ORIGINAL REPORT

Stage 3 Archaeological Assessment

Location 10 (AkHa-28), Proposed Caledon Pit/Quarry, Lot 16, Concession 4 WSCR, Former Township of Caledon, County of Peel, Now the Town of Caledon, Peel Region, Ontario

Licensee: Michael Teal (P364)
PIF #: P364-0197-2022

Submitted to:

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19129150A-R03

July 10, 2024

Distribution List

One PDF - CBM Aggregates, a division of St. Marys Cement Inc. (Canada)

One PDF - Ministry of Citizenship and Multiculturalism

One PDF - WSP Canada Inc.

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Acknowledgements

We respectfully acknowledge that the Study Area is located in the traditional territory of multiple Indigenous groups, including the Mississaugas of the Credit First Nation, Six Nations of the Grand River (the Haudenosaunee), the Huron-Wendat Nation, and the Métis Nation of Ontario.

Executive Summary

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

Golder Associates Ltd. (Golder), now WSP Canada Inc. (WSP), was retained by CBM Aggregates, a division of St Marys Cement Inc. (Canada), to conduct a Stage 3 Archaeological Assessment (AA) of Location 10 (AkHa-28), a pre-contact Indigenous site located within the license boundary for the proposed Caledon Pit/Quarry (the Study Area; Map 1). The Stage 3 AA was conducted to meet the requirements of the *Aggregate Resources Act* R.S.O. 1990, c.A.8*. (*Government of Ontario 1990a)*,* and the Town of Caledon Official Plan and Zoning By-law Amendment under the *Planning Act,* R.S.O 1990, c.P.14 (Government of Ontario 1990b).

Golder previously completed a Stage 1 and 2 AA of the Study Area for the proposed Caledon Pit/Quarry under Project Information Number (PIF) P364-0164-2020 (Golder 2022). The area assessed is approximately 262 hectares (ha) located within part of Lots 15 to 17, Concession 4 West of Centre Road (WSCR), as well as part of Lot 16, Concession 3 WSCR, in the former geographic Township of Caledon, former County of Peel, now the Town of Caledon, Regional Municipality of Peel (Peel Region) (Map 1). It consists predominately of cultivated fields (203 ha) in addition to uncultivated farmland (i.e., pastures), farmstead/residential areas, and wooded areas (59 ha, combined).

The Stage 1 and 2 AA was conducted through a combination of pedestrian and shovel test pit survey and resulted in the identification of 29 new archaeological sites (Locations 1 through 29) (Golder 2022) as well as the re-location of the Cameron Site (AlHa-9), which was previously identified in 2001 (Archaeological Assessments Ltd. 2001). Of the 30 archaeological sites within the Study Area, a total of 14 were determined to have further cultural heritage value or interest and Stage 3 AA was recommended.

Location 10 (AkHa-28) is one of the 14 sites that was recommended for Stage 3 AA. It was identified through a pre-contact Indigenous Early Archaic Nettling projectile point (8000 - 6000 BC) findspot during the Stage 2 pedestrian survey of an agricultural field located within part of Lot 16, Concession 4 WSCR (Supplementary Documentation; Map SD1).

The Stage 3 AA of Location 10 (AkHa-28) consisted of the hand excavation of 11 test units across an area measuring approximately 10 m north-south by 10 m east-west and resulted in the recovery of four pieces of lithic debitage from three 1 m² units (Map 6).

Location 10 (AkHa-28) is interpreted as a small hunting or camp site associated with the Early Archaic Period (8000 - 6000 BC). Given the relatively low number of recovered artifacts, Location 10 (AkHa-28) does not meet the criteria outlined in Section 3.4.1 or Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* for requiring Stage 4 Archaeological Mitigation and is therefore considered to have no further cultural heritage value or interest (Government of Ontario 2011).

Based on the results of the Stage 3 AA, it is concluded that Location 10 (AkHa-28) has been sufficiently assessed and has no further cultural heritage value or interest. As such, Stage 4 Archaeological Mitigation of impacts are not recommended for the site.

The MCM is asked to review the results and recommendations presented herein, accept this report into the Provincial Register of archaeological reports and issue a standard letter of compliance with the Ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licencing.

Study Limitations

WSP has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession 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 report. No other warranty expressed or implied is made.

This report has been prepared for the specific site, design objective, developments, and purpose described to WSP by CBM Aggregates, a division of St. Marys Cement Inc. (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.

The information, recommendations, and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without WSP's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the Client, WSP may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to WSP. The report, all plans, data, drawings, and other documents as well as electronic media prepared by WSP are considered its professional work product and shall remain the copyright property of WSP, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of WSP. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration, and incompatibility and therefore the Client cannot rely upon the electronic media versions of WSP's report or other work products.

Unless otherwise stated, the suggestions, recommendations, and opinions given in this report are intended only 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, if any, comply with those identified in the Ministry of Citizenship and Multiculturalism's 2011 *Standards and Guidelines for Consultant Archaeologists*.

Table of Contents

TABLES

IMAGES

MAPS

APPENDICES

1.0 PROJECT CONTEXT

1.1 Development Context

Golder Associates Ltd. (Golder), now WSP Canada Inc. (WSP), was retained by CBM Aggregates, a division of St Marys Cement Inc. (Canada), to conduct a Stage 3 Archaeological Assessment (AA) of Location 10 (AkHa-28), a pre-contact Indigenous site located within the license boundary for the proposed Caledon Pit/Quarry (the Study Area; Map 1). The Stage 3 AA was conducted to meet the requirements of the *Aggregate Resources Act* R.S.O. 1990, c.A.8*. (*Government of Ontario 1990a), and the Town of Caledon Official Plan and Zoning By-law Amendment under the *Planning Act,* R.S.O 1990, c.P.14 (Government of Ontario 1990b).

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The Stage 3 AA was conducted under professional license P364, issued to Michael Teal of WSP by the MCM (PIF P364-0197-2022). All activities undertaken during the assessment followed the *Ontario Heritage Act* and the MCM's (2011) *Standards and Guidelines for Consultant Archaeologists*. All fieldwork occurred on May 17 and 18, 2022. Permission to access the Study Area to conduct all required archaeological fieldwork activities, including the recovery of artifacts, was provided by CBM Aggregates.

1.2 Objectives

The Stage 3 AA was completed with the following objectives:

- To determine the extent of the archaeological site and the characteristics of the artifacts.
- To collect a representative sample of artifacts.
- To assess the cultural heritage value or interest of the archaeological site.
- To determine the need for mitigation of development impacts and recommend appropriate strategies for mitigation and future conservation.

2.0 HISTORICAL CONTEXT

The following historical narrative is intended to provide a general overview of the interpreted land use during the "Pre-Contact Period" and "Early Contact Period" within the vicinity of the current study area. This historical overview is primarily based on archaeological and historical interpretations inferred over the past 50 years, and generally reflect inferences and interpretations made by non-Indigenous representatives.

The text below is not intended to provide a comprehensive historical overview of the landscape prior to, and following the arrival of Europeans to Ontario, but rather provide a general overview context that can be referenced when determining the potential for archaeological resources within the current project study area.

The text and comments below, including the cited references, may reflect archaeological and contemporary literature within general publications, but may not represent the opinions of those Indigenous communities whose history it is purported to reflect.

2.1 Pre-Contact Indigenous Period

The general culture history of southern Ontario based on Ellis and Ferris (1990) is summarized in Table 1, while Map 2 displays the pre-contact Indigenous culture history of southern Ontario.

Table 1: Overview of cultural chronology of southern Ontario.

Period		Time Period (circa)	Characteristics
Paleo	Early	9000 - 8400 BC	Gainey, Barnes, and Crowfield traditions; small bands; mobile hunters and gatherers and large territories; fluted projectiles.
	Late	8400 - 8000 BC	Holcomb, hi-Lo and Lanceolate biface traditions; continuing mobility; campsite/way-station sites; smaller territories are utilized; non-fluted projectiles.
Archaic	Early	8000 - 6000 BC	Side-notched, Corner-notched (e.g., Nettling, Thebes) and Bifurcate Base traditions; growing diversity of stone tool types; heavy woodworking tools appear (e.g., ground stone axes and chisels).
	Middle	6000 - 2500 BC	Stemmed (e.g., Kirk, Stanley/Neville), Brewerton side- and corner-notched traditions; reliance on local resources; populations increasing; more ritual activities; fully ground and polished tools; net-sinkers common; earliest copper tools.
	Late	2000 - 950 BC	Narrow Point (e.g., Lamoka), Broad Point (e.g., Genesee), and Small Point (e.g., Crawford Knoll) traditions: less mobility; use of fish-weirs; cemeteries; stone pipes emerge; long-distance trade (marine shells and galena).
Woodland	Early	950 - 400 BC	Meadowood tradition; cord-roughened ceramics emerge; Meadowood cache blades and side-notched points; Bands of up to 35 people.

Period		Time Period (circa)	Characteristics
	Middle	400 BC - AD 500	Saugeen tradition; stamped ceramics appear; Saugeen projectile points; cobble spall scrapers; seasonal settlements and resource utilization; post holes, hearths, middens, cemeteries, and rectangular structures identified.
	Transitional	AD 550 - 900	Princess Point tradition; cord roughening, impressed lines, and punctate designs on pottery; adoption of maize horticulture at the western end of Lake Ontario; oval houses and 'incipient' longhouses; first palisades; villages with 75 people.
	early Late Woodland	AD 900 - 1300	Glen Meyer tradition; settled village-life based on agriculture; small villages (0.4 ha) with 75-200 people and 4-5 longhouses; semi-permanent settlements.
	middle Late Woodland	AD 1300 - 1400	Uren and Middleport traditions; classic longhouses emerge; larger villages (1.2 ha) with up to 600 people; more permanent settlements (30 years).
	late Late Woodland	AD 1400 - 1600	Pre-contact Iroquoian tradition; larger villages (1.7 ha); examples up to 5 ha with 2,500 people; extensive croplands; also, hamlets, cabins, camps, and cemeteries; potential tribal units; fur trade begins ca. 1580; European trade goods appear.

Research and previous archaeological assessments have demonstrated that the area around the Town of Caledon was intensively occupied by pre-contact Indigenous communities from the Paleo period up to the time of contact. The following subsections outline the cultural or temporal periods recognized for southern Ontario more generally.

2.1.1 Paleo Period

The Paleo Period represents a temporal classification developed by archaeologists and does not reflect any inferences of initial human habitation. Based on archaeological investigations, the first human occupation of southern Ontario begins just after the end of the Wisconsin Glacial Period. Although there were a complex series of ice retreats and advances which played a large role in shaping the local topography, southern Ontario was ice free by approximately 12,500 years ago.

The archaeological record has documented human settlement at 11,000 years ago, when the area was settled by Indigenous groups who had been living south of the Great Lakes. The period of these early inhabitants is known as the Paleo Period (Ellis and Deller 1990).The Paleo Period in Ontario is broadly characterized by many small groups of hunter-gatherers whose subsistence strategies followed a pattern of seasonal mobility over large areas, often travelling distances in excess of 150 km in an effort to procure raw materials for the production of lithic tools and the hunting of contemporary animals along migratory routes including caribou as well as mammoth and mastodon. For example, groups in southern Ontario appear to have followed a seasonal round that extended from as far south as Chatham to the Horseshoe Valley north of Barrie.

The research suggests that population densities were very low during the Early Paleo Period, and, as such, archaeological examples of sites from this time are rare (Ellis and Deller 1990:54). The current understanding of Early Paleo locality is that sites tend to be situated in elevated topography on well-drained loamy soils with many of the known sites located on former beach ridges associated with glacial lakes. Many of the archaeologically investigated Paleo sites are relatively small in size compared to later periods and typically represent contemporary camp sites; however, there are large sites, such as the Parkhill and Fisher sites, identified as extending over several hectares. It is likely these larger sites were formed as people continued to occupy the same area for short durations over the course of several years. Given the placement of many sites on elevated locations, it has been suggested that they may represent communal hunting camps as they would likely have been advantageous to observe and intercept migratory mammals such as caribou (Ellis and Deller 1997). Other sites, such as smaller Early Paleo camps, were situated throughout the interior of Ontario and were typically situated adjacent to wetlands.

Paleo Period sites are commonly recognized by the presence of distinctive, finely-crafted lance points. Knives, gravers, scrapers and a variety of other stone processing tools are also typically associated with Paleo Period sites (MCR 1981). Diagnostic signatures of Early Paleo Period populations include the production of projectile points with channel flakes or flutes predominately manufactured from Collingwood or Onondaga chert. Paleo Period fluted points may be a reflection of large game hunting, while tools such as scrapers, piercing implements and gravers that are typically associated with Paleo Period sites may have been used in the manufacture and repair of wooden implements, bone tools and clothing (Peers 1985).

By the Late Paleo Period (8400-8000 BC), enclosed coniferous forests with some minor deciduous elements became established in southern Ontario. It is likely that many of the large game species that had been hunted during the early epoch of the Paleo Period had either moved further north, or as in the case of the mastodons and mammoths, became extinct. Similar to the inhabitants during the Early Paleo Period, Late Paleo Period populations traversed large territories in response to seasonal resource fluctuations. The transition to the Late Paleo Period also included projectile points comprised of smaller unfluted projectiles along with lanceolate parallel flaked stemmed and non-stemmed Plano points, while hunting strategies may have transitioned from communal groups to more individualized pursuits (Ellis and Deller 1997).

2.1.2 Archaic Period

During the Early Archaic Period (8000-6000 BC), a gradual increase in atmospheric humidity in conjunction with warmer summers influenced the environmental landscape. Fossil pollen and spore identification from sedimentation cores lifted from Lovesick Lake provide evidence of climate change, with jack pine forests becoming dominant during the beginning of the Early Archaic Period (Teichroeb 2007).

Concurrent with the environmental evolution during the Early Archaic Period were notable diagnostic technological changes including the appearance of side and corner-notched projectile points. Other significant innovations included the introduction of ground stone tools such as celts and axes, which may reflect an emerging woodworking industry.

Populations in Ontario during this period primarily utilized maritime landscapes during the spring, summer and fall seasons with large base camps on islands, near river mouths, and on the shores of embayment’s where a variety of flora, fish, and wild fowl resources could be obtained. Smaller hunting and specialized campsites were also established in the uplands and along smaller watercourses.

During the Middle Archaic Period (6000 – 2000 BC) the environmental landscape continued to evolve with the jack pine forests prevalent during the Early Archaic Period being primarily replaced by white pine growth, suggesting a gradual increase in humidity and a continuation of hot summers (Teichroeb 2007).

The trend towards more diverse toolkits also continued into the Middle Archaic Period, as the presence of net-sinkers and fish weirs indicate that fishing was an important component of the subsistence strategy. Net-sinkers were typically used with both gill nets and seine nets, which were employed for both shoreline and offshore fishing activities. Gill nets were kept vertical with stone sinkers on the bottom and floats on the top and were often anchored to a specific location with the use of larger stones. Seine nets acted as fences and were used to corral and hold the fish and needed to be kept tight to the bottom of the water by attaching many closely spaced sinkers to the bottom of the net with floats attached to the top (Ingleman *et al* 2012; Prowse 2003). Many contemporary fishing nets were commonly made from hemp or nettle (Needs-Howarth 1999) and are rarely preserved in the archaeological record (Ingleman *et al* 2012).

The Middle Archaic also marks when bannerstones were first manufactured. Bannerstones are carefully crafted ground stone devices that served as a counterbalance for atlatls or spear-throwers. Another characteristic of the Middle Archaic is an increased reliance on local, sometimes lower-quality chert resources for the manufacturing of projectile points. During earlier periods, groups likely occupied large territories which may have increased access to a primary outcrop of high-quality chert during their seasonal round. However, during the Middle Archaic, groups who inhabited smaller territories may only have had access to lower quality materials which had been deposited by the glaciers in the local till and river gravels.

It was during the latter part of the Middle Archaic Period that long-distance trade routes began to develop, spanning the northeastern part of the continent. In particular, copper tools manufactured from a source located northwest of Lake Superior were being traded (Ellis, Kenyon and Spence 1990), with a wide range of copper tools such as socketed and tanged spear points, projectile points, harpoons, crescent knives, gouges, pikes and celts being produced during this period (Dawson 1983).

Trade networks established during the Middle Archaic Period also continued to flourish during the Late Archaic Period (2500-950 BC). Copper implements from northern Ontario and marine shell artifacts from the Mid-Atlantic coast have been frequently encountered in burial contexts (Ellis, Kenyon and Spence 1990; Ellis, Timmins and Martelle 2009).

During the Late Archaic the trend towards decreased territory size and a broadening subsistence base continued. In the archeological record, Late Archaic sites are more numerous than Early or Middle Archaic sites suggesting that populations were increasing. Regionalized variations during the Late Archaic Period are also reflected in projectile point manufacturing, with distinct locally diagnostic styles appearing. Other artifacts including polished stone pipes and banded slate gorgets also appear on Late Archaic Period sites, as well as "birdstones", which are small, bird-like effigies usually manufactured from green banded slate (Ellis, Kenyon and Spence 1990).

It is during the Late Archaic Period that defined cemeteries are identified. The appearance of burial pits during the Late Archaic Period has been interpreted as a possible response to increased population densities and competition between local groups for access to resources. It has been theorized that cemeteries and burial grounds may have provided strong symbolic claims over a local territory and the surrounding resources and are often located within areas of elevated topography containing well-drained sandy and gravel soils adjacent to major watercourses. Burial sites reflect the importance of the landscape to Indigenous populations as they represent locations along travel routes that would be returned to, where feasts would occur, and the dead could be honoured (Taylor 2015).

2.1.3 Woodland Period

The Early Woodland Period (940 to 400 BC) is distinguished archaeologically from the Late Archaic Period primarily by the introduction of ceramic technology. The first pots were thick walled and friable, suggesting they may have primarily been used in the processing of nut oils by boiling crushed nut fragments in water and skimming off the oil (Spence, Pihl and Murphy 1990). These early vessels were not easily portable, and their fragile nature suggests they may have required regular replacement. There have also been numerous Early Woodland Period sites identified where ceramics were absent from the recovered assemblage, suggesting ceramic vessels may have not been completely integrated within the daily lives of Early Woodland Period populations.

Besides the addition of ceramic technology, the cultural affinity of Early Woodland Period inhabitants shows a great deal of continuity with the preceding Late Archaic Period. For instance, birdstones continued to be manufactured, although the Early Woodland Period varieties have "pop-eyes" that protrude from the sides of their heads (Spence, Pihl and Murphy 1990). Another example of general continuity from the terminal segment of the Archaic Period is represented by the thin, well-made projectile points, although the Early Woodland Period variants were side-notched rather than corner-notched, giving them a slightly altered and distinctive appearance (Spence, Pihl and Murphy 1990).

Evidence of exchange networks during the early stages of the Woodland Period indicate numerous reciprocal, down-the-line exchanges between trade partners located both short and long distances away. There is a gradual intensification of these types of trade throughout the period continuing into, and reaching its apex in, the Middle and Late Woodland Periods (Hartmann 1996). During the last 200 years of the Early Woodland Period, projectile points manufactured from high quality raw materials from the American Midwest begin to appear on sites in southwestern Ontario.

The Middle Woodland Period (300 BC to 500 AD) reflects an evolving transition from patterns observed from archaeological excavations documenting Archaic and Early Woodland Period sites. Middle Woodland peoples relied much more extensively on ceramic technology where vessels are often heavily decorated with impressed designs covering the entire exterior surface and upper portion of the vessel interior. Consequently, even very small fragments of Middle Woodland vessels are easily identifiable.

While Middle Woodland Period populations still relied on hunting and gathering to meet their subsistence requirements, an increased consumption of fish became an important dietary component. Some Middle Woodland Period sites have produced literally thousands of bones from spring spawning species including walleye and sucker (MCR 1981). Food sources such as shellfish, tree nuts and a proliferation of plant greens and seeds were also utilized during the Middle Woodland Period. The seasonal variety and relative dependability of these food sources encouraged population growth in many areas.

It is at the beginning of the Middle Woodland Period that rich, densely occupied sites appear along the margins of major rivers and lakes. While these areas had been utilized by earlier peoples, Middle Woodland sites are significantly different in that the same location was occupied off and on for as long as several hundred years and large deposits of artifacts often accumulated. The land use patterns reflected from archaeological investigations of Middle Woodland Period sites generally reflect densely occupied locations that appear on the valley floor of major rivers, often producing sites with significant artifact deposits. Unlike earlier seasonally utilized locations, many Middle Woodland Period sites appear to have functioned as base camps, occupied periodically over the course of the year and situated to take advantage of the greatest number of resources. There are also numerous small upland Middle Woodland Period sites, many of which can be interpreted as special purpose camps where localized natural resources were utilized (MCR 1981).

The Late Woodland Period began with a shift in settlement and subsistence patterns involving an increasing reliance on corn horticulture (Fox 1990:185; Smith 1990; Williamson 1990:312). Corn may have been introduced into southwestern Ontario from the American Midwest as early as AD 600 or a few centuries before. However, corn did not become a dietary stapleuntil at least three to four hundred years later, and then the cultivation of corn gradually spread into south-central and southeastern Ontario.

During the early Late Woodland, particularly within the Princess Point Complex (circa AD 500-1050), a number of archaeological material changes have been noted: the appearance of triangular projectile point styles, first seen during this period begin with the Levanna form; cord-wrapped stick decorated ceramics using the paddle and anvil forming technique replace the mainly coil-manufactured and dentate stamped and pseudo-scallop shell impressed ceramics; and if not appearance, increasing use of maize (Zea mays) as a food source (Bursey 1995; Crawford et al. 1997; Ferris and Spence 1995:103; Martin 2004 [2007]; Ritchie 1971:31-32; Spence et al. 1990; Williamson 1990:299). Aside from projectile points, Princess Point Complex assemblages are predominantly characterized by informal or expedient flake tools and ground stone and bone artifacts are rare (Ferris and Spence 1995:103; Shen 2000).

The Late Woodland Period is considered to coincide with the beginning of agricultural life ways in southern Ontario. Researchers have suggested that a warming trend during this time may have encouraged the spread of maize into this part of the province, providing a greater number of frost-free days (Stothers and Yarnell 1977). Further, shifts in the location of sites have also been identified with an emphasis on riverine, lacustrine and wetland occupations set against a more diffuse use of the landscape during the Middle Woodland (Dieterman 2001). These locations may have provided nutrient-rich soil for agriculture, while growing sedentism is seen as a departure from Middle Woodland hunting and gathering and may reflect growing investment in the care of garden plots of maize (Smith 1997:15).

The first agricultural villages documented in the archaeological record in southern Ontario have been dated to the 10th century. Unlike the riverine base camps of the Middle Woodland Period, these sites are located in upland locations on well-drained sandy soils. Identified archaeologically as "Early Late Woodland" (AD 900-1300), it is suggested that these early populations were ancestral to the Iroquoian groups which later inhabited southern Ontario at the time of first European contact.

Village sites dating between AD 900 and 1300 share many attributes with the historically investigated Iroquoian sites, including the presence of longhouses and sometimes palisades. These early longhouses averaged 12.4 m in length (Dodd et al. 1990:349; Williamson 1990:304-305). It is also quite common to find the outlines of overlapping house structures, suggesting that these villages were occupied long enough to necessitate re-building. The Jesuits reported that the Huron moved their villages once every 10-15 years, when the nearby soils had been depleted by farming and conveniently collected firewood grew scarce (Pearce 2018). It seems likely that Early Late Woodland peoples lived in villages for considerably longer, as they relied less heavily on corn than did later groups, and their villages were much smaller, placing less demand on nearby resources.

Judging by the presence of carbonized corn kernels and cob fragments recovered from sub-floor storage pits, agriculture was becoming a vital part of the early Late Woodland economy. However, it had not reached the level of importance it would during the middle Late and late Late Woodland Periods. There is ample evidence to suggest that more traditional resources continued to be utitlized and comprised a large part of the subsistence economy. Seasonally occupied special purpose sites relating to deer procurement, nut collection, and fishing activities, have all been identified. While beans are known to have been cultivated later in the Late Woodland Period, they have yet to be identified on early Late Woodland sites.

The middle Late Woodland Period (AD 1300-1400) witnessed several interesting developments in terms of settlement patterns and artifact assemblages. Changes in ceramic styles have been carefully documented, allowing the placement of sites in the first or second half of this 100-year period. Moreover, villages, which averaged approximately 0.6 hectares in extent during the early Late Woodland, now consistently range between one and two hectares.

House lengths also change dramatically, more than doubling to an average of 30 m, while houses of up to 45 m have been documented. This increase in longhouse length has been variously interpreted. The simplest possibility is that increased house length is the result of a gradual, natural increase in population (Dodd et al. 1990:323, 350, 357; Smith 1990). However, this does not account for the sudden shift in longhouse lengths around AD 1300. Other possible explanations involve changes in economic and socio-political organization (Dodd et al. 1990:357). One suggestion is that during the middle Late Woodland Period small villages were amalgamating to form larger communities for mutual defense (Dodd et al. 1990:357). If this was the case, the more successful military leaders may have been able to absorb some of the smaller family groups into their households, thereby requiring longer structures. This hypothesis draws support from the fact that some sites had up to seven rows of palisades, indicating at least an occasional need for strong defensive measures. There are, however, other middle Late Woodland villages which had no palisades present (Dodd et al. 1990). More research is required to evaluate these competing interpretations.

The lay-out of houses within villages also changes dramatically by AD 1300. During the early Late Woodland Period villages were planned with houses oriented in various directions. During the middle Late Woodland Period villages are organized into two or more discrete groups of tightly spaced, parallel aligned, longhouses. It has been suggested that this change in village organization may indicate the initial development of the clans which were a characteristic of the historically known Iroquoian peoples (Dodd et al. 1990:358).

Initially at least, the Late Woodland Period (AD 1400-1650) continues many of the trends which have been documented for the proceeding century. For instance, between AD 1400 and 1450 house lengths continue to grow, reaching an average length of 62 m. One longhouse excavated on a site southwest of Kitchener was an incredible 123 m (Lennox and Fitzgerald 1990:444-445). After AD 1450, house lengths begin to decrease, with houses dating between AD 1500 and 1580 averaging 30 m in length.

As to why house lengths decrease after AD 1450 is still being investigated, though it is understood that the shorter houses witnessed on Historical Period sites can be at least partially attributed to the population reductions associated with the introduction of European diseases such as smallpox (Lennox and Fitzgerald 1990:405, 410).

Village size also continues to expand throughout the Late Woodland Period, with many of the larger villages showing signs of periodic expansions. The middle Late Woodland Period and the first century of the late Late Woodland Period was a time of village amalgamation. One large village situated just north of Toronto has been shown to have expanded on no fewer than five occasions. These large villages were often heavily defended with numerous rows of wooden palisades, suggesting that defence may have been one of the rationales for smaller groups banding together. A pattern of Late Woodland village expansion has been clearly documented at several sites throughout southwestern and south-central Ontario (Anderson 2009).

Not all First Nations within southern Ontario resided within villages during the Late Woodland Period, as some communities continued to live in areas along waterways during the summer months and inland hunting sites during the winter.

Early contact with European settlers at the end of the Late Woodland Period resulted in changes to the traditional lifestyles of most Indigenous populations inhabiting Ontario including settlement size, population distribution, and material culture. The introduction of European-borne diseases significantly increased mortality rates, resulting in a drastic decrease in population size (Warrick 2000).

2.2 Post-Contact Indigenous Occupation of Southern Ontario

The post-contact Indigenous occupation of southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking peoples by the nations of the Haudenosaunee Confederacy, and the subsequent arrival of Algonkian-speaking groups from northern Ontario at the end of the 17th century and beginning of the 18th century (Schmalz 1991).

Following the introduction of Europeans to North America, the nature of Indigenous settlement size, population distribution, and material culture shifted as settlers began to colonize the land. Despite this shift, “written accounts of material life and livelihood, the correlation of historically recovered villages to their archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to Indigenous systems of ideology and thought” (Ferris 2009:114). As a result, Indigenous peoples of southern Ontario have left behind archaeologically significant resources that show continuity with past peoples, even if this connection has not been recorded in historical Euro-Canadian documentation.

During the late 1600s and early 1700s, French explorers and missionaries reported a large population of Iroquoian peoples clustered around the western end of Lake Ontario. The part of this area that is now referred to as the Peel Region was known to have been populated by the ancestors of two Late Woodland groups who would become historically referred to as the Neutral (Attawandaron) and Huron nations.

2.3 Historical Euro-Canadian Period

2.3.1 Township of Caledon, County of Peel

The Study Area is located within part of the Mississauga Tract which was ceded to the British by the Mississaugas on the 28th of October 1818, under Treaty 19, for £522 and 10 shillings annually. Treaty 19 was the “Second Purchase” involving the Tract of which the “First Purchase” or “Mississauga Purchase” of 1805 allowed the British Crown to acquire over 74,000 acres of land in southern Peel County. Treaty 19 transferred an additional 648,000 acres of the Tract to the British who in 1819 surveyed the area and divided it into the townships of Toronto, Chinguacousy, Caledon, Albion and Toronto Gore (PAMA 2014).

Albion, Caledon and Chinguacousy Townships began settlement in 1820 with Caledon and Chinguacousy consisting of six concessions on both the east and west sides of Centre Road. According to George Walton’s 1842 *Walton’s Home District Directory*, the population of Caledon Township that year was 1,920. The 1870s saw the creation of railway lines east of the study area for the Credit Valley Railway (CVR) and Toronto Grey & Bruce Railway (both acquired by the Canadian Pacific Railway [CPR] in 1884). Caledon Township was bound on the east by Albion Township, on the south by Chinguacousy Township, on the west by Erin Township in the County of Wellington, and on the north-west by Garafraxa Township also in the County of Wellington (Lynch 1874).

Events in Europe during the mid-19th century dramatically improved the fortunes for Caledon Township and the surrounding county. A combination of failed harvests and disrupted trade routes caused by the Crimean War suddenly created a market for Canadian wheat producers, then centred in Ontario, to meet global demand. Simultaneously, the 1854 Canadian American Reciprocity Treaty prompted farmers to also take up livestock

rearing for export to the United States (Scheinman 2009). Getting these products to consumers was aided by the new railway lines.

At the opening of the 20th century, economic development in Caledon Township, like that of adjacent counties and townships, relied on the prosperity of nearby Toronto and exports to the United States and Britain. Following World War II, the widespread use of motor vehicles brought changes to urban and rural development. As vehicular traffic increased, the network of roadways throughout the region improved, providing Caledon Township and its communities with better connections to the growing metropolis of Toronto.

Significant new growth and development has occurred in Peel County over the past four decades. When it became the Regional Municipality of Peel in 1974, Caledon Township along with Albion Township and the north half of Chinguacousy Township were incorporated into the new Town of Caledon. In that year, there were 334,750 people living in Peel Region and by 2014 the population numbered 1,350,000 (Neill 2015). The 2016 census recorded Peel's population at 1,381,739, of which 66,502 were residents of Caledon.

2.3.2 Study Area Specific Context

Though Location 10 (AkHa-28) is located exclusively within Part of Lot 16, Concession 4 WSCR, all lots within the Study Area are initially discussed below to aid in a comprehensive overview of the history of the lands surrounding the site. This is followed by a discussion of Lot 16, Concession 4 WSCR more specifically.

A review of historical county maps, topographic maps, and aerial imagery chart the 19th and 20th century development of the Study Area. The earliest cartographic resource consulted was George Tremaine's 1859 *Tremaine's Map of the County of Peel, Canada West* (Tremaine 1859) (Map 3). This map suggests the alignments for present-day Main Street and Mississauga Road are nearly identical to the original concession roads at that time. The 1859 map also depicts the Credit River east of the Study Area and branches of the Credit River flowing adjacent to the north portion of the Study Area (Map 3).

At the northeastern end of the Study Area, the 1859 map portrays the "Coulter Estate" while near the south end of the Study Area, the village of "Church's Falls" is visible. These appear to be the predecessors of the present-day communities of Coulterville and Cataract, respectively. Furthermore, two structures (likely farmhouses) are illustrated within the Study Area on the 1859 map (Map 3). The northwestern-most farmhouse is illustrated within the property of Duncan Cameron (Lot 17, Concession 4 WSCR) and appears to be situated in the same location as the present-day house at 18667 Mississauga Road. The southernmost farmhouse is illustrated within the property of James Cameron (Lot 16, Concession 4 WSCR) and appears to be situated in the same location as the present-day house at 18501 Mississauga Road.

Nearly two decades later, J.H. Pope's 1877 *Illustrated Historical Atlas of the County of Peel* (Pope 1877) depicts the Lot 16 side road as similar to the present-day alignment for Charleston Sideroad. Furthermore, the Credit River and its branches are portrayed as traversing similar paths to those of 1859 and the Coulterville Estate remains at the northeast end of the Study Area. Notable changes include the renaming of the village of Church's Falls (near the south end of the Study Area) to "Cataract" and the establishment of the CVR along the northeast perimeter of the Study Area (Map 3).

The 1877 map still illustrates the same two farmhouses shown in the 1859 map but also presents orchards adjacent to each structure. In addition to these two farmhouses, five new (or newly illustrated) individual structures are depicted in the Study Area on the 1877 map. The new individual structures include four labeled "residences" (farmhouses) and one "school house" as depicted in the 1877 map (Map 3).

From north to south, the first new farmhouse as well as the schoolhouse are located in Lot 16, Concession 3 WSCR, as part of the Coulter Estate, while the second new farmhouse is located in the east corner of Lot 16, Concession 4 WSCR, still listed as the property of James Cameron and situated near the location of the present-day house at 1420 Charleston Sideroad. The third new farmhouse also has an accompanying orchard and is located in the northeast half of Lot 15, Concession 4 WSCR, listed as the property of Thomas McNicholl, while the fourth new farmhouse is located in the southwest half of the same lot, listed as part of the Morris Estate and situated in the same location as the present-day foundation remnants at 1055 Charleston Sideroad (Map 3).

Available topographic maps and aerial images document the evolution of the Study Area during the 20th century. The 1937 and 1952 versions of the *Topographic Map, Ontario – Orangeville Sheet* by the Department of National Defence (Ontario Council of University Libraries [OCUL] n.d.) provide a more accurate representation of the waterbodies in the Study Area and suggest that branches of the Credit River flow through the west portion of the Study Area as well as to the east of the Study Area. The 1937 and 1952 maps also suggest that six of the seven farmhouses portrayed within the Study Area in 1877 (or versions of them) were still extant and, furthermore, were accompanied by associated barns and/or outbuildings (Map 4). While the farmhouse on the former Coulter Estate appears to have been replaced with a structure closer to the Lot 16 side road, the schoolhouse on the former property is still illustrated and appears to be situated in the same location as the present-day house at 1626 Charleston Sideroad, just outside of the current Study Area. Another notable change from the 1877 map is the conversion of the former CVR to the CPR (a transition that occurred in 1884, see Section 2.3.1) (Map 4).

A 1954 aerial photograph by the Department of Lands and Forests (McMaster University Library 2023) presents the Study Area similar to the previous topographic maps and confirms the majority of the Study Area remained rural agricultural land with tracts of woodlots interspersed throughout (Map 5). While the number of outbuildings/ barns have changed for the several farmhouses illustrated in the 1877, 1937 and 1952 maps, the main houses still appear to be extant within the Study Area on the 1973 map (OCUL n.d.). Furthermore, Charleston Sideroad appears to have been modified to its present-day alignment and the CPR line remains visible on the 1973 map (Map 5). Though northern portions of the CPR line were decommissioned by 1996, the Brampton-Orangeville Railway was created in 2000 and has been operating freight traffic and a tour train on the line from Streetsville to Orangeville maintaining the use of the rail corridor near the Study Area to the present-day (Town of Caledon 2009).

2.3.2.1 Lot 16, Concession 4 WSCR

Lot 16, Concession 4 WSCR was patented in two 100-acre parts to the Canada Company; the west half in September 1832, and the east half in November 1833. A description of the adjacent Lot 17 indicated that the land was originally wooded with maple, elm, beech, and bass, and the soil was a black loam (PAMA n.d., Reel 08, 0663). Both halves of the Lot were purchased by John Cameron in April 1836 at a price of $50 each (Ontario Land Registry n.d.(a): 307).

John Cameron was a Scottish immigrant. Born in 1782, he travelled to Canada from Perthshire, Scotland in 1828 with his wife Helen (Ferguson), seven sons, and two daughters. One of the sons, David, died on the journey across the Atlantic (PAMA n.d.: 8509). The family settled at Lot 16, Concession 4 WSCR in 1836. One of John's sons, Duncan Cameron purchased the adjacent 200-acres to the north, Lot 17, in 1846. John Cameron died in 1848 and his estate settled in 1852 with his youngest surviving son, James Cameron (born 1824) purchasing all 200-acres of Lot 16 from his brothers and mother for $200 (Ontario Land Registry n.d.(a): 307). The 1851 Census shows Mrs. Cameron (Helen, 64) living with her sons Hugh (36), Donald (29), and James (26) (1851 Personal Census, District 2, Caledon: 135). Duncan was, by this time, living at Lot 17 with his wife and their children.

Tremaine's 1859 *Map of the County of Peel* shows James Cameron as owner of the entire 200 acres of Lot 16, Concession 4 WSCR, and a house located centrally on the southwest half of the property (Tremaine 1859, Map 3). A family history of the Camerons, written by Annie Beatty in 1935, states that the house on the property was built by James Cameron in 1850 (PAMA n.d.: 8511). The 1861 Census shows James Cameron, a farmer, living with his wife Mary (McGill), three sons, and two daughters.[1] The Agricultural Census of the same year shows James Cameron at Lot 16, Concession 4, with 300 acres, of which 200 were cultivated, 123 being crop (79 wheat, 5 peas, 7 oats, 1 potatoes, 1 turnips), 73 being pasture, and 2 being orchards; the farm had a total value of $7500 (1861 Agricultural Census, District 6, Caledon: 86). While 300 acres is more than the size of this Lot, the 1859 map also shows James as owner of Lot 16, Concession 5 WSCR, which could account for this additional acreage.

The 1871 Census shows James (44) and Mary (43) Cameron living with eight children: John (18), Annie J. (15), Margaret E. (13), James (11), Peter (9), Mary (7), George A. (5), and David (2). Both James and the eldest son, John, are listed as farmers. According to the 1871 Census, the Cameron's were Baptists (1871 Census, Schedule 1, Cardwell 40/A, Caledon No.4: 43). James Cameron is listed as the owner of 400 acres, with one house and four barns/stables (1871 Census, Schedule 3: 8). Of the 400 acres, 210 were identified as improved, including 70 wheat, 3/4 potatoes, 40 hay, 20 pasture, and 2 acres of orchards, producing 50 bushels of apples (1871 Census, Schedule 4: 8). Other assets and products of the farm included 7 horses, 1 colts/fillies, 7 milch cows, 18 other horned cattle, 60 sheep, 8 swine and yearly production of 400 pounds butter, 150 pounds cheese, and 400 pounds wool (1871 Census, Schedule 5: 8).

The 1877 *Historical Atlas* map shows James Cameron as owner of the whole 200 acres of Lot 16, Concession 4 WSCR, as well has the adjacent 200-acre property at Lot 16, Concession 5 WSCR (Walker and Miles 1877, Map 3). Two structures are shown on the property; the first is located near the southwest corner of the Lot with an adjacent orchard to the northeast, while the second is in the very northeast corner of the property.

James Sr. continued to own the entire lot for another 17 years. In January 1897, James and Mary sold the southwest 50 acres of the southwest half of the lot to their son, James Cameron Jr. for $1250 (Ontario Land Registry n.d.(b): 432). The boundaries of this part are not specified in the abstract book, but the modern property boundary suggests that the delineation was made by a straight line parallel to the Concession Road. This transfer would have included the extant house and barns on the southwest half of the property shown on the 1859 and 1877 maps. Despite this ownership change, it appears to have been the younger son, George A. who was farming Lot 16, Concession 4 WSCR at the time. In the 1897 Tax Assessment, G. A. Cameron was assessed the entirety of the 200-acre lot, with 150 acres improved, the remaining 50 acres being woodlot, and a tax value of $7000 (PAMA 1897, Division 7: 38).

The 1901 census shows James Cameron Jr. (40) living with his wife Debora (36), and son David A. (5) (1901 Census, Schedule 1, Cardwell 51/D, Caledon No.7: 4). James Sr. and Mary Cameron are shown living with George A. (35), his wife Charlotte (33), and their two sons John H. (4) and Andrew (2). They were most likely resident at the house near the northeast corner of the Lot. In March of 1901, James Sr. and Mary transferred the northeastern 150 acres of the Lot to George Cameron for $1 (Ontario Land Registry n.d.(b): 432).

[1] The ages of the family have been recorded incorrectly in the 1861 census, so they are not listed here.

3.0 ARCHAEOLOGICAL CONTEXT

3.1.1 Existing Conditions

The Study Area is located in a rural part of the Town of Caledon, generally bounded by Mississauga Road to the south, the CP Railway to the north, the western edge of Lot 14, Concession 4 WSCR to the east, and the eastern edge of Lot 18, Concession 4 WSCR to the west. Charleston Sideroad, or Highway 24, is a northeast-southwest road that bisects the Study Area, with approximately two thirds north of the highway and one third to the south. The Study Area is comprised of active agricultural lands, wooded areas, overgrown farmland, including pasture and meadows, as well as residential lots and farm complexes. The Study Area is surrounded by farmland and wooded areas to the south and west, the TPC Toronto at Osprey Valley Golf Course to the north, and the hamlet of Cataract and Forks of the Credit Provincial Park to the east.

Location 10 (AkHa-28) is situated in the central portion of the Study Area within an agricultural field. It is approximately 400 m northwest of Charleston Sideroad and 500 m northeast of Mississauga Road (Supplementary Documentation; Map SD1).

3.1.2 Physiography

The Study Area is situated entirely within the “Guelph Drumlin Field” physiographic region (Chapman and Putnam 1984:137).

> *The drumlins of this field are not so closely grouped as those of some other areas and there is more intervening low ground, which is largely occupied by fluvial materials. The till in these drumlins is loamy and calcareous, and was derived mostly from dolostone of the Amabel Formation so strategically exposed along the Niagara Cuesta…The till throughout is rather stony, with large surface boulders being more numerous in some localities than others…The ice which moulded this drumlin field advanced from the southeast and the front of the melting receding glacier was at right angles to this, that is, down slope of the plain. The drainage of the ice front was consequently able to find progressively lower and lower outlets, so that the drumlin field is furrowed by more or less parallel valleys running almost at right angles to the trend of the drumlins themselves. There are also numerous interconnecting cross valleys which occupy deeper depressions between drumlins. Along the sides of these valleys there are broad sand and gravel terraces, while the bottoms are often swampy…Incidental to this pattern are the several gravel ridges or eskers which cross the plain in the same general direction as the drumlins.*
>
> (Chapman and Putnam 1984:137-138)

The localized topography of the Study Area is generally flat and is approximately 390 to 420 m above sea level. The soils of the Study Area are comprised primarily of Dumfries Loam and Caledon Loam, with a small section of Gilford loam at the western extent. Dumfries soils consist of well drained dark gray-brown loam or sandy loam with a high stone content, commonly used for cultivation of cereal grains, legumes, hay and pasture (Hoffman and Richards 1953). Caledon and Gilford soils both occur as gravelly outwash plains, but Caledon Loam is the well drained member, whereas Gilford Loam is the poorly drained member. Caledon soils consist of very dark grey-brown loam and are used for the cultivation of cereal grains, hay and pasture. Gilford soils consist of very dark grey loam and are primarily used for pastures and woodlots. These three soils tend to require additional fertilizer to maintain adequate organic matter levels, as well as mitigating the hazards of erosion and large stones to cultivation practices (Hoffman and Richards 1953).

The soils within Location 10 (AkHa-28) consisted of Dumfries loam with a hard compaction and 10% stone content.

The closest potable water source is the Credit River, which flows approximately 150 to 600 m north and east of the Study Area, as well as a small unnamed drainage that flows through the western corner of the Study Area. This unnamed drainage is approximately 760 m west of Location 10 (AkHa-28). The Credit River Watershed spans 1,000 km^2 and drains into Lake Ontario at the Port Credit, Mississauga waterfront (Credit Valley Conservation 2022).

The bedrock deposits in the vicinity date to the Middle and Lower Silurian Periods and consist of the Lockport-Amabel Formation (Hewitt 1972). The Guelph-Lockport Dolomites form the cap of the Niagara Escarpment, outcropping from Niagara Falls though Dundas and Guelph up to the Bruce Peninsula. The Lockport Dolomites consists of three members: Gasport Dolimitic Limestone, Goat Island Dolomite and Eramosa Dolomite. Similarly, the Amabel Formation also consists of three members, including: a finer crystalline blocky dolomite named Lions Head Member, a fine to medium crystalline dolomite named Wiarton Member, and a brown, thin-bedded fine crystalline dolomite named Eramosa Member (Hewitt 1972).

The Study Area lies within the Mixed-wood Plains ecozone of Ontario (The Canadian Atlas Online 2015). Although largely altered by recent human activity, this ecozone once supported a wide variety of deciduous trees, such as various species of ash, birch, chestnut, hickory, oak, and walnut, as well as a variety of birds and small to large land mammals, such as raccoon, red fox, white tailed deer, and black bear.

3.1.3 Registered Archaeological Sites

To compile an inventory of previously documented archaeological resources, the registered archaeological site records maintained by the MCM in the Ontario Archaeological Site Database (OASD) were consulted.

A total of 13 registered archaeological sites are located within 1 km of Location 10 (AkHa-28), and all of these sites are situated within the current Study Area. Two of the sites, Location 7 (AkHa-26) and Location 27 (AkHa-34) are located within 300 m of Location 10 (AkHa-28). Section 3.1.4.2 below provides further details on the registered sites identified during the Stage 1 and 2 AA of the Study Area.

Table 2: Registered archaeological sites within 1 km of Location 10 (AkHa-28)

Borden Number	Site Name	Affinity	Site Type
AlHa-9	Cameron	Post-Contact	homestead, house
AlHa-52	Location 15	Post-Contact	midden
AkHa-34*	Location 27	Post-Contact	agricultural
AkHa-33	Location 26	Pre-Contact Indigenous	scatter
AkHa-32	Location 22	Pre-Contact Indigenous; Early Woodland, Late Woodland	scatter
AkHa-31	Location 18	Post-Contact	agricultural
AkHa-30	Location 16	Pre-Contact Indigenous	scatter
AkHa-29	Location 12	Post-Contact	midden
AkHa-27	Location 9	Post-Contact	midden

Borden Number	Site Name	Affinity	Site Type
AkHa-26*	Location 7	Post-Contact	agricultural
AkHa-25	Location 4	Post-Contact	agricultural
AkHa-24	Location 2	Post-Contact	agricultural
AkHa-23	Location 1	Post-Contact, Pre-Contact Indigenous	agricultural, findspot

'*" *denotes sites located within 300 m*

3.1.4 Previous Archaeological Assessments

Per *Section 1.1., Standard 1* of the MCM's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), a review of previous archaeological assessments undertaken within the limits of the Study Area or within 50 m of the Study Area was undertaken. To WSP's knowledge, one previous archaeological assessment has been documented within the 50 m threshold and two previous archaeological assessments have been documented for the current Study Area.

3.1.4.1 Previous Assessments within 50 m of the Study Area

In 2017, Archaeological Research Associates Ltd. (ARA) conducted a Stage 1 and 2 AA of a study area approximately 0.51 ha in size to satisfy Infrastructure Ontario's due diligence requirements in advance of the planned disposition of the property. The study area for this assessment is adjacent to Charleston Sideroad to the north and is located centrally between portions of the current Study Area. The Stage 1 AA identified areas of archaeological potential and areas of previous disturbance, and the Stage 2 AA consisted of test pit survey at 5 m intervals that did not result in the identification of any archaeological locations. No further work was recommended for this property (ARA 2017).

3.1.4.2 Previous Assessments of the Study Area

In 2001, Archaeological Assessments Ltd. conducted a Stage 1 and 2 AA within the limits of the current Study Area, on part of the eastern halves of Lots 16, 17, and 18, Concession 4 WSCR, in advance of the proposed Osprey Valley West Golf Course. The size of the study area was approximately 89 ha, of which 69 ha was cultivated agricultural lands assessed by pedestrian survey at 5 m intervals, and 20 ha was mixed scrub and woodland assessed by test pit survey at 10 m intervals (Archaeological Assessments Ltd. 2001).

The Stage 1 and 2 AA resulted in the identification of three archaeological locations, including two pre-contact Indigenous findspots, and one historical Euro-Canadian homestead that was registered as the Cameron Site (AlHa-9). The first pre-contact Indigenous findspot consisted of a bifacially worked scraper and the second consisted of a large, finished biface, both manufactured on Onondaga chert. These two findspots were determined to have low cultural heritage value or interest, and no further archaeological assessments were recommended for either location (Archaeological Assessments Ltd. 2001).

The Cameron Site (AlHa-9) was identified during the pedestrian survey of a ploughed agricultural field, located in the northeastern portion of the east half of Lot 16, Concession 4 WSCR. The site measured approximately 27 m north-south by 75 m east-west and produced a total of 66 historical Euro-Canadian artifacts, primarily household ceramics and glass. The Cameron Site (AlHa-9) was interpreted as a mid-19th century Euro-Canadian homestead occupied by the Cameron family until the early to mid-20th century. Historical archival research indicates that James Cameron occupied the site from the 1850s to 1870s, while the *1877 Historical Atlas Map of Caledon*

Township (Map 3) indicates a structure in the northeastern corner of Lot 16 that corresponds to the same location as the Cameron Site (AlHa-9). As such, the Cameron Site (AlHa-9) was determined to have further cultural heritage value and interest and was recommended for Stage 4 mitigation if avoidance and protection was not possible (Archaeological Assessments Ltd. 2001).

Golder (now WSP) completed the Stage 1 and 2 AA for the current Study Area in the fall of 2020, and spring and summer of 2021 (Golder 2022). The results of the Stage 1 assessment identified archaeological potential within the Study Area for both pre-contact Indigenous and historical Euro-Canadian sites. This determination is based on the presence of well-drained soils, proximity to water sources such as the Credit River, as well as the proximity to registered archaeological sites (e.g., Cameron Site (AlHa-9) found in 2001) and areas of Euro-Canadian settlement dating to the mid-19th century. Areas of archaeological potential within the Study Area were subject to survey during the Stage 2 AA through a combination of shovel test pit survey and pedestrian survey at 5 m intervals. The Stage 2 assessment resulted in the identification of 29 artifact producing locations, of which 18 are pre-contact Indigenous sites or findspots and 11 are historical Euro-Canadian sites. Of the 29 archaeological producing locations, a total of 15 (Locations 3, 5, 6, 8, 11, 14, 19, 20, 21, 23, 24, 25, and 28) consisted of either a small amount of historical material or a single piece of lithic debitage, biface or scraper. Given the isolated nature of the finds, these locations were concluded to have no further CHVI as the sites do not meet the criteria identified in Section 2.2, Standards 1a-c, of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for determining the need for Stage 3 AA. Similarly, Location 29 was interpreted to be an isolated, intermixed deposit of historical and modern material, mostly consisting of wire-drawn and machine cut nails, and, as such, was considered sufficiently documented with no further CHVI. The remaining 13 sites (Locations 1, 2, 4, 7, 9, 10, 12, 15, 16, 18, 22, 26, and 27) were registered with the MCM, under the Borden system, in accordance with *Section 7.12, Standards 1.a.* and *1.c.* of the MCM (2011) and will be discussed in further detail below.

Location 1 (AkHa-23) consisted of 1,561 historical Euro-Canadian artifacts, 69 faunal elements, and one piece of lithic debitage, recovered from 35 positive test pits, one 1 m² test unit, and 55 CSP points in an area measuring approximately 80 m by 75 m. Given that there were at least 20 artifacts that dated Location 1 (AkHa-23) to before 1900, and the fact that the location of the site had been occupied since the mid- to late 19th century and may be associated with a nearby former structure and orchard on historical mapping, the site met the criteria identified in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having cultural heritage value or interest (CHVI) and was therefore recommended to undergo Stage 3 AA. The single pre-contact Indigenous artifact was concluded to have no further CHVI as it did not meet the criteria Section 2.2, Standards 1a or b of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for requiring Stage 3 AA.

Location 2 (AkHa-24) consisted of 220 historical Euro-Canadian artifacts and 15 faunal elements, recovered from 26 positive test pits and 65 CSP points in an area measuring approximately 90 m by 60 m. Given that there were at least 20 artifacts that dated Location 2 (AkHa-24) to before 1900, and the fact that the location of the site had been occupied since the mid- to late 19th century and could be tied to a structure on historical mapping, the site met the criteria identified in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having CHVI and was therefore recommended to undergo Stage 3 AA.

Location 4 (AkHa-25) consisted of 32 historical Euro-Canadian artifacts and five faunal elements, recovered from 19 positive test pits in an area measuring approximately 45 m by 35 m. Given that there were at least 20 artifacts that dated Location 4 (AkHa-25) to before 1900, and the fact that the location of the site had been occupied since the mid-19th century and can be tied to a nearby structure on historical mapping, the site met the criteria identified

in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having CHVI and is therefore recommended to undergo Stage 3 AA.

Location 7 (AkHa-26) consisted of 248 historical Euro-Canadian artifacts and six faunal elements, recovered from 53 positive test pits in an area measuring approximately 70 m by 60 m. Given that there were at least 20 artifacts that dated Location 7 (AkHa-26) to before 1900, and the fact that the location of the site had been occupied since the mid-19th century and can be tied to a nearby structure on historical mapping, the site met the criteria identified in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having CHVI and was therefore recommended to undergo Stage 3 AA.

Location 9 (AkHa-27) consisted of 44 historical Euro-Canadian artifacts recovered from an area measuring approximately 35 m by 45 m. Given that there are at least 20 artifacts that dated Location 9 (AkHa-27) to before 1900, and the fact that the location of the site has been occupied since the mid- to late 19th century, the site met the criteria identified in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having cultural heritage value or interest (CHVI) and was therefore recommended to undergo Stage 3 AA.

Location 10 (AkHa-28), the site to which this report pertains, consisted of a single Early Archaic Nettling projectile point (8000 - 6000 BC) (OAS 1980), manufactured on Haldimand chert. As Location 10 (AkHa-28) met the criteria identified in Section 2.2, Standard 1a and b of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), it was concluded to have further CHVI and recommended for Stage 3 AA.

Location 12 (AkHa-29) consisted of 40 historical Euro-Canadian artifacts recovered from an area measuring approximately 35 m by 35 m. Given that there were at least 20 artifacts that dated Location 12 (AkHa-29) to before 1900, and the fact that the location of the site had been occupied since the mid to late 19th century, the site met the criteria identified in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having CHVI and was therefore recommended to undergo Stage 3 AA.

Location 15 (AlHa-52) consisted of 208 historical Euro-Canadian artifacts and one faunal element, recovered from an area measuring approximately 45 m by 50 m. Given that there were at least 20 artifacts that date Location 15 (AlHa-52) to before 1900, and the fact that the location of the site has been occupied since the mid- to late 19th century, the site met the criteria identified in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having CHVI and was therefore recommended to undergo Stage 3 AA.

Location 16 (AkHa-30) consisted of nine pieces of lithic debitage recovered over an area measuring approximately 20 m by 25 m. As Location 16 (AkHa-30) met the criteria identified in Section 2.2, Standard 1a of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), it was concluded to have further CHVI and recommended for Stage 3 AA.

Location 18 (AkHa-31) consisted of 771 historical Euro-Canadian artifacts, 58 faunal elements, and one piece of lithic debitage, recovered from 80 positive test pits and 100 CSP points in an area measuring approximately 95 m by 85 m. Given that there were at least 20 artifacts that date Location 18 (AkHa-31) to before 1900, and the fact that the location of the site has been occupied since the mid to late 19th century and can be tied to a structure and orchard on historical mapping, the site met the criteria identified in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having CHVI and was

therefore recommended to undergo Stage 3 AA. The single pre-contact Indigenous artifact was concluded to have no further CHVI as it did not meet the criteria Section 2.2, Standards 1a or b of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for recommending Stage 3 site-specific assessment.

Location 22 (AkHa-32) consisted of 20 pre-contact Indigenous artifacts including 17 pieces of lithic debitage, two projectile points, and one utilized flake, recovered from an area measuring 20 m by 25 m. As Location 22 (AkHa-32) met the criteria identified in Section 2.2, Standard 1a of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), it was concluded to have further CHVI and recommended for Stage 3 AA.

Location 26 (AkHa-33) consisted of five pieces of lithic debitage recovered over an area measuring 5 m by 5 m. As Location 26 (AkHa-33) met the criteria identified in Section 2.2, Standard 1a of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), it was concluded to have further CHVI and recommended for Stage 3 AA.

Location 27 (AkHa-34) consisted of 109 historical Euro-Canadian artifacts and nine faunal elements, recovered from 19 positive test pits across an area measuring approximately 40 m by 30 m. Given that there are at least 20 artifacts that date Location 27 (AkHa-34) to before 1900, and the fact that the location of the site has been occupied since the mid- to late 19th century and can be tied to a structure on historical mapping, the site met the criteria identified in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having CHVI and was therefore recommended to undergo Stage 3 AA.

Based on the results of the Stage 1 and 2 AA conducted by Archaeological Assessments Ltd. (2001), the Cameron Site (AlHa-9) consisted of 66 historical Euro-Canadian artifacts recovered over an area measuring approximately 27 m north-south by 75 m east-west. Archaeological Assessments Ltd. recommended the Cameron Site (AlHa-9) be subject to Stage 3 AA and possibly Stage 4 Archaeological Mitigation through excavation if avoidance and protection was not feasible. By the current *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), at least 20 artifacts dated the Cameron Site (AlHa-9) to before 1900 and the location of the site had been occupied since the mid- to late 19th century and could be tied to a structure on historical mapping. As such, the site met the criteria identified in Section 2.2, Standard 1c and Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) for having cultural heritage value or interest (CHVI) and was therefore recommended to undergo Stage 3 AA.

Based on the Stage 1 and 2 AA results, the following recommendations were provided (Golder 2022):

1) *Euro-Canadian sites, including Location 1 (AkHa-23), Location 2 (AkHa-24), Location 4 (AkHa-25), Location 7 (AkHa-26), Location 9 (AkHa-27), Location 12 (AkHa-29), Location 15 (AlHa-52), Location 18 (AkHa-31), Location 27 (AkHa-34), and the Cameron Site (AlHa-9) should be subject to Stage 3 Archaeological Assessment prior to any intrusive activity. The assessments should include researching all historical documentation sources listed Section 3.1 of the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), as well as any additional relevant sources. Research should also incorporate available historical and municipal information for existing heritage structures or architectural remains that may be related to the archaeological site. Subsequent Stage 3 Archaeological Assessment fieldwork should begin with a controlled surface pick-up (CSP), if applicable, and if not previously done as part of the Stage 2 survey. With the exception of the Cameron Site (AlHa-9), all other Euro-Canadian sites requiring Stage 3 Archaeological Assessment were subject to a CSP as part of the Stage 2 survey. Stage 3 test unit excavation at each Euro-Canadian site should begin by following the standards for Rural Historical Farmsteads as outlined in the MTCS's bulletin 19th Century Rural Historical Farmstead Sites (MTCS 2021)*

*and **Section 3.2.3 and Table 3.1, Standards 3-4**, of the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011). All fieldwork for the Stage 3 Archaeological Assessments should be completed in accordance with the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).*

2) *Pre-contact Indigenous sites, including Location 10 (AkHa-28), Location 16 (AkHa-30), Location 22 (AkHa-32), and Location 26 (AkHa-33) should be subject to Stage 3 Archaeological Assessment prior to any intrusive activity. The assessments should consist of the hand excavation of 1 m^2 test units that are placed across the sites to meet the objectives outlined in **Section 3.2.3 and Table 3.1, Standards 1-2**, in the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011). Location 10 (AkHa-28), Location 16 (AkHa-30), and Location 22 (AkHa-32) were each subject to a CSP that met all requirements outlined in Section 3.2.1 of the MTCS's Standards and Guidelines for Consultant Archaeologists; therefore, a CSP for these archaeological locations is not required prior to Stage 3 test unit excavation. Location 26 (AkHa-33) was identified during test pit survey and does not require a CSP. All fieldwork for the Stage 3 Archaeological Assessments should be completed in accordance with the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).*

3) Locations 3, 5, 6, 8, 11, 13, 14, 17, 19, 20, 21, 23, 24, 25, 28, and 29 as well as the pre-contact Indigenous components of Location 1 (AkHa-23) and Location 18 (AkHa-31) have been sufficiently assessed and documented, and no further archaeological assessment is recommended for these locations or components.

4) *No further archaeological assessment is recommended for portions of the Study Area that were subject to Stage 2 Archaeological Assessment and no archaeological sites or resources were identified.*

5) *Until such time that Location 1 (AkHa-23), Location 2 (AkHa-24), Location 4 (AkHa-25), Location 7 (AkHa-26), Location 9 (AkHa-27), Location 10 (AkHa-28), Location 12 (AkHa-29), Location 15 (AlHa-52), Location 16 (AkHa-30), Location 18 (AkHa-31), Location 22 (AkHa-32), Location 26 (AkHa-33), Location 27 (AkHa-34), and the Cameron Site (AlHa-9) can undergo the recommended Stage 3 assessments, the sites should be avoided and protected by establishing 70 m "no-go" zones around the extent of each site as determined by the result of the Stage 2 Archaeological Assessment survey (Supplementary Documentation, Map 1, Tiles A-E).*

And based on the proceeding recommendations, the *Aggregate Resources Act* Site Plans for the proposed Caledon Pit/Quarry were recommended to include the following conditions:

a) *A Stage 3 Archaeological Assessment is required for the following sites: Location 1 (AkHa-23), Location 2 (AkHa-24), Location 4 (AkHa-25), Location 7 (AkHa-26), Location 9 (AkHa-27), Location 10 (AkHa-28), Location 12 (AkHa-29), Location 15 (AlHa-52), Location 16 (AkHa-30), Location 18 (AkHa-31), Location 22 (AkHa-32), Location 26 (AkHa-33), Location 27 (AkHa-34), and the Cameron Site (AlHa-9).*

b) *The limits of these archaeological sites plus a 70 m buffer shall be identified on the site plans and referred to as an "Archaeological Protection Area".*

c) *Alterations are prohibited within the limits of the "Archaeological Protection Area" until such time that the MTCS has entered a report(s) in the Ontario Public Register of Archaeological Reports where the report(s) recommends that the archaeological site is of no further cultural heritage value or interest.*

d) *Any archaeological site that is of further cultural heritage value or interest that remains within the licenced area at the time of surrender of the licence will be protected through a restrictive covenant on title.*

e) *The protected sites must be fenced (post and wire) prior to commencing extraction.*

To the best of our knowledge, no additional archaeological assessments have been conducted within the limits of the current Study Area or within 50 m of the Study Area.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information Act.* The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. For this reason, maps and data that provide information on archaeological site locations are provided as supplementary documentation and do not form part of this public report.

The MCM will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

4.0 FIELD METHODS

4.1 Stage 3 Archaeological Assessment

The Stage 3 AA of Location 10 (AkHa-28) was conducted from May 17 to 18, 2022, under archaeological consulting license P364 issued to Michael Teal of WSP by the MCM (P364-0197-2022). James Steinberg (R1180), delegated licensed archaeologist for WSP, assumed responsibility of undertaking the archaeological fieldwork at the site as per Section 12 of the MCM's 2013 *Terms and Conditions for Archaeological Licences*, issued in accordance with clause 48(4)(d) of the *Ontario Heritage Act* (Government of Ontario 1990c).

The weather during the assessment was variable (see **Table 3**). At no time were the conditions detrimental to the observation or recovery of archaeological material.

Table 3: Weather During the Stage 3 Site-Specific Assessment of Location 10 (AkHa-28)

Date	Temperature	Weather Conditions
May 17, 2022	20°C	Partly cloudy
May 18, 2022	17°C	Partly cloudy

Photo locations are illustrated on Map 6. All activities undertaken during the assessment were in compliance with the *Ontario Heritage Act* (Government of Ontario 1990c) and the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

All coordinates and elevations for the Stage 3 AA were collected with a Trimble Geo7x Global Navigation Satellite System (GNSS) unit with a Zephyr-2 receiver using the UTM NAD 83 (Zone 17) datum and coordinated within the Cansel network (Can-Net) for base station references. The collected coordinates are provided as a six-digit easting with three decimal places, and a seven-digit northing with three decimal places. As the coordinates are a fixed spatial position, each survey observation can be considered a permanent and known datum point regardless of any future disturbance to the location of each observation. The GNSS receiver is a dual frequency differential GPS (DGPS) capable of real time kinematic (RTK) corrections within the Can-Net Virtual Reference Station (VRS) network. The collected coordinates provide real time accuracy between 1 to 3 cm.

Location 10 (AkHa-28) was relocated from the original Stage 2 AA data. As a controlled surface pickup (CSP) that met all requirements outlined in Section 3.2.1 of the MCM's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) was conducted for Location 10 (AkHa-28) as part of the Stage 2 AA, the Stage 3 AA began with test unit excavations. A 5 m by 5 m grid was established across the extent of the site, as determined by the Stage 2 surface find (Map 6). The grid squares are referred to by the intersection coordinates of their southwest corner. Each 5 m^2 set was further subdivided into 25 1 m^2 units, with sub-square number one located in the southwest corner of the 5 m^2 set, number five in the southeast corner, number six located immediately north of number one, and so on.

Through the Stage 2 AA, Location 10 (AkHa-28) was identified as a pre-contact Indigenous findspot where it was not yet clearly evident that Stage 4 mitigation impacts would be required. Specifically, Location 10 (AkHa-28) was identified during Stage 2 AA pedestrian survey by a single Early Archaic Nettling projectile point, and as such the Stage 3 excavation strategy of test units followed the standards in **Section 3.2.3 and Table 3.1, Standards 1-2**, of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Units on a 5-m excavation grid were placed over the Stage 2 findspot, and additional test units, amounting to 20% of each of the initial grid unit total, were placed and excavated in areas of interest within the site.

Given the associated Early Archaic cultural affiliation of the site, **Section 3.2.2, Standard 7** (pertaining to light soils) of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) was followed and 20% of all units were screened using 3 mm hardwire cloth to facilitate the recovery of very small artifacts.

Each 1 m^2 test unit was excavated to the ploughzone topsoil-subsoil interface which was then was shovel shined and examined for evidence of subsurface cultural features prior to excavation to a depth of 5 cm into the subsoil. All soil was screened through 3 mm or 6 mm hardware cloth (Image 1 and Image 2).

The Stage 3 excavation of Location 10 (AkHa-28) consisted of 8 grid units and 3 infill units for a total of 11 Stage 3 test units across an area measuring 10 m (N-S) by 10 m (E-W) (Map 6; Supplementary Documentation, Map SD1). No subsurface cultural features were identified during the Stage 3 AA. All Stage 3 test units were backfilled upon completion (Image 3).

All excavated artifacts were recorded with reference to their unit provenience and retained for laboratory analysis and description, as per Section 6.0 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

5.0 RECORD OF FINDS

The Stage 3 AA of Location 10 (AkHa-28) was conducted employing the methods described in Section 4.1. Map 6 illustrates the areas assessed and the methods employed, while Image 1 to Image 4 illustrate the conditions during the Stage 3 AA fieldwork.

The UTM coordinates are listed in the Supplementary Documentation that accompanies this report separately.

The Supplementary Documentation also contains Map SD1 showing the specific locational information of Location 10 (AkHa-28) (Map SD1).

Artifacts recovered from the Stage 3 AA of Location 10 (AkHa-28) have been washed, catalogued, and analyzed, and are stored in one banker's boxes at WSP's office at 309 Exeter Road in London, Ontario. Table 4 provides an inventory of the documentary record generated in the field, and a complete catalogue of all artifacts recovered during the Stage 3 AA of the site is provided below in Appendix A.

Table 4: Inventory of Documentary Record

Document Type	Current Location of Document	Additional Comments
Field Notes	WSP Office in London	7 pages from original field notebook. Hard copies stored in project folder and digitally in project file.
Hand Drawn Maps	WSP Office in London	One from original field notebook. Hard copy stored in project folder and digitally in project file.
Maps Provided by Client	WSP Office in London	One map stored in project folder and digitally in project file.
Digital Photographs	WSP Office in London	16 photos stored in project folder and digitally in project file.

5.1 Stratigraphy

Stratigraphy at Location 10 (AkHa-28) consisted of very compact medium brown sandy-silt loam topsoil (Lot 1), over yellow-brown sandy silt subsoil (Lot 2), with cobble inclusions. The interface of Lot 1 and 2 in some test units was observed to be mottled from the plough zone. Test units ranged from 23 cm to 32 cm in depth (Image 4).

5.2 Pre-Contact Indigenous Artifacts

The Stage 3 AA of Location 10 (AkHa-28) resulted in the recovery of four pre-contact Indigenous artifacts, all of which are pieces of lithic debitage. The artifacts were recovered from three 1 m² units across an 8 m by 4 m area and ranged from 0 to 2 pieces of debitage per 1 m² unit (Map 6).

The lithic debitage assemblage from Location 10 (AkHa-28) includes one primary thinning flake, one retouch flake, and two flake fragments (Image 5). In terms of raw materials, the primary thinning flake is on Onondaga chert, the retouch flake is on Haldimand chert, and the two flake fragments are on an undetermined type of Devonian till chert.

Onondaga chert is a high-quality raw material found within the Onondaga Formation that outcrops along the north shore of Lake Erie west of the mouth of the Grand River as far west as Nanticoke, east of the mouth of the Grand River as far east as Fort Erie, and along the Onondaga Escarpment between Cayuga and Hagersville (Telford and Tarrant 1975). This material can also be recovered from secondary, glacial deposits across much of southwestern Ontario, east of Chatham (Eley and von Bitter 1989, Fox 2009). Haldimand chert is a relatively high-quality raw material that outcrops along the Bois Blanc Formation between Kohler and Hagersville, as well as in Cayuga, Ontario (Eley and von Bitter 1989, Fox 2009).

6.0 ANALYSIS AND CONCLUSIONS

The Stage 3 AA of Location 10 (AkHa-28) resulted in the recovery of four pieces of lithic debitage made from Onondaga, Haldimand, and Devonian cherts. In addition to the artifacts recovered during the Stage 3 AA, one Early Archaic Nettling projectile point (8000 - 6000 BC) on Haldimand chert was recovered during the Stage 2 AA (Golder 2022). All artifacts were recovered in close proximity across an 8 m by 4 m area while lithic debitage was recovered in low yields ranging from 0 to 2 artifacts per 1 m² unit (Map 6).

Within the landscape, Location 10 (AkHa-28) lies in a broad, flat area with well-drained, compact sandy-silt loam (see Section 3.1.2. above). Two other pre-contact Indigenous sites, Location 16 (AkHa-30) and Location 22 (AkHa-32), are located approximately 620 m west and 700 m northwest, respectively, of Location 10 (AkHa-28). The Stage 2 assemblage for Location 16 (AkHa-30) consisted entirely of lithic debitage and, as such, no relative date for the site could be determined. In comparison, diagnostic artifacts were recovered from Location 22 (AkHa-33) including an Early Woodland Meadowood point (950-400 BC) and a Late Woodland Middleport Notched point (AD 1300-1400), along with several pieces of lithic debitage. This small cluster of sites demonstrates the use of this area by pre-contact Indigenous peoples, likely due to the subsistence resources that would have been provided by its proximity to the Credit River and one of its tributaries.

Based on the recovered artifact assemblage and the landscape of the site, Location 10 (AkHa-28) is interpreted as a small hunting or camp site associated with the Early Archaic Period (8000 - 6000 BC).

Given the relatively low number of recovered artifacts, Location 10 (AkHa-28) does not meet the criteria outlined in Section 3.4.1 or Table 3.2 of the *Standards and Guidelines for Consultant Archaeologists* for requiring Stage 4 Archaeological Mitigation and is therefore considered to been sufficiently assessed and has no further cultural heritage value or interest (Government of Ontario 2011).

7.0 RECOMMENDATIONS

The results of the Stage 3 AA for Location 10 (AkHa-28) have formed the basis for the following recommendation:

1) Location 10 (AkHa-28) has been sufficiently assessed and has been determined to have no further cultural heritage value or interest. Therefore, it is not recommended for Stage 4 mitigation of impacts.

The MCM is asked to review the results and recommendations presented herein, accept this report into the Provincial Register of archaeological reports and issue a standard letter of compliance with the Ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) and the terms and conditions for archaeological licencing.

8.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Ministry of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act* (Government of Ontario 1990c). The report is prepared 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 Section 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alterations 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 reports referred to in Section 65.1 of the *Ontario Heritage Act* (Government of Ontario 1990c).

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* (Government of Ontario 1990c).

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner (Government of Ontario 2002). It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

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10.0 IMAGES

Image 1: Stage 3 excavations in progress; facing southwest, May 17, 2022.

Image 2: Stage 3 excavations in progress; facing north, May 18, 2022.

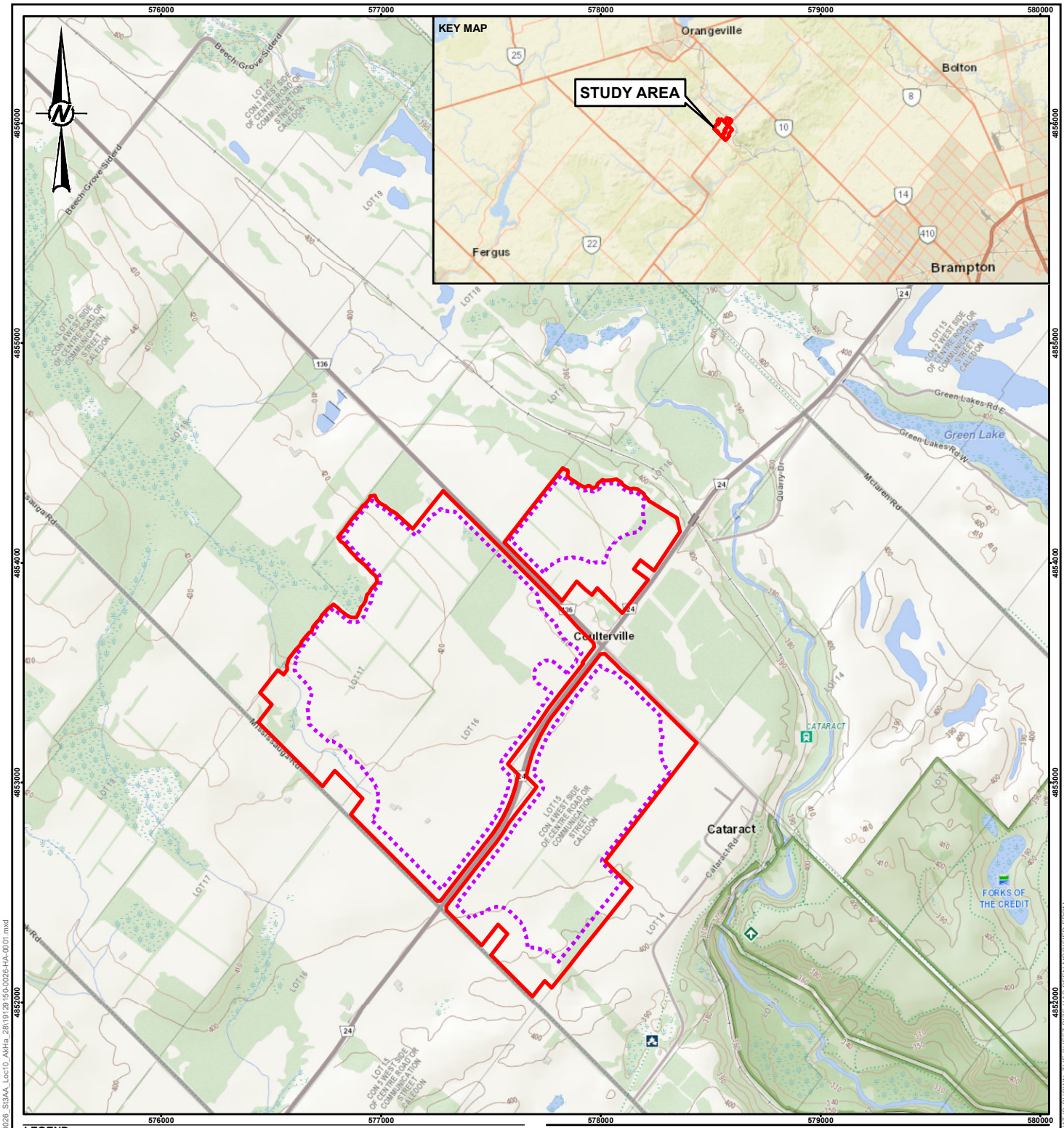
Image 3: Site completely backfilled; facing west, May 18, 2022

Image 4: A representative example of stratigraphy at Location 10 (AkHa-28); facing north, May 18, 2022.

Image 5: Artifact assemblage, lithic debitage: (left to right) primary thinning flake, retouch flake, and flake fragments (x2).

11.0 MAPS

All maps follow on the succeeding pages.



LEGEND

- LICENCE BOUNDARY / STUDY AREA
- LIMIT OF EXTRACTION

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1:25,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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2. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 17 VERTICAL DATUM: CGVD28

CLIENT

CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT

STAGE 3 ARCHAEOLOGICAL ASSESSMENT, LOCATION 10 (AkHa-28), PROPOSED CALEDON PIT/QUARRY, CALEDON, ONTARIO

TITLE

LOCATION OF STUDY AREA

CONSULTANT

wsp

YYYY-MM-DD	2023-07-14
DESIGNED	RP
PREPARED	BR
REVIEWED	----
APPROVED	HM

PROJECT NO.	CONTROL	REV.	MAP
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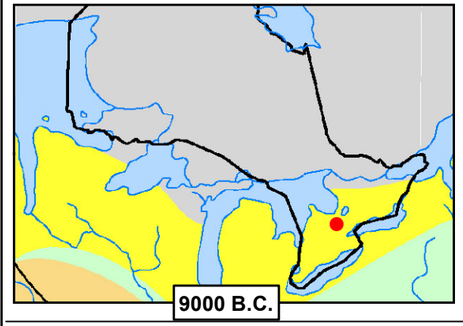
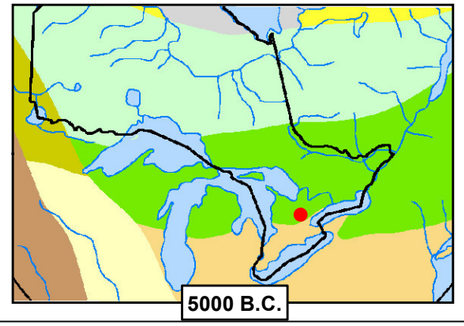
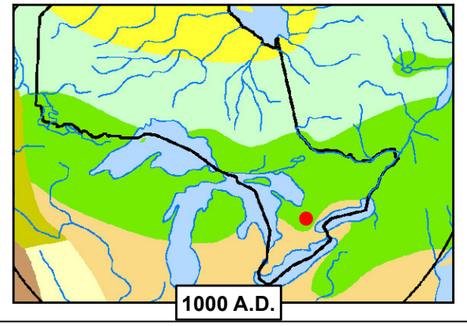




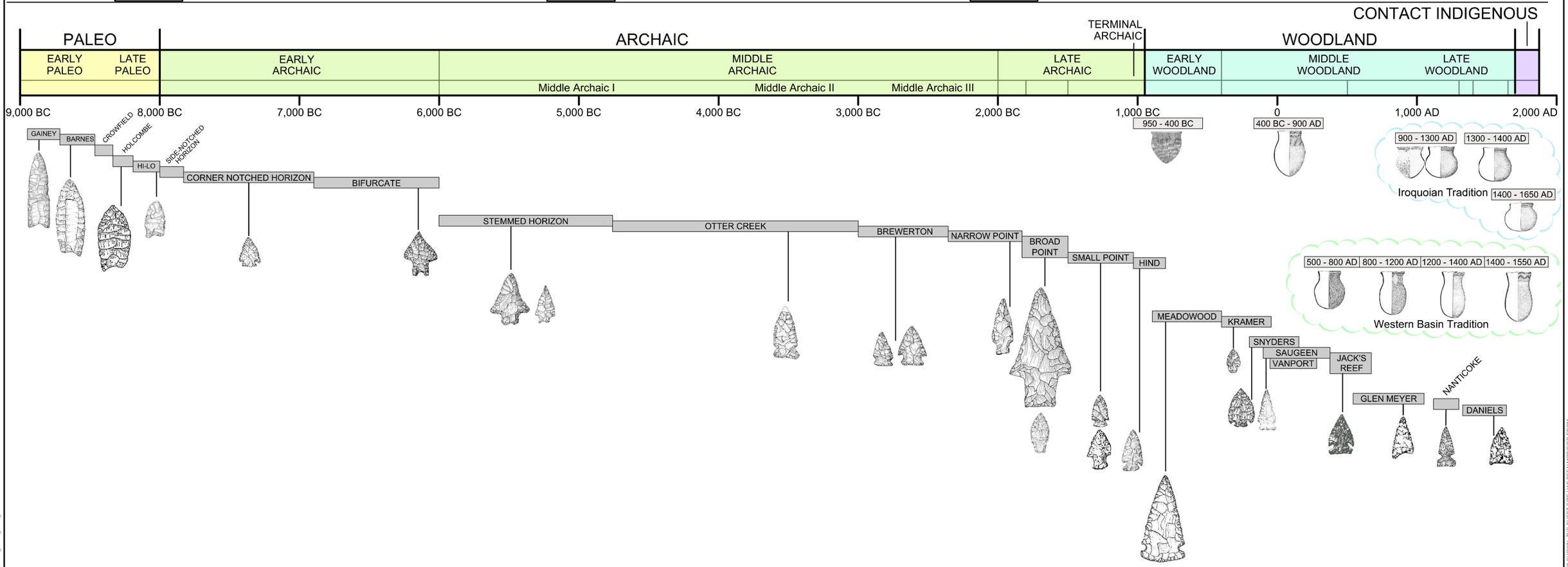


LEGEND

- STUDY AREA

VEGETATION COVERAGE

- TUNDRA
- BOREAL FOREST
- GREAT LAKES-ST. LAWRENCE FOREST
- DECIDUOUS FOREST
- DECIDUOUS WOODLANDS
- GRASSLAND
- LICHEN WOODLAND
- PARKLAND



NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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- FOX, W.A. -1981 NANTICOKE NOTCHED POINTS. KEWA 81-3.
- FOX, W.A. -1981 DANIELS TRIANGULAR POINTS. KEWA 81-1.

CLIENT

CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT

STAGE 3 ARCHAEOLOGICAL ASSESSMENT, LOCATION 10 (AkHa-28), PROPOSED CALEDON PIT/QUARRY, CALEDON, ONTARIO

TITLE

PRE-CONTACT INDIGENOUS CULTURE HISTORY

CONSULTANT

wsp

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DESIGNED	RP
PREPARED	BR
REVIEWED	----
APPROVED	HM

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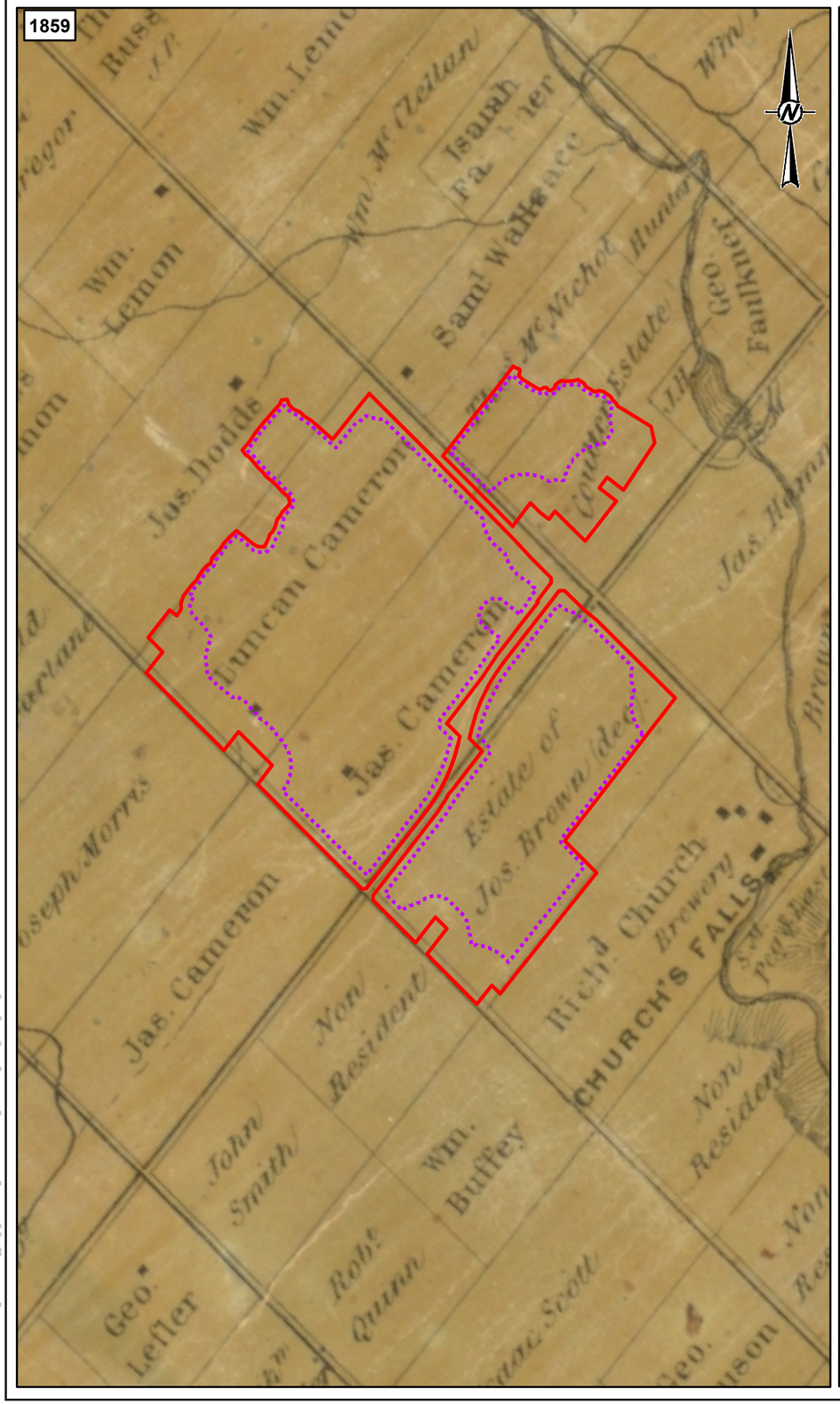

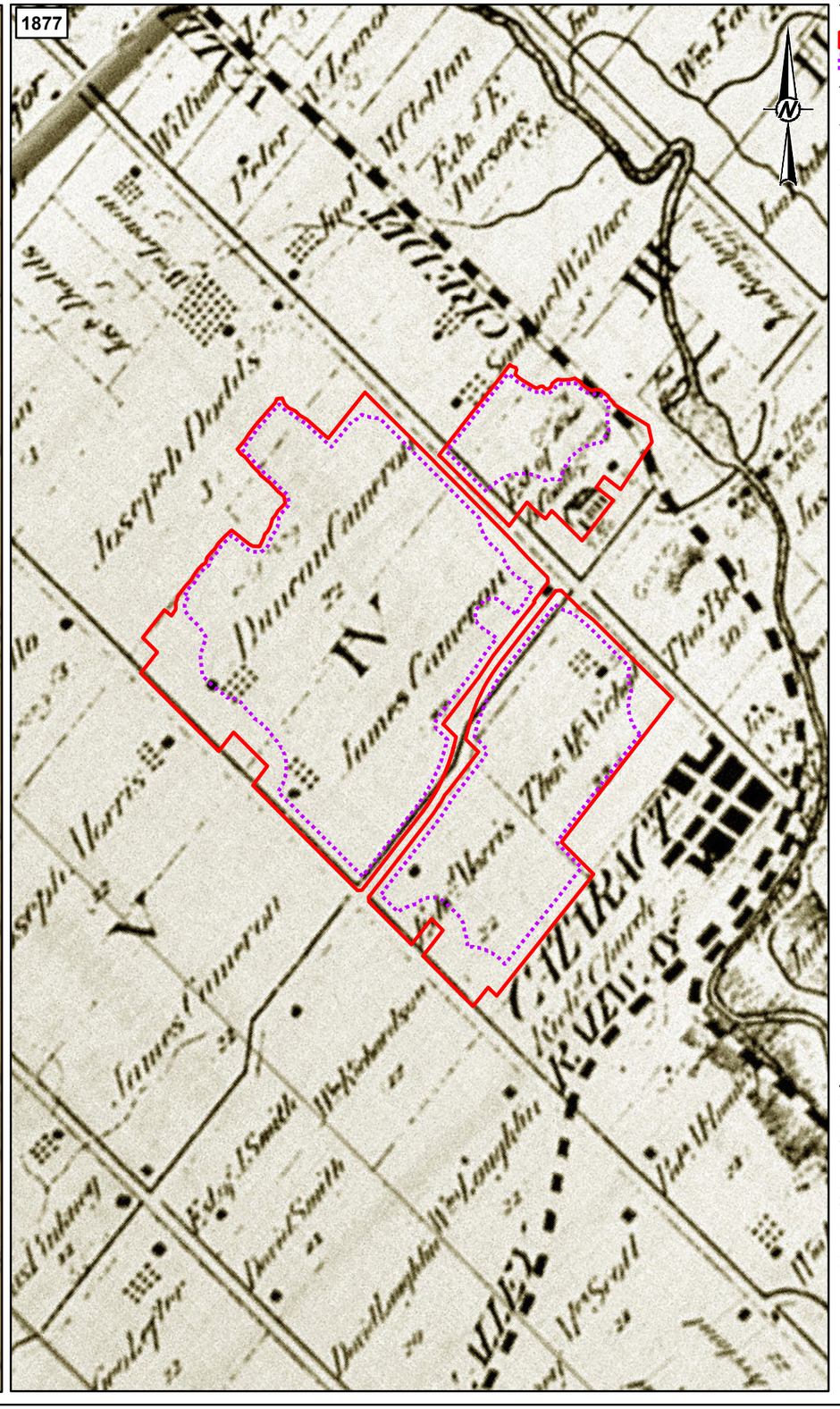

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- LICENCE BOUNDARY / STUDY AREA
- LIMIT OF EXTRACTION

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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2. 1877 TOWSHIP OF CALEDON, PEEL COUNTY (ONTARIO MAP REF #20), ILLUSTRATED HISTORICAL ATLAS OF THE COUNTY OF PEEL, ONT. TORONTO, WALKER & MILES, 1877.
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CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT
STAGE 3 ARCHAEOLOGICAL ASSESSMENT, LOCATION 10 (AkHa-28), PROPOSED CALEDON PIT/QUARRY, CALEDON, ONTARIO

TITLE
STUDY AREA OVERLAID ON 1859 AND 1877 HISTORICAL MAPS

CONSULTANT

wsp

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APPROVED	HM

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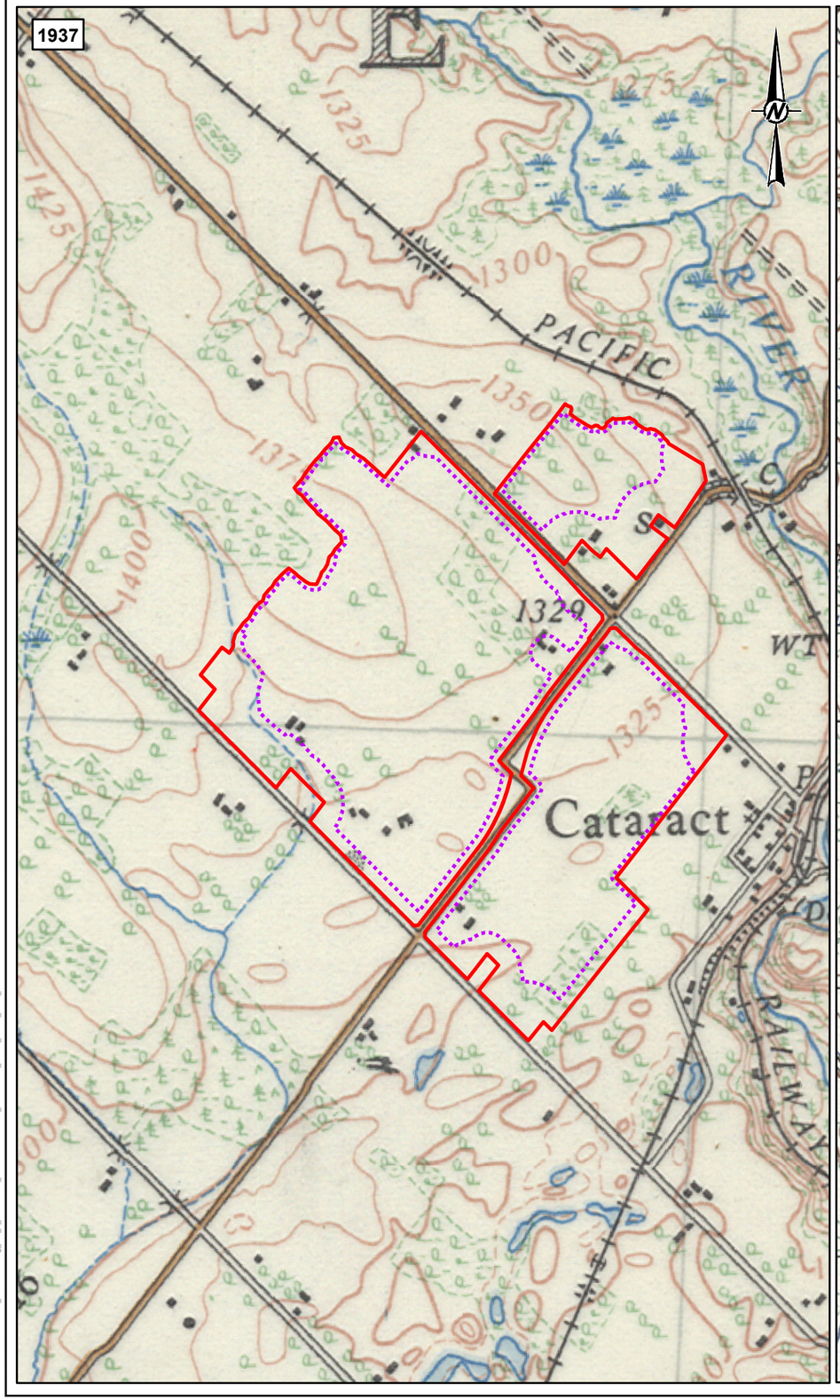

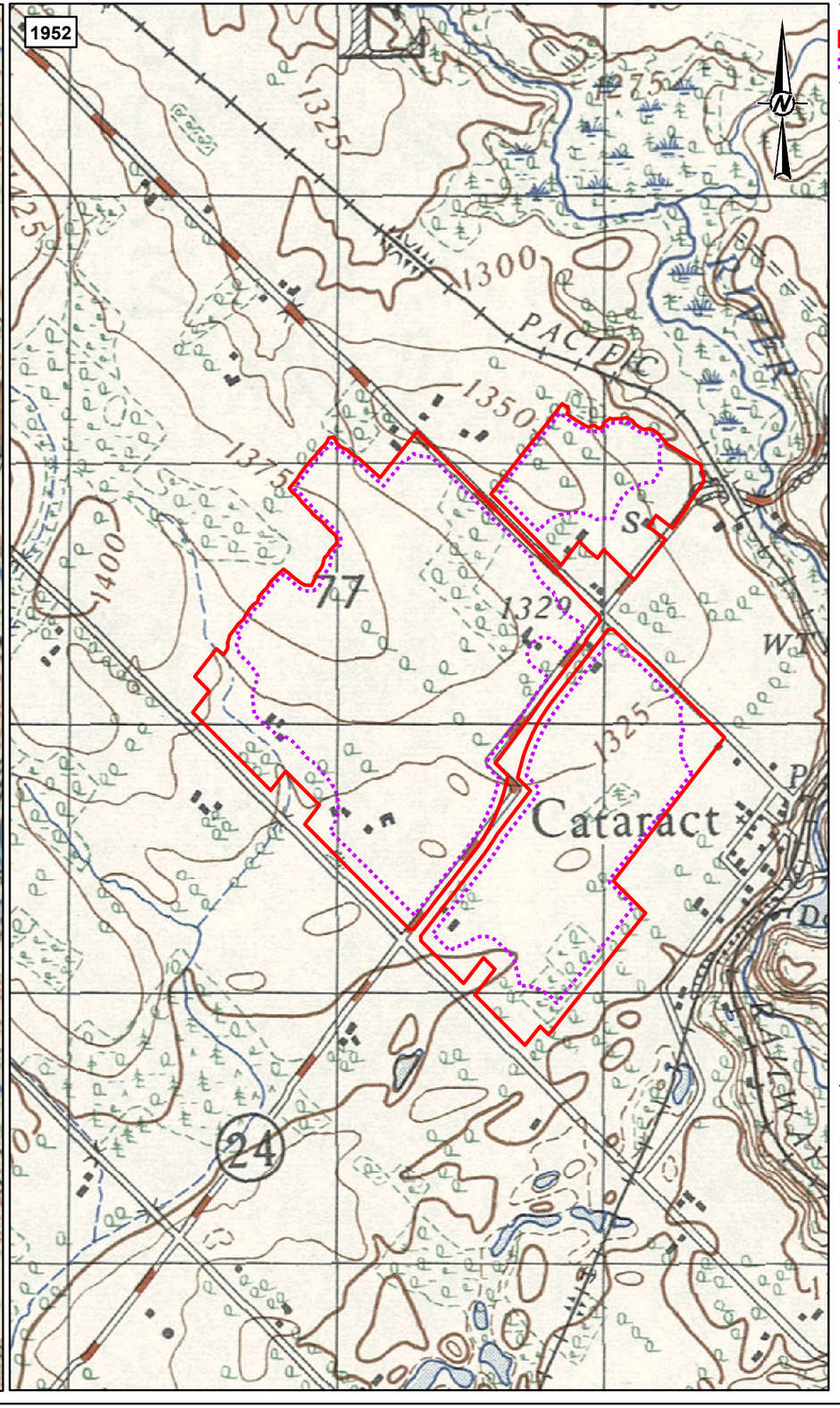

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LICENCE BOUNDARY / STUDY AREA

LIMIT OF EXTRACTION

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

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2. ORANGEVILLE (EAST) ONTARIO. 1:50,000. MAP SHEET 040P16, ED. 1, 1952
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CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT

STAGE 3 ARCHAEOLOGICAL ASSESSMENT, LOCATION 10 (AkHa-28), PROPOSED CALEDON PIT/QUARRY, CALEDON, ONTARIO

TITLE

STUDY AREA OVERLAID ON 1937 AND 1952 TOPOGRAPHIC MAPS

CONSULTANT

wsp

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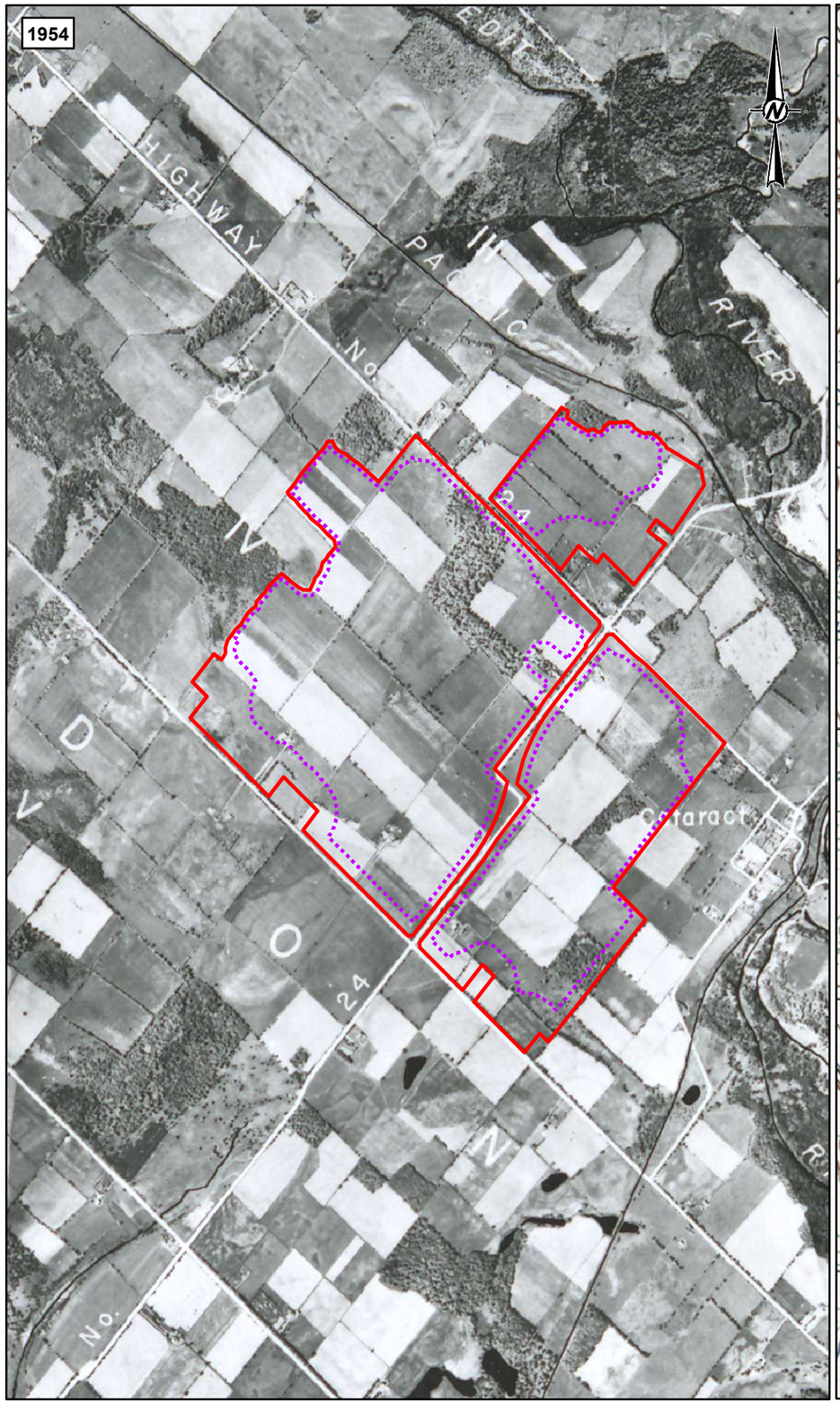

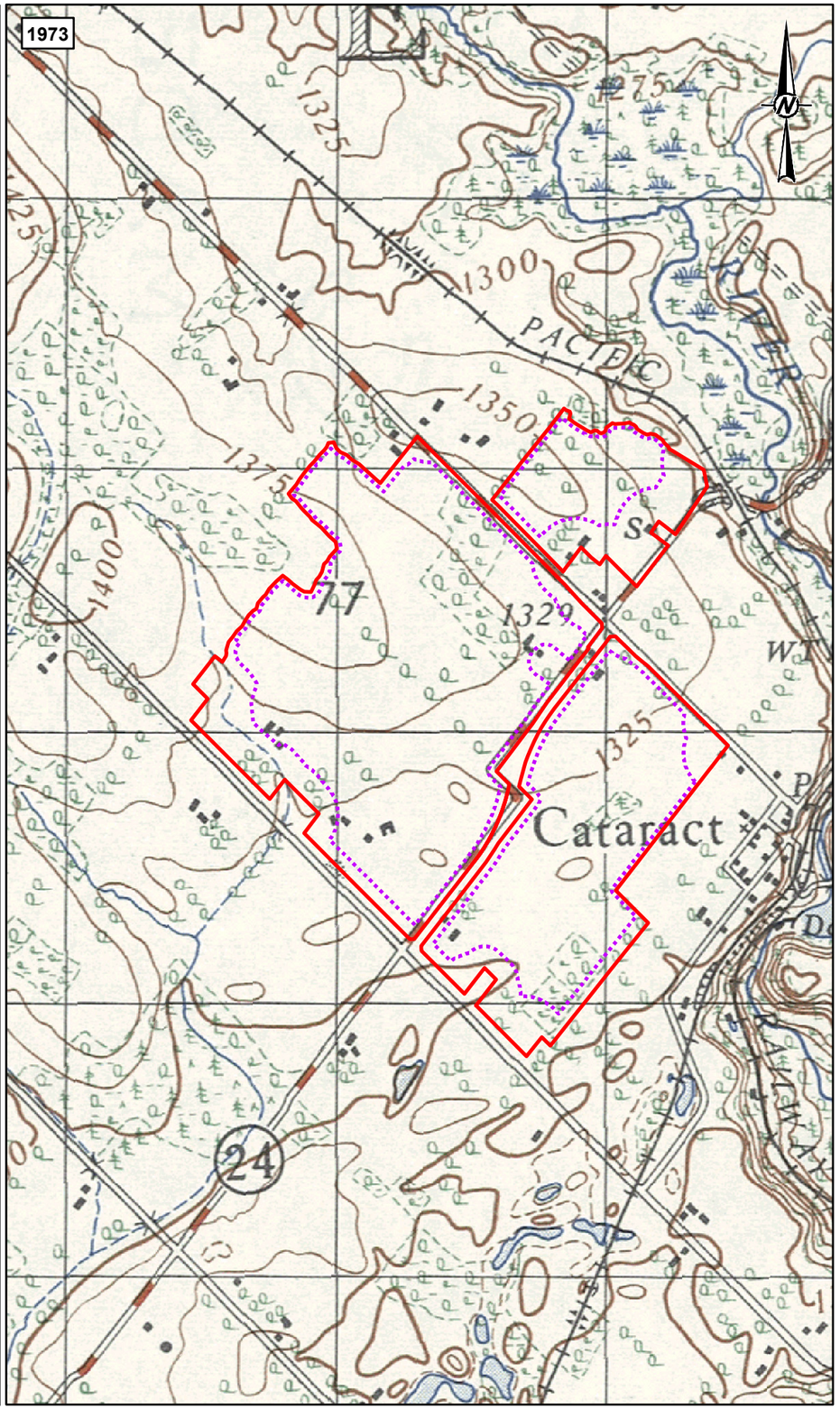

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- LICENCE BOUNDARY / STUDY AREA
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NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

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CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT

STAGE 3 ARCHAEOLOGICAL ASSESSMENT, LOCATION 10 (AkHa-28), PROPOSED CALEDON PIT/QUARRY, CALEDON, ONTARIO

TITLE

STUDY AREA OVERLAID ON 1954 AERIAL PHOTOGRAPH AND 1973 TOPOGRAPHIC MAP

CONSULTANT

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APPROVED	HM

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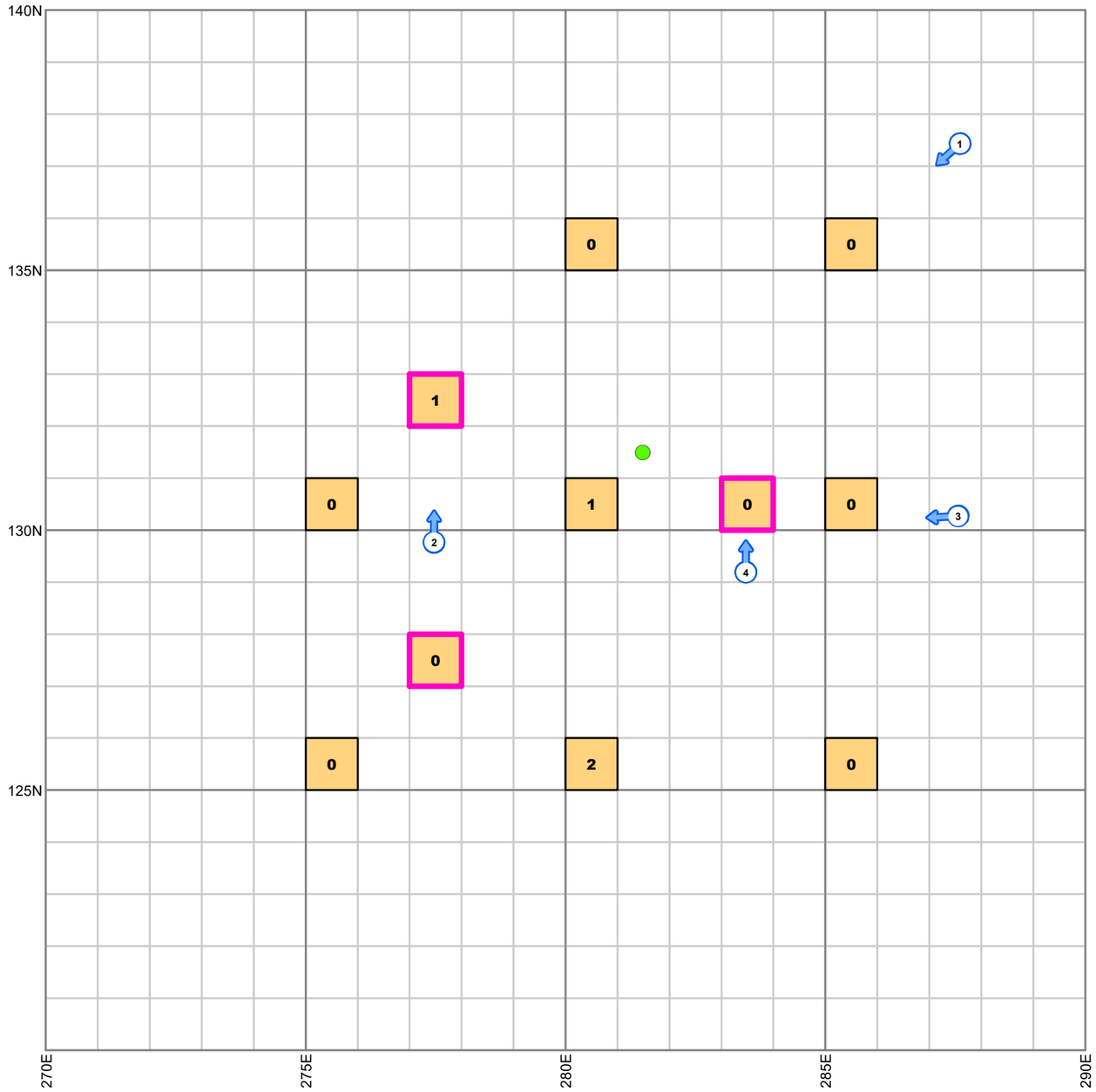

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- PHOTO LOCATION AND DIRECTION
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- STAGE 3 GRID UNIT
- STAGE 3 20% INFILL UNIT
- 1 METRE GRID
- 5 METRE GRID

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. BASE DATA MNRF LIO OBTAINED 2020
2. IMAGERY FIRSTBASE SOLUTIONS SPRING 2019 (15CM RESOLUTION) AND
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

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1:100 METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT
STAGE 3 ARCHAEOLOGICAL ASSESSMENT, LOCATION 10 (AkHa-28), PROPOSED CALEDON PIT/QUARRY, CALEDON, ONTARIO

TITLE
STAGE 3 METHODS AND RESULTS

CONSULTANT

wsp

YYYY-MM-DD	2023-07-14
DESIGNED	RP
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PROJECT NO.	CONTROL	REV.	MAP
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12.0 CLOSURE

We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned.

WSP Canada Inc.

Rebecca Meicenheimer, M.A.
Archaeologist

Michael Teal, M.A.
Archaeology Team Lead - Ontario

RM/MT/sp

https://wsponline.sharepoint.com/sites/gld-114392/project files/6 deliverables/19129150a-stage 3 aa/locations/location 10 (akha-28)/final report/p364-0197-2022_loc 10_final re-19july2024.docx

APPENDIX A

Artifact Catalogue

Appendix A
Artifact Catalogue

Cat. #	Easting	Northing	Subunit	Lot	Depth (cm)	Material 1	Material 2	Function 1	Function 2	Object	Fragment	Attribute 1	Attribute 2	Manufacture	Alteration	# of Artifacts	# of Objects	Note
1	280	130	1	1	0-22	stone	chert: haldimand	tools and equipment	debitage	primary thinning flake	proximal			chipped		1		
2	280	125	1	1	0-23	stone	chert: local till	tools and equipment	debitage	flake fragment	incomplete			chipped		2		local till (Devonian) chert is a grey-white
3	275	130	13	1	0-23	stone	chert: onondaga	tools and equipment	debitage	retouch flake	complete			chipped		1		

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