluvial - sediments laid down by glacial meltwater action (i.e., rivers or streams).

Ground Stone - is a stone artifact shaped by sawing, grinding, and/or polishing with abrasive

materials.

Historic Period - the period when written records become available.

Holocene - the most recent period. Began approximately 10,000 years ago following the end of the Pleistocene.

Knap - to shape a piece of stone material by striking it at specific angles. Term used by archaeologists to denote the manufacture of a lithic tool.

Lanceolate - lance-shaped, much longer than wide, widened at or above the base and opening to the apex.

Lithic - stone, or made of stone.

Maize - also known as corn, is a cereal grain that was first domesticated in Mesoamerica and then

spread throughout the American continents.

Mitigation - measures undertaken to limit the adverse impact of construction methods on archaeological sites or cultural resources.

Ochre - used as a natural pigment, colour is commonly reddish-brown to yellow.

Ontario Heritage Act - allows municipalities and the provincial government to designate individual properties and districts in Ontario as being of cultural heritage value or interest.

Palaeoamerican Period - first evidence of human occupation in Ontario. This period is characterized by groups hunting large game and seasonal occupation along shore environments.

Pleistocene - an epoch within the Quaternary Period which began approximately 2,000,000 millions years ago and ended approximately 10,000 years ago. Immediately preceded the Holocene Period.

Projectile Point - is an artifact used to tip an arrow, atlatl dart, spear, or harpoon. Usually made of chipped or ground stone, however, some are also made of copper.

Stage 1 Background Study - The purpose of a Stage 1 assessment is to investigate the cultural land use, archaeological history, and the present conditions of a property. The majority of the Stage 1 process is conducted in the office and involves the examination of records such as historic settlement maps, land titles, and documents, historical land use and ownership records, primary and secondary documentary sources, and the Ministry of Culture's archaeological site database. The study may also involve interviews with individuals who can provide information about the property and consultation with local First Nations communities. The background study is followed by a property inspection to examine geography, topography and current conditions, and to determine the potential for archaeological resources. Stage 1 background research is usually completed in conjunction with a Stage 2 property survey.

Stage 2 Property Survey - A Stage 2 property survey is undertaken if the Stage 1 background study finds that a property retains archaeological potential. It involves the documentation of archaeological resources by collecting artifacts and mapping cultural features. Depending on the nature of the property environment, two methods are employed in the survey: 1)

pedestrian survey on cultivable properties, and; 2) test-pit survey on properties not cultivable due to tree growth, rock content, etc.

Strata - are layers of rock, soil, cultural material, etc. with internally consistent characteristics that distinguish contiguous.

Stratigraphy - the layering of deposits on archaeological sites. Cultural remains and natural sediments become buried over time, forming strata.

Subsistence - obtaining food and shelter necessary to support life.

Survey - is used to accurately determine the terrestrial or three-dimensional space position of points and the distances and angles between them.

Woodland Period - is a period of time following the Archaic Period. Middle, and Late.

21



Stage 2 Property Survey Proposed Reconstruction and Roadway Widening on Angeline Street from Colborne Street to Roosevelt Street, City of Kawartha Lakes, Formerly Township of Ops, Victoria County

ORIGINAL REPORT

2401 5th Line East, Campbellford, ON K0L 1L0
Telephone: 705.868.2697 Facsimile: 866.231.6071 Email: lmcrae@centralarchaeology.ca



Stage 2 Property Survey

Proposed Reconstruction and Roadway Widening on Angeline Street from Colborne Street to Roosevelt Street, City of Kawartha Lakes, Formerly Township of Ops, Victoria County

Original Report - April 5, 2023

Submitted to:

Scott Reynolds
Senior Environmental Planner
Ainley Graham & Associates Ltd.
45 South Front Street
Belleville, ON K8N 2Y5
Ph: 613.966.4243 x105
E: reynolds@ainleygroup.com

PIF No. P248-0398-2021
Laura McRae (License No. P248)

The Central Archaeology Group Inc.
2401 5th Line East
Campbellford, ON K0L 1L0
Ph: 705.868.2697
Fax: 866.231.6071
E: lmcrac@centralarchaeology.ca

CAGI Project No. CAGI-2021-LM23

Report in PDF format distribution:

Ainley Graham & Associates Ltd.
City of Kawartha Lakes
Ministry of Citizenship and Multiculturalism



Bringing the **past**
to the **present**
for the **future**

PROJECT PERSONNEL

Field and Project Director

Laura McRae, P248

Client Contacts

Scott Reynolds, Ainley Graham & Associates Ltd.

Fieldwork

Laura McRae

Derek Paauw

Mapping

Laura McRae

Report Preparation

Laura McRae

Report Reviewer

Derek Paauw

Administration

CAGI

STATEMENT OF LIMITATIONS

The Central Archaeology Group Inc. (CAGI) has prepared this report in a manner consistent with the care and skill typically exercised by archaeology professionals currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this project. This report provides the property survey results and the professional opinion of the authors. No other warranty, expressed or implied, is made.

This report has been prepared for the specific site, design objective, developments, and purpose described to CAGI by Ainley Graham & Associates Ltd. (the Client). The factual data, interpretations, and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

Unless otherwise stated, the suggestions, recommendations, and opinions given in this report are intended for the guidance of the Client in the design of the specific project.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study comply with those identified in the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries' Standards and Guidelines for Consultant Archaeologists (2011). CAGI accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

ACKNOWLEDGEMENTS

The Central Archaeology Group Inc. would like to extend their gratitude to the following individuals and parties:

- * Scott Reynolds, Ainley Graham & Associates Ltd.
- * Rob von Bitter, Ministry of Citizenship and Multiculturalism.
- * The staff at the Trent University Maps and Geospatial Resources section of the Bata Library, Peterborough.

ACRONYMS

a.s.l.	above sea level
AG	Ainley Graham & Associates
AP	Archaeological Potential
cm	centimeter (s)
CAGI	Central Archaeology Group Inc.
CoKL	City of Kawartha Lakes
MSIFN	Mississauga of Scugog Island First Nation
CR	County Road
GToO	Geographic Township of Ops
Hwy	Highway
km	kilometre (s)
m	metre (s)
MCM	Ministry of Citizenship and Multiculturalism
NAP	No Archaeological Potential
S&Gs	Standards and Guidelines
VC	Victoria County

EXECUTIVE SUMMARY

The Central Archaeology Group Inc. (CAGI) was retained by Ainley Graham & Associates (AG) to conduct a Stage 2 property survey in anticipation of the reconstruction and roadway widening of Angeline Street North in the Geographic Township of Ops (GToO), Victoria County (VC). The purpose of this study is to conduct a test pit survey within the subject property in order to determine the presence or absence of archaeological materials and to inform future planning decisions regarding the study area.

This Stage 2 property survey was undertaken as a result of the recommendations forwarded by The Central Archaeology Group Inc. in 2020 (P248-0332-2018):

A Stage 2 archaeological assessment will be conducted by a licensed consultant archaeologist using the test pit survey method at 5 m intervals in all areas along the corridor which have not been recently ploughed or do not have appropriate conditions for pedestrian survey at the time of the Stage 2 assessment (as illustrated by the areas marked in red on Maps 9 and 10). Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts be recovered their location should be recorded with a GPS unit and test pit intervals reduced to 2.5 metres within 5 metres of the positive test pit, as well as a one-metre test unit if necessary;

No further archaeological assessments are recommended for areas which have been determined to be disturbed (as illustrated by the areas marked in yellow on Map 9);

and

The Stage 2 archaeological assessment will follow the requirements set out in the 2011 Standards and Guidelines for Consultant Archaeologists (MTC 2011).

Therefore, The Central Archaeology Group Inc. (CAGI) was retained by AG to undertake a Stage 2 property survey. This assessment was conducted on November 25 and 26, 2021. No artifacts or culturally significant features were identified during the Stage 2 investigation.

Archaeological recommendations have been made based on the results of the property survey. These recommendations include the following:

- 1) The Stage 2 archaeological assessment did not recover any material culture during survey activities. Consequently, significant pre-contact and historic First Nations or historic Euro-Canadian archaeological sites are unlikely to be found within the project area. It is therefore recommended that the project area be cleared of archaeological concerns.

Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Citizenship and Multiculturalism should be immediately notified.

The MCM is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

TABLE OF CONTENTS

PROJECT PERSONNEL	i
STATEMENT OF LIMITATIONS	ii
ACKNOWLEDGEMENTS	iii
ACRONYMS	iii
EXECUTIVE SUMMARY	iv
TABLE OF CONTENTS	vi
1.0 PROJECT CONTEXT	1
1.1 Objectives	1
1.2. Development Context	1
1.3 Historical Context	2
1.3.1 Historic Documentation	2
1.3.2 Pre-Contact Period	2
1.3.3 Post-Contact Period	13
1.3.4 Study Area History	15
1.3.5 Summary	15
1.4 Archaeological Context	15
1.4.1 Current Conditions	15
1.4.2 Physiography	16
1.4.3 Previous Archaeological Assessments	23
1.4.4 Registered Archaeological Sites	24
1.4.5 Historical Plaques	25
1.4.6 Summary	25
2.0 FIELD METHODS	26
2.1 Results	29
3.0 ANALYSIS AND CONCLUSIONS	33
4.0 RECOMMENDATIONS	34

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION	35
6.0 BIBLIOGRAPHY AND SOURCES	36
7.0 PLANS	41
8.0 MAPS	49
9.0 IMAGES	54
10.0 GLOSSARY OF TERMS	59

PLANS

Plan 1	Angeline Street North, Plan 1 (AG 2020).	41
Plan 2	Angeline Street North, Plan 2 (AG 2020).	42
Plan 3	Angeline Street North, Plan 3 (AG 2020).	43
Plan 4	Angeline Street North, Plan 4 (AG 2020).	44
Plan 5	Angeline Street North, Plan 5 (AG 2020).	45
Plan 6	Angeline Street North, Plan 6 (AG 2020).	46
Plan 7	Angeline Street North, Plan 7 (AG 2020).	47
Plan 8	Angeline Street North, Plan 8 (AG 2020).	48

MAPS

Map 1	Location of the project area.	49
Map 2	Archaeological potential from the Stage 1 background study (CAGI 2020:48). Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.	50
Map 3	Archaeological potential from the Stage 1 background study (CAGI 2022:49). Angeline Street North from 200 metres north of Kent Street West to the northernmost limits of the Project Area.	51
Map 4	Results 1. Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.	52
Map 5	Results 2. Angeline Street North from 200 metres north of Kent Street West to the northernmost limits of the Project Area.	53

IMAGES

Image 1	Orthographic image of the project area (Google Earth 2017).	54
Image 2	Viewing north along Angeline Street North from approximately 180 metres north of Kent Street West.	55
Image 3	Viewing south along Angeline Street North towards Kent Street West.	55
Image 4	Viewing north along Angeline Street North towards a parking lot.	56
Image 5	Viewing north from the parking lot towards the school grounds.	56
Image 6	Viewing northeast across Kent Street West.	57
Image 7	Viewing south along Angeline Street North from north of Colborne Street West.	57
Image 8	Test pit from the east side of Angeline Street north, close to the hospital. This test pit was 32 cm deep. The soils were all sandy clay and moderately to densely compacted. Aggregate materials were noted throughout. No cultural materials were recovered.	58
Image 9	Test pit from the east side of Angeline Street North, north of Chadwin Drive. The humus level was moderately compacted with a sandy clay texture. It was 6 cm thick. Topsoil was 21 cm thick with a medium percentage of small pebbles. It was a moderately compacted sandy clay. Subsoil was very clayey and densely compacted. No cultural materials were recovered.	58

TABLES

Table 1	Summary of the First Nations archaeological sequence in southern Ontario.	12
Table 2	Major stadial and interstadial periods, including timelines and features, of the Wisconsinan glaciation (taken from Remmel 2009:20-23).	17
Table 3	Soil characteristics of the project and immediately surrounding area.	22

Table 4	Registered archaeological sites within a one kilometre radius.	24
Table 5	Comprison and W.F. McCollough and CAGI clay compaction classification.	30
Table 6	Comparison of W.F. McCollough and CAGI sand compaction classification.	30
Table 7	Photo # and description.	31

1.0 PROJECT CONTEXT

1.1 Objectives

The objectives of a Stage 2 property survey, as outlined by the *Standards and Guidelines for Consultant Archaeologists* (2011:27), are as follows:

- ✳ Document all archaeological resources on the property;
- ✳ Determine whether the property contains archaeological resources requiring further assessment; and,
- ✳ Recommend appropriate Stage 3 assessment strategies for archaeological sites identified.

In accordance with Provincial Policy Statement 2.6, if significant sites are found, a strategy (usually avoidance, preservation or excavation) must be put forth for their mitigation.

To meet these objectives, in compliance with the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011), CAGI archaeologists employed the following research strategies:

- ✳ A review of relevant archaeological, historic and environmental literature pertaining to the Project Area and it's general vicinity; and,
- ✳ Test pit survey of the Project Area at 5 m intervals in areas of the Project Area where the ground cover was not suitable for pedestrian survey.
- ✳ Pedestrian survey of the Project Area at 5 m intervals in areas of the Project Area where the ground cover was suitable for pedestrian survey.

1.2. Development Context

The Central Archaeology Group Inc. (CAGI) was retained by Ainley Graham & Associates (AG) to conduct a Stage 2 property survey in anticipation of the reconstruction and roadway widening of Angeline Street North in the Geographic Township of Ops (GToO), Victoria County (VC) (Map 1; Image 1).

This archaeological assessment was triggered by the Environmental Assessment Act. Permission for access to conduct the archaeological assessment was granted by Scott Reynolds (AG); no limits were placed on this access.

The archaeological assessment was undertaken in accordance with the requirements of the Ontario Heritage Act (R.S.O. 1990), the Standards and Guidelines for Consultant Archaeologists (2011) and the Environmental Assessment Act (R.S.O. 1990). All archaeological consulting activities were performed under the Professional Archaeological License of Laura McRae (P248). The Ontario Ministry of Tourism, Culture and Sport has designated this assessment as PIF P248-0398-2021. This project is identified as CAGI-2021-LM23 under CAGI records.

1.3 Historical Context

1.3.1 Historic Documentation

There are several histories of Victoria County, from its use by the pre-contact First Nations peoples through to the English period, Loyalist migration and Euro-Canadian settlement. Some of the more useful documents include: *Victoria Supplement in Illustrated Atlas of the County of Victoria, Ontario* (Belden 1881), *Peterborough and the Kawarthas* (Brunger 1975), *Trent Waterway Archaeological Survey* (Hakas 1967), *Historic Lindsay* (Capon 1974), *Land of Plenty* (Carr 1968) and *County of Victoria Centennial History* (Kirkconnell 1967).

There are also a significant number of consultant reports (archaeological and built heritage) available for consultation from the City of Kawartha Lakes, the Ministry of Tourism, Culture and Sport and the local historical societies.

In addition to historical literature and consultant reports, historical maps and plans, fire insurance plans, orthographic images and photographs from the National Air Photo Library (NAPL).

The study area is situated within the Former Township of Ops, now referred to as the City of Kawartha Lakes, created in 2001 by the Provincial government by amalgamating Victoria County and its constituent municipalities. The history of the area will be discussed below.

1.3.2 Pre-Contact Period

Although eastern Ontario has a unique deglaciation history, which would have prohibited early occupation, some of the work done further to the west, in the Great Lakes region can be extrapolated. In the 1970s archaeologists in southern Ontario began looking at ancient glacial lake beaches for Palaeoamerican and Archaic archaeological sites with positive results (Jackson et al. 2000, Storck 2004). Traditionally, and which is still common practice to this date, archaeological investigations in eastern Ontario were being conducted at modern water levels and archaeologists were only testing easily accessible areas which yielded “likely” locations of past human occupation (Hurley 1971a; 1971b), overlooking the drastic environmental changes that occurred over the past 10,000 years. Some archaeologists are just

beginning to realize that sites can be found further inland on the former beaches of the Champlain Sea and the Fossmill outlet (Kennett and Branson 1999:97). Since very little investigation have been undertaken in these areas (Watson 1999:38), thus far, only a small number of Palaeoamerican sites and few Archaic and Woodland period sites have been found.

In the first half of the twentieth century, the focus of research in First Nations culture in Canada was primarily on linguistics and ethnology (Trigger 2006:312). As a result, it is not until the beginning of the latter half of the twentieth century did archaeological undertakings begin to focus on building cultural chronologies, primarily technological innovation (Mason 1981:161). In Ontario, three broad cultural periods have been identified based on the material culture that has been left behind by past individuals and cultural groups. These cultural periods are: the Palaeoamerican Period (ca. 11,000-8000 BCE), Archaic Period (ca. 8,000-800 BCE), and the Woodland Period (ca. 800 BCE– 1650 CE). Pollock (2005:9) has recently adjusted the dates for eastern Ontario, including the Ottawa Valley and they include: the Palaeoamerican Period (ca. 11,000-6,000 BCE), Archaic Period (ca. 6,000-500 BCE), and Woodland Period (ca. 500 BCE-1600 CE). A cultural summary of these periods, largely focusing on technology, is provided below.

Palaeoamerican Period. Only a handful of Palaeoamerican sites and suspected Palaeoamerican sites have been found in eastern Ontario (Gordon and McAndrews 1992:80; Pollock 2005:10). If 9,000 BP (approximately 8,000BC) is accepted by archaeologists as the end of the Palaeoamerican period in eastern Ontario, given the glacial history associated with the formation of the Champlain Sea and methods of field research traditionally used by archaeologists in Ontario, to date, there have only a handful of Palaeoamerican sites found in eastern Ontario (Watson 1999a:38). To find such sites, archaeologists must study local geological events that altered lake levels and shorelines (Storck 1997; 2004).

During the height of the Wisconsinian glacial period the Laurentian Ice sheet covered most of Canada and extended as far south as New York City (Watson 1999a:28). The retreat of the Laurentide glacier from the St. Lawrence River and the Ottawa Valley began approximately 11,000 BP. As the ice receded, the Atlantic Ocean flooded the St. Lawrence Valley and portions of the Ottawa Valley, creating the Champlain Sea. It is on these ancient shores of the Champlain Sea, where there will be significant potential for the discovery of Late Palaeoamerican people, who likely subsisted off of maritime resources for part of the year. Therefore, given the deglaciation process as discussed in greater detail elsewhere in this report, palaeo shorelines, especially those associated with Champlain Sea can today be found inland on elevated topography, upwards of several hundred kilometres east and west of the present course of the St. Lawrence River and Ottawa River. Therefore, given the deglaciation process as discussed in greater detail elsewhere in this report, palaeo shorelines, especially

those associated with Champlain Sea can today be found inland on elevated topography, upwards of several hundred kilometres east and west of the present course of these two rivers.

Given isostatic rebound, shoreline destruction, and inundation, little is known about the maritime adaption of Palaeoamerican people. For the most part, it can be posited from other places in North America (Faught 1996; 2004; Faught and Brinnen 1998; Faught and Donoghue 1997; Faught and Gusick 2011; Gusick and Faught 2011; Marks and Faught 2003). Nonetheless, in general, Palaeoamericans are distinguished by the distances they travelled over land and their lithic assemblage. Artifacts have been recovered from archaeological sites in Ontario that were made from high quality cherts found hundreds of kilometers from where they were finally deposited (Storck 2004:33).

Palaeoamericans produced lance-shaped points which lacked the notches and stemming crafted by later peoples for hafting purposes (Ellis and Deller 1990:38). Since Palaeoamerican groups traveled significant distances away from their chert sources, they produced heavily re-sharpened and retouched tools (Dickson 2011:52; Ellis and Deller 1990:45), such as end-scrapers, side-scrapers, knives, graters, and drills (Ellis and Deller 1990:49, 59). Assemblages found on sites vary depending on the proximity to the chert source used for lithic manufacture (Dickson 2011:52). Archaeological sites that are a fair distance away from a chert source will have no evidence of core reduction or early stage preform reduction. This activity was usually undertaken at or near quarry sites (Dickson 2011:52; Ellis and Deller 1990:45).

Ultimately these tools assisted Palaeoamericans in day-to-day activities, in particular, food and resource extraction. A variety of subsistence options were available in eastern Ontario at the time. The land would have supplied large game like caribou and whales (white, humpback, and common finback), harbour porpoise, harp seal, and bladder-nose seal as well as shore birds, ducks, and several fish species (Watson 1999a:33). There is evidence from other Palaeoamerican sites in southern Ontario that fish was processed (Storck 1997:278). Most of these resources would have been found along the shore of the Champlain Sea. It is likely that the Palaeoamerican groups that inhabited eastern Ontario practiced a seasonal transhumance, relying on maritime resources during certain parts of the year and travelling inland, perhaps during the winter, to hunt migratory and herd-based species. This subsistence pattern is more inline with maritime-based Palaeoamerican groups found along the east coast of North American, rather than the traditional inland based subsistence economy subscribed to by many archaeologists for southwest Ontario.

To date, there have been three types of Palaeoamerican sites found in Ontario by archaeologists. These are dropped point sites, quarry sites, and short occupation camp sites. Palaeoamerican sites have been found near Perth (Pilon 2005:14, Watson 1999a:34) and in Lanark County (Branson and Kennett 1999:77).

Early Archaic. During the later Palaeoamerican Period, people began to settle and develop a pattern of movement within specific geographic ranges (Stock 2004:125). Eventually, it is believed, movements became seasonal in pursuit of food resources (Storck 2004:126). This seasonal resource economy continued and became commonplace during the Archaic Period. Lakes and river shores formed an important ecotone for human occupation (Ellis et al. 1990:68, 91; Gordon and McAndrews 1992:80; GRAO 2011:16; Wright 1972:33). These locations would have been easy to access by people travelling in watercraft (Wright 1972:36). Travel between sites would have been quicker, improving communication and trade between people. In addition, more could be transported in a boat than carrying overland.

The Archaic period is characterized by the exploitation of a wide range of raw materials for tool manufacture (Clermont and Chapdelaine 1998; Ellis et al. 1990:65, 66). Unlike Palaeoamericans, who used high quality cherts for their lithic assemblage, during the Archaic Period localized materials and glacial till were also used for tool construction. Projectile points were being notched and stemmed and the larger flakes produced during the earliest stages of tool production were now being used as expedient tools (Dickson 2011:52; Ellis and Deller 1990:45; Ellis et al. 1990:66). A new technique in tool production, grinding and pecking, produced ground stone implements (Ellis et al. 1990:65).

Like the Palaeoamerican Period, the Early Archaic in eastern Ontario is not well known. It is believed that Early Archaic sites diminish in number north of Lake Ontario as these Early Archaic groups were contemporaneous with Late Palaeoamerican groups (Ellis et al. 1990:68). It is not until the Middle Archaic that there is evidence of Archaic people in eastern Ontario.

Middle Archaic. The Middle Archaic is characterized by a decrease in mobility across the landscape and a greater use of local stone for lithic production. Therefore, overall there is a decrease in the size of the territories being exploited. For example, groups resided for longer periods of time in one place, and multiple interments found on sites, have lead archeologists to believe that people were returning to the same locations for a number of years to exploit a single or multiple resources in the locale.

Eastern Ontario is further defined in the literature as being inhabited by the Laurentian Archaic groups. The Laurentian Archaic people made a number of distinct ground stone tools. These include: stemmed points, bayonets, and semi-lunar knives (Ellis et al. 1990:84; Wright 1995:224;). They also extensively produced tools made of bone and thus, little remains in the archaeological record, especially in areas where soil acidity is high. These tools include stemmed, socketed and barbed points, unilaterally barbed harpoons with holes, pointed awls, gouges, fish hooks, bipointed gorges, whistles, flutes, beaver incisors used as scrapers or knives, and large and small needles (Clermont 1999:49; Clermont and Chapdelaine 1998; Ellis et al. 1990:87; Mason 1981:166; Wright 1995:219). Due to the environment and the limited availability of plant food resources in the Canadian Biotic Province, Laurentian Archaic sites

yield less plant processing tools, and show a heavier reliance on hunting and fishing activities (Ellis et al. 1990:91).

Many of the bone tools listed above, have counterparts made from copper (Ellis et al. 1990:88). The appearance of copper artefacts represents far reaching trade networks. Copper artefacts found on Laurentian Archaic sites indicate trade with Shield Archaic peoples who exploited the copper resources around Lake Superior. The Shield Archaic, as the name implies, represents the cultural remains of a people living in the Canadian Shield. The Shield culture covers a large territory from the southwestern portion of the Northwest Territories, most of Manitoba, northern Ontario, northern Québec and Labrador (Wright 1972:1995). Given the location of the project area, the region likely witnessed influence by both Laurentian and Shield Archaic groups.

Unlike the archaeological assemblages found on the Laurentian Archaic sites of eastern Ontario, early Shield Archaic sites have an absence of ground stone tools (Wright 1995:262). Their settlement pattern and distant trade patterns suggest the use of watercraft. The people of the Shield Archaic made side-notched, stemmed and lancolate projectile points, end-scrapers, side-scrapers and flake scrapers, wedges, bifacial cores, preforms, bifacial and unifacial flakes, knives, drills, hammers, awls etc. These tools were commonly made out of quartz, some chert varieties, and copper. Throughout pre-European contact, settlement patterns and subsistence activities remain largely unchanged for the Shield Archaic (Wright 1999:705). Nonetheless, the extent of divergence between the Shield and Laurentian Archaic groups is limited to the tool assemblage. Laurentian Archaic tool artifacts have been found in territories often associated with the Shield Archaic and vice versa. In northeastern Ontario on the Abitibi Narrows, a ground slate point, a projectile point of the Laurentian Archaic, was found with stemmed and lanceolate point forms, which belong to be Shield Archaic. Therefore, clearly interaction between these two technologically distinct groups was taking place. A mixture of both Laurentian and Archaic tools can than be expected in the artifact assemblage in archaeological sites located along the perceived boundary between the two technological traditions.

Late Archaic. Late Archaic sites in southern Ontario are larger and more frequent in the archaeological record than the Early and Middle Archaic periods. Around 4500 BP water levels in the Great Lakes and the Ottawa River Valley began to assume modern day levels and it is at these levels on islands, near the mouths of rivers, rapids, and near marshlands that larger camp sites are found. Populations increased and people began to aggregate in much larger groups along bigger bodies of water. They stayed on these lakes and rivers during spring, summer and early fall, than broke into smaller familiar groups moved into the interior for the winter.

In Ontario, three Late Archaic cultural complexes are defined based on the style of projectile points: Narrow Point (ca. 4500-3800 BP), Broad Point (ca. 4500-3500 BP), and Small Point (ca. 3500-3000 BP). However, in eastern Ontario, there are no distinctive projectile points for this time period. Laurentian cultural material begins to appear with different styles of projectile points that have been expediently made and are difficult to assign to any particular time period or cultural group. The reduction in size of projectile points could indicate the beginning of bow and arrow use (Ellis et al. 1990:106).

During the Late Archaic period and carrying on into the Woodland period there is evidence of extensive trade networks operating in eastern Ontario. Copper tools were exchanged in the Early and Middle Archaic periods but by the Late Archaic there is evidence of non-utilitarian goods made out of material like copper and marine shell still be traded (Spence et al. 1990:166). Since populations are presumably getting larger, some raw materials that use to be exploited by a variety of groups are now found in a single group's territory (Spence et al. 1990:166). Therefore, trade becomes essential to obtain valued resources. With populations increasing, inter-band marriage was also likely and gifts between bands could have been made to establish and secure relationships. Near the end of the Middle Archaic, at the Leamy Park (BiFw-20) site in Gatineau, copper tools become rare and projectile points of the Lamoka (Narrow Point) and Susquehanna (Broad Point) types begin to appear beside Brewerton points and some ground slate points typical of the Laurentian Archaic (GRAO 2011:17).

Early Woodland. The Early Woodland Period in most of Ontario is marked by the appearance of fired clay ceramics. Southern Ontario is described as having two complexes, Meadowood (ca. 900-400 BCE) and Middlesex (ca. 450-0 BCE). Ceramic vessels made during the Early Woodland, called Vinette I, are thick, have conoidal bases, and are believed to have been used for cooking and food storage (GRAO 2011:18; Spence et al. 1990:128; Watson 1999b:56).

The Meadowood tradition, known throughout the St. Lawrence Valley and as far north as Abitibi, has produced a wide range of artifacts that are found in both cemeteries and habitation sites (Spence et al. 1990:128). The northern limits of the Meadowood tradition are believed to extend to Rosebary Lake in Algonquin Park and the Deep River site on the Ottawa River (Spence et al. 1990:131). A common artifact of this tradition is a biface blade, often referred to as a cache blade, which is posited to have been used as a preform for the manufacture of various types of tools (Spence et al. 1990:128; Watson 1999b:57). Early Woodland peoples created side-notched points which were frequently recycled into other tool forms, such as end scrapers and perforators.

During the Early Woodland Period, people began to bury their dead in cemeteries, places exclusively reserved for the disposal of the dead. Burials indicative of this funerary tradition, called Middlesex, have been located in the Ottawa Valley. These burials are characterized by an absence of cremation, the presence of polished slate gorgets, tubular pipes, adzes and

cylindrical copper pearl necklaces as burial goods,. Overall, the tradition has its origins in the states of Ohio and Michigan with the Adena complex. The Morrison Island site, found and excavated by Clyde Kennedy in 1958, had burials that dated to this period, and some of the burials contained copper beads, and copper bracelets (Clermon and Chapdelaine 1998:21, 22, 25).

Middle Woodland. During the Middle Woodland Period, population sizes increase as does the duration of site occupation. This change is mirrored by a dramatic increase in the exploitation of wetland plants and animals (Lovis et al. 2001:628). Base camp sites, satellite sites, and gathering places are all represented in the archaeological record (Reid and Rajnovich 1991:221). The social patterning of the Middle Woodland Period is also beginning to resemble what is reported on ethnographically in early European documentation. In Ontario, there are four main cultural complexes associated with the Middle Woodland Period: Point Peninsula, Saugeen, Couture, and Laurel. However, only the Point Peninsula and Laurel complexes pertain to the study area.

The Point Peninsula complex extends throughout south central and eastern Ontario, western and northern New York, and northwestern Vermont (Spence et al. 1990:157). Common tools recovered during this period are barbed bone and antler harpoons, decorated antler combs, bone fish hooks, antler-hafted beaver incisors, and a wide variety of projectile points, celts and gorgets. However, none of the aforementioned tools are exclusive to the Point Peninsula complex (Spence et al. 1990:159). The dead are increasingly buried or relocated to burial mounds. Each mound, or addition to a mound, is considered to represent the accumulated dead of one generation. Bodies were thought to be placed in primary burials, then exhumed at a later date, and relocated to the mounds.

Late Woodland Period. The beginning of the Late Woodland Period in the St. Lawrence Valley and the Upper Great Lakes is marked by the emergence of sedentary settlements. The cultural manifestations during this time period are believed to have been very similar to the ones witnessed by the first Europeans who visited the region. The earliest evidence of agriculture begins to appear around 700 years ago with year round settlement in small villages (GRAO 2011:19). Since sedentary villages are seen as a Woodland Period transition into the Iroquois Period of history in southern Ontario, and that the project area and the surrounding region has traditionally been Algonquin territory, these larger sedentary village sites are not expected in the archaeological record. Instead, it is believed that the Algonquin largely maintained a pattern of seasonal transhumance as witnessed in the early periods of Ontario history. Nonetheless, the project area does lie near the boundary with Iroquoian-speaking groups to the south, and it is possible, with the fluidity of the frontier, that Iroquoian-speaking groups, generally associated the St. Lawrence River watershed, may have inhabited or obtained resources in the region surrounding the project area.

During the Late Woodland period ceramics manufactured in the St. Lawrence River Valley begin to show a distinct regional style characterized by more complex decoration. The vessels have globular bodies and have a narrow neck with a flared rim decorated with castellations using the paddle and anvil technique. Pipes, beads and tokens are also made from ceramics. Stone tools are rare, bone and animal teeth (particularly beaver incisors) are more common materials used in the manufacture of tools (GRAO 2011:19). With trade routes extending north of the Great Lakes, this material culture can be expected in archaeological contexts in the Ottawa River watershed.

By the transition of the Terminal Woodland Period to the Early Iroquois Period (ca. 1500 CE), the Algonquin-speaking groups in eastern Ontario continue to practice a hunting and gathering subsistence economy that has not changed much since the Archaic. However, it is likely that some horticultural activities were undertaken. Although referred to as the Early Iroquois Period in Iroquois-speaking territory to the west, in eastern Ontario, this period is referred to in the literature as the Pickering Complex.

The Pickering Complex in eastern Ontario is defined by a distinct ceramic tradition, which shifts from cord impressions to linear and dentate stamps and exterior bossing along the neck and rim and ribbed paddle or checked stamps on the body of the vessel. Other distinctive technology during this period includes triangular shaped projectile points, bone awls and beads, and ceramic pipes. In addition, Iroquoian-like ceramic vessels appear in small numbers in northeastern Ontario and northwestern Québec (Guindon 2009:68). The presence of these ceramics suggests a change in the interaction network that had been in place between the residence of the Ottawa River watershed and the Canadian Shield since the Archaic period. In Québec archaeologists have defined a period, Mamiwinnik (1350 to 1650 CE), which is characterized by the rapid increase in the number of Iroquoian pots found on Algonquin sites in northwestern Québec (Guindon 2009:85). This is important to note since people would have travelled up and down the Ottawa River and may have stopped at the mouths of any of the major tributaries in eastern Ontario to camp, trade or perform subsistence activities.

Historic Period. With the arrival of Europeans, distinguishing specific cultural groups inhabiting the region becomes less arduous, since it is now possible to draw upon ethnohistoric accounts, which could include the journals of early explorers and visitors to the more in-depth accounts of missionaries, who were charged by the European authorities and the Church with converting the Aboriginal population, often to the detriment of the First Nations, and thus obligated to provide details to their progress. However, piecing together the post contact First Nations history for the project area still remains challenging simply because little effort has been made to date to consolidate the known resources into a logical and comprehensive history.

The predominate First Nations group inhabiting the region at the time of contact are the Michi Saagiig (Mississauga Anishinaabeg). The following write-up was provided to CAGI from Curve Lake First Nation. It was prepared by Gitiga Migizi, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation. It has been copied verbatim into this report so as to limit potential errors.

The Michi Saagiig Nation. The traditional homelands of the Michi Saagiig encompass a vast area of what is now known as southern Ontario. The Michi Saagiig are known as “the people of the big river mouths” and were also known as the “Salmon People” who occupied and fished the north shore of Lake Ontario where the various tributaries emptied into the lake. Their territories extended north into and beyond the Kawarthas as winter hunting grounds on which they would break off into smaller social groups for the season, hunting and trapping on these lands, then returning to the lakeshore in spring for the summer months.

The Michi Saagiig were a highly mobile people, travelling vast distances to procure subsistence for their people. They were also known as the “Peacekeepers” among Indigenous nations. The Michi Saagiig homelands were located directly between two very powerful Confederacies: The Three Fires Confederacy to the north and the Haudenosaunee Confederacy to the south. The Michi Saagiig were the negotiators, the messengers, the diplomats, and they successfully mediated peace throughout this area of Ontario for countless generations.

Michi Saagiig oral histories speak to their people being in this area of Ontario for thousands of years. These stories recount the “Old Ones” who spoke an ancient Algonquian dialect. The histories explain that the current Ojibwa phonology is the 5th transformation of this language, demonstrating a linguistic connection that spans back into deep time. The Michi Saagiig of today are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods. They are the original inhabitants of southern Ontario, and they are still here today.

The traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands. This also includes all the tributaries that flow from the height of land north of Toronto like the Oak Ridges Moraine, and all of the rivers that flow into Lake Ontario (the Rideau, the Salmon, the Ganaraska, the Moira, the Trent, the Don, the Rouge, the Etobicoke, the Humber, and the Credit, as well as Wilmot and 16 Mile Creeks) through Burlington Bay and the Niagara region including the Welland and Niagara Rivers, and beyond. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi

Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie.

Michi Saagiig oral histories also speak to the occurrence of people coming into their territories sometime between 500-1000 A.D. seeking to establish villages and a corn growing economy – these newcomers included peoples that would later be known as the Huron-Wendat, Neutral, Petun/Tobacco Nations. The Michi Saagiig made Treaties with these newcomers and granted them permission to stay with the understanding that they were visitors in these lands. Wampum was made to record these contracts, ceremonies would have bound each nation to their respective responsibilities within the political relationship, and these contracts would have been renewed annually (see Gitiga Migizi and Kapyrka 2015). These visitors were extremely successful as their corn economy grew as well as their populations. However, it was understood by all nations involved that this area of Ontario were the homeland territories of the Michi Saagiig.

The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people.

Problems arose for the Michi Saagiig in the 1600s when the European way of life was introduced into southern Ontario. Also, around the same time, the Haudenosaunee were given firearms by the colonial governments in New York and Albany which ultimately made an expansion possible for them into Michi Saagiig territories. There began skirmishes with the various nations living in Ontario at the time. The Haudenosaunee engaged in fighting with the Huron-Wendat and between that and the onslaught of European diseases, the Iroquoian speaking peoples in Ontario were decimated.

The onset of colonial settlement and missionary involvement severely disrupted the original relationships between these Indigenous nations. Disease and warfare had a devastating impact upon the Indigenous peoples of Ontario, especially the large sedentary villages, which mostly included Iroquoian speaking peoples. The Michi Saagiig were largely able to avoid the devastation caused by these processes by retreating to their wintering grounds to the north, essentially waiting for the smoke to clear.

Michi Saagiig Elder Gitiga Migizi (2017) recounts:

“We weren't affected as much as the larger villages because we learned to paddle away for several years until everything settled down. And we came back and tried to bury the bones of the Huron but it was overwhelming, it was all over, there were bones all over – that is our story.”

There is a misnomer here, that this area of Ontario is not our traditional territory and that we came in here after the Huron-Wendat left or were defeated, but that is not true. That is a big misconception of our history that needs to be corrected. We are the traditional people, we are the ones that signed treaties with the Crown. We are recognized as the ones who signed these treaties and we are the ones to be dealt with officially in any matters concerning territory in southern Ontario.

We had peacemakers go to the Haudenosaunee and live amongst them in order to change their ways. We had also diplomatically dealt with some of the strong chiefs to the north and tried to make peace as much as possible. So we are very important in terms of keeping the balance of relationships in harmony.

Some of the old leaders recognized that it became increasingly difficult to keep the peace after the Europeans introduced guns. But we still continued to meet, and we still continued to have some wampum, which doesn't mean we negated our territory or gave up our territory – we did not do that. We still consider ourselves a sovereign nation despite legal challenges against that. We still view ourselves as a nation and the government must negotiate from that basis."

Often times, southern Ontario is described as being "vacant" after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation.

The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation.

The Michi Saagiig have been in Ontario for thousands of years, and they remain here to this day.

Table 1. Summary of the First Nations archaeological sequence in southern Ontario.

Date	Periods and Cultural Tradition
11,000 BCE - 6,000 BCE	Palaeoamerican
11,000 BCE - 8,000 BCE	Early Palaeoamerican
8,000 BCE - 6,000 BCE	Late Palaeoamerican
6,000 BCE - 800 BCE	Archaic
6,000 BCE - 5,000 BCE	Early Archaic

5,000 BCE - 2,500 BCE	Middle Archaic
2,500 BCE - 800 BCE	Late Archaic
1,000 BCE - 1,500 CE	Woodland
1,000 BCE - 50 BCE	Early Woodland
50 BCE - 950 CE	Middle Woodland
950 CE - 1,500 CE	Late Woodland
1,500 CE - Present	Historic

1.3.3 Post-Contact Period

The first recorded European visitor to the Trent Valley region was Samuel de Champlain in 1615, who travelled from Lake Simcoe to New York State with a party of Hurons on a military campaign against the Oneida Iroquois (Trigger 1985:157, 180). Champlain's exact route is a matter of contention, but he probably portaged from the Otonabee River to Chemong Lake (Brunger 1972:44). There are indications in the historical and archaeological records that the Trent Valley was used only as an occasional transportation corridor and hunting-fishing territory by the Hurons in the seventeenth century (Sutton 1990:3). At that time, the main transportation corridor was the Ottawa River drainage to the north, while the main focus of Huron occupation was west and north of Lake Simcoe (Huronian). These were the areas of concentration for the French fur trade, and eventually mission colonies. In 1649-50, the Huron's settlements were destroyed by the Iroquois, and the people dispersed.

For the remainder of the seventeenth century, the upper and middle Trent Valley remained as a buffer zone between Algonkians on the south edge of the Canadian Shield, and the New York Iroquois on Lake Ontario and the lower Trent, including reportedly Rice Lake, where they are rumoured to have had a fortified village (Brunger 1985:99; MCR 1981:58). By the 1690s, French supported Algonkian bands forced a southward retreat of the Iroquois (MCR 1981:58). Algonquian-speaking Mississauga Ojibway bands then migrated south from Georgian Bay and established a permanent presence in the Trent Valley (MCR 1981:61-65), which by this time, was of little interest to the French (Brunger 1985:99).

The construction of the French outpost of Fort Frontenac near the mouth of the Cataraqui River in 1673, resulted in a sporadic European presence at the eastern end of Lake Ontario during the late seventeenth and eighteenth centuries. The main function of the fort was to store supplies intended for the military and trading posts. It was often abandoned when circumstances forced the retreat of the French military garrison. Fort Frontenac was surrendered to a British force in 1758 during the Seven Years' War, and all of New France surrendered by 1760.

The end of the French regime of Canada in 1760, brought little change to the region and British settlement along the north bank of the upper St. Lawrence River and the eastern end of Lake Ontario did not begin in earnest until 1784 when the counties opposite the New York border were settled by refugees of the American Revolution (Moore 1984:236). The Trent Valley became incorporated within the Newcastle District in 1798 (Brunger 1985:99), and township land surveys were begun. The Trent Valley was an unexploited frontier during the early stages of British colonization and attention did not turn to the northern regions of the district until the Lake Ontario fringe began to fill with settlers.

Victoria County (Map 2). Permanent European settlement of Victoria County proceeded roughly from south to north – according to the relative productivity of soils for agriculture – and saw several waves of immigrants from the British Isles. Ops Township was surveyed for settlement in 1828, and the first recorded homestead was that of Patrick O'Connell who settled on Lot 7, Concession 2 (Belden 1881:8). The rich farmland of the interlake area was in great demand and by the mid-1830s, most land suitable for agriculture was settled mainly by recent Irish immigrants (Capon 1974:9). Communities with services to support the new agriculturalists were generally oriented toward water bodies, with rapids being particularly important for the establishment of grist and sawmills, and eventually other services and industries. In this way, the village that would become Lindsay grew up above the rapids near the outlet of the Scugog River. The founders of the settlement were William Purdy and sons who had received a charter in 1829 to build mills on the future townsite (Belden 1881:8). The Purdy's mill dam raised the water level on the Scugog River by as much as three metres causing severe flooding on the low-lying land as far as the southern shore of Lake Scugog. A second mill dam built at Bobcaygeon soon after raised water levels of Sturgeon Lake and the widespread flooding sparked fever epidemics that plagued the area for decades. In the spring of 1838, flooded out farmers coming from as far south as Port Perry destroyed the Purdy dam by force with no opposition from the local authorities (Capon 1974:10). A new government dam was later built below the rapids of the river and the Purdy's were given special water privileges (Capon 1974:10). Somehow Lindsay survived in the early troubles and by 1852, the general census records 450 residents in the village.

Throughout the nineteenth and twentieth centuries, First Nation people maintain a presence in the middle Trent Valley. Treaty 20 gave title of the Newcastle District to the Crown in 1818, and reserves were established in 1829 for the Mississauga Ojibway at Scugog Lake, Curve Lake (the junction of Chemong and Buckhorn Lakes), Hiawatha on Rice Lake, and several on Lake Simcoe (Williams and McCue 1981:25). The total First Nation population of Mississauga in the region was thought to be about 1250 persons, with the residential affiliation remaining fluid throughout the reserves of the Kawartha Lakes (Hall 1990:155). These formerly northerly Algonkian peoples did not establish long term, continuously inhabited settlements at specific reserve locations until forced to do so by Indian agents following increasing immigration pressure and Canadian Confederation in the 1850s and 1860s (Hall 1990:152).

City of Kawartha Lakes. The City of Kawartha Lakes is the product of an amalgamation of the communities of Bobcaygeon, Fenelon Falls, Lindsay, Omemee and Woodville and the former Victoria County. The amalgamation came into effect in 2001 during the reign of Mike Harris, former Premier of the Province of Ontario. The name “Kawartha” is derived from the Anishinaabe *Kawatha* which means “land of reflections.” This perfectly suits the area as it is comprised of a multitude of lakes, rivers, creeks and low-lying areas.

1.3.4 Study Area History

Town of Lindsay. Lindsay straddles the Scugog River and is the seat for the City of Kawartha Lakes (formerly Victoria County). It is situated within the Geographic Township of Ops which was surveyed in 1825 by Colonel Duncan McDonell. The area witnessed immediate movement into the area and settlement of the Village began shortly after the town site was surveyed. The village flourished around Purdy’s mills (sawmill and grist mill) and grew into a lumbering and farming centre of the region.

The Port Hope, Lindsay and Beaverton Railway (PHL&B) reached the town in 1857 and provided an impetus for additional growth and development. The town was incorporated in the same year. A second railway made its ways to the town in 1871. Known originally as the Fenelon Falls Railway, then as the Fenelon Falls & Ottawa River Valley Railway and then as the Victoria Railway, it connected with the Midland Railway at Victoria Junction on William Street North. The third railway was the Port Whitby & Port Perry Railway, which extended from Port Perry to Lindsay in 1876. By 1877, the railway was known as the Whitby, Port Perry & Lindsay Railway (WPP&L). By 1887, the Midland Railway made Lindsay its headquarters.

1.3.5 Summary

The land registries, census records and historic maps show that this area was mainly rural and had a low level of occupancy in the eighteenth and nineteenth centuries (and even the twentieth and twenty-first) centuries. Through historical background research, there is no evidence to suggest that the any of the project area was occupied during the Euro-Canadian settlement of the the township.

1.4 Archaeological Context

1.4.1 Current Conditions

The entire Project Area was comprised of road right-of-ways with residences, commercial and industrial buildings on either side of the corridors. Natural vegetation was not present and there were manicured lawns, ornamental trees and shrubs, asphalt pavement and concrete walkways present within the PA.

1.4.2 Physiography

The assessment of physical and environmental conditions of a region is important to the analysis of past human settlement behaviour as well as for the interpretation of features and site patterns on the landscape. The cultural development of every society is strongly influenced by the surrounding natural environment which provides a finite set of resources that humans use to fulfill a variety of needs. Geomorphology, soils, water sources, climate, and vegetation are all significant factors in understanding patterns on the landscape. Changes in the landscape over time influences the types of cultural materials found during an archaeological assessment as well as their visibility.

Location. The project area is located within the City of Kawartha Lakes in the Geographic Township of Ops, Victoria County. The project area is flat but is surrounded by elevated areas (drumlins). Although drained by the Scugog River, which flows to the east, the PA are surrounded mostly by residence and commercial areas (Image 1).

Victoria County is located in central Ontario, north and east of Ontario County, north of the Geographic Township of Carden, northwest of the Geographic Township of Laxton, west of the Geographic Township of Digby and southwest of the Geographic Township of Longford. The Town of Lindsay is the closest urban centre, although there are a number of smaller towns and villages in the surrounding area such as Little Britain, Reaboro, Cunningham's Corners, Elm Tree Corners, O'Donnell Landing, Linden Valley and Cambray. The Geographic Township of Ops is situated within the southcentral portion of the county.

Glacial History and Geomorphology. Landscape features seen today are the result of the most recent period of glaciation. Beginning with the Illinoian glacier and ending with the Wisconsinan, the ice masses advanced as far south as Ohio and as far east as the continental shelf edges. The first interstadial period, the Sangamonian, witnessed ice retreat of the Illinoian glacier as far north as Hudson Bay. At this time, Easton (1992) posits that global temperatures were warmer or similar to that which we experience today. This period extended until approximately 75,000 years BP with the onset of the Wisconsinan glaciation.

The Wisconsinan glaciation is characterized by a series of advances (stadials) and retreats (interstadials), scouring, transporting and depositing surface materials across Ontario. Seven major stadials and six interstadials, along with several minor phases, have been recorded (Table 2).

Table 2. Major stadial and interstadial periods, including timelines and features, of the Wisconsin glaciation (taken from Remmel 2009:20-23).

Period	Stadial / Interstadial	Years BP	Feature /s
Nicolet	Stadial	70,000	-blocked the St. Lawrence River -caused water to dam into Lake Scarborough -created the Scarborough Bluffs
St. Pierre	Interstadial	67,000	-St. Lawrence is free of ice -Great Lakes waters drain towards the Atlantic Ocean
Guildwood	Stadial	55,000	-ice covers all of Ontario and extends into northern US
Port Talbot	Interstadial	48,000 - 36,000	-two warm intervals separated by a cold phase -palynological studies indicate boreal tree taxa -meltwaters drain through present-day New York
Cherrytree	Stadial	35,000 - 28,000	-ice sheet covers most of Southern Ontario -formation of Glacial Lake Thorncliffe
Plum Point	Interstadial	27,000	-ice retreats across Ontario
Nissouri	Stadial	20,000	-ice sheet reaches maximum extent
Erie	Interstadial	15,000	-ice retreats -Lake Erie drains eastward through the St. Lawrence River
Port Bruce	Stadial	14,000	-ice advances across Ontario and into US
Mackinaw	Interstadial	13,000	-ice retreat causes splitting of ice lobes -split exposes a dome of higher land called Ontario Island -Proglacial Lakes Arkona I, II and III form at southern ice margins

Port Huron	Stadial	12,900	-short-lived advance -Glacial Lakes Lake Whittlesey, Warren I, Warren II, Wayne and Warren III form
North Bary	Interstadial	11,840 - 8,100	-warmer climate -ice retreats across Canadian Shield -drainage flows east -formation of Glacial Lake Grassmere
Driftwood	Stadial	8,200 - 8,100	-deposition of clay tills in the Lake Barlow-Ojibway region -about 8,000 Glacial Lakes Ojibway and Agassiz catastrophically drain into Hudson Bay

The North Bay Interstadial, as it retreated across the landscape, exposed our project area.

Retreat during this phase was quite rapid and a number of post glacial lakes developed as a result of meltwater flow and drainage, ice dams and glacial deposits (i.e., Lake Algonquin, Lake Iroquois, Lake Erie and the Champlain Sea). Consequently, substantial areas would have been inundated by the copious flow of meltwaters at elevations well above modern sea levels before the formation of drainage outlets. Three major drainage outlets formed during this period: the Kirkfield Outlet (~11,500 BP) which drained Lake Algonquin into Lake Iroquois across the Kawarthas (south of the project area); the Fossmill Outlet (~10,800) which drained Lake Algonquin into the Champlain Sea to the Atlantic Ocean through Algonquin Park by way of the Petawawa and Barron Rivers; and, the Mattawa Outlet was exposed as the glacier receded northward and exposed lower outlets (~10,000) which continued to drain Lake Algonquin into the Champlain Sea via the Mattawa River (north of the project area) (Chapman and Putnam 1984:25-39; Larsen 1987:19; and Kaszycki 1985).

In existence from ~12,800 BP - 10,000 BP (Chapman and Putnam 1984:39; Gadd 1980), the Champlain Sea was a temporary inlet of the Atlantic Ocean. Although the maximum extent of this marine transgression is not yet known in specific terms, it has been posited that its eastern limits extended to the clay beds found within Leeds County and the Frontenac Axis, an eastern extension of the Canadian Shield which reaches into the Appalachian region of the United States. We also know that the northwestern arm of the Champlain Sea extended just north of Deep River (Barnett 1988). Unfortunately, because of the rocky nature of the region, the shoreline features of the western extension of the Champlain Sea remain unknown (Chapman and Putnam 1973:117).

As these glacial water sources drained, the zones created could have supported an extensive variety of animal, insect, bird, and vegetation species. Resource exploitation of these zones by early peoples is supported by the discovery of archaeological sites along the edges of ancient shorelines (palaeoshorelines) across North America.

Palaeoecology. The last ice age completely disturbed vegetational patterns throughout the Eastern Ontario. Climatic warming marked an official end to the Pleistocene Period and caused an abrupt change in the composition of forests, woodlands and parklands south of the ice sheets.

With deglaciation, vegetation migrated northwards and different species populated the ice free margins. Palynological analysis of pollen grains (Pielou 1991; Remmel 2009:30; Wright 1966) illustrates that more diversified vegetation developed with slight differences noted between the west side of the continent and the lowlands and east side of the continent. Furthermore, the process of recolonization depended on the production rates of different species and their ability to grow on freshly exposed terrain which may have reduced pH levels (Matthews 1992:122). Initially, species more common to herbaceous tundra environs grew (i.e., herbs, mosses and lichens) followed by shrub tundra communities (i.e., sedges and small shrubs) and then to spruce (*Picea* spp.) and poplar (*Populus* spp.) woodlands. Warming temperatures also encouraged deciduous growth like hemlock and beech and also caused treelines to shift northward, terrestrial and marine species to increase their range northward, and in the mountains, caused the above to shift to higher elevations.

Taxa noted within the project area is today, not much different from that which it would have been thousands of years ago. The project area lies within the Northern Hardwood Forest, which is within the Great Lakes-St. Lawrence Forest ecoregion. This is a transitional forest which illustrates an overlap of northern needle-leaved trees and southern broad-leaved deciduous trees and produces a mosaic of various vegetative communities controlled by local climate and soils.

Climatic upheavals wrought diverse changes amongst terrestrial and marine animal and bird migration patterns and habitats. It may be assumed that mammals typically found today in these environments, would have been present during the late Pleistocene and early Holocene Periods in the project area (i.e., caribou, bear, fox, hare, chipmunk, squirrel, mouse, weasel, lemming, vole, moose, porcupine and bat) (Remmel 2009:32). Today, mammals such as black bear (*Ursus americanus*), moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*) and wolf (*Canis lycaon*) are commonly seen throughout the region. Furthermore, marine fossils in the vicinity of the former Champlain Sea indicate large mammals such as whale, walrus and seal inhabited the area during the open-water season (Chapman and Putnam 1984; Cronin 1977; Loring 1980). As these mammals would have migrated into the region following their

food sources, it is also safe to assume that smaller marine life, whose skeletal existence may not have survived to become part of the archaeological record, were present.

Moreover, as the prevailing climate of the time would likely have meant that the Champlain Sea would have frozen over during the winter season, marine mammals would have been forced to migrate into the Gulf of St. Lawrence, where the waters were open. However, as hypothesized by Loring (1980:35), “local populations of belugas or seals might have been trapped in areas of open water surrounded by ice and would have been easily killed by hunters...” This suggests that marine as well as terrestrial exploitation of food resources would have been an important aspect of subsistence practices of the local indigenous populations. Therefore, the probability of at least a partial maritime-based economy in the region of the project area is high.

Physiography and Geology. The project area is located within the Mixed Wood Plains ecozone. According to Natural Resources Canada (2011), the Mixed Wood Plains can be characterized by the following description:

“... topography ranges from extremely flat areas in the southwest and southeast to rugged terrain of the Niagara Escarpment. Vegetation is diverse, characterized by mixed deciduous-evergreen forests and tolerant hardwood forests including those forests known as Carolinian forests. Alvars and tallgrass prairies also occur. Wetlands are numerous in certain areas, although many wetlands have been drained. Carolinian Canada (the most southerly portion of this ecozone) boasts the highest concentration of species in Canada. The number of species at risk is also high.”

Bedrock geology within the project area is comprised of Ordovician rocks. The Shield is broken into many sections, or “provinces.” Almost 3 billion years ago, these provinces began to rub against each other, causing friction and a build up of pressure. Many fissures and faults were created in the area as the Earth’s crust twisted, sheared, and folded. Molten material, specifically andesite, a dark grey coloured rock, was forced up through the fissures to the surface. As it reached the ground, the new rock, in some cases carrying precious metals such as gold and silver, cooled and became part of the landmass. These ancient folded rocks are known as Greenstone belts which eventually were overlain with more recent glacial sediments.

Sedimentary rocks of Paleozoic and Mesozoic age formed between approximately 570 to 66.4 million years ago, during a global warming period, when several periods of marine inundation of North America were responsible for the deposition of thick layers of sediments which eventually resulted in the formation of shale, limestone and sandstone (Eyles 2002:5).

The area surrounding the project area is composed of Upper Ordovician. Specifically, the project is located within a formation which includes such rocks as shale, limestone, dolostone and siltstone. These formations usually include chert formations. The project area is surrounded by rocks of this origin.

One of the most common characteristics of Palaeoamerican material assemblages is the prevalence of cherts and similarities of lithic tools across wide ranging regions (Mason 1981, 1986; Goodyear 1989). Chert is a fine-grained, siliceous material which is easy to knap and therefore commonly used in the production of stone tools. In addition to chert use, quartz materials were also widely utilized, particularly in more northern regions or within the Canadian Shield, where quartz and quartzite materials were more locally available.

The physiography of the study area encompasses one surficial geology type, till plains (drumlinized). However, it is surrounded by quite complex surficial deposits. These surficial types are the result of glacial recession and melting as well as inundation of the area by Lake Iroquois and include clay plains, kame moraines, sand plains, peat and muck and eskers.

Soils. Soil, in terms of its morphological characteristics, is defined as unconsolidated surface material forming “natural bodies” made up of mineral and organic materials as well as the living matter within them. It is a dynamic entity with materials continually and simultaneously absorbed, released and transformed.

The formation of soils is heavily influenced by its parent material, climate, topography, bio-activity and time, however, it is mainly the combined effects of climate and living matter that convert a material to soil. For example, in moisture-rich environs, the dampness and rich vegetation may lead to deep, richly organic soils, good for agricultural production. However, in desert areas, where precipitation is low, the lack of moisture and vegetation may lead to sparse soil development and where soils exist, they may be thin and highly mineral. Furthermore, human disturbances such as grave sites, dwellings, agricultural activities and garbage dumps may also affect soil development, giving it other unique characteristics.

The soils of the project area formed to their current composition over the past 10,000 years or so; since glacial melting at the end of the last ice age. Soils formed from glacial deposits vary in composition depending on the rock type over which the glacier travelled. Since glaciers advance and retreat with time, the composition and depositional environment of the parent material can be quite complex. Overall, the texture of soil produced in glacial deposits reflects the mode and distance of transport as well as the type of rock scoured. Shale and limestone scouring tends to produce a soil with relatively more clay and silt-size materials, whereas igneous and metamorphic rocks produce mostly sandy soils. Deposits beneath the ice usually result in finer textured, denser materials, whereas outwash and front and side deposits are generally coarser. Furthermore, glacial till, glaciofluvial and glaciolacustrine sediments often

occur in close association. With time, soil horizons, or “zones within the soil that parallel the land surface and have distinctive physical, chemical and biological properties” develop (Holliday 2004:3). Soil horizons together, form a profile; a vertical arrangement of horizons seen in a two-dimensional arrangement (what we see during observations).

The soils of VC vary considerably across the County, with glacial surface deposits (i.e., drumlins, eskers, etc.) and deep, well-drained soils (Gillespie et al. 1981). The only limitations associated with the soils are depressional, wet and heavy areas and stoney areas of excessive drainage. The project area is comprised of a single soil type (Solmesville clay loam) but is closely situated to a number of others (Otonabee loam, Simcoe clay, Cramahe gravel, and muck) (Table 3).

Table 3. Soil characteristics of the project and immediately surrounding area.

Soil Type	Texture	Topography	Drainage	Great Group
Solmesville clay loam (Socl)	few stones	undulating	imperfect	Gray-Brown Podzolic
Otonabee loam (Ol)	moderately stoney	rolling to hilly	good	Brown Forest
Simcoe clay (Sic)	stonefree	level	poor	Dark Gray Gleisolic
Cramahe gravel (Cg)	very stoney	hilly	excessive	Brown Forest
Muck	stonefree	depressional	poor	Organic

Hydrology. The modern water courses we see today evolved as their ancestral waterways and their tributaries adjusted to the retreat of the Champlain Sea, and to a lesser degree, Lake Iroquois. During glacial melt and ice retreat at the end of the Pleistocene and beginning of the Holocene periods, there was a much larger flow of water through the project area than at present and on several occasions, rivers shifted into new channels. However, by approximately 8,000 years ago, modern drainage patterns were established (Kennedy 1970).

The project areas are all located within the larger St. Lawrence watershed, and is drained via a number of meandering waterways (Map 1). Watersheds are typically defined by the topography of the surrounding landscape and includes such factors as shape, contours and elevations. They are comprised of streams, creeks, brooks, rivers, lakes, ponds, wetlands, estuaries, uplands, forests and meadows and also shorelines.

Present within, or within relative close vicinity to the project area today are lakes (i.e., Goose Lake, Balsam Lake, Pigeon Lake, etc.) rivers (i.e., Scugog River, Pigeon River, etc.), creeks and

streams (i.e., McLaren Creek, Stony Creek, Emily Creek, Mariposa Brook, etc.) and a number of low-lying and wet areas identified as marsh or swamp. Although the geography of the area has been largely shaped by the geomorphology of the region, many of these watersheds have been altered by human intervention; a by-product of development.

Water routes played a very important role in the early development of Canada and served as a transportation route for pre-contact First Nations groups prior to European arrival. These water sources were used to traverse the interior of the province prior to the construction of railways and roads. The potential for the discovery of archaeological resources increases drastically in particularly difficult areas along these routes, such as at rapids or chutes, where a portage was necessary. In addition, the shores of rivers and creeks were particularly attractive for temporary and semi-permanent settlement, especially in areas of the shore that were easily accessible by water. These areas were of particular interest, not only for their transportation value, but for access to potable water and foodstuffs, especially fish. The presence of secondary water sources, including permanently or seasonally inundated swamps, offered access to a variety of resources, including migratory birds, rice, and reeds for basket-making.

Climate. Modern climatic variation depends almost entirely upon location and human impacts on the environment. The PA, located in southern Ontario, is heavily influenced by the modifying factor of the Great Lakes; particularly Lake Ontario. The Great Lakes tend to add moisture to the air in the autumn and winter while at the same time protecting the region from the worst of the cold during the winter months, and during the spring and summer they act to moderate the temperature of the region. This produces an ideal environment for agricultural practices as the growing season tends to be longer and the cold months not as harsh as throughout the remainder of Canada.

1.4.3 Previous Archaeological Assessments

Archaeological research within Ontario is often limited to discoveries made during development activities. However, this does not necessarily reflect the known and unknown, yet unrecorded archaeological history of the area. Throughout the nineteenth and early twentieth century, as Euro-Canadian settlers and loggers penetrated the forests and lakes of the region, some would encounter and collect evidence of past First Nations activities, in the form of stone and copper tools, or organic paraphernalia. This practice continued well into the twentieth century and is still carried out to this day by cottagers, tourists, and local residents, some who have amassed significant collections. Furthermore, there are oral references to evidence of pre-contact First Nations occupation made by the first Euro-Canadian settlers to the region, which sometimes results in sites being “recreationally” excavated by non-professional archaeologists.

With increased sensitivity towards the need to preserve cultural heritage within the Province, hundreds of archaeological projects have been recently undertaken within Ontario. Often initiated by development projects, including infrastructure development and improvement, subdivision applications, and construction activity, First Nations and early Euro-Canadian history of the region is being revealed.

A search of the database of archaeological assessments found that one archaeological assessment had been conducted within the PA. This was the Stage 1 background study undertaken for this project. It found that the property retained archaeological potential for both pre- and post-contact First Nations as well as historic Euro-Canadian cultural materials (P248-0332-2018).

1.4.4 Registered Archaeological Sites

The Ontario Ministry of Citizenship and Multiculturalism maintains a database (OASD) of all known registered archaeological sites in the Province. A search of the database within a one kilometre radius around the study area indicates the presence of three (3) registered archaeological sites (Table 4).

Table 4. Registered archaeological sites within a one kilometre radius.

Borden #	Site Name	Time Period	Affinity	Site Type	Development Status
BcGq-9	Kuypers	Post-Contact	Euro-Canadian	midden	
BcGq-11	Mason	Archaic, Late	Aboriginal	findspot	
BcGq-12		Post-Contact	Euro-Canadian	farmstead	No Further CHVI
BcGq-15	Carew	Post-Contact	Euro-Canadian	midden	No Further CHVI

The Kuypers site (BcGq-9) was first recorded by Paul Racher in 1998. The site consisted of a number of nineteenth century, Euro-Canadian artifacts including ceramics, glass, metal, buttons, pipes, brick, bone, shell, slate and wood. No other information is provided for this site within the database.

The Mason site (BcGq-11) is an Archaic period campsite, first noted by David Robertson in 2005. The site is situated within a wetland which is only accessible during dry times of the year. Robertson identified the lithic artifact as being a Late Archaic Crawford Knoll type projectile point made of Onondaga chert. No other cultural materials were noted.

BcGq-12 is an Euro-Canadian farmstead site comprised of historic ceramics and glass artifacts. No further archaeological work was recommended

BcGq-15 is an Euro-Canadian midden recorded by Shane McCartney in 2020. It consisted of ceramics, metal and glass. No further archaeological work was recommended.

1.4.5 Historical Plaques

Aside from the presence of nearby registered archaeological sites, other indicators of the presence of extant archaeological remains are the proximity of historical plaques to the study area that commemorate important events in a region's past, whether it be the birth of an individual, the site a specific battle, or the construction of a unique building. Generally, historical plaques and markers point to a specific locale on the landscape that can be visited by the public. Although plaques and markers may not be placed in the exact location that the event has occurred, generally it is in close proximity, taking into consideration access to the public. In Ontario, historical plaques may be erected by the federal government through the Historic Sites and Monuments Board of Canada (HSMBC), the Ontario Heritage Trust (OHT), and local heritage agencies or historical societies. There are no historical plaques or markers within the study area.

1.4.6 Summary

Archaeological and cultural heritage work conducted in the immediately surrounding area has not provided any evidence of archaeological remains. However, the physical setting of the project area indicates that it may retain potential for extant cultural materials associated with pre-contact First Nations and Euro-Canadian settlement in the area.

Pre-contact First Nations groups migrated across Ontario, likely following the ice sheet as it receded northwards and adapting to the changing environment. The newly exposed landscape would have been a productive ecozone, with large numbers of terrestrial and marine mammals, birds, insects and vegetation populating the margins. This biomass would have been considerable and would have offered a readily available food source for migrating populations. Archaeological and cultural heritage work conducted in the surrounding area has provided evidence of archaeological remains, dating back to the Late Archaic period and extending into the Historic period.

2.0 FIELD METHODS

A Stage 2 property assessment was undertaken on the proposed project area in accordance with the recommendations forwarded in the *Stage 1 Archaeological Assessment, Proposed Reconstruction and Roadway Widening on Angeline Street from Colorne Street to Roosevelt Street City of Kawartha Lakes, Formerly Township of Ops, Victoria County*. This study stated:

A Stage 2 archaeological assessment will be conducted by a licensed consultant archaeologist using the test pit survey method at 5 m intervals in all areas along the corridor which have not been recently ploughed or do not have appropriate conditions for pedestrian survey at the time of the Stage 2 assessment (as illustrated by the areas marked in red on Maps 9 and 10). Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts be recovered their location should be recorded with a GPS unit and test pit intervals reduced to 2.5 metres within 5 metres of the positive test pit, as well as a one-metre test unit if necessary;

No further archaeological assessments are recommended for areas which have been determined to be disturbed (as illustrated by the areas marked in yellow on Map 9);

and,

The Stage 2 archaeological assessment will follow the requirements set out in the 2011 Standards and Guidelines for Consultant Archaeologists (MTC 2011).

As a result of the above recommendations, the Stage 2 property survey was undertaken by The Central Archaeology Group Inc. on November 25 and 26, 2021.

This report was submitted to the MTCS on April 21, 2021. It has not yet been reviewed by the MTCS as of May 31, 2022.

Section 2.1 of the *Standards and Guidelines for Consultant Archaeologists* (2011:28-30), states that the entire property, including lands immediately adjacent to built structures (both intact and ruins), must be surveyed. However, it is further stated that survey is not required where:

- 1) lands are evaluated as having no or low potential based on the Stage 2 identification of physical features of no or low archaeological potential, including but not limited to: permanently wet areas; exposed bedrock; and, steep slopes (>20°) except in locations likely to contain pictographs or petroglyphs;

- 2) lands are evaluated as having no or low potential based on the Stage 2 identification of extensive and deep land alteration that has severely damaged the integrity of archaeological resources;
- 3) lands have been recommended to not require Stage 2 assessment by a Stage 1 report, where the Ministry has accepted the Stage 1 report into the Ontario Public Register of Archaeological Reports;
- 4) lands are designated for forest management activity without potential for impacts to archaeological sites, as determined through the Stage 1 forest management plans process (see section 1.4.3);
- 5) lands are formally prohibited from alteration such as areas in an environment easement, restrictive setback, or prohibitive zoning, where the constraint prohibits any form of soil disturbance. (Open space and other designations where allowable uses include land alterations must be surveyed.); and,
- 6) it has been confirmed that the lands are being transferred to a public land-holding body, e.g., municipality, conservation authority, provincial agency. (This does not apply to lands which a future transfer is contemplated but not yet confirmed.)

Furthermore, if the project area has been identified as needing a property survey, the survey should be undertaken when the weather and lighting conditions permit good visibility of land features. Survey should *not* take place when weather and lighting conditions (e.g., snow cover, frozen ground, heavy fog) reduce the chance of finding evidence of archaeological resources. During survey a Global Positioning System (GPS) should be used to record the locations of all diagnostic artifacts; sufficient artifacts to provide an estimate of the limits of the archaeological site; and all fixed reference landmarks. All field activities must be mapped in reference to fixed landmarks, survey stakes and development markers and all mapping must be accurate to five metres or to the best scale available. Photo-document examples of all field conditions encountered. Do not use heavy machinery to remove soil, except when removing sterile or recent fill covering areas where it has been determined that there is the potential for deeply buried or sealed archaeological sites (e.g., in urban areas, floodplains).

In addition to the above, Section 7.8.1.2 further posits that detailed and explicit descriptions be provided for:

- a. How each standard was addressed for property survey generally (Section 2.1, MTCS 2011:28-30).

Areas identified as retaining archaeological potential (Maps 2 and 3) were subject to a test-pit survey at five metre intervals (Maps 4 and 5).

Survey took place under suitable lighting conditions and there was no heavy fog or excessive precipitation. GPS co-ordinates taken on a Trimble GeoXH handheld GPS unit with Hurricane Antenna (using datum NAD 1983).

Field activities were mapped with the Trimble GeoXH handheld GPS unit, which after post-processing, provided accuracy of co-ordinates of less than 100 cm deviation. Photographs were taken of field conditions (Maps 4 and 5; Images 2 to 9) and a discussion of these can be found within the *Results* sub-section of this section of the report (Table 7). Heavy machinery was not utilized by The Central Archaeology Group Inc. for this project.

b. How each standard was addressed for pedestrian survey and test pit survey (Section 2.1.1, MTCS 2011:30-31).

All of the land recommended for a Stage 2 property survey was situated along Angeline Street North and ploughing could not be undertaken. 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 metres (MTCS 2011:31–32). Given the presence of multiple indicators of archaeological potential in the vicinity of the study area (e.g. water source), a five metre interval was adopted for the property assessment.

In accordance with Section 2.1.2 of the *Standards and Guidelines for Consultant Archaeologists*, each test pit was excavated into the first five cm of subsoil or to bedrock (MTCS 2011:32). The resultant pits were then examined for stratigraphy, cultural features and/or evidence of fill. The soil from each test pit was screened through 6 mm mesh and examined for archaeological materials. 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 (MTCS 2011:32).

No cultural materials were encountered.

c. Address any differences in approach for areas possessing different conditions.

Not applicable.

d. How each standard was addressed where alternative methods acceptable through guidelines of special conditions were used.

No alternative methods were applied during the Stage 2 property assessment.

Finally, Section 7.8.1.3 (MTCS 2011:137) requests estimates of the percentage of each of the following be provided:

a. The property surveyed, by coverage and survey interval.

Area of Stage 2 Assessment : 100%

Property assessed by test pit survey at five metre intervals: 20%

Property assessed by pedestrian survey at five metre intervals: 0%

Property not assessed because of areas of no archaeological potential: 80%

b. The property not surveyed because there were areas of no or low archaeological potential.

The only areas not surveyed were the roadway and intersections.

c. The property where standard survey intervals could not be maintained due to pockets of exposed bedrock or other physical constraints.

Not applicable.

2.1 Results

The Stage 2 archaeological assessment of the Project Area was conducted on November 25 and 26, 2021 under the field direction of Laura McRae, MA (P248). At no time were the weather or lighting conditions detrimental to the observation or recovery of archaeological resources.

The project area was accessed via Angeline Street North.

Soil colours were identified using *Munsell Soil-Color Charts* (2009) to ensure uniformity in recording. Colours were noted when soils were freshly excavated and slightly damp. Although compaction was based on a slightly modified version of the clay and sand density tests provided on the Geotechnical Gauge by W. F. McCollough. Where the clay density test by W. F. McCollough identified six clay consistencies, only three consistency classifications for clay were used during the course of investigations, which included: loosely compacted, moderately compacted, and densely compacted. A comparison of the two methods is provided in Table 5. With sand, the Geotechnical Gauge by W. F. McCollough provided five soil types and the associated field test, whereas this was reduced to three categories for the purposes of this study as well, which included loosely compacted, moderately compacted, and densely compacted. A comparison of the two methods is provided in Table 6.

Table 5. Comparison of W. F. McCollough and CAGI clay compaction classification.

W.F. McCollough		CAGI
Clay Consistency	Thumb Penetration	CAGI Classification
Very Soft	Easily penetrated several inches by thumb. Exudes between thumb and fingers when squeezed in hand.	LOOSELY COMPACTED
Soft	Easily penetrated one inch by thumb. Molded by light finger pressure.	LOOSELY COMPACTED
Medium Stiff	Can be penetrated over 1/4" by thumb with moderate effort. Molded by strong fingers pressure.	MODERATELY COMPACTED
Stiff	Indented about 1/4" by thumb but penetrated only with great effort.	MODERATELY COMPACTED
Very Stiff	Readily indented by thumbnail.	DENSELY COMPACTED
Hard	Indented with difficulty by thumbnail.	DENSELY COMPACTED

Table 6. Comparison of W. F. McCollough and CAGI sand compaction classification.

W.F. McCollough		CAGI
Sand Consistency	Thumb Penetration	CAGI Classification
Very Loose Sand	Easily penetrated with 1/2" reinforcing rod pushed by hand.	LOOSELY COMPACTED
Loose Sand	Easily penetrated with 1/2" reinforcing rod pushed by hand.	LOOSELY COMPACTED
Medium Dense Sand	Penetrated a foot with 1/2" reinforcing rod driven with a 5lb hammer.	MODERATELY COMPACTED
Dense Sand	Penetrated a foot with 1/2" reinforcing rod driven with a 5 lb hammer.	MODERATELY COMPACTED
Very Dense Sand	Penetrated only a few inches with 1/2" reinforcing rod driven with a 5 lb hammer.	DENSELY COMPACTED

The frequency of roots and stones within a soil horizon was divided into: a) small or low percentage; b) medium or moderate percentage, and; C) high or heavy percentage. This system of classification is based on the inclusions frequency chart within the Geotechnical

Gauge by W. F. McCollough, where a 3% to 15% frequency of roots and stones within the soil horizon was determined to be small or low; 15% to 40% was determined to be medium or moderate, and; 40% and above was considered high or heavy.

Within the areas of test-pitting, stratigraphy was typically comprised of three levels: O horizon, A horizon and B horizon. Disturbance, in the form of aggregate materials and fill, was also noted along the corridor.

The humus level was between 4 and 9 cm thick and moderately compacted with a medium percentage of small- to medium-sized pebbles and a high percentage of rootlets. It had a sandy clay texture and was typically dark gray (7.5YR 4/1) to dark brown (7.5YR 3/3).

The A horizon (topsoil level) was gray (7.5YR 5/1) to brown (7.5YR 4/3) ranged in thickness between 14 and 36 cm. The level was also moderately compacted and there were a medium percentage of pebbles and rootlets. Its texture was comprised of sandy clay.

Subsoil was more densely compacted and sandy clay to clay. It was gray (7.5YR 6/1) to light brown (7.5YR 6/4). The soils had a low percentage of small-sized pebbles. No rootlets were noted within this level.

Maps 4 and 5 shows the location of the points from which the photographs were taken. A description of each photograph is provided in the table below (Table 7).

Table 7. Photograph and description.

Photo #	Description
2	Viewing north along Angeline Street North from approximately 180 metres north of Kent Street West.
3	Viewing south along Angeline Street North towards Kent Street West.
4	Viewing north along Angeline Street North towards a parking lot.
5	Viewing north from the parking lot towards the school grounds.
6	Viewing northeast across Kent Street West.
7	Viewing south along Angeline Street North from north of Colborne Street West.
8	Test pit from the east side of Angeline Street north, close to the hospital. This test pit was 32 cm deep. The soils were all sandy clay and moderately to densely compacted. Aggregate materials were noted throughout. No cultural materials were recovered.

9	Test pit from the east side of Angeline Street North, north of Chadwin Drive. The humus level was moderately compacted with a sandy clay texture. It was 6 cm thick. Topsoil was 21 cm thick with a medium percentage of small pebbles. It was a moderately compacted sandy clay. Subsoil was very clayey and densely compacted. No cultural materials were recovered.
---	--

3.0 ANALYSIS AND CONCLUSIONS

Section 7.8.2, *Record of Finds*, of the *Standards and Guidelines for Consultant Archaeologists* (2011:137-138), formulated by the Ontario Ministry of Citizenship and Multiculturalism requires that this section contain all finds but for non-archaeological cultural heritage features (i.e., built heritage, cultural heritage landscapes) unless those features are part of or relevant to the archaeological record (MTCS 2011:137).

The Stage 2 archaeological assessment for Oshawa Windfields Connection Project did not recover any archaeological or cultural materials.

Further to the above, the standard that is articulated in Section 7.8.3.2b of the standards and guidelines (MTCS 2011:139) requires that this section of the report include a comparison against the criteria in Stage 2 Property Assessment to determine whether further assessment is required. Those elements of the standard are addressed below.

The standard that is specified in Section 7.8.1.2a of the standards and guidelines (MTCS 2011:137) requires that this section of the Stage 2 report provide detailed and explicit descriptions of how each standard was address for property survey. The standard that is articulated in Section 2.1.1 of the standards and guidelines (MTCS 2011:28) requires that the entire property be included in the survey.

Area of Stage 2 Assessment : 100%

Property assessed by test pit survey at five metre intervals: 20%

Property assessed by pedestrian survey at five metre intervals: 0%

Property not assessed because of areas of no archaeological potential: 80%

Accordingly, the survey satisfies this standard.

The standard that is articulated in Section 2.1.3 of the standards and guidelines (MTCS 2011:29) requires that the property be surveyed when weather and lighting conditions permit good visibility of land features. The weather and lighting conditions that pertained during the assessment that is described within this report satisfies this standard. The standard that is articulated in Section 2.1.5 of the standards and guidelines (MTCS 2011:29) requires that assessment reports map all field activities (e.g., extent and location of field methods, survey intervals) in reference to fixed landmarks, survey stakes and development markers. The standard also requires that mapping must be accurate to a five metre scale or to the best scale available. The mapping in this report satisfies this standard.

As no archaeological resources were encountered, the assessment process as outlined by the Ministry of Citizenship and Multiculturalism may be considered complete. It is therefore recommended that the project area be cleared of archaeological concerns.

4.0 RECOMMENDATIONS

Based on the background research and the results of the property survey, the archaeological assessment has provided the basis for the following recommendations:

- 1) The Stage 2 archaeological assessment did not recover any material culture during survey activities. Consequently, significant pre-contact and historic First Nations or historic Euro-Canadian archaeological sites are unlikely to be found within the project area. It is therefore recommended that the project area be cleared of archaeological concerns.

Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Citizenship and Multiculturalism should be immediately notified.

The MCM is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, C. 0.18. The report is reviewed to ensure that 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 Citizenship and Multiculturalism, a letter will be issued by the ministry stating that there are no further concerns with regards 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 Archaeological Report referred to in Section 65.1 of the *Ontario Heritage Act*.

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

The *Cemeteries Act*, R.S.O. 1990 C. 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.

The licensee shall hold the archaeological collections, including copies of the study material and original notes generated during the course of research, in trust, unless it is transferred to an appropriate public institution as per the terms and conditions of holding a professional license.

6.0 BIBLIOGRAPHY AND SOURCES

Belden, H.

1881 *Illustrated Atlas of the County of Victoria, Ontario*. H. Belden and Co., Toronto.

Boyles, David

1897 Ontario Mounds. *Annual Archaeological Report of Ontario*. 1896-7:14-37.

Brunger, Alan G.

1975 The Cultural Landscape. In *Peterborough and the Kawarthas*, edited by P. Adams and C. Taylor, pp. 95-116. Heritage Publications, Peterborough.

Canada, Government of

2011 Atlas of Canada. Online resource, <http://atlas.nrcan.gc.ca/>, accessed Dec. 2011. Natural Resources Canada.

Central Archaeology Group Inc., The

2020 *Stage 1 Archaeological Assessment, Proposed Reconstruction and Roadway Widening on Angeline Street from Colborne Street to Roosevelt Street, City of Kawartha Lakes, Formerly Township of Ops, Victoria County*. Report on file with the Ministry of Citizenship and Multiculturalism (PIF# P248-0332-2018).

Chapman, D.F. and L.J. Putnam

1984 *The Physiography of Southern Ontario*. Third Edition. University of Toronto Press, Toronto.

City of Kawartha Lakes

2018 2018-71-CP *Design Services for Colborne Street West and Angeline Street North*. City of Kawartha Lakes, Lindsay.

Cole, Jean Murray

1993 *Origins: The History of Dummer Township*. Township of Dummer, Warsaw.

Cronin, Thomas M.

1977 Late-Wisconsin Marine Environments of the Champlain Valley. *Quaternary Research* 7:238-253.

Crozier, M.J.

1975 The Physical Landscape of Peterborough County. In *The Geography of the Peterborough Area*, edited by the Geography Department, pp. 7-12. Trent University, Department of Geography, Occasional Paper 1, Peterborough.

Curve Lake First Nation

2016 *Curve Lake First Nation Archaeological Protocol*. Curve Lake First Nation, Curve Lake.

Damkjar, Eric

1990 *The Coulter Site and Late Iroquoian Coalescence in the Upper Trent Valley*. Occasional Papers in Northeastern Archaeology No. 2. Copetown Press, Dundas.

Deal, M. and D. Rutherford

1991 The distribution and diversity of Nova Scotian Archaic sites and materials: a re-examination. Paper presented at the Annual Meeting of the Canadian Archaeological Association, St. John's.

Dean, William

1994 The Ontario Landscape, circa A.D. 1600. In *Aboriginal Ontario*, edited by Edward S. Rogers and Donald B. Smith, pp. 3-20. Ontario Historical Studies Series, Government of Ontario, Dundurn Press, Toronto.

Ellis, C.J., I.T. Kenyon and M. Spence

1990 The Archaic. In *The Archaeology of Southern Ontario to A.D. 1650*, Chris Ellis and Neal Ferris, eds. pp 65-124. London Chapter of the Ontario Archaeological Society Occasional Publications No. 5, London, Ontario.

Gillespie, John E. and C.J. Acton

1984 *Soil Survey of Peterborough County*. Report No. 45 of the Ontario Soil Survey. Agriculture Canada Research Branch. Ontario Ministry of Agriculture and Food. Department of Land Resource Science. University of Guelph, Guelph.

Goodyear, A.C.

1989 Tool Kit Entropy and Bipolar Reduction: A Study of Interassemblage Lithic Variability Among Paleo-Indian Sites in the Northeastern United States. *North America Archeologist* 14:1-24.

Government of Ontario

1990 *The Environmental Assessment Act*, R.S.O. 1990. Queen's Printer, Toronto.

1990 *The Heritage Act*, R.S.O. 1990. Queen's Printer, Toronto.

Hakas, D.K.

1967 *Trent Waterway Archaeological Survey*. Department of Anthropology, Trent University, Peterborough.

Holliday, Vance T.

2004 *Soils in Archaeological Research*. Oxford University Press, Oxford.

Jackson, Lawrence

1980 Dawson Creek: An Early Woodland Site in South-Central Ontario. *Ontario Archaeology* 33:13-32.

Johnston, Richard

1968 *The Archaeology of the Serpent Mounds Site*. ROM Art and Archaeology Occasional Paper 10, Toronto.

Kaszycki, C.A.

1985 History of glacial Lake Algonquin in the Haliburton region, south-central Ontario. In *Quaternary evolution of the Great Lakes*, edited by P.F. Karrow and P.E. Calkin, pp. 109 - 123. Geological Association of Canada, Special Paper 30, St. John's.

Kennedy, Clyde

1970 *The Upper Ottawa Valley*. Renfrew County Council, Pembroke.

Kershaw, Linda

2001 *Trees of Ontario*. Lone Pine Publishing, Edmonton.

2002 *Wildflowers of Ontario*. Lone Pine Publishing, Edmonton.

Larsen, Curtis E.

1987 Geological History of Glacial Lake Algonquin and the Upper Great Lakes. U.S. Geological Survey Bulletin 1801, Denver.

Leahey, A.

1961 The Soils of Canada from a Pedological Viewpoint. In *Soils in Canada: Geological, Pedological, and Engineering Studies*, edited by Robert F. Legget, pp. 147-157. The Royal Society of Canada, Special Publications No. 3. University of Toronto Press, Toronto.

Loring, Stephen

1980 Paleo-Indian Hunters and the Champlain Sea: a Presumed Association. *Man in the Northeast* 19:15-41.

Mason, R.J.

1981 *Great Lakes Archaeology*. Blackburn Press, New Jersey.

Matthews, John A.

1992 *The Ecology of Recently Deglaciated Terrain: A Geoecological Approach to Glacier Forelands and Primary Succession*. Cambridge University Press, Cambridge.

McGhee, Robert and James A. Tuck

1974 *An Archaic Sequence from the Strait of Belle Isle, Labrador*. National Museum of Man, Mercury Series, Archaeological Survey of Canada Paper No. 34, Ottawa.

Ministry of Tourism, Culture and Sport

2011 *Standards and Guidelines for Consultant Archaeologists: Heritage Policy and Program Development*, Toronto.

Pielou, E.C.

1991 *After the ice age: the return of life to glaciated North America*. University of Chicago Press, Chicago.

Peterborough Historical Atlas Foundation Ltd.

1975 *Illustrated Historical Atlas of Peterborough County, 1825 to 1875*. The Peterborough Historical Atlas Foundation Ltd., Canada.

Ramsden, Carole Nasmith

1989 *The Kirche Site: A 16th Century Huron Village in the Upper Trent Valley*. Occasional Papers in Northeastern Archaeology No. 1 Copetown Press, Dundas.

Ramsden, Peter

1990 The Hurons: Archaeology and Culture History. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by Christopher Ellis and Neal Ferris, pp. 361-384. Occasional Publications of the London Chapter of the Ontario Archaeological Society, London.

Rommel, Tarmo

2009 An Introduction to the Algonquin Park Ecosystem. In *Algonquin Park: the Human Impact*, edited by David Euler and Mike Wilton, pp. 14-35. Algonquin Eco Watch, Espanola.

Robinson, B.

2006 Burial Ritual, Technology and Cultural Landscape in the Far Northeast: 8600 - 3700 BP. In *The Archaic of the Far Northeast*, edited by D. Sanger and M.A.P. Renouf, pp. 341-382. The University of Main Press, Orono.

Sanger, David

2006 An Introduction to the Archaic of the Maritime Peninsula: the view from Central Maine. In *The Archaic of the Far Northeast*, edited by David Sanger and M.A.P. Renouf, pp. 221-252. The University of Main Press, Orono.

Spence, M.W., R.H. Phil and C.R. Murphy

1990 Cultural Complexes of the Early and Middle Woodland Periods. In *The Archaeology of Southern Ontario to A.D. 1650*, Chris Ellis and Neal Ferris, eds. pp. 125-170. London Chapter of the Ontario Archaeological Society Occasional Publications No. 5, London, Ontario.

Spence, Michael and J.R. Harper

1968 *The Cameron's Point Site*. ROM Art and Archaeology Occasional Paper 12, Toronto.

Stothers, David

1974 The East Sugar Island Burial Mound. *Pennsylvania Archaeologist* 44:20-25.

Suttie, Brent

2005 *Archaic Period Archaeological Research in the Interior of Southwestern New Brunswick*. Unpublished MA Thesis, Department of Anthropology, University of New Brunswick, Fredericton.

Sutton, Richard

1990 *Hidden Amidst the Hills: Middle and Late Iroquoian Occupations in the Middle Trent Valley*. Occasional Papers in the Northeastern Archaeology No. 3 Copetown Press, Dundas.

Trigger, Bruce G.

1976 *The Children of Aataensic: A History of the Huron People of 1660*. McGill-Queens University Press, Montreal.

Wright, Phillip

1990 Archaeological Assessment of Sites 416-9 (BiFv-9) and 416-10 (BiFv-10). Report on file, Ministry of Tourism, Culture and Sport, Toronto.

7.0 PLANS

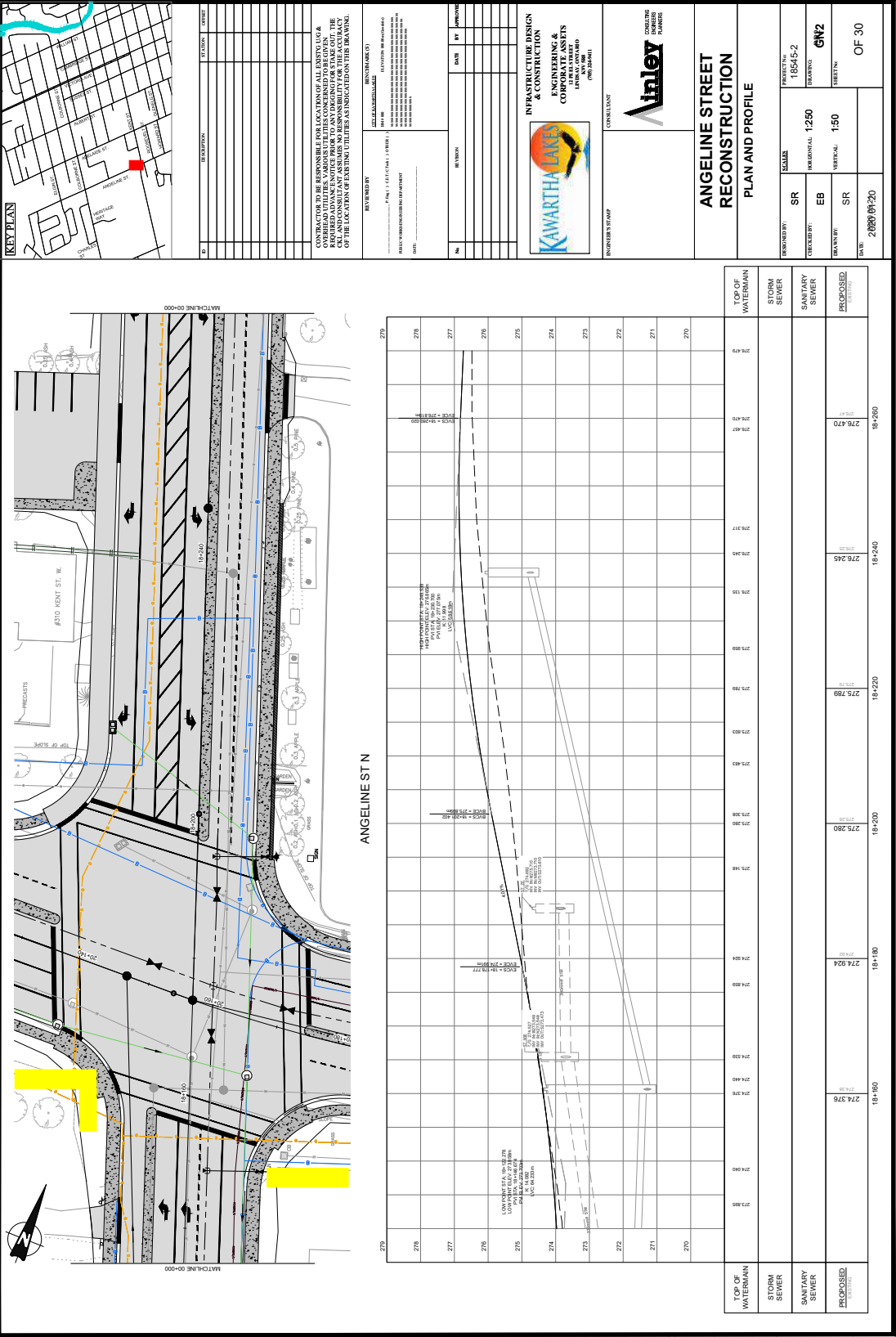


THE CENTRAL ARCHAEOLOGY GROUP INC.



Plan 3. Angeline Street North, Plan 3 (AG 2020).

ANGELINE STREET NORTH
STAGE 2 PROPERTY SURVEY



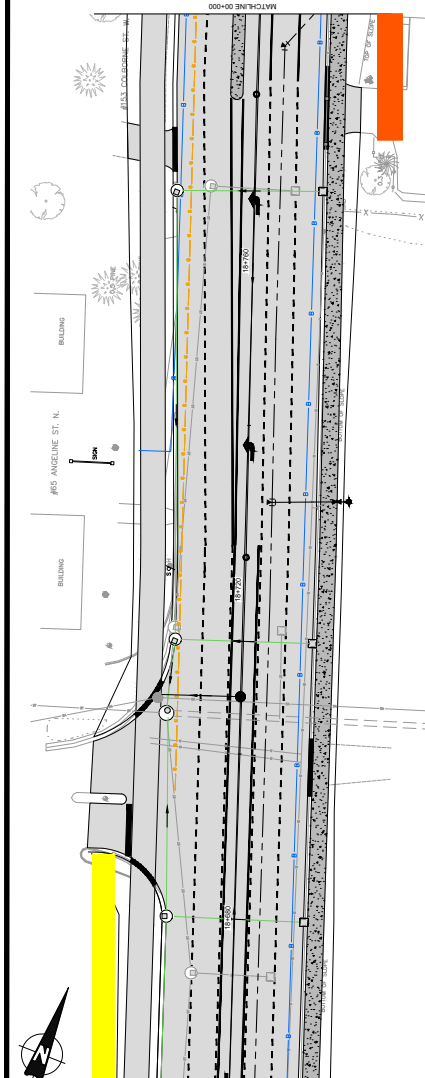
Plan 4. Angeline Street North, Plan 4 (AG 2020).

Plan 5. Angeline Street North, Plan 5 (AG 2020).

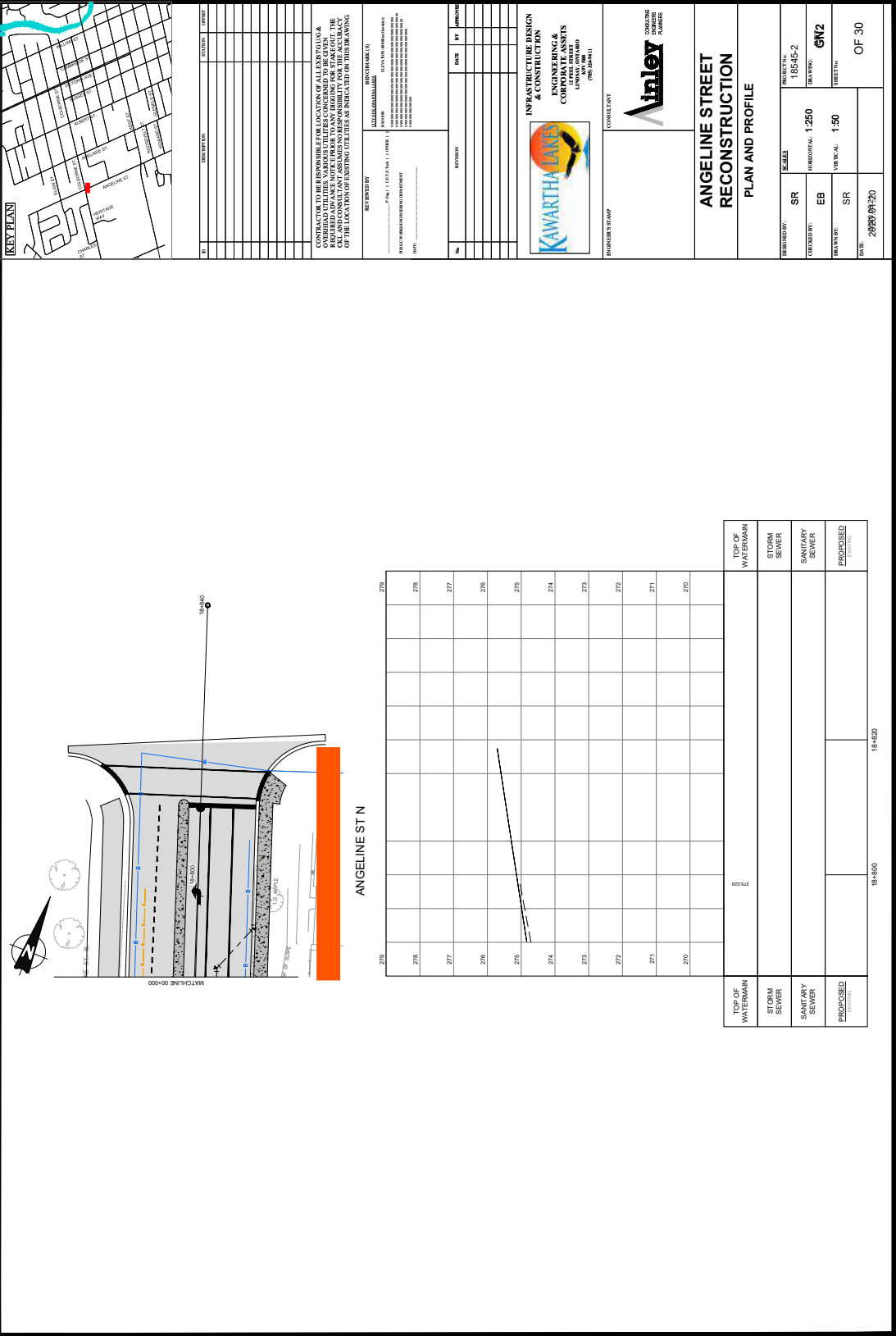
[illegible]

THE CENTRAL ARCHAEOLOGY GROUP INC.

Plan 7. Angeline Street North, Plan 7 (AG 2020).

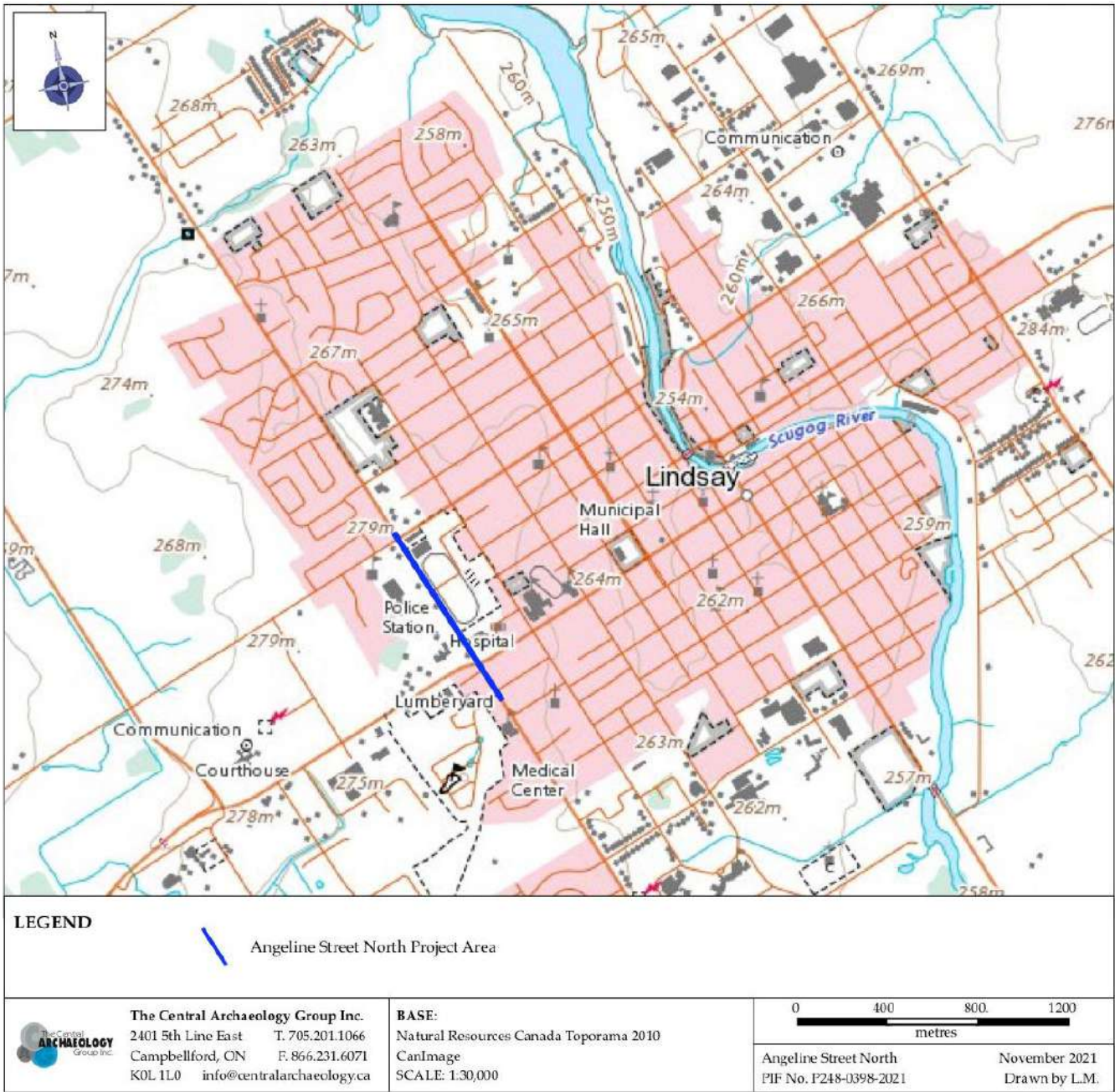


ANGELINE STREET NORTH
STAGE 2 PROPERTY SURVEY



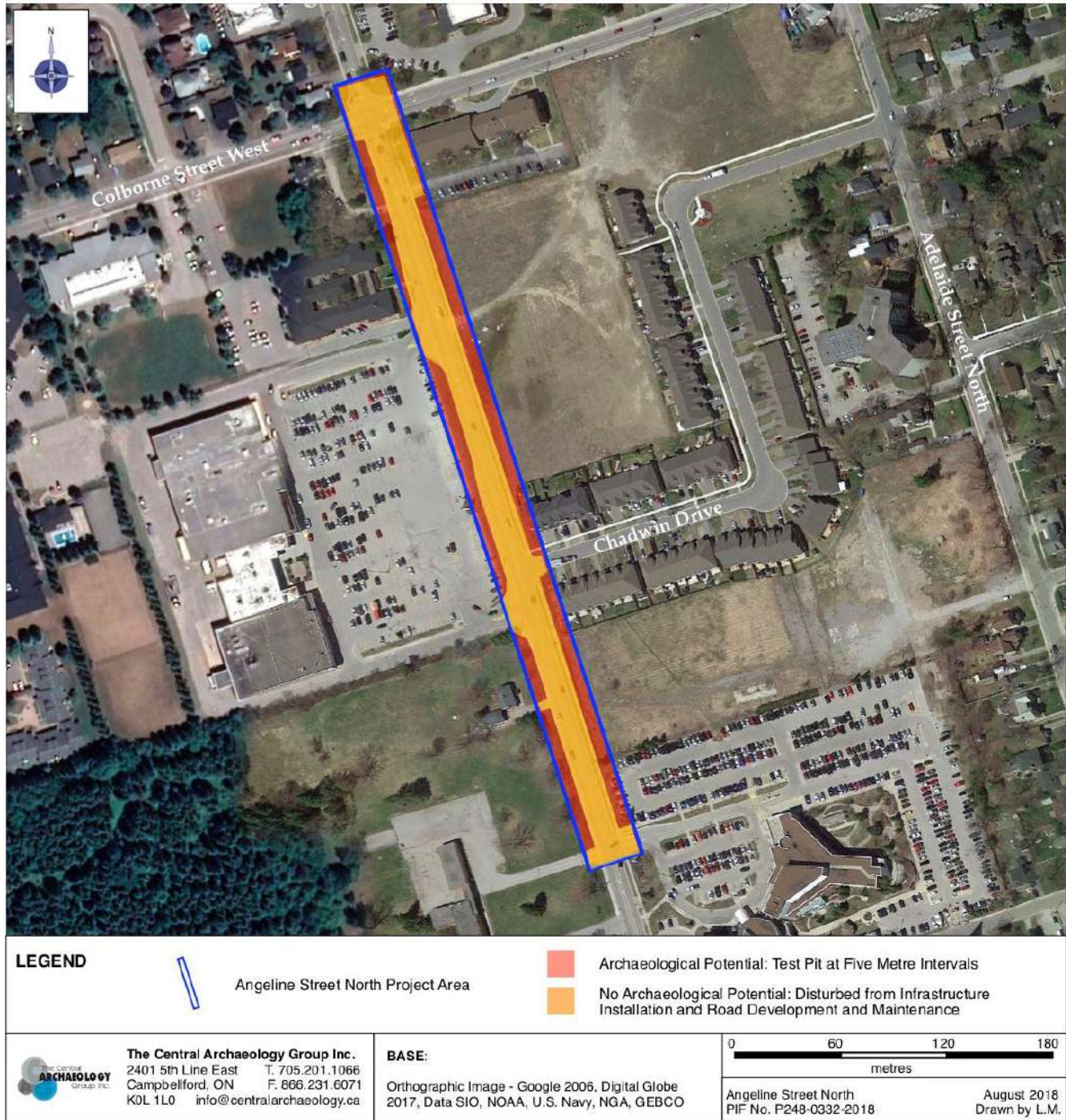
Plan 8. Angeline Street North, Plan 8 (AG 2020).

8.0 MAPS



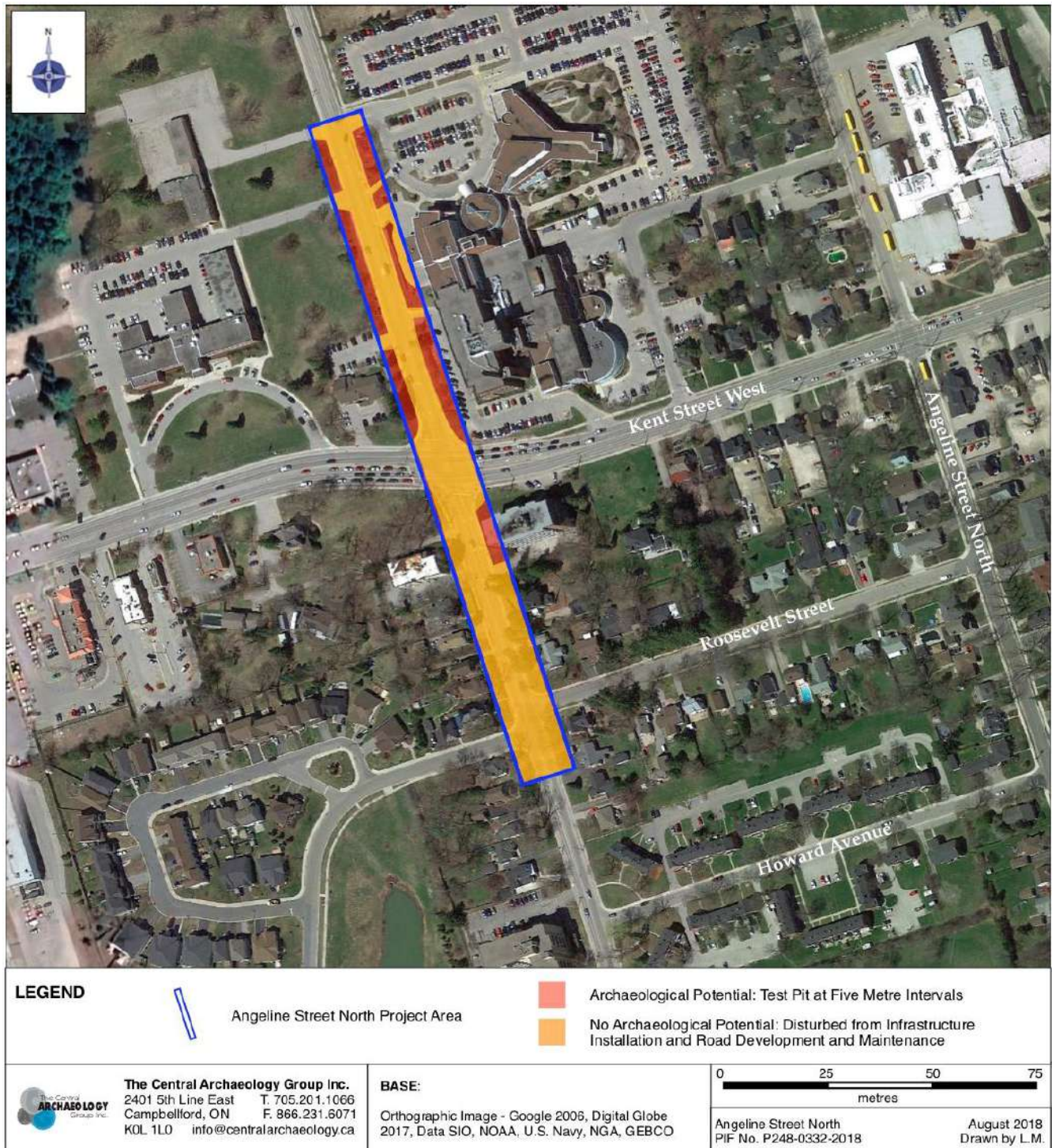
Map 1. Location of project area.

ANGELINE STREET NORTH
STAGE 2 PROPERTY SURVEY



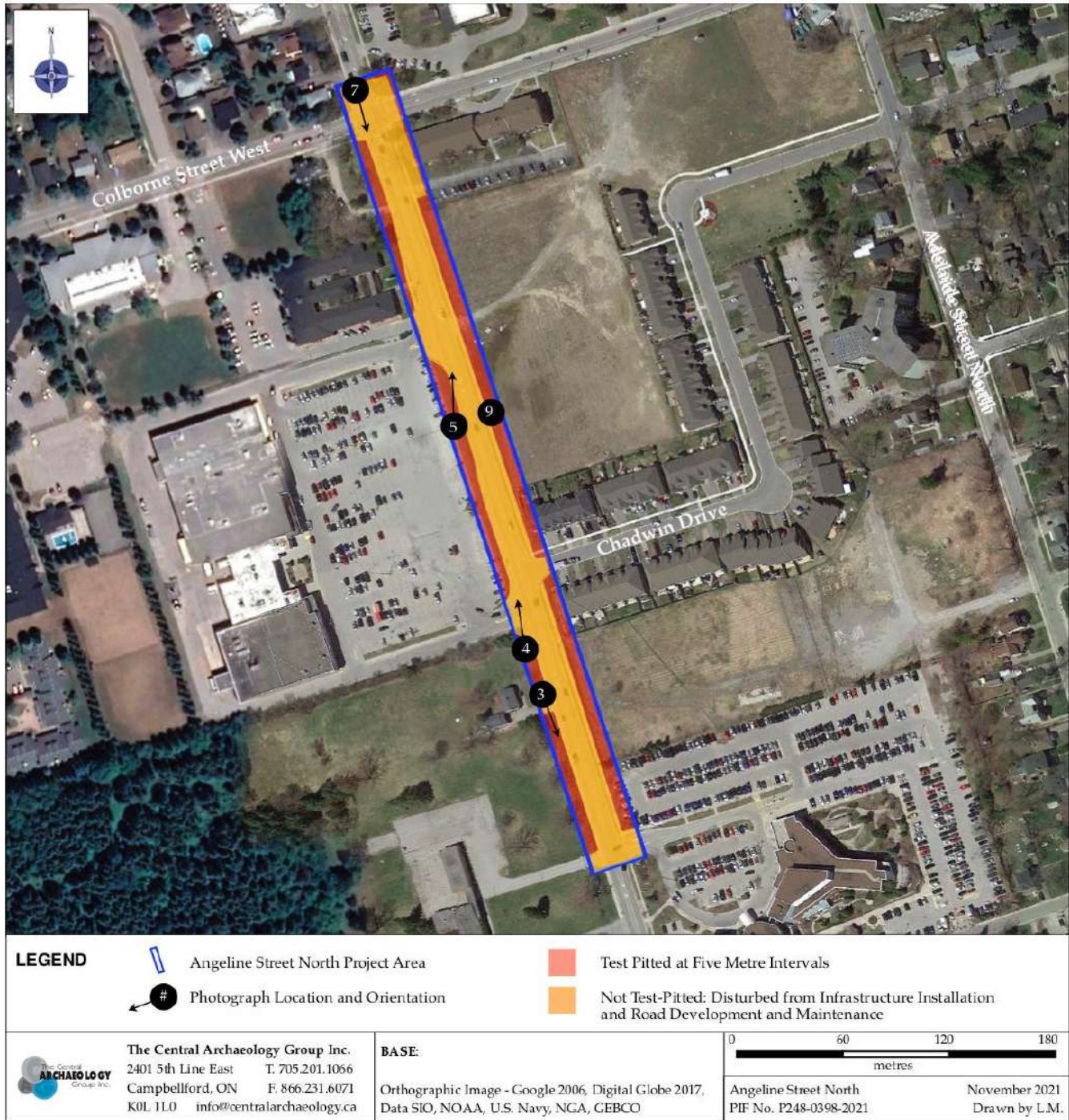
Map 2. Archaeological potential from the Stage 1 background study (CAGI 2022:48). Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.

ANGELINE STREET NORTH
STAGE 2 PROPERTY SURVEY



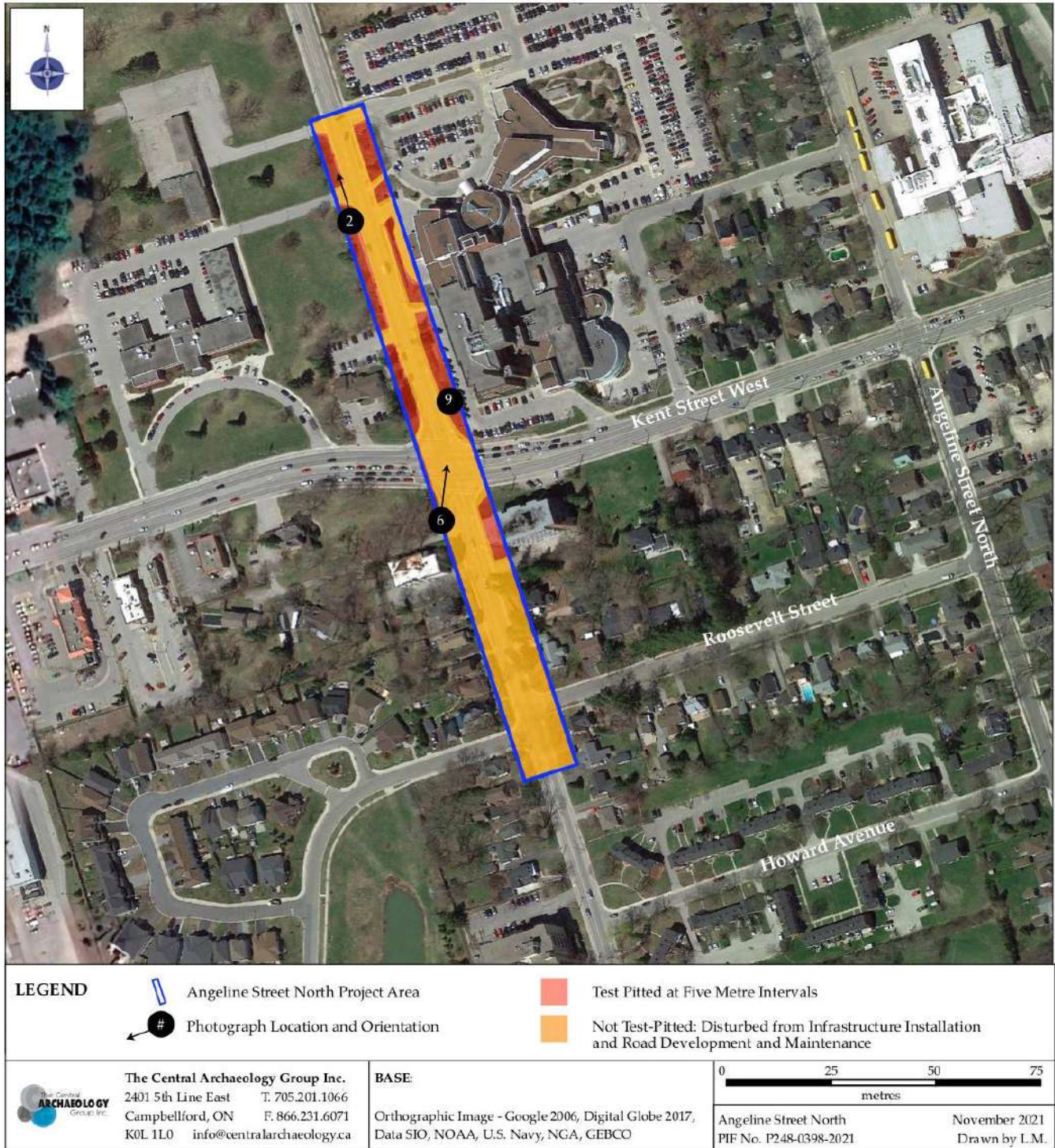
Map 3. Archaeological potential from the Stage 1 background study (CAGI 2022:48). Angeline Street North from 200 metres north of Kent Street West to the northernmost limits of the Project Area.

ANGELINE STREET NORTH
STAGE 2 PROPERTY SURVEY



Map 4. Results 1. Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.

ANGELINE STREET NORTH
STAGE 2 PROPERTY SURVEY



Map 5. Results 2. Angeline Street North from 200 metres north of Kent Street West to the northernmost limits of the Project Area.

9.0 IMAGES

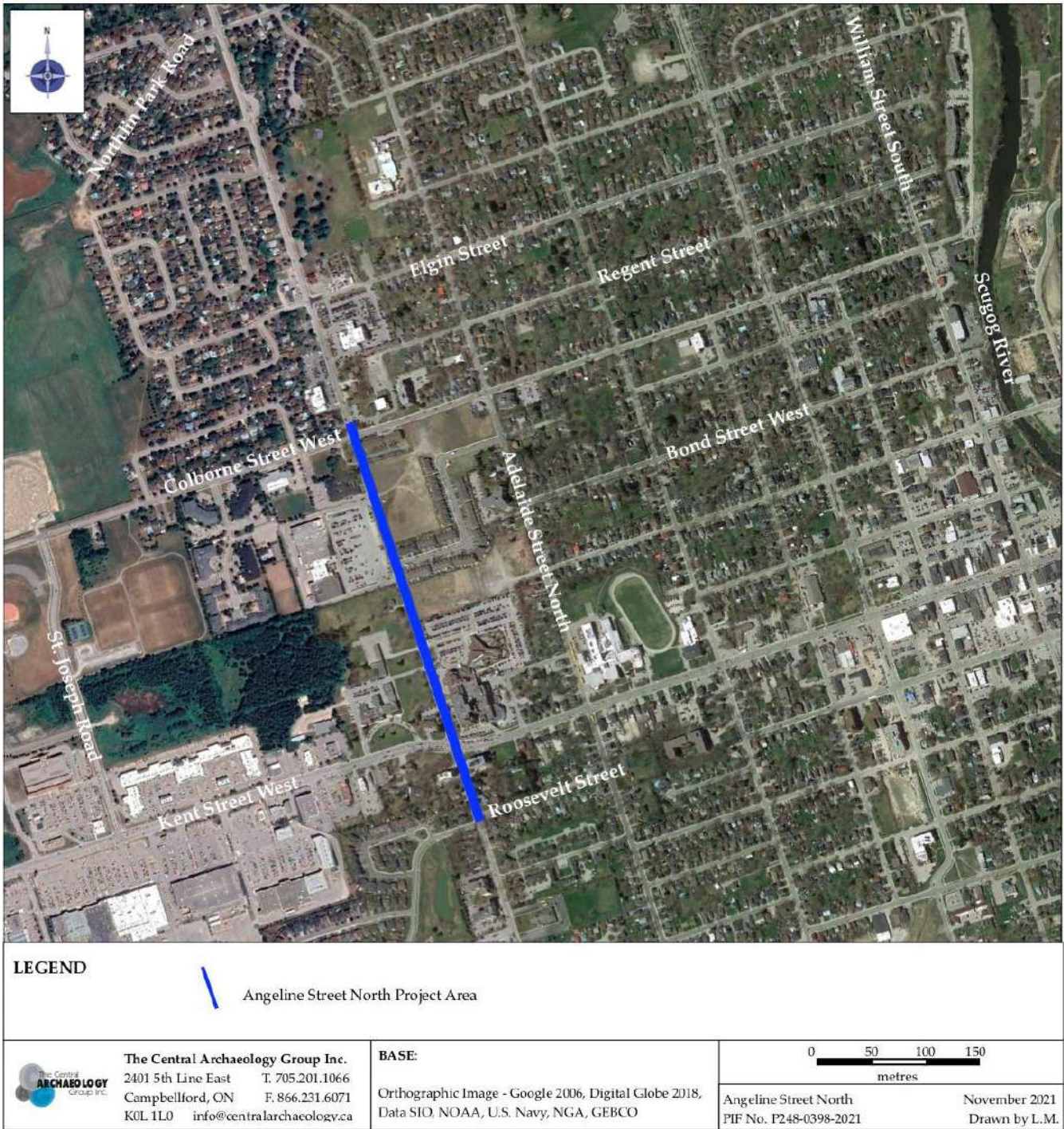


Image 1. Orthographic image of the project area (Google Earth 2018).









10.0 GLOSSARY OF TERMS

A Horizon - mineral horizon at or near the ground surface (topsoil). May be dark brown due to accumulated humus (Ah) or grey or lighter brown when clay, iron and humus have been leached out (Ae). It is most commonly disturbed by human activities.

Archaeology - is the scientific study of the physical evidence of past human societies recovered through excavation.

Archaeological Site - is a place in which physical evidence of past human activity is preserved and which has been, or may be, investigated using the discipline of archaeology.

Archaic Period - in Ontario is characterized by the appearance of ground stone tools, notched or stemmed projectile points, the predominance of less extensively flaked stone tools, increased reliance on local chert resources, a lack of pottery and smoking pipes, and an increase in the numbers and sizes of sites.

Atlatl - a tool used to throw spears faster and with more accuracy. It consists of a short pole with a handle at one end and a hook for engaging the spear in the other.

B Horizon - below the A Horizon (subsoil). It could be enriched with iron (Bf), with iron and organic matter (Bhf), with organic matter (Bh) or with clay (Bt). If saturated for extended periods, B horizons show signs of gleying or mottling (Bfg, Btg, Bg).

Bioturbation - results in changes to the nature, form, and arrangement of archaeological deposits and sediments as a result of biological activity in the ground. This includes root action, animal activity, and the degeneration of organic matter.

BP - Before Present. Years before present (1950), used in dating sites and/or artifacts from an archaeological site.

Borden Number - a borden number is an identifier given to an archaeological site in Canada. It was created by Charles E. Borden and contains four letters and one to several numbers.

Burial Goods or Burial Paraphernalia - items interred with an individual (or group) burial that may give clues to their social and/or economic and/or political position within their culture.

Chert - is a fine-grained, sedimentary rock, similar to flint. In antiquity, chert was one of the universally preferred materials for making stone tools.

Contact Period - refers to the period when European and First Nations peoples were first exposed to one another. In Ontario from 450 BP to 200 BP.

Cultural Resources - are sites, structures, landscapes, and objects of particular importance to a culture or community.

Diagnostic - a distinguishing characteristic serving to identify or determine the artifact.

Disarticulated - this occurs when bones are found separated at the joints.

Disturbed - refers to a study area that has recently been excavated or altered from its original characteristics.

Ecozone - classification system that defines different parts of the environment with similar geography, vegetation, animals, climate, topography and water sources.

Environmental Assessment Act - sets up a process for reviewing the environmental impact of proposed activities prior to the granting of government funds.

Erratic - large rock or boulder that differs from the surrounding rock and is believed to have been transported a long distance as a result of glacial action.

Excavation - is the systematic digging and recording of an archaeological site. **Flake** - is a fragment of stone removed from a core or from another flake.

Feature - is a collection of one or more contexts representing some human activity that has a vertical characteristic to it in relation to site stratigraphy.

Fluted - grooved or channeled. A fluted point is a projectile point which has had one or more long thinning flakes removed from the base along one or both faces.

Glaciofluvial - sediments laid down by glacial meltwater action (i.e., rivers or streams).

Ground Stone - is a stone artifact shaped by sawing, grinding, and/or polishing with abrasive

materials.

Historic Period - the period when written records become available.

Holocene - the most recent period. Began approximately 10,000 years ago following the end of the Pleistocene.

Knap - to shape a piece of stone material by striking it at specific angles. Term used by archaeologists to denote the manufacture of a lithic tool.

Lanceolate - lance-shaped, much longer than wide, widened at or above the base and opening to the apex.

Lithic - stone, or made of stone.

Maize - also known as corn, is a cereal grain that was first domesticated in Mesoamerica and then

spread throughout the American continents.

Mitigation - measures undertaken to limit the adverse impact of construction methods on archaeological sites or cultural resources.

Ochre - used as a natural pigment, colour is commonly reddish-brown to yellow.

Ontario Heritage Act - allows municipalities and the provincial government to designate individual properties and districts in Ontario as being of cultural heritage value or interest.

Palaeoamerican Period - first evidence of human occupation in Ontario. This period is characterized by groups hunting large game and seasonal occupation along shore environments.

Pleistocene - an epoch within the Quaternary Period which began approximately 2,000,000 millions years ago and ended approximately 10,000 years ago. Immediately preceded the Holocene Period.

Projectile Point - is an artifact used to tip an arrow, atlatl dart, spear, or harpoon. Usually made of chipped or ground stone, however, some are also made of copper.

Stage 1 Background Study - The purpose of a Stage 1 assessment is to investigate the cultural land use, archaeological history, and the present conditions of a property. The majority of the Stage 1 process is conducted in the office and involves the examination of records such as historic settlement maps, land titles, and documents, historical land use and ownership records, primary and secondary documentary sources, and the Ministry of Culture's archaeological site database. The study may also involve interviews with individuals who can provide information about the property and consultation with local First Nations communities. The background study is followed by a property inspection to examine geography, topography and current conditions, and to determine the potential for archaeological resources. Stage 1 background research is usually completed in conjunction with a Stage 2 property survey.

Stage 2 Property Survey - A Stage 2 property survey is undertaken if the Stage 1 background study finds that a property retains archaeological potential. It involves the documentation of archaeological resources by collecting artifacts and mapping cultural features. Depending on the nature of the property environment, two methods are employed in the survey: 1)

pedestrian survey on cultivable properties, and; 2) test-pit survey on properties not cultivable due to tree growth, rock content, etc.

Strata - are layers of rock, soil, cultural material, etc. with internally consistent characteristics that distinguish contiguous.

Stratigraphy - the layering of deposits on archaeological sites. Cultural remains and natural sediments become buried over time, forming strata.

Subsistence - obtaining food and shelter necessary to support life.

Survey - is used to accurately determine the terrestrial or three-dimensional space position of points and the distances and angles between them.

Woodland Period - is a period of time following the Archaic Period. Middle, and Late.