



INTERIM REPORT

Stage 1-2 Archaeological Assessment

Proposed West Extension of the Burlington Quarry, Part of Lots 1 and 2, Concession 2, Geographic Township of Nelson, Halton County, City of Burlington, Regional Municipality of Halton, Ontario.

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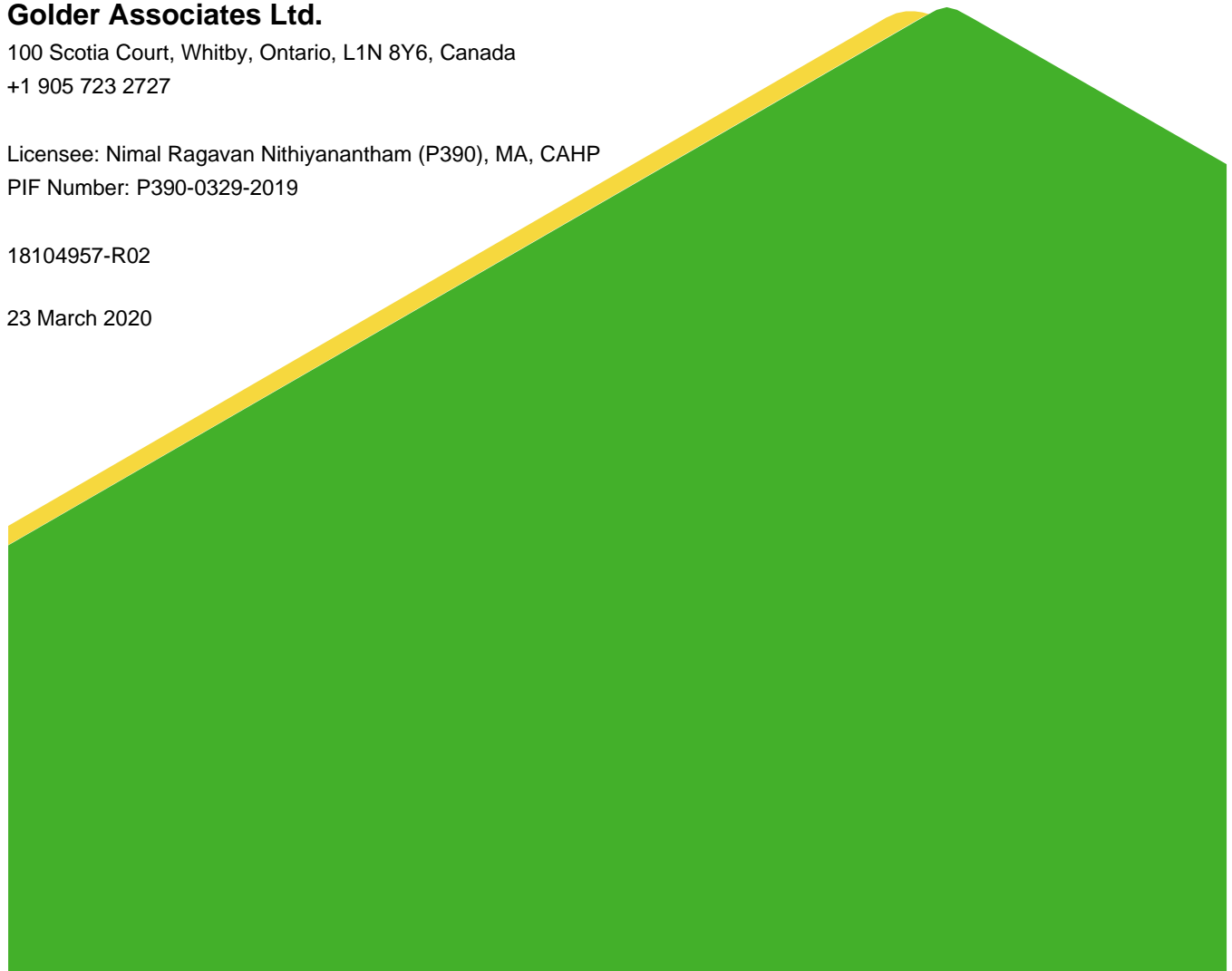
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Executive Summary

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) was retained by the Nelson Aggregates Co. to conduct a Stage 1-2 archaeological assessment for the proposed West Extension of the Burlington Quarry located at 5235 Cedar Springs Road (Burlington Springs Golf Club), City of Burlington, Regional Municipality of Halton, Ontario. The Project Area (proposed licence boundary) measures 60 hectares (ha) in size and is located on part of Lots 1 and 2, Concession 2, Geographic Township of Nelson, County of Halton.

The Stage 1-2 archaeological assessment was completed across 48.79 hectares (ha), which represented an initial proposed license boundary. The proposed licensed boundary is currently 60.0 ha, after 11.11 ha of buffer lands have been added to the proposed Western Extension area. The 11.11 ha have not been subjected to Stage 2 archaeological survey. However, Golder is scheduled to undertake this work in early 2020. An updated report will be prepared following the completion of the outstanding Stage 2 archaeological survey.

Following the criteria outlined by the Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI 2011) regarding the determination of archaeological potential, the Project Area was identified as having archaeological potential for pre- and post-Contact Indigenous resources as well as Euro-Canadian archaeological resources. Determining factors included proximity to water sources, soil texture, and proximity of historic settlement and transportation features. Based on the background research and archaeological context, the Project Area was determined to have archaeological potential.

The initial proposed license boundary was evaluated for extensive disturbance that would have removed archaeological potential, and physical features of no or low archaeological potential. Identified disturbances and physical features of no or low archaeological potential included: previous grading for the construction of the golf course, the existing golf course club house footprint, other building footprints, a paved parking lot and pathways, golf sand traps, berms and permanently wet areas and the design and development of the golf course (i.e., golf water hazards). The systematic Stage 2 archaeological survey of these areas of disturbance and physical features of no or low archaeological potential noted above was not undertaken.

The remainder of the initial proposed license boundary was subjected to a test pit survey at 5 m and 10 m intervals. No archaeological resources were encountered during Stage 2 archaeological survey of the initial proposed license boundary.

Based on the findings presented in this report, the following recommendation is presented:

1. No archaeological sites were identified during the Stage 2 archaeological survey of the initial proposed license boundary. The initial proposed license boundary may be considered free of archaeological concern. No further archaeological assessment is required for the initial proposed license boundary.
2. Stage 2 archaeological survey remains outstanding for 11.11 ha of the Project Area (proposed licence boundary).

The MHSTCI is requested to review and provide a letter indicating their satisfaction with the results and recommendations presented herein, with regard to the 2011 *Standards and Guidelines for Consultant*

Archaeologists and the terms and conditions for archaeological licences, and to enter this report into the Ontario Public Register of Archaeological Reports.

Study Limitations

Golder Associates Ltd. (Golder) has prepared this interim 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 interim report. No other warranty, expressed or implied, is made. This interim report has not been filed with the Ministry of Heritage, Sport, Tourism and Culture Industries and recommendations should be considered draft until all fieldwork has been completed and a final report submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries.

This interim report has been prepared for the specific site, design objective, developments and purpose described to Golder by Nelson Aggregates Co. (the Client). The factual data, interpretations and recommendations pertain to a specific project as described in this interim report and are not applicable to any other project or site location.

The information, recommendations and opinions expressed in this interim report are for the sole benefit of the Client. No other party may use or rely on this interim report or any portion thereof without Golder's express written consent.

If the interim report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this interim 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 interim report by others is prohibited and is without responsibility to Golder. The interim report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the interim report, but only in such quantities as are reasonably necessary for the use of the interim report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the interim report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges the electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's interim report or other work products.

Unless otherwise stated, the suggestions, recommendations and opinions given in this interim 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 comply with those identified in the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries' *Standards and Guidelines for Consultant Archaeologists* (2011).

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1.0 PROJECT CONTEXT

1.1 Development Context

Golder Associates Ltd. (Golder) was retained by the Nelson Aggregates Co. to conduct a Stage 1-2 archaeological assessment for the proposed West Extension of the Burlington Quarry located at 5235 Cedar Springs Road, City of Burlington, Regional Municipality of Halton, Ontario (Map 1). The Project Area (proposed licensed boundary) is located on part of Lots 1 and 2, Concession 2, Geographic Township of Nelson, County of Halton. This study was triggered by the *Aggregates Resources Act*, *Planning Act* and *Niagara Escarpment Planning and Development Act*.

The Stage 1-2 archaeological assessment was completed across 48.79 hectares (ha), which represented the initial proposed license boundary. The proposed licensed boundary is currently 60.0 ha after 11.11 ha of buffer lands have been added to the proposed Western Extension area. The 11.11 ha have not been subjected to Stage 2 archaeological survey. However, Golder is scheduled to undertake this work in early 2020. An update report will be prepared following the completion of the outstanding Stage 2 archaeological survey.

This Stage 1-2 archaeological assessment was conducted under the professional licence of P390 issued to Nimal Ragavan Nithiyanantham. Permission to access the initial proposed licence boundary to conduct all required archaeological fieldwork activities, including the recovery of artifacts was granted by Nelson Aggregates Co.

1.2 Objectives

The objectives of a Stage 1-2 archaeological assessment, as outlined by the 2011 *Standards and Guidelines for Consultant Archaeologists* published by the *Ministry of Heritage, Sport, Tourism and Culture Industries* (MHSTCI) (2011), are as follows:

- To provide information about the property's history, geography, previous archaeological fieldwork and current land conditions;
- To evaluate in detail the property's archaeological potential and appropriately plan Stage 2 fieldwork for all or parts of the property;
- To identify whether the property contains archaeological resources of significant cultural heritage value or interest; and,
- To recommend appropriate Stage 3 assessment strategies for any identified archaeological resources, such as archaeological sites, requiring further assessment.

All archaeological work is conducted in accordance with the *Ontario Heritage Act* and 2011 *Standards and Guidelines for Consultant Archaeologists* (MHSTCI).

1.3 Historical Context

The general culture history of southern Ontario, based on Ellis and Ferris (1990), spanning the entire pre-contact period and continuing into the post-contact period is summarised in Table 1.

Table 1: Overview of Pre-Contact Cultural Chronology of Southern Ontario

Period		Time Range (circa)	Characteristics
Paleo	Early	9000 - 8400 BC	Gainey, Barnes and Crowfield traditions; Small bands; Mobile hunters and gatherers; Utilization of seasonal resources and large territories; Fluted projectiles
	Late	8400 - 8000 BC	Holcombe, 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 (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 (Kirk, Stanly/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 (Lamoka), Broad Point (Genesee) and Small Point (Crawford Knoll) traditions; Less mobility; Use of fish-weirs; True cemeteries appear; Stone pipes emerge; Long-distance trade (marine shells and galena)
Woodland	Early	950 - 400 BC	Meadowood tradition; Crude cord-roughened ceramics emerge; Meadowood cache blades and side-notched points; Bands of up to 35 people
	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
	Late (Early Iroquoian)	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
	Late (Middle Iroquoian)	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)

Period		Time Range (circa)	Characteristics
	Late (Late Iroquoian)	AD 1400 - 1600	Pre-Contact Neutral 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

1.3.1 Pre-Contact Indigenous Settlement

The following subsections outline the pre-contact indigenous cultural or temporal periods recognized for southern Ontario.

1.3.1.1 *Paleo Period*

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 finally ice free by 12,500 years ago.

The first human settlement can be traced back 11,000 years, when this area was settled by Indigenous groups that had been living south of the Great Lakes. The period of these early Indigenous inhabitants is known as the Paleo Period (Ellis and Deller 1990).

The current understanding of settlement patterns of Early Paleo peoples suggests that small bands, consisting of probably no more than 25-35 individuals, followed a pattern of seasonal mobility extending over large territories. One of the most thoroughly studied of these groups followed a seasonal round that extended from as far south as Chatham, Ontario, to the Horseshoe Valley north of Barrie, Ontario. Early Paleo sites tend to be located in elevated locations on well-drained loamy soils. Many of the known sites were located on former beach ridges associated with glacial lakes. There are a few extremely large Early Paleo sites, such as one located close to Parkhill, Ontario, which covered as much as six hectares. It appears that these sites were formed when the same general locations were occupied for short periods of time over the course of many years. Given their placement in locations conducive to the interception of migratory mammals such as caribou, it has been suggested that they may represent communal hunting camps. There are also smaller Early Paleo camps scattered throughout the interior of south-western and southcentral Ontario, usually situated adjacent to wetlands.

The most recent research suggests that population densities were very low during the Early Paleo Period (Ellis and Deller 1990:54). Archaeological examples of Early Paleo sites are rare.

The Late Paleo Period (8400-8000 BCE) has been less well researched and is consequently more poorly understood. By this time the environment of southern Ontario was coming to be dominated by closed coniferous forests with some minor deciduous elements. It seems that many of the large game species that had been hunted in the early part of the Paleo Period had either moved further north, or as in the case of the mastodons and mammoths, become extinct.

Like the early Paleo peoples, late Paleo peoples covered large territories as they moved about in response to seasonal resource fluctuations. On a province wide basis, Late Paleo projectile points are far more common than Early Paleo materials, suggesting a relative increase in population.

The end of the Late Paleo Period was heralded by numerous technological and cultural innovations that appeared throughout the Archaic Period, likely a result of the dynamic nature of the post-glacial environment and region-wide population increases.

1.3.1.2 *Archaic Period*

During the Early Archaic Period (8000-6000 BCE), the jack and red pine forests that characterized the Late Paleo environment were replaced by forests dominated by white pine with some associated deciduous trees (Ellis, Kenyon and Spence 1990:68-69). One of the more notable changes in the Early Archaic Period is the appearance of side and corner-notched projectile points. Other significant innovations include the introduction of ground stone tools such as celts and axes, suggesting the beginnings of a simple woodworking industry. The presence of these often large and not easily portable tools suggests there may have been some reduction in the degree of seasonal movement, although it is still suspected that population densities were quite low, and band territories large.

During the Middle Archaic Period (6000-2500 BCE) the trend to more diverse toolkits continued, as the presence of netsinkers suggest that fishing was becoming an important aspect of the subsistence economy. It was also at this time that "bannerstones" were first manufactured.

Another characteristic of the Middle Archaic is an increased reliance on local, often poor-quality chert resources for the manufacturing of projectile points. It seems that during earlier periods, when groups occupied large territories, they could visit a primary outcrop of high-quality chert at least once during their seasonal round. However, during the Middle Archaic, groups inhabited smaller territories that often did not encompass a source of high-quality raw material. In these instances, lower quality materials which had been deposited by the glaciers in the local till and river gravels were utilized.

It is also 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, native copper tools manufactured from a source located northwest of Lake Superior were being widely traded (Ellis, Kenyon and Spence 1990:66). By 3500 BCE the local environment had stabilized in a near modern form (Ellis, Kenyon and Spence 1990:69).

During the Late Archaic Period (2500-950 BCE) the trend towards decreased territory size and a broadening subsistence base continued. Late Archaic sites are far more numerous than either Early or Middle Archaic sites, and it seems that the local population had expanded.

This suggestion of increased territoriality is also consistent with the regionalized variation present in Late Archaic projectile point styles. It was during the Late Archaic Period that distinct local styles of projectile points appear. Also, during the Late Archaic Period, the trade networks which had been established during the Middle Archaic continued to flourish.

1.3.1.3 *Woodland Period*

The Early Woodland Period (950 to 400 BCE) is distinguished from the Late Archaic Period primarily by the addition of ceramic technology. Furthermore, the thin, well-made projectile points which were produced during the terminal part of the Archaic Period continue in use. However, the Early Woodland variants were side-notched rather than corner-notched, giving them a slightly altered and distinctive appearance.

The trade networks which were established in the Middle and Late Archaic Periods also continued to function. 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.

In terms of settlement and subsistence patterns, the Middle Woodland (300 BCE to 500 CE) provides a major point of departure from the Archaic and Early Woodland Periods. While Middle Woodland peoples still relied on hunting and gathering to meet their subsistence requirements, fish were becoming an even more important part of the diet.

It is also 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. Unlike earlier seasonally utilized locations, these Middle Woodland sites appear to have functioned as base camps, occupied off and on over the year.

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

The Late Woodland Period is widely accepted as the beginning of agricultural life ways in south-central Ontario. The first agricultural villages in southern Ontario date to the 10th century CE. Unlike the riverine base camps of the Middle Woodland Period, these sites are located in the uplands, on well-drained sandy soils. Categorized as "Early Ontario Iroquoian" (900-1300 CE), many archaeologists believe that it is possible to trace a direct line from the Iroquoian groups which later inhabited southern Ontario at the time of first European contact, back to these early villagers.

The Middle Ontario Iroquoian Period (1300-1400 CE) 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 Ontario Iroquoian Period, now consistently range between one and two hectares. Village size also continues to expand throughout the Late Ontario Iroquoian Period, with many of the larger villages showing signs of periodic expansions.

1.3.2 Contact Period Indigenous Settlement

At the time of the European arrival, Huron-Wendat villages were located north of Lake Simcoe, however their territorial hunting grounds spanned between the Canadian Shield, Lake Ontario and the Niagara Escarpment (Warrick 2008:12). It is theorized that four nations comprised of the Attignawantan, Tahontaenrat, Attigneenongnahac and Arendahronon, joined to form a single Huron-Wendat Confederacy in defense against the Haudenosaunee (Warrick 2008:11, Trigger 1994:41). At the time of Samuel de Champlain's visit to the Huron-Wendat territory and prior to the great epidemics of 1630, the population of the Huron-Wendat was reported to number roughly 30,000 (Heidenreich 1978:36).

Ethnohistorical records left by explorers, Jesuit missionaries, and fur traders provide a history of Euro-Canadian involvement in Huron-Wendat territory. By 1609, Samuel de Champlain had interacted with the Arendahronon of the Huron-Wendat. Requesting larger quantities of furs, the French established a trading relationship with the

Huron-Wendat (Trigger 1994:68; Heidenreich, 1978:386). This resulted in the Huron-Wendat becoming the middlemen for trade goods between the French and their Algonquin, Nippissing, Tionnontaté, and Attiawandaron neighbours. By the mid-1620s, the Huron-Wendat had exhausted the pelt supply in their own hunting territories and opted to trade European goods for tobacco and furs from their neighbours (Trigger 1994:49-50). The Huron-Wendat would travel along the Nine-Mile Portage Route beginning at Kempenfeldt Bay to Willow Creek, then into the Nottawasaga River to where it empties into the Georgian Bay to seek trade with the Attiawandaron and Tionnontaté (Jury and Jury 1956:2).

1.3.3 Post-Contact Indigenous Settlement

The post-Contact Indigenous occupation of southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking peoples by the New York State Iroquois and the subsequent arrival of Algonkian-speaking groups from northern Ontario at the end of the 17th century and 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 in Indigenous lifeways, “written accounts of material life and livelihood, the correlation of historically recorded 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 Iroquoian systems of ideology and thought” (Ferris 2009:114). As a result, Indigenous peoples of southern Ontario have left behind archaeologically significant resources throughout southern Ontario which show continuity with past peoples, even if this connection has not been recorded in historical Euro-Canadian documentation.

The Project Area is situated within the Geographic Township of Nelson, County of Halton, Ontario. The Project Area is within lands that were part of Treaty 3 $\frac{3}{4}$ (Brant Tract) between the Mississaugas and the Crown (Ministry of Aboriginal Affairs 2019). The territory described in the written treaty covers approximately 3,500 acres. The treaty is known as the Brant Tract because it was purchased by the Crown for the Mohawk Chief Joseph Brant for his military service to the British during the American Revolutionary War.

1.3.4 Euro-Canadian Settlement

1.3.4.1 Halton County & Nelson Township

Halton County was bordered on the south by Lake Ontario, on the east by Peel County, on the north by Wellington County, and on the west by Wentworth County (Walker & Miles 1877). Halton County was at one time joined to Wentworth County, forming Gore District and was first settled in 1783 almost exclusively by the United Empire Loyalists (Walker & Miles 1877). Halton County was named in 1816 for Major William Mathew Halton, who was secretary to Francis Gore who served as Lieutenant-Governor of Upper Canada from 1806-1811 and from 1815-1816 (Halton Region, n.d.). The population increased steadily and by 1817 Halton was home to 6,684 people, including three doctors (Walker & Miles 1877). It also contained four churches, 18 grist mills and 41 sawmills (Walker & Miles 1877). In 1853, the population in Halton had grown significantly and Halton and Wentworth were separated (Walker & Miles 1877). Prior to 1853, Halton and Wentworth were a united region, however, as smaller units of government became desirable, the two regions were separated into different counties, and Halton County was further divided into the Townships of Esquesing, Trafalgar, Nelson and Nassagaweya (Walker & Miles 1877). In 1857, the Towns of Milton and Oakville were incorporated and in 1874 the Villages of Burlington and Acton joined the County of Halton (Walker & Miles 1877). Farming was a prosperous endeavor in Halton County, with soil suitable for agriculture and plenty of land for grazing animals (Walker & Miles 1877).

In the western portion of the County, the Burlington Mountains run from south to north (Walker & Miles 1877). There are several significant streams, notably the Credit River, the Twelve-Mile Creek, and the Sixteen-Mile Creek. Halton is also home to several railways including the Grand Trunk Railway, the Great Western Railway, the Hamilton and North-Western Railways, and the Credit Valley Railway (Walker & Miles, 1877).

In 1775 the British acquired the land within Nelson Township from the Mississaugas. The Township of Nelson was officially named after Vice-Admiral Horatio Nelson who led the British military at the Battle of Trafalgar during the Napoleonic Wars (1803-1815). Originally, the Township of Nelson was named Grant Township in recognition of Alexander Grant who was the President and Administrator of Upper Canada. The first family to arrive in the Township of Nelson was the Bates family, who settled in 1800, and the next influx of settlers arrived in 1807. By 1817, 476 inhabitants and 68 houses, two grist mills, and three sawmills were located in the Township of Nelson. By 1850, the population had increased to 3,792 individuals (Walker & Miles 1877:60).

As the population continued to grow, centres of industry developed, such as Wellington Square and Port Nelson. Wellington Square was included in part of the 3,450-acre land grant given to Chief Joseph Brant. Joseph Brant constructed his house in 1790 and began to sell or rent out parcels of his land. His family continued to do this after his death in 1807. Eight years later, James Gage purchased approximately 338 ½ acres from Catherine Brant and Augustus Jones, trustees under Joseph Brant's will, who surveyed the land into blocks for settlement and named the village Wellington Square. A steam and flouring mill, wharf and warehouse were constructed, and Wellington Square became a considerable grain market in Halton County. Port Nelson, located at the foot of Guelph Line, a plank road, was included in lands purchased by James Gage. Port Nelson was connected to Wellington Square by Lakeshore Road and functioned as additional wharfs (Walker & Miles 1877:60)

During the latter half of the nineteenth century, the wheat market relocated westward and Burlington became a centre for fruit production and export. In 1873, Wellington Square and Port Nelson incorporated as the Village of Burlington, and in 1914 Burlington became a town (Burlington Public Library, 2013).

1.3.4.2 West Half of Lots 1 & 2, Concession 2

The 1858 *Historical County Map of Halton County* (Tremaine 1858) and the 1877 *Illustrated Historical Atlas of the County of Halton* (Walker & Miles 1877) offer an understanding of the mid to late nineteenth century land use of the Project Area. The review of historic mapping also aids to understand the archaeological potential of the Project Area. Per MHSTCI (2011), lands within 300 m of early Euro-Canadian settlements (e.g., pioneer homesteads, isolated cabins, farmstead complexes), 300 m of a water source (e.g., lakes, rivers, streams, creeks, intermittent streams and creeks, springs, marshes, swamps), and 100 metres of early historic transportation routes (e.g., trails, passes, roads, railways, portage routes) are considered to have archaeological potential.

According to the 1858 *Historical County Map of Halton County*, the west half of Lot 1 was owned by Sylvester Inglehart and all of Lot 2 was owned by John Buckley (Map 2). Two historic transportation routes – present-day Cedar Springs Road and 2 Side Road are illustrated along the west and south limits of the Project Area. Additionally, a tributary of Grindstone Creek and a sawmill are located within 300 m of the Project Area. The Project Area was being used for agricultural purposes at this time.

The 1877 *Illustrated Historical Atlas of the County of Halton* illustrates the west half of Lot 1 to have changed ownership to W.J. Thomas, and all of Lot 2 remained under the ownership of John Buckley (Map 2). This mapping illustrates the presences of a homestead on the west of half of both lots, as well as five historic structures, water sources and historic transportation routes within proximity to the Project Area to support its archaeological potential. The Project Area continued to be utilized for agricultural purposes.

Historical mapping since 1877 illustrates the Project Area's relatively uninterrupted rural character and agricultural land use (Map 3 and Map 4). The Burlington Springs Golf Club was built in 1962 and opened in 1963.

1.4 Archaeological Context

1.4.1 Geographic Context

The Project Area is situated within the Norfolk Sand Plain physiographic region. The Norfolk Sand Plain is a wedge-shaped feature that extends from the Lake Erie shoreline and tapers northward to a point in Brantford on the Grand River (Chapman and Putnam 1984: 153-154). The region encompasses an area of 3,134 square kilometres and consists of sands and silts that were deposited as a delta in glacial Lakes Whittlesey and Warren. A massive discharge of meltwater from the Grand River area entered the lakes between the ice front and the moraines to the northwest, building the delta from west to east as the glacier withdrew, thus covering most of the area west of the Galt Moraine with sand.

Soils in the Project Area include imperfectly drained London loam; very poorly drained Marsh; and poorly drained Colwood loam. The topography of the Project Area is generally level, averaging 272 metres (m) above-sea-level.

Potable water is an important resource necessary for any extended human occupation or settlement. As water sources have remained relatively stable in Ontario since post-glacial times, proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Hydrological features such as primary water sources (i.e. lakes, rivers, creeks, streams) and secondary water sources (i.e. intermittent streams and creeks, springs, marshes, swamps) would have helped supply plant and food resources to the surrounding area. Per MHSTCI (2011), lands within 300 m of a water source are deemed to have archaeological potential. Tributaries of Grindstone Creek are located in and within proximity to the Project Area (Map 1).

1.4.2 Existing Conditions

The Project Area is located at 5235 Cedar Springs Road within the active Burlington Springs Golf Club. The Project Area has irregular boundaries on all sides, and measures approximately 60 ha in size. The Project Area's immediate setting is rural, with single-family dwellings to the west and south, agricultural lands to the north, Camisle Golf to the southeast, and Burlington Quarry to the east and northeast. The Project Area fronts Colling Road to the northwest, Cedar Springs Road to the southwest, and 2 Side Road to the southeast. The Niagara Escarpment is located between 1.5 km and 2.0 km from Project Area, and Lake Ontario is located approximately 10.9 km south of the Project Area. Within and surrounding the Project Area, the topography is relatively flat, sloping slightly south towards Lake Ontario.

The Project Area is accessed from Cedar Spring Road via a long-paved driveway that leads to the golf course parking lot. The 18-hole golf course includes a club house, outbuildings, golf playing areas (i.e., greens, fairways, roughs), and woodlots.

1.4.3 Registered Archaeological Sites

Per MHSTCI (2011), to compile an inventory of archaeological resources, the registered archaeological site records maintained by the MHSTCI in the Ontario Archaeological Site Database (OASD) were consulted.

Five archaeological sites are registered within 1 km of the Project Area (Table 2). Four of these sites are associated with the Indigenous cultural affiliation, which is indicative of Indigenous occupation of the surrounding area. However, all five registered archaeological sites are located greater than 300 m from the Project Area, and, thus, does not contribute to the archaeological potential of the Project Area.

Table 2: Registered Archaeological Site within 1 km of Project Area

Borden Number	Site Name	Time Period	Cultural Affiliation	Site Type	Current Development Status
AiGx-2	-	Pre-Contact-	Indigenous	Findspots	No further CHVI
AiGx-23	Garnet Colins	-	-	-	-
AiGx-238	-	Pre-Contact	Indigenous	Campsite	No further CHVI
AiGx-239	-	Pre-Contact	Indigenous	Campsite	No further CHVI
AiGx-240	-	Pre-Contact	Indigenous	Campsite	No further CHVI

‘-’ denotes information unavailable; ‘CHVI’ denotes Cultural Heritage Value or Interest

1.4.4 Previous Archaeological Assessments

Per *Section 1.1., Standard 1.* of the MHSTCI (2011), a review of previous archaeological assessments undertaken within the Project Area or within 50 m of the Project Area was assessed. There was no previous archaeological assessment undertaken adjacent to and within the Project Area.

1.4.5 Date of Fieldwork

The Stage 2 archaeological assessment was undertaken in 2019 between July 22 and October 18. The weather and lighting conditions during the Stage 2 investigation permitted good visibility of all parts of the initial proposed license boundary and were conducive to the identification and recovery of archaeological resources (Table 3).

Table 3: Dates of Fieldwork and Weather Conditions.

Date	Temperature	Weather Condition
July 22	24.7°C	Overcast
July 23	25.5°C	Sunny
July 24	25.7°C	Sunny
July 25	27.4°C	Sunny
July 26	27.8°C	Sunny
July 29	29.2°C	Sunny with clouds
July 30	27.8°C	Overcast with precipitation
October 15	14.6°C	Sunny
October 17	8.7°C	Overcast
October 18	11.8°C	Sunny

2.0 FIELD METHODS

This field assessment was conducted in compliance with the MHSTCI (2011). Photographic images of the Stage 2 investigation are presented within Appendix B. The results of the Stage 2 archaeological assessment are provided on Map 5 and Map 6.

2.1 Disturbances & Physical Features

Per Section 1.3.2 of the MHSTCI (2011), the initial proposed license boundary was evaluated for extensive disturbance that would have removed archaeological potential. According to the MHSTCI (2011), disturbances may include but are not limited to: grading below topsoil, quarrying, building footprints, or sewage and infrastructure development. Also, the initial proposed license boundary was evaluated for physical features of no or low archaeological potential. These usually include but are not limited to permanently wet areas, exposed bedrock, and steep slopes (greater than 20°) except in locations likely to contain pictographs or petroglyphs, per Section 2.1, Standard 2.a (MHSTCI 2011).

As the initial proposed license boundary encompasses an existing golf course, wherein it is assumed extensive disturbance are likely to have taken place during its construction, a grading assessment was completed for the initial proposed license boundary (Supplementary Document). The grading assessment focused on the golf fairways of the initial proposed license boundary. The grading assessment the evaluated the degree of disturbance that resulted from earthmoving activities associated with the construction of the golf course through a detailed analysis of the change in topography over time. First Base Solutions was retained to create a Digital Elevation Model (DEM) using photogrammetric techniques from stereoscopic pairs of aerial photos from 1961; the year construction began on the golf course. A DEM was also created from 2019 drone imagery. Using GIS mapping tools, the two DEMs were subtracted to determine change in topography to assist with understanding previous gradings (i.e., disturbance). Areas that have had more than 0.5 m (+/-) of change in topography were determined to be extensively disturbed. The grading assessment and results were consulted with and supported by the MHSTCI (Supplementary Document).

Furthermore, the golf putting greens – constructed employing United States Golf Association (USGA) specifications, was supported by the MHSTCI to be disturbed and not requiring Stage 2 archaeological survey.

Additional areas of disturbances and physical features of no or low archaeological potential were visually identified and determined to not require Stage 2 archaeological survey, including: the existing golf course club house footprint, other building footprints, a paved parking lot and pathways, golf sand traps, berms and permanently wet areas and the design and development of the golf course (i.e., golf water hazards) (Images 1-9).

The systematic Stage 2 archaeological survey of these areas of disturbance and physical features of no or low archaeological potential noted above was not undertaken. Disturbances of no archaeological potential amounted to approximately 19 ha of the Project Area, and physical features of no or low archaeological potential amounted to approximately 2.59 ha of the Project Area.

2.2 Test Pit Survey

The remainder of the initial proposed license boundary consisting of potentially undisturbed golf fairway areas, golf rough areas, woodlots, areas of overgrown vegetation, and grassed areas was subjected to a test pit form of survey. A test pit form of survey involves the systematic walking of an area, excavating 30-centimetre diameter pits by hand, and examining their contents. The test pit survey was performed in a grid pattern and commenced either on a five-metre and 10 m intervals (Images 10-17). All undisturbed areas with the exception of the

potentially undisturbed golf fairway areas were subjected to test pit survey at 5 m intervals. The potentially undisturbed golf fairway areas were subjected to test pit survey at 10 m intervals – this strategy was supported by the MHSTCI (Supplementary Document). All topsoil was screened through six-millimetre wire mesh to facilitate the recovery of artifacts. All test pits were examined for stratigraphy, cultural features, and evidence of fill. All test pits were excavated into the first five centimetres of subsoil. All test pits were backfilled, per Section 2.1.2 (MHSTCI 2011).

Approximately 15.27 ha of the Project Area was subjected to a test pit survey at five-metre intervals. Approximately 11.98 ha of the Project Area was subjected to a test-pit survey at 10-metre intervals. Test pits were excavated to depths ranging from 25 to 40 centimetres in silty clay and clay soils (Images 18-20). No archaeological resources were encountered during Stage 2 archaeological survey.

2.3 Outstanding Fieldwork

As noted in Section 1.1, 11.11 ha of Project Area (buffer lands) still need to be subjected to Stage 2 archaeological surveyed. Golder is scheduled to complete this outstanding Stage 2 archaeological survey in early 2020, and, an updated report will be prepared following the completion of the field program.

3.0 RECORD OF FINDS

No archaeological resources were identified during the Stage 2 archaeological survey. An inventory of the documented record generated from the assessment is provided in Table 4.

Table 4: Inventory of Documentary and Material Record

Document/ Material	Location	Comments
Research/ analysis/ reporting material	Stored on Golder's network servers.	Background research material.
Written field notes/ annotated field maps/ images	Stored on Golder's network servers.	Field notes – 10 digital files Field maps – Two digital file Images – 257 digital files

4.0 ANALYSIS AND CONCLUSIONS

Archaeological potential is established by determining whether any features or characteristics indicating potential are located on or in the vicinity of a Project Area. Features and characteristics that indicate a higher potential for archaeological resources are defined within Section 1.3.1 of the *Standards and Guidelines for Consultant Archaeologists* (MHSTCI 2011:17-18) and include:

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

Many of the above features of archaeological potential have a buffer assigned to them, extending the zone of archaeological potential beyond the physical feature. The following buffers are commonly accepted by the

MHSTCI and specifically indicated in Section 1.4 of the *Standards and Guidelines for Consultant Archaeologists* (MHSTCI 2011:20-21):

- 300 m buffer: previously identified archaeological site; water sources; areas of early Euro-Canadian settlement; or locations identified through local knowledge or informants.
- 100 m buffer: early historical transportation route.

In the event no buffer is inherently present, the potential is restricted to the physical limits or the feature: elevated topography, pockets of well-drained sandy soil, distinctive land formations, resources areas, listed or designated properties and landmark properties.

4.1 Potential for Indigenous Archaeological Resources

Potential for Indigenous archaeological sites are established by determining the likelihood that archaeological resources may be present in a Project Area. Archaeological potential criteria commonly used by the MHSTCI (2011) were applied to determine areas of archaeological potential within the Project Area. These variables include distance to previously identified archaeological sites, distance to various types of water sources, drainage, soil type, glacial geomorphology, and the general topographic variability of the area.

Distance to water sources is an important determinant of past human settlement patterns and may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils, or topographic variability, may also indicate archaeological potential.

In archaeological potential modelling, a distance to water criterion of 300 m is generally employed for water sources, including lakeshores, rivers, creeks, and swamps. The closest hydrological features are tributaries of Grindstone Creek that are located in and within 300 m of the Project Area.

The Project Area is located within Norfolk Sand Plain physiographic region of Southern Ontario. Soil texture can be an important determinant of past settlement, usually in combination with other factors, such as topography. The soils of the Project Area consisted of predominately of Soils in the Project Area include imperfectly drained London loam, which would have been suitable for pre-contact Indigenous agricultural practices and settlement. This is supported by the presence of four registered Indigenous intermediate settlement sites within 1 km of the Project Area. When the above data of archaeological potential is applied to the Project Area, it can be concluded that the Project Area has archaeological potential for Indigenous archaeological resources.

4.2 Potential for Historic Euro-Canadian Resources

The criteria used by the MHSTCI to determine potential for Euro-Canadian archaeological sites include the presence of: 1) particular, resource-specific features that would have attracted past subsistence or extractive uses; 2) areas of initial, non-Indigenous settlement; 3) early historic transportation routes; 4) previously identified archaeological sites; and 5) properties listed or designated under the Ontario Heritage Act.

As stated in Section 4.1, water sources are located in and within 300 m of the Project Area. Area of early Euro-Canadian settlements (e.g., pioneer homesteads, isolated cabins, farmstead complexes, early wharf or dock complexes, pioneer churches, and early cemeteries), early historic transportation routes (e.g., trails, passes, roads, railways, portage routes), and properties that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations, are considered features of archaeological potential. A review of nineteenth century mapping illustrates early Euro-Canadian settlements in and within 300 m of the Project Area, as well as within 100 m of historic settlements and routes.

When the above data of archaeological potential is applied to the Project Area, it can be concluded that the Project Area has archaeological potential for historic Euro-Canadian archaeological resources.

4.3 Archaeological Integrity

A negative indicator of archaeological potential is extensive below-grade land disturbance. This includes widespread earth movement activities that would have removed or relocated any archaeological resources to such a degree that their information potential and CHVI has been lost. Activities that are recognized to cause sufficient disturbance to remove archaeological potential include: quarrying, major landscaping involving grading below the topsoil, building footprints, and infrastructure development. Activities including agricultural cultivation, gardening, minor grading, and landscaping do not necessarily remove archaeological potential (MHSTCI 2011:18).

Furthermore, physical features including but are not limited to permanently wet areas, exposed bedrock, and steep slopes (greater than 20°) except in locations likely to contain pictographs or petroglyphs, per Section 2.1, Standard 2.a (MHSTCI 2011) are indicators of no or low archaeological potential.

Per Section 2.1, parts of the initial proposed license boundary have been subjected extensive disturbances and/or consist of physical features of no or low archaeological potential. The systematic Stage 2 archaeological survey of these areas of disturbance and physical features of no or low archaeological potential noted above was not undertaken.

4.4 Stage 2 Archaeological Survey

No archaeological sites were identified during the Stage 2 archaeological survey of initial proposed license boundary. As noted in Section 1.1, 11.11 ha of buffer lands still need to be subjected to Stage 2 archaeological survey. Golder is scheduled to complete this outstanding fieldwork in early 2020, and, an updated report will be prepared following the completion of the field program

4.5 Conclusions

The initial proposed license boundary may be considered free of further archaeological concerns.

5.0 RECOMMENDATIONS

Based on the findings presented in the preceding sections of this report, the following recommendation is presented:

1. No archaeological sites were identified during the Stage 2 archaeological survey of the initial proposed license boundary. The initial proposed license boundary may be considered free of archaeological concern. No further archaeological assessment is required for the initial proposed license boundary.
2. Stage 2 archaeological survey remains outstanding for 11.11 ha of the Project Area.

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

6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This interim report is not submitted to the Ontario Minister of Heritage, Sport, Tourism and Culture Industries for review. The final report will be submitted to the Ontario Minister of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c O.18. The final report will be reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the ministry stating that there are no further concerns regarding alterations to archaeological sites by the proposed development.

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

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

The *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. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

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

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Signature Page

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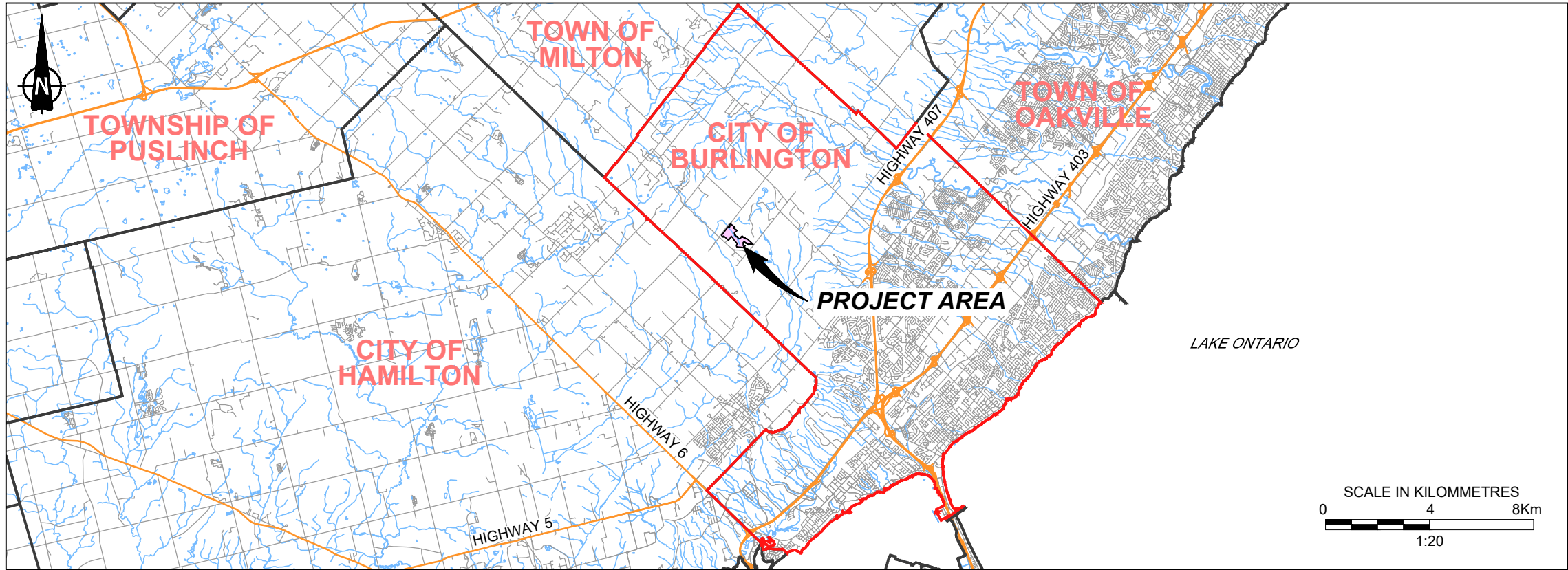
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APPENDIX A

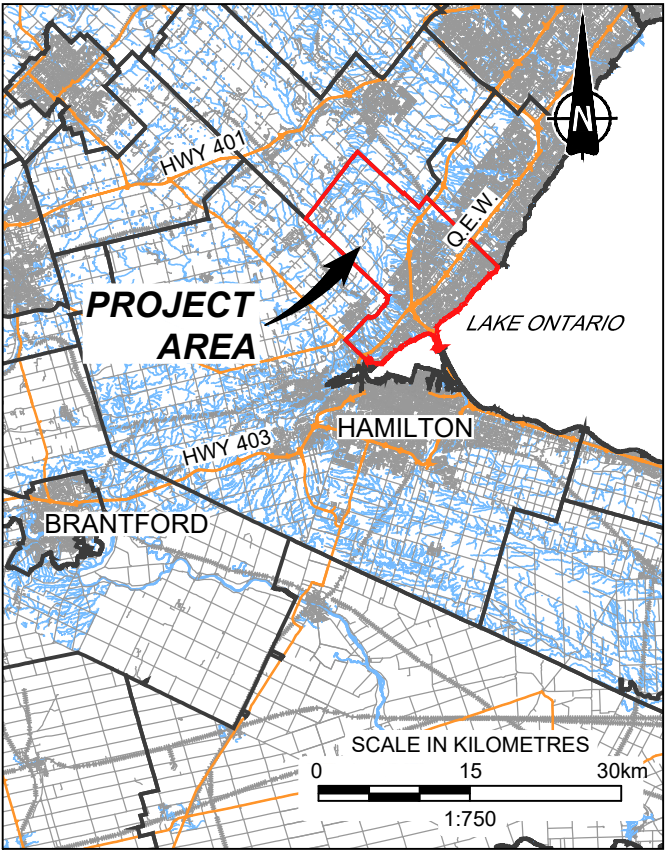
Maps



BING AERIAL IMAGERY and OBM MAPPING



REGIONAL MAP



KEY PLAN

LEGEND

- APPROXIMATE PROJECT AREA
- CITY BURLINGTON BOUNDARY
- TOWNSHIP/MUNICIPALITY BOUNDARY
- BURLINGTON TOWNSHIP/MUNICIPALITY

REFERENCE

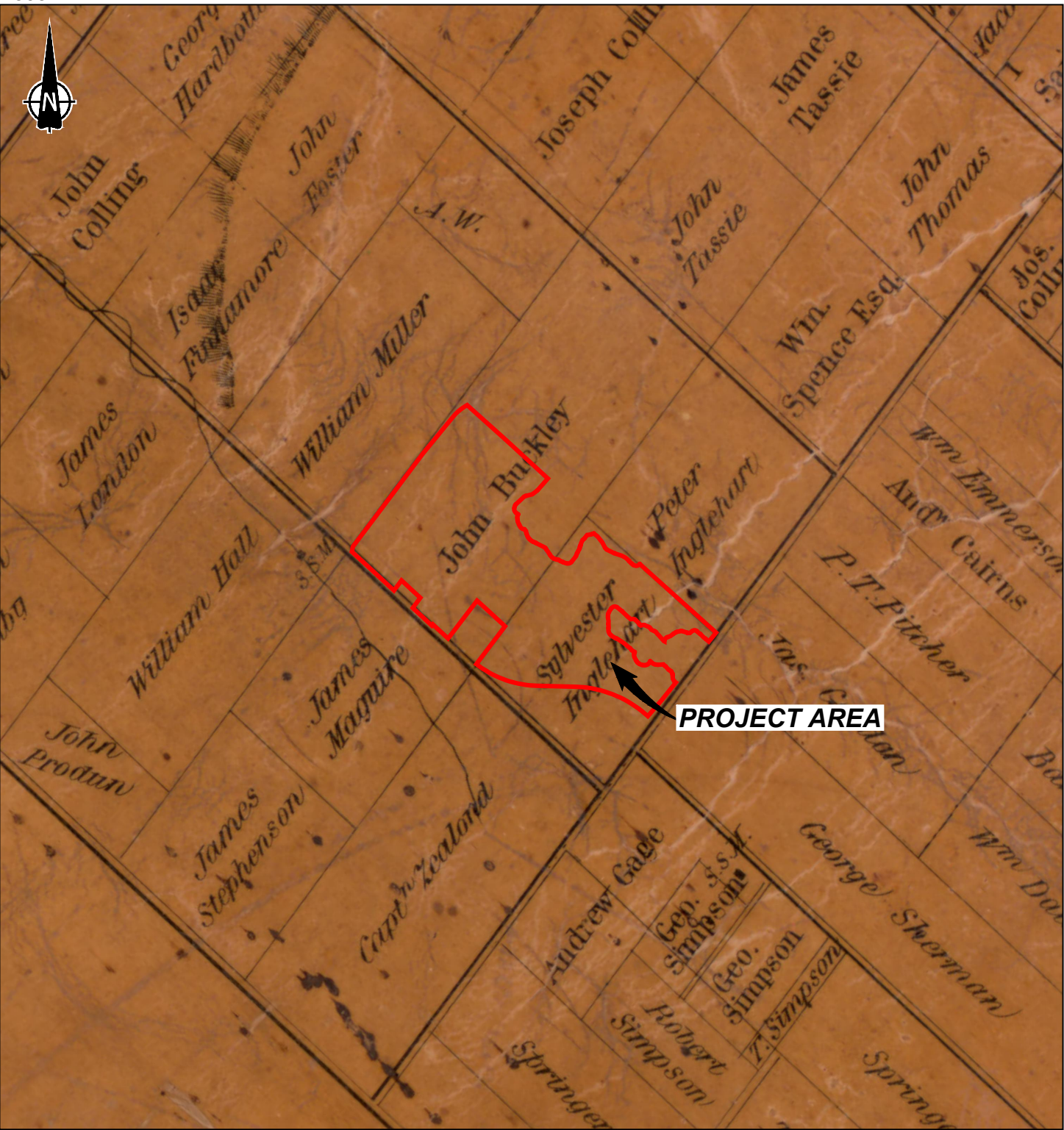
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PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;
BING AERIAL IMAGE AS OF NOVEMBER 26, 2019 (IMAGE DATE UNKNOWN); AND
CANMAP STREETFILES V2008.4.

NOTES

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ALL LOCATIONS ARE APPROXIMATE.

PROJECT STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT WEST EXTENSION OF BURLINGTON QUARRY BURLINGTON, ONTARIO			
TITLE LOCATION MAP			
	PROJECT No.	18104957	FILE No. 18104957-R01001
	CADD	Z.B./DCH	Mar 11/20
	CHECK		
			SCALE AS SHOWN REV.
			MAP 1

1858



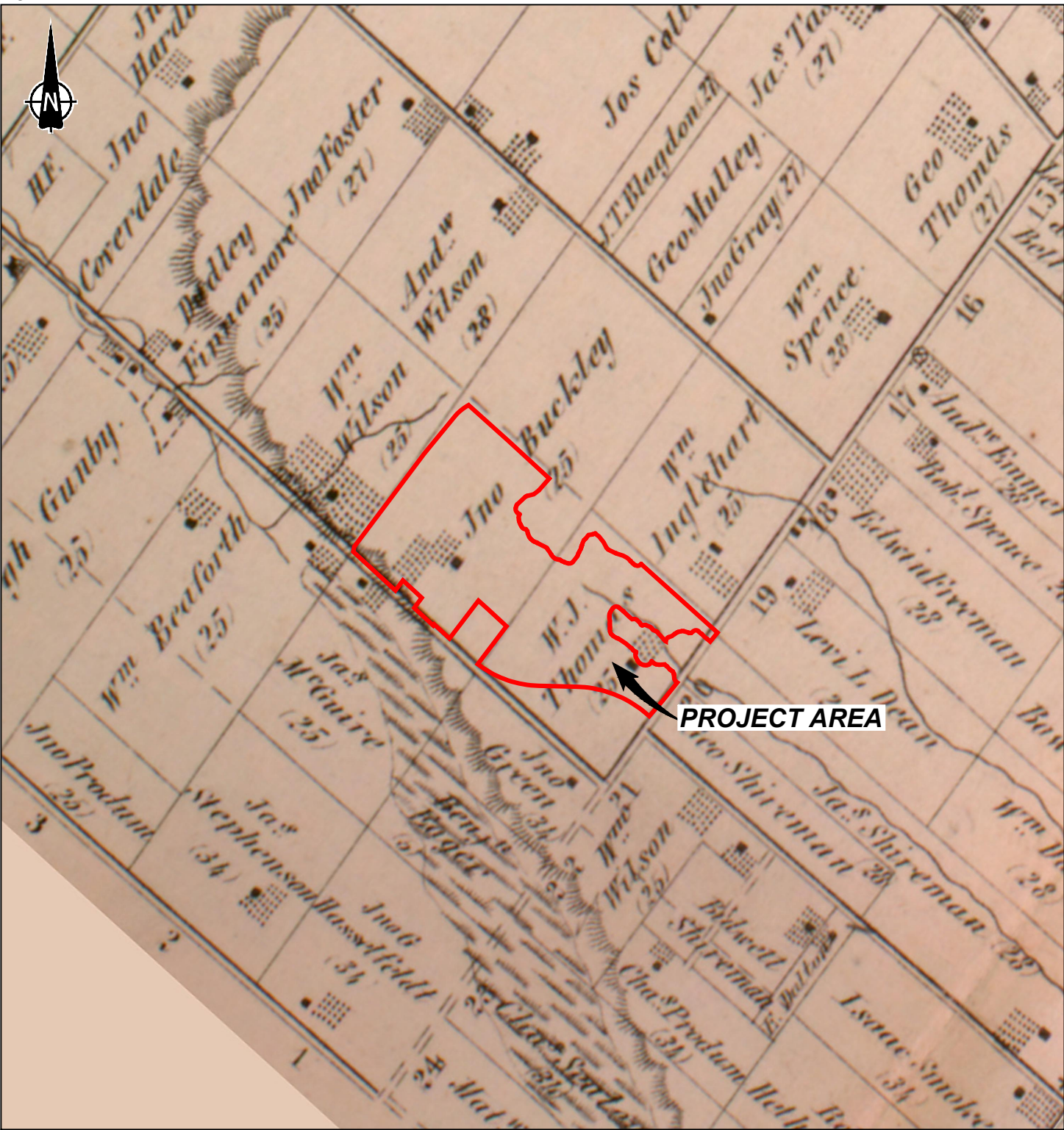
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— APPROXIMATE PROJECT AREA

REFERENCE

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1858 HISTORICAL COUNTY MAP OF HALTON COUNTY (TREMAINE 1858);
1877 ILLUSTRATED HISTORICAL ATLAS OF THE COUNTY OF HALTON (WALKER & MILES 1877)

1877



NOTES

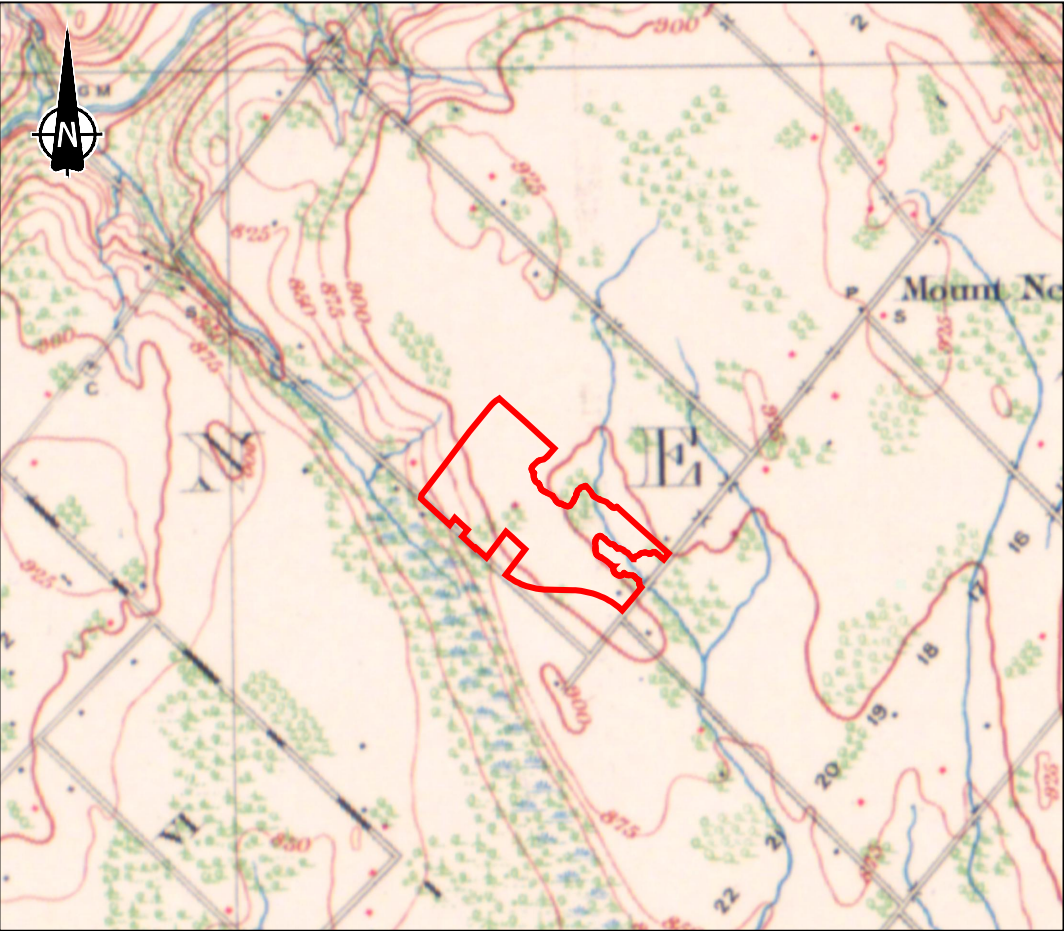
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PROJECT
STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT
WEST EXTENSION OF BURLINGTON QUARRY
BURLINGTON, ONTARIO

TITLE
**1858 AND 1877 OVERLAY OF
THE PROJECT AREA**

	PROJECT No. 18104957		FILE No. 18104957-R01002	
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	CADD	ZJB/DCH	Nov 28/19	MAP 2
	CHECK			

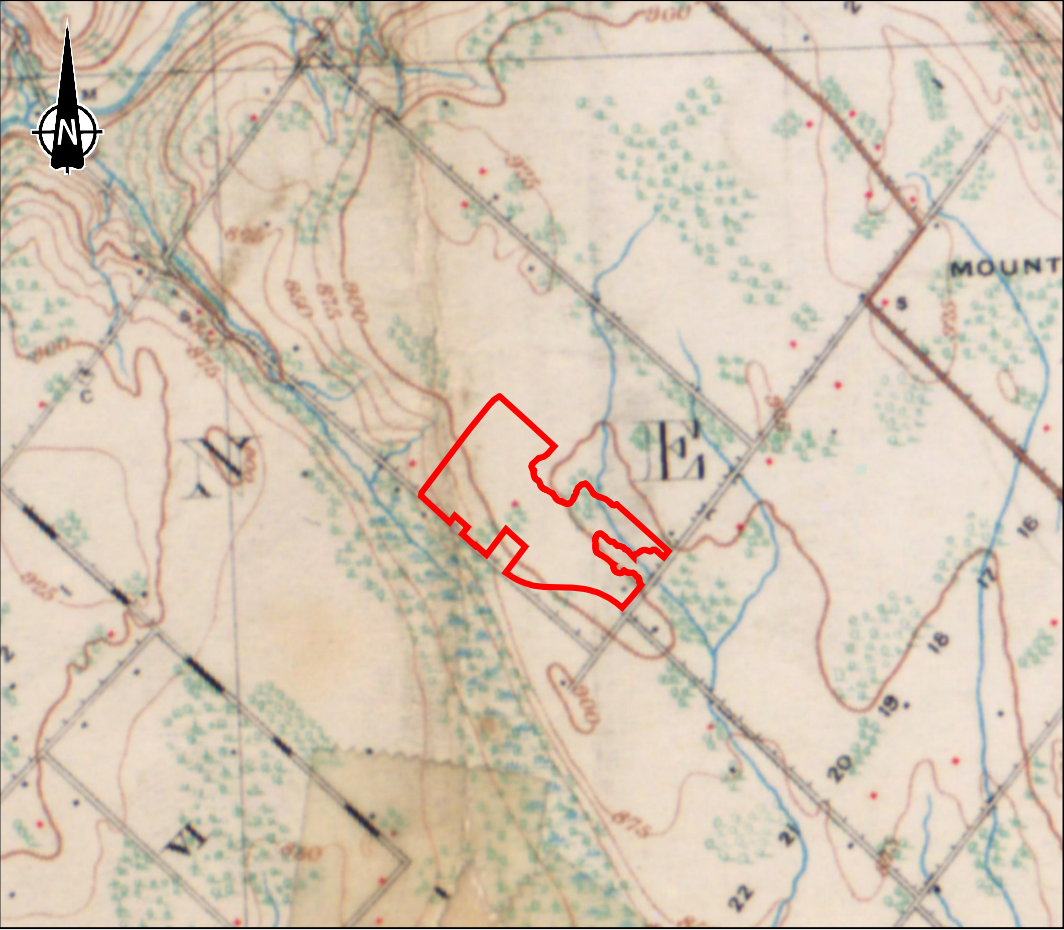
1909



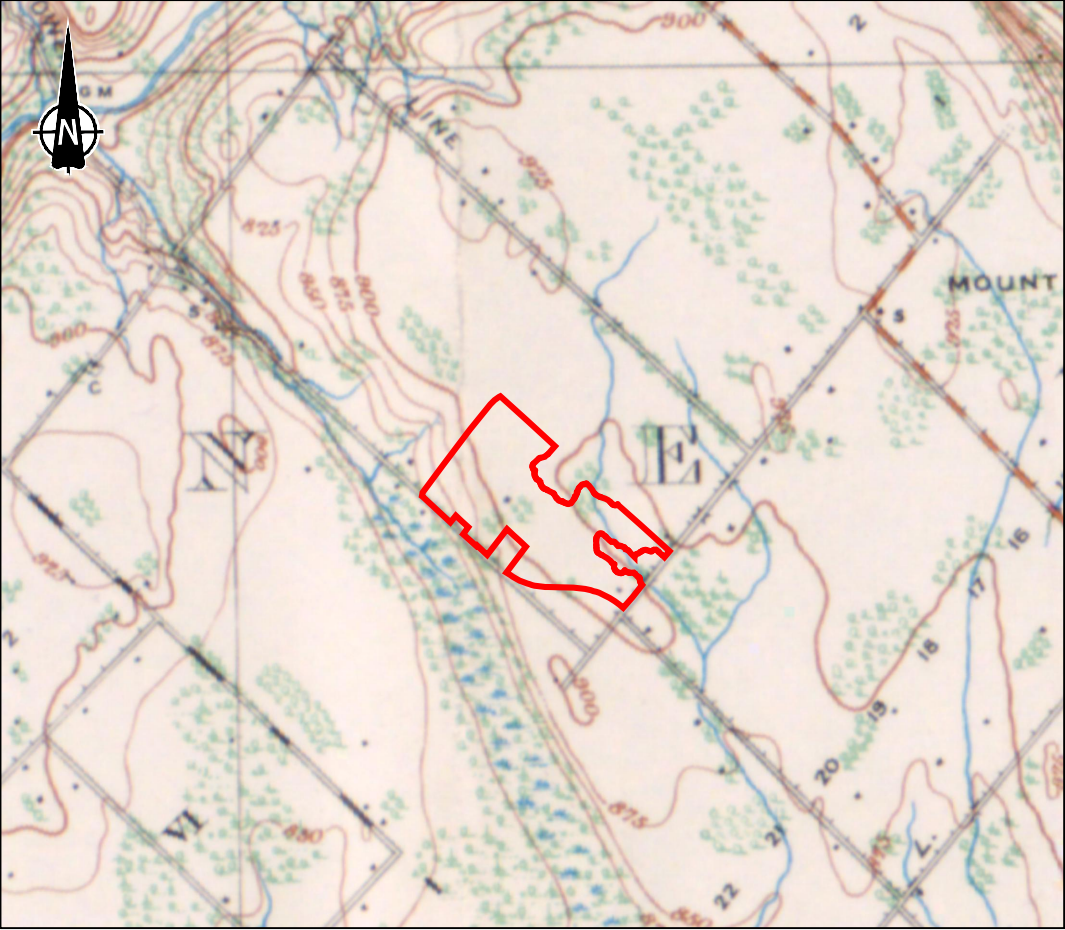
1915



1923



1931



LEGEND


— APPROXIMATE PROJECT AREA

REFERENCE

PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;
DEPARTMENT OF MILITIA AND DEFENCE, 1909;
DEPARTMENT OF MILITIA AND DEFENCE, 1909, REPRINTED WITH CORRECTIONS 1915;
DEPARTMENT OF NATIONAL DEFENCE, 1909, REPRINTED WITH CORRECTIONS 1923;
DEPARTMENT OF NATIONAL DEFENCE, 1909, REPRINTED WITH CORRECTIONS 1931

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PROJECT					
STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT WEST EXTENSION OF BURLINGTON QUARRY BURLINGTON, ONTARIO					
TITLE					
NATIONAL TOPOGRAPHIC SERIES MAPPING 1909, 1915, 1923 AND 1931					
 GOLDER	PROJECT No.		18104957	FILE No.	18104957-R01002
				SCALE	NTS REV.
	CADD	ZJB/DCH	Mar 11/20	MAP 3	
	CHECK				



LEGEND

— APPROXIMATE PROJECT AREA

REFERENCE

DRAWING BASED ON 1954 AERIAL IMAGE PROVIDED BY HUNTING SURVEY CORPORATION LIMITED; AND PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;

NOTES

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PROJECT STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT
WEST EXTENSION OF BURLINGTON QUARRY
BURLINGTON, ONTARIO

TITLE
**1954 AERIAL IMAGE OVERLAY OF
THE PROJECT AREA**



GOLDER

PROJECT No. 18104957			FILE No. 18104957-R01002		
			SCALE		NTS REV.
CADD	ZJB/DCH	Mar 11/20	MAP 4		
CHECK					



LEGEND

- APPROXIMATE PROJECT AREA
- PREVIOUSLY DISTURBED; GRADING ASSESSMENT
- PREVIOUSLY DISTURBED
- PERMANENTLY WET
- TEST PIT SURVEYED AT 5m INTERVALS
- TEST PIT SURVEYED AT 10m INTERVALS
- STAGE 2 ARCHAEOLOGICAL ASSESSMENT OUTSTANDING

REFERENCE

PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;
BING AERIAL IMAGE AS OF NOVEMBER 26, 2019 (IMAGE DATE UNKNOWN); AND
FIGURE 1 FROM PDF EARTH GRADING ASSESSMENT: BURLINGTON SPRINGS GOLF COURSE, PROVIDED BY WHITEWATER HYDROGEOLOGY LTD., AUGUST 12, 2019.

NOTES

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PROJECT				STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT WEST EXTENSION OF BURLINGTON QUARRY BURLINGTON, ONTARIO			
TITLE				STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT RESULTS			
		PROJECT No.		18104957		FILE No.	
		CADD		ZJB/DCH		Mar 11/20	
		CHECK					
		SCALE		AS SHOWN		REV.	
						MAP 5	

Client: Nelson Aggregates Co.
Drawing file: 18104957-R01005.dwg
Mar 11, 2020 - 4:47pm
Original Format is Tabloid 279mm x 432mm
25mm
0



LEGEND


- APPROXIMATE PROJECT AREA
- PREVIOUSLY DISTURBED; GRADING ASSESSMENT
- PREVIOUSLY DISTURBED
- PERMANENTLY WET
- TEST PIT SURVEYED AT 5m INTERVALS
- TEST PIT SURVEYED AT 10m INTERVALS
- 1 PHOTOGRAPH LOCATION, VIEWING DIRECTION, AND PLATE NUMBER
- 20 PHOTOGRAPH LOCATION, LOOKING DOWN, AND PLATE NUMBER

REFERENCE

PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;
BING AERIAL IMAGE AS OF NOVEMBER 26, 2019 (IMAGE DATE UNKNOWN); AND
FIGURE 1 FROM PDF EARTH GRADING ASSESSMENT: BURLINGTON SPRINGS GOLF COURSE, PROVIDED BY WHITEWATER HYDROGEOLOGY LTD., AUGUST 12, 2019.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.
BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.
ALL LOCATIONS ARE APPROXIMATE.

PROJECT				STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT WEST EXTENSION OF BURLINGTON QUARRY BURLINGTON, ONTARIO									
TITLE				STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT RESULTS WITH PHOTOGRAPH LOCATIONS									
 GOLDER				PROJECT No.		18104957		FILE No.		18104957-R01005			
								SCALE		AS SHOWN		REV.	
				CADD		ZJB/DCH		Mar 11/20		MAP 6			
				CHECK									

APPENDIX B

Images



Image 1 Looking northeast at disturbances associated with the existing Burlington Springs Golf Club clubhouse.



Image 2 Looking northwest at disturbances associated with the paved parking lot and pathways.



Image 3 Looking east at disturbances associated with clubhouse footprint and paved pathway.



Image 4 Looking southeast at disturbances associated with berm construction and paved pathway.



Image 5 Looking southwest at disturbances associated with USGA putting greens, paved access road and pathway.



Image 6 Looking west at disturbances associated golf sand traps.



Image 7 Looking southwest at disturbances associated with paved pathways, permanently wet area, and test pit survey at 5m intervals.



Image 8 Looking southeast at permanently wet area.



Image 9 Looking northeast at permanently wet area.



Image 10 Looking northeast at test pit survey at 5 m intervals.



Image 11 Looking northeast at test pit survey at 5 m intervals.



Image 12 Looking southeast at test pit survey at 5 m intervals.



Image 13 Looking southeast at test pit survey at 5 m intervals.



Image 14 Looking northwest at test pit survey at 5 m intervals.



Image 15 Looking west at test pit survey at 5 m intervals.



Image 16 Looking north at test pit survey of fairway area at 10 m intervals.



Image 17 Looking northwest at test pit survey of fairway area at 10 m intervals.



Image 18 Typical test pit stratigraphy for grassed areas tested on a 5 m interval.



Image 19 Typical test pit stratigraphy within the woodlots.



Image 20 Typical test pit stratigraphy of the fairway areas.

APPENDIX C

Curriculum Vitae

Education

M.A. Buildings Archaeology, University of York, Yorkshire, United Kingdom, 2012

B.Sc., Biological Anthropology Specialist, University of Toronto, Mississauga, Ontario, Canada, 2007

Certifications

Professional Archaeologist, Ontario, Licence No. P390

Canadian Association of Heritage Professionals (CAHP)

Ontario Association of Professional Archaeologists (APA), Professional Member

Government of Canada, Reliability Status

Languages

English – Fluent

Golder Associates Ltd. – Whitby**Cultural Heritage Specialist & Archaeologist**

Mr. Ragavan Nithiyantham (MA, CAHP) is a Cultural Heritage Specialist and Professional Archaeologist with Golder Associates Ltd. He has extensive cultural heritage, archaeological, and cultural resource management experience in Ontario. He earned his Bachelor of Science from the University of Toronto (2007) and Master's in Buildings Archaeology from the University of York, UK (2012). His Master's dissertation focused on improving Ontario's heritage impact assessment form. He specialises in historic architecture and cultural landscapes, and since joining Golder has produced cultural heritage evaluations and heritage impact assessments for a wide range of properties in southern Ontario. He has served as Project Manager on numerous single and multi-phased cultural heritage assessments and archaeological in the Province of Ontario. Ragavan has extensive experience providing professional and technical consultative advice on cultural heritage and archaeological protection and management within the parameters of the *Ontario Heritage Act*. Ragavan is a member of the Canadian Association of Heritage Professionals (CAHP) and is a professionally licenced archaeologist in Ontario (P390).

Employment History**Golder Associates Ltd. – Whitby, ON**

Senior Cultural Heritage Specialist & Archaeologist (2018 to Present)

Archeoworks Inc. – Newmarket, ON

Cultural Heritage Specialist & Senior Archaeologist (2006 to 2018)

D.R. Poulton & Associates Inc. – Toronto, ON

Field Technician (2007 to 2007)

PROJECT EXPERIENCE – CULTURAL HERITAGE

Cultural Heritage Assessment Report – Courtice Employment Lands and Southeast Courtice Secondary Plan Areas
Municipality of Clarington, ON

Principal field investigator for the Cultural Heritage Assessment study for the Courtice Employment Lands and Southeast Courtice Secondary Plan Area in the Municipality of Clarington. Tasks involved field investigation and the identification of cultural heritage resources, as well as consultation with various stakeholders including heritage staff, evaluation of cultural heritage value or interest under *Ontario Regulation 9/06* of the *Ontario Heritage Act*, assessment of impacts from future development, and recommending appropriate mitigative measures.

Cultural Heritage Evaluation Report – Terauley Transformer Station
City of Toronto, ON

Principal field investigator for the Cultural Heritage Evaluation study for the Terauley Transformer Station at 532 Bay Street, Toronto. Tasks involved field investigation, an inventory of the property's built and landscape elements, and assessment of the property's physical condition and integrity, and analysis of the property's structural history and architectural influences, an evaluation of the property using the criteria prescribed in *Ontario Regulation 9/06* and *Ontario Regulation 10/06* of the *Ontario Heritage Act*, and, recommendations for future action.

**Cultural Heritage
Assessment Report –
Downtown Relief Line
Transit Project
Assessment**
City of Toronto, ON

Principal field investigator for the Cultural Heritage Assessment study for the Downtown Relief Line Transit Project Assessment in the City of Toronto. Tasks involved field investigation and the identification of cultural heritage resources along Queen Street West, Queen Street East, Pape Avenue, and Carlaw Avenue.

**Port Hope Area
Initiative Project,
Heritage Impact
Assessment - 187
Walton Street**
Municipality of Port
Hope, ON

Principal investigator for the Heritage Impact Assessment 187 Walton Street associated with the Port Hope Area Initiative Project. Tasks included completing PHAI Project Awareness Training, completing field investigations from public right-of-way, documentation of structures employing the Canadian Inventory of Historic Building forms, and assessment of impacts associated with the remediation project on the heritage attributes using municipal and provincial heritage guidelines and policies.

**Port Hope Area
Initiative Project,
Heritage Impact
Assessment - 28
Bedford Street**
Municipality of Port
Hope, ON

Principal investigator for the Heritage Impact Assessment 28 Bedford Street associated with the Port Hope Area Initiative Project. Tasks included completing PHAI Project Awareness Training, completing field investigations from public right-of-way, documentation of structures employing the Canadian Inventory of Historic Building forms, and assessment of impacts associated with the remediation project on the heritage attributes using municipal and provincial heritage guidelines and policies.

**Cultural Heritage
Screening - Milton
Land Base Analysis**
Milton, ON

Project director, principal investigator, and co-author of a Cultural Heritage Assessment Report of Built Heritage Resources and Cultural Heritage Landscapes for the Milton Land Base Analysis. Tasks involved background research, field investigation, documentation, and evaluation of the existing conditions and resources.

**Cultural Heritage
Existing Conditions
and Impacts
Assessment - Queen
Street East Road
Reconstruction, Bridge
and Culvert
Improvements**
Town of Caledon, ON

Project director, principal investigator, and co-author of a Cultural Heritage Assessment Report of Existing Conditions and Impacts Assessment for the Queen Street East road reconstruction, bridge and culvert improvements, in the Town of Caledon. Tasks involved background research, field investigation, documentation, and evaluation of the existing conditions, structures, and bridges, employing Ontario Regulation 9/06 and the Heritage Bridge Guidelines evaluation criteria, and production of a report.

**Cultural Heritage
Screening - Hunt Street
and Finley Avenue
Improvements, EA**
Town of Ajax, ON

Project director, principal investigator, and co-author of a Cultural Heritage Assessment Report of Built Heritage Resources and Cultural Heritage Landscapes for the Hunt Street and Finley Avenue Improvements, Class EA. Tasks involved background research, field investigation, consultation with various stakeholders (heritage committee, Town of Ajax, and heritage planner), documentation, and evaluation of the existing conditions and resources.

**Cultural Heritage
Assessment Report -
Webber and Rye
Urbanization and
Harper Creek North
Reach Class EA**
Peterborough, ON

Project director, principal investigator and co-author of a cultural heritage screening report identifying known and potential cultural heritage resources for an Environmental Assessment for the Webber and Rye Urbanization project. Tasks involved research into heritage registers and secondary sources to look for cultural heritage resources in the study area.

**Cultural Heritage
Impact Assessment –
George Hunter House**
City of Markham, ON

Cultural Heritage Specialist and co-author a Cultural Heritage Impact Assessment of the George Hunter House (designated Part IV of the Ontario Heritage Act), in the City of Markham. Tasks involved background research, field investigation, consultation with various stakeholders, and an evaluation of impacts.

**Cultural Heritage
Impact Assessment –
Henry Burton House**
City of Vaughan, ON

Cultural Heritage Specialist and co-author a Cultural Heritage Impact Assessment of the Henry Burton House, 8811 Huntington Road in the City of Vaughan. Tasks involved background research, field investigation, consultation with various stakeholders, and an evaluation of the property's cultural heritage value. The house was determined to have cultural heritage value and recommended to for adaptive reuse.

**Cultural Heritage
Impact Assessment –
John Fleming House**
City of Vaughan, ON

Cultural Heritage Specialist and co-author a Cultural Heritage Impact Assessment of the John Fleming House, 9151 Huntington Road in the City of Vaughan. Tasks involved background research, field investigation, consultation with various stakeholders, and an evaluation of the property's cultural heritage value. The house was determined to have cultural heritage value and recommended to for adaptive reuse.

**Cultural Heritage
Assessment - Jimmy
Thompson Memorial
Pool, 1099 King Street
East**
City of Hamilton, ON

Cultural Heritage Specialist and co-author a Cultural Heritage Assessment of the Jimmy Thompson Memorial Pool in the City of Hamilton. Tasks involved background research, field investigation, consultation with various stakeholders, and an evaluation of the property's cultural heritage value. The Pool was determined to have cultural heritage value and recommended to be designated under Ontario Regulation 9/06 of the Ontario Heritage Act.

**Cultural Heritage
Assessment Report -
8175 Sarah Street**
City of Niagara Falls, ON

Project director and co-author of a Cultural Heritage Assessment Report for 8175 Sarah Street in the City of Niagara Falls. Tasks involved background research, field investigation, documentation, identification of existing conditions, and reporting.

**Cultural Heritage
Impact Statement -
1500 Mayfield Road
(Home United Church)**
Town of Caledon, ON

Project director, principal investigator, and co-author of a Cultural Heritage Impact Statement Report for the Home United Church (1500 Mayfield Road) tied to the proposed improvements to Mayfield Road (Regional Road 14), Municipal Class EA. Tasks involved background research, field investigation, documentation, identification of existing conditions, assessment of impacts from the planned development, and recommending appropriate mitigative measures.

**Cultural Heritage
Impact Assessment -
19695, 19741, 19781,
19785, 19798 Main
Street and 1532 Queen
Street East**
Town of Caledon, ON

Project director as well as senior advisor of a Cultural Heritage Impact Assessment for the 19695, 19741, 19781, 19785, 19798 Main Street and 1532 Queen Street East, in the Town of Caledon. for the proposed improvements to Mayfield Road (Regional Road 14), Municipal Class EA. Project tasks involved background research, field investigation, documentation, identification of existing conditions, assessment of impacts from the planned development, and recommending appropriate mitigative measures.

PROJECT EXPERIENCE – ARCHAEOLOGY

- Port Hope Area Initiative Project – Assessment of Chance Finds – Faunal Remains**
Municipality of Port Hope, ON
Principal investigator for the assessment of chance finds – faunal remains – for the Port Hope Area Initiative Project. Tasks included completing PHAI Project Awareness Training, in-house health and safety training, maintaining health and safety protocols, and the assessment on faunal remains.
- Stage 1 Archaeological Assessment, Proposed Improvements to Niagara River Recreational Trail**
Regional Municipality of Niagara, ON
Principal investigator for the Stage 1 Archaeological Assessment for the proposed improvements to Niagara River Recreational Trail, in the City of Niagara Fall and Town of Fort Erie, Regional Municipality of Niagara. Following MTCS criteria to determine pre- and post-contact Indigenous archaeological potential and historical Euro-Canadian archaeological potential, the assessment determined parts of the project area to have archaeological potential. Areas determined to have archaeological potential were recommended for Stage 2 archaeological assessment.
- Stage 1 Archaeological Assessment, McFarland House**
Regional Municipality of Niagara, ON
Principal investigator for the Stage 1 Archaeological Assessment of the McFarland House property, in the Town of Niagara-on-the-Lake, Regional Municipality of Niagara. Following MTCS criteria to determine pre- and post-contact Indigenous archaeological potential and historical Euro-Canadian archaeological potential, the assessment determined majority of the project area to have archaeological potential. Areas determined to have archaeological potential were recommended for Stage 2 archaeological assessment.
- Stage 1 Archaeological Assessment, Proposed Queensway/ Hurontario Area Sanitary Sewer, Class EA**
City of Mississauga, ON
Project director and professional licensee for the Stage 1 Archaeological Assessment for the proposed Queensway/ Hurontario Area Sanitary Sewer, Class EA, in the City of Mississauga. This project involved the detailed evaluation of archaeological potential for six (6) proposed preliminary sanitary sewer routing options as per Ministry Standards and Guidelines and recommending appropriate strategies for Stage 2 survey. Tasks involved project directing and senior technical review.
- Stage 1 Archaeological Assessment Proposed Improvements to Major Mackenzie Drive from McNaughton Road to Keele Street**
City of Vaughan, ON
Task Lead for the Stage 1 Archaeological Assessment for the proposed improvements to Major Mackenzie Drive from McNaughton Road to Keele Street in the Regional Municipality of York, Ontario. This project involved the assessment of archaeological potential and the mitigation of impacts. Tasks involved the management of reporting, co-authoring, as well as professional review.
- Stage 1 Archaeological Assessment - Barrie Drainage Master Plan, Class EA**
City of Barrie, ON
Project director for the Stage 1 Archaeological Assessment for the Barrie Drainage Master Plan, Class EA. Project tasks involved background research, assessment of archaeological potential, site data research, identification of existing conditions, and production of a report as per the 2011 Standards and Guidelines for Consultant Archaeologists, published by the Ministry of Tourism, Culture and Sport.
- Stage 1 Archaeological Assessment, Gerrard Street Trunk Watermain Replacement**
City of Toronto, ON
Project manager for the Stage 1 Archaeological Assessment for the investigation for the Gerrard Street Trunk Watermain Replacement in the City of Toronto. This project involved the assessment of archaeological potential employing predictive modelling as per the 2011 Standards and Guidelines for Consultant Archaeologists, published by the Ministry of Tourism, Culture and Sport and the City of Toronto's Archaeological Master Plan. Tasks involved the management of field investigation and reporting.

Stage 1 Archaeological Assessment for the Proposed Master Environmental Servicing Plan for the Green Lane Secondary Plan Area
City of Vaughan, ON

Project director as well as senior advisor for the Stage 1 archaeological assessment for the proposed Master Environmental Servicing Plan for the Green Lane Secondary Plan Area. The project involved the assessment of archaeological potential employing criteria implemented by the Ministry of Tourism, Culture and Sport and the mitigation of impacts. Tasks involved project directing, management of fieldwork, reporting, and professional review.

Stage 1 Archaeological Assessment, Investigation of Basement Flooding and Control of Storm Water Runoff Quality
City of Toronto, ON

Project director for the Stage 1 Archaeological Assessment for the investigation of basement flooding and control of storm water runoff quality in the City of Toronto. This project involved the assessment of archaeological potential within areas of development impacts and recommending appropriate mitigation measures. Tasks involved the management of field investigation and reporting, senior advisor and technical review.

Stage 1-2 Archaeological Assessment, Port Colborne Quarry Expansion
Regional Municipality of Niagara, ON

Project manager for the Stage 1-2 Archaeological Assessment for the Port Colborne quarry expansion in the Regional Municipality of Niagara. This project involved the determination of archaeological potential and property assessment of 200+ acres in the City of Port Colborne. The assessment resulted in the identification of 29 pre-contact sites, 1 Euro-Canadian site, and 1 multi-component site. Stage 3 assessment was recommended as per the MTCS criteria on five of the sites. Tasks involved, project management, fieldwork coordination, reporting and professional review.

Stage 1-2 Archaeological Assessment, Town of Richmond Hill Civic Precinct Project
Town of Richmond Hill, ON

Project manager and professional licensee for the Stage 1-2 Archaeological Assessment for the Town of Richmond Hill Civic Precinct Project. This project involved the assessment of archaeological potential and Stage 2 test pit survey in areas of archaeological potential. Tasks involved the project management and technical review.

Stage 1-2 Archaeological Assessment, Proposed Detailed Design of Mississauga Road from Sandalwood Parkway to Mayfield Road
City of Brampton & Town of Caledon, ON

Project director and professional licensee for the Stage 1-2 Archaeological Assessment for the proposed detailed design for the widening of Mississauga Road from Sandalwood Parkway to Mayfield Road, in the City of Brampton and Town of Caledon. This project involved the detailed evaluation of archaeological potential and Stage 2 test pit and pedestrian survey. The project was completed on schedule, and budget and received Ministry clearance. Tasks involved project directing, communication, coordination, technical review and senior advisor.

Stage 1 and Stage 2 Archaeological Assessment, Road Reconstruction, Bridge and Culvert Improvements to Queen Street East
Town of Caledon, ON

Project manager and project director and professional licensee for the Stage 1 and Stage 2 Archaeological Assessment for the proposed road reconstruction, bridge and culvert improvements to Queen Street East, in the Town of Caledon. The Stage 1 assessment involved the detailed evaluation of archaeological potential for the project area as per the Ministry Standards and Guidelines and recommending appropriate strategies for Stage 2 survey. The Stage 2 assessment involved test pit survey in areas of archaeological potential. The Stage 2 assessment determined the project area to be free of archaeological concerns. Tasks involved project management, project director, technical review and senior advisor.

Stage 2 Archaeological Assessment, Region of Peel East to West Division Sanitary Trunk Sewer, Class EA
City of Mississauga, ON

Task manager and professional licensee for the Region of Peel East to West Division Sanitary Trunk Sewer, Class EA, in the City of Mississauga. The Stage 2 assessment investigated three areas (Area A, Area B, and Area C) to accommodate the Region's need to investigate additional area to accommodate a revised alignment and potential shaft locations. The Stage 2 assessment involved test pit and pedestrian survey. Task involved coordination (i.e., QuickFAP, access permits), task management, property survey, communication with the Ministry and Heritage Mississauga, and reporting.

Stage 2 Archaeological Assessment, Heritage Road Layover Facility
City of Brampton & Town of Halton Hills, ON

Project director and professional licensee for the proposed Heritage Road Layover Facility, in the City of Brampton. The Stage 2 assessment involved test pit and pedestrian survey in areas of archaeological potential. The Stage 2 assessment resulted in the discovery of two Euro-Canadian sites and one Pre-Contact Indigenous site. Tasks involved project directing and technical review.

Stage 2 Archaeological Assessment, Mayfield Road Class EA from Airport Road to Coleraine Drive
City of Brampton & Town of Caledon, ON

Project director and professional licensee for five outstanding properties as part of the Mayfield Road Class Environmental Assessment from Airport Road to Coleraine Drive, in the City of Brampton and Town of Caledon. The Stage 2 assessment involved test pit survey of properties where permission-to-enter was granted. Tasks involved the project directing, communication and technical review.

Stage 2 Archaeological Assessment, Proposed Conestogo Plains Water Supply System Class EA
City of Peterborough, ON

Project director and professional licensee for the Stage 2 archaeological assessment for the proposed Conestogo Plains Water Supply System Class EA, in the City of Peterborough. The Stage 2 assessment involved the test pit survey of areas of archaeological potential. Tasks involved project director, communication, coordination, and senior review.

Stage 2 Archaeological Assessment - Detail Design of Major Mackenzie Drive Road Widening
City of Vaughan, ON

Project manager for the Stage 2 Archaeological Assessment of the proposed detail design of Major Mackenzie Drive road widening in the City of Vaughan. Tasks involved the management of reporting, senior advisor and technical review. Project was completed on schedule and within budget.

Stage 2 Archaeological Assessment, Woolwich Street Road Reconstruction Class EA
City of Kitchener, ON

Project director and professional licensee for the Stage 2 archaeological assessment for the proposed Reconstruction of Woolwich Street, Class EA, in the City of Kitchener. The Stage 2 assessment involved the test pit survey of areas of archaeological potential. Tasks involved project director, communication, coordination, and senior review.

Stage 3 Archaeological Assessment, AjGv-85, Proposed Trail Improvements
City of Mississauga, ON

Project director and professional licensee for the Stage 3 Archaeological Assessment of the historical Euro-Canadian site, AjGv-85, for the proposed trail improvements with the Winding Lane Bird Sanctuary property. The Stage 3 assessment involved the partial Stage 3 investigation within the limits of the project. The assessment determined the site to have no further cultural heritage value or interest, as per Ministry Standard. Tasks involved project directing, communication, coordination and technical review.

**Stage 3 Archaeological
Assessment for the
Coates Site (BaGu-171)**
Town of Aurora, ON

Project director and professional licensee for the Stage 3 Archaeological Assessment of the Coates Site (BaGu-171), associated with the detail design of Leslie Street from Wellington Street to Mulock Drive, and St. John's Sideroad from Leslie Street to Highway 404 in the Town of Aurora. Tasks involved project directing, management of field team, and the compilation a Stage 3 report in compliance with the requirements Ministry of Tourism, Culture and Sport.

**Stage 3 Archaeological
Assessment, AkGx-
700, Proposed
Widening of
Mississauga Road
from Bovaird Road to
Mayfield Road, Class
EA**
City of Brampton, ON

Project manager and professional licensee for the Stage 3 Archaeological Assessment of the historical Euro-Canadian site, AkGx-700, for the proposed widening of Mississauga Road from Bovaird Road to Mayfield Road, Class Environmental Assessment. The Stage 3 assessment involved the partial Stage 3 investigation involving test unit excavation within the grading limits of the proposed road widening. The assessment determined the site to have further cultural heritage value or interest, as per Ministry Standard. Tasks involved project management, professional licensee, senior advisor and technical review.

**Stage 3 Archaeological
Assessment, AkGx-
691, Proposed Caledon
Developments**
Town of Caledon, ON

Project director/manager and professional licensee for the Stage 3 Archaeological Assessment of the Pre-Contact Indigenous site, AkGx-691, for the proposed Caledon subdivision development. The Stage 3 assessment involved the excavation of 21 test units on a 5 m grid, artefact analysis, and reporting. The assessment determined the site to have no further cultural heritage value or interest. Tasks involved project directing/management, senior advisor and technical review.

**Stage 3 Archaeological
Assessment of St.
Patrick's Church and
Cemetery, Proposed
Reconstruction of
Mayfield Road**
City of Brampton, ON

Project director and professional licensee for the Stage 3 Archaeological Assessment of St. Patrick's Church and Cemetery for the proposed reconstruction of Mayfield Road, in the City of Brampton. The Stage 3 assessment involved the mechanic topsoil removal adjacent to St. Patrick's Church and Cemetery to investigate the area of potential human interments. No human interments were encountered, however, construction monitoring was recommended for areas that were inaccessible to mechanical topsoil removal. Tasks involved project directing, technical review and senior advisor.

**Stage 3 and 4
Excavation – Harper
Site (AlGw-172),
Proposed Construction
of the Bolton Arterial
Road (Regional Road
150)**
Town of Caledon, ON

Project manager and professional licensee for the Stage 3 assessment and Stage 4 partial excavation of the Harper Site, AlGw-172 (Euro-Canadian) as part of the proposed construction of the Bolton Arterial Road (Regional Road 150), in the Town of Caledon. This project involved the expedited excavation of the Harper Site over the fall and winter season to accommodate the Region's construction schedule, while meeting the requirements of the Ministry Standards and Guidelines. Excavation was successfully completed on schedule and as per Ministry Standards. Tasks involved project managing, co-authoring and technical review.

**Stage 4 Mitigation,
Toronto General
Hospital Site, AjGu-51**
Toronto, ON

Project director and professional licensee for the Stage 4 mitigation of the Toronto General Hospital Site, AjGu-51, in the City of Toronto. Stage 4 mitigation was undertaken in compliance with the Ontario Heritage Act and 2011 Standards and Guidelines for Consultant Archaeologist. The Stage 4 mitigation included hand and mechanical excavation. Tasks involved project directing, communication with engineering personnel, ensuring health and safety of project personnel and senior advisor.

**Stage 4 Mitigation -
Highway 407 East
Phase 2 Project, BaGp-
54 Site**

Municipality of
Clarington, ON

Project manager for the Highway 407 East Phase 2 Project, Stage 4 mitigation of the BaGp-54 site, in the Municipality of Clarington. The project involved the complete excavation of the site, consisting of hand and mechanical excavation. Tasks involved the management of field investigation, reporting, senior advisor and reviewer. Project was completed on schedule and within budget.

**Stage 1-4
Archaeological
Assessment and
Mitigation, Proposed
Block 55 East
Development**

City of Vaughan, ON

Project manager for the proposed Block 55 East development of a 191-hectare parcel of land in the City of Vaughan. Stage 1 assessment determined the property to have archaeological potential. Stage 2 assessment resulted in the 35 archaeological sites of Pre-Contact Indigenous, historical Euro-Canadian, and multi-component affiliations. The Stage 3 assessment and Stage 4 excavation of sites with cultural heritage value or interest resulted in the full clearance of the 191-hectare parcel. Tasks involved project management, project coordination, Aboriginal engagement, Ministry communications, senior advisor and technical review.

**Stage 4 Mitigation -
Highway 407 East
Phase 2 Project, BaGp-
54 Site**

Municipality of
Clarington, ON

Project manager for the Highway 407 East Phase 2 Project, Stage 4 mitigation of the BaGp-54 site, in the Municipality of Clarington. The project involved the complete excavation of the site, consisting of hand and mechanical excavation. Tasks involved the management of field investigation, reporting, senior advisor and reviewer. Project was completed on schedule and within budget.

**Stage 4 Excavation –
Hart Site (AIGw-151),
Detailed Design for
Improvements to
Highway 50 from
Castlemore Road to
Mayfield Road and
Mayfield Road from
Regional Road 50 to
Coleraine Drive**

City of Brampton, ON

Project director and professional licensee for the Stage 4 partial excavation of the Hart Site, AIGw-151 (Euro-Canadian) as part of the Class Environmental Assessment of Highway 50 from Castlemore Road to Mayfield Road and Mayfield Road from Highway 50 to Coleraine Drive, in the City of Brampton. This project involved the excavation of the Hart Site as per the requirements of the Ministry Standards and Guidelines. Excavation was successfully completed on schedule and as per Ministry Standards. Tasks involved project directing and technical review.

**Education**

*M.A. Mortuary Archaeology,
University of Alberta,
Edmonton, Alberta, 2004*

*B.A. Anthropology and
Archaeology, Memorial
University of
Newfoundland, St. John's,
Newfoundland, 2001*

Certifications

*Professionally Licensed
Archaeologist, Ontario*

Permit Holder in Alberta

*Member in Good Standing
Ontario Archaeology
Society*

Golder Associates Ltd. – Ottawa**Career Summary**

Bradley Drouin is an Associate and Senior Archaeologist working out of Golder Associates Ottawa Office and has been with the company for 12 years. During this time, Mr. Drouin has acted as Project Manager, Professionally Licensed Archaeologist (P311) or Permit holding on over 400 projects in Ontario and Alberta, as well as Project Archaeologist in Australia.

Throughout Brad's career at Golder, he has worked on numerous residential and commercial development projects within the Ottawa area as well as large scale energy and infrastructure projects throughout Ontario but also in Alberta, Northwest Territories, and Nunavut. Over the past 6 years Brad has been focusing his efforts on managing the archaeology and cultural heritage components for Renewable Energy Projects as well as large scale projects throughout Ontario. Specifically, Brad was the Project Manager for one of Golder's largest archaeological projects in advance of a Wind and Solar Farm project in Southwestern Ontario. This worked involved the collaboration of project personnel from 10 different Canadian offices and the coordination of up to 120 field personnel. In addition to Brad's archaeological experience, he is the Archaeology Group Manager for Ottawa and Kingston, and he sits on Golder's National Indigenous Relations Steering Committee acting as the Ontario Lead.

Employment History**Golder Associates Ltd. – Ottawa, Ontario**

Archaeologist (2010 to Present)

Professionally licensed archaeologist carrying out Stage 1, 2, 3 and 4 archaeological assessments in Ontario.

Golder Associates – Melbourne, Australia

Archaeologist (2009 to 2010)

Project archaeologist and Cultural Heritage Advisor carrying out Desk Top, Standard and Complex Assessments as well as Cultural Heritage Management Plans within the State of Victoria

Golder Associates Ltd – Edmonton, Alberta then Ottawa, Ontario

Archaeologist (2006 to 2009)

Professionally licensed archaeologist carrying out Stage 1, 2 and 3 archaeological assessments in Ontario. Permit holding archaeologist in Alberta, with extensive work experience in the Northwest Territories and Nunavut.

Various Consultancies

Archaeologist (2000 to 2006)

Completed archaeological assessments through Ontario for a number of different consulting firms specializing in Archaeological Assessments.



PROJECT EXPERIENCE – SELECT INFRASTRUCTURE PROJECTS

Stage 1 Archaeological Assessment, West Transit Way Extension, Ottawa, Ontario

Licensed Archaeologist for a Stage 1 Report for the West Transit Way Extension, Ottawa, Ontario. Report is Ministry of Tourism, Culture and Sport compliant.

Stage 1 and 2, Highway 639 Culvert Replacement Elliot Lake, Ontario

Project Manager for a combined Stage 1 and 2 archaeological assessment for a proposed culvert replacement on along Highway 639, north of Elliot Lake. Project involved completion of Stage 2 field component on compressed schedule.

Stage 1 and 2 Archaeological Assessment, Hurdman Bridge Rehabilitation, Ottawa, Ontario

Project Manager and Field Supervisor for a combined Stage 1 and 2 archaeological assessment for the rehabilitation and extension of Hurdman Bridge, Ottawa. Project involved completion of Stage 2 field component on compressed schedule with MTCS clearance obtained on time.

Stage 1 and 2 Archaeological Assessment and Cultural Heritage Mega Bridges 2, Various Locations, Ontario

Project Manager and Field Archaeologist for Stage 1 and 2 and Cultural Heritage Evaluation Reports and Documentation reports. Archaeological component involved completion of Stage 1 and 2 assessments for 5 bridge and culvert replacements. Cultural Heritage Evaluation Reports for 7 Bridges and one Documentation report which included 3D scan of entire bridge.

Stage 4 Archaeological Assessment for Ottawa Light Rail Project, LeBreton Flats Ottawa, Ontario, Canada

Stage 4 archaeological excavations of the 19th century West End Hotel, Western Methodist Church, and residential structures along historic Albert Street. Topographic survey of all significant archaeological features and artifacts.

PROJECT EXPERIENCE – ENERGY

Wataynikaneyap Phase 1 and 2 Stage 1 and Stage 2 Archaeological Assessments, Wabigoon to Pickle Lake

Archaeology Task Manager and License holder for the Stage 1 and Stage 2 archaeological assessments for Phase 1 and Phase 2. The Stage 1 was reviewed and approved by the MTCS without revisions. Facilitated a two day training course for First Nation technicians for the Stage 2 field program.

Wataynikaneyap Pikangikum Distribution Line Project Stage 1 Red Lake to Pikangikum

Report writer and Licensed archaeologist for a Stage 1 archaeological assessment for the project corridor. The report was reviewed and accepted by the MTCS without revisions.



**Wataynikaneyap
Pikangikum
Distribution Line
Project Stage 2 and
Stage 3
Red Lake to Pikangikum**

Task Manager for the Stage 2 archaeological assessment for the Pikangikum Distribution Line Project, as well as two Stage 3 archaeological assessments. The Stage 2 was passed with minimal revisions, while the Stage 2 and 3 for the Berens Lake Portage Site was granted an expedited review and passed without revisions. The Stage 2 and Stage 3s involved the active participation of at minimum 3 Pikangikum community members during the various field programs

**Wataynikaneyap
Pikangikum
Distribution Line
Project Stage 4
Red Lake to Pikangikum**

Task Manager for the focused Stage 4 archaeological assessment of the Berens Lake Portage Site. This work involved very tight schedules and direct communication with the MTCS in order to allow construction to proceed in January/February 2018. The Stage 4 work involved the active participation of at minimum 3 Pikangikum community members during the field program.

**Stage 1 and 2
Archaeological
Assessment, CLIFFS
Mine Site, Northern
Ontario**

Archaeology Discipline Lead for the completion of Stage 1 and 2 archaeological assessment as part of the CLIFFS Mine Site EA project. The project involved a detailed Stage 1 assessment as well as a Stage 2 of the development footprint. MTCS has reviewed and approved both Stage 1 and 2 reports and have been entered into the public registry.

**Stage 1 and 2
Archaeological
Assessment, CLIFFS
FPF, Sudbury, Ontario**

Project Archaeologist and Licensee for the completion of Stage 1 and 2 archaeological assessment as part of the CLIFFS Ferrochrome Production Facility EA project. The project involved a detailed Stage 1 assessment as well as a Stage 2 of the development footprint. MTCS has reviewed and approved both Stage 1 and 2 reports and have been entered into the public registry.

**Stage 1 Archaeological
Assessment, CLIFFS
Aggregate Pit
Locations, Northern
Ontario**

Licensed Archaeologist for the completion of 81 Stage 1 assessments as part of the CLIFFS aggregate pit EA project. The project involved a detailed Stage 1 assessment for over 81 potential pit locations throughout Northern Ontario. MTCS has reviewed and approved all Stage 1 reports for this projects with the reports having been entered into the public registry.

**Stage 1 Archaeological
Assessment, Bell
Alliant, Northern Ontario**

Archaeology Lead for the completion of four Stage 1 archaeological assessments as part of an Environmental Assessment for a northern Ontario broad band project. The work involved the completion of the four Stage 1 assessments to Ministry of Tourism, Culture and Sports *Standards and Guidelines for Consultant Archaeologists*. All four reports have been approved by MTCS and entered into the public registry.

**Stage 1 and 2
Archaeological
Assessment, TCPL
Eastern Mainline
Project, Various
Location, Ontario**

Provided technical guidance and oversight for an ongoing Stage 1 and Stage 2 archaeological assessment. Completed daily quality control and quality assurance reviews of field data and ensured compliance fieldwork and reporting was being completed to MTCS *Standards and Guidelines*.

**Stage 1 Archaeological
Assessment, Highway
174-17 Project, Ottawa,
Ontario**

Project Archaeologist and Licensee for a large Stage 1 archaeological assessment for the Highway 174-17 Environmental Assessment. Work involved detailed site visits and discussions with various landowners and stakeholder groups. The report has been reviewed by the MTCS and entered into the public registry.



Curriculum Vitae

BRADLEY DROUIN

**Stage 4 Archaeological
Assessment, Enbridge
Line 10 Project,**
Ancaster, Ontario

Senior Project Support and Field Manager for a portion of the Line 10 project. Work involved daily interactions and engagement with First Nation on-site monitors as well as First Nation leads. Assisted in the coordination of fieldwork with staff of over 30 individuals.

**Newmont Corporation,
Hope Bay Gold Project**
Hope Bay, Nunavut

Project archaeologists for an archaeological impact assessment in Hope Bay, Nunavut. Conducted aerial reconnaissance and pedestrian surveys for potential quarry sites, winter roads and an all-weather road.

**PWGSC
CAM-D Dew-line Site
Remediation Project**
Simpson Lake, Nunavut

Historical Resource Impact Assessment for the former CAM-D Dew-line site on behalf of Public Works and INAC. Site was located in close proximity to Simpson Lake, Nunavut and involved an assessment of archaeological resources present that could be impacted during site remediation

**PWGSC and INAC
Axe-Point Remediation
Project,**
Deh Cho Region,
Northwest Territories

Project Archaeologist assisting with the completion of a Heritage Resources Impact Assessment under a Class 2 permit of several sites in the Axe Point Point Military Base in advance of site remediation. Project involved the identification and documentation of existing and newly identified structures.

**McKenzie Pipeline
Environmental Group**
Northwest Territories

Field assistant for a Historical Resources Impact Assessment for a large pipeline right-of-way extending from North of Inuvik to the Alberta NWT border.

Grande Prairie
Northern Alberta

Permit holder and report author for Historical Resource Impact Assessment for Aztec Engineering pipeline right-of-way.

Enbridge Waupisoo
East-central Alberta

Lead archaeologist for pipeline construction monitoring of the Christina River as well as a field assistant for a Historical Resources Impact Assessment of the proposed pipeline right-of-way through both Alberta's Green and White zones.

Suncor Energy Inc.
Northern Alberta

Field Assistant for a Historical Resources Impact Assessment for a proposed mine site.

Shell Canada Ltd.
Northern Alberta

Field Assistant for a Historical Resources Impact Assessment for a proposed mine and dam site.

**Fort McKay
Developments**
Northern Alberta

Field Assistant for a Historical Resources Impact Assessment for a number of smaller development projects.

Mancal Energy Inc.
Central Alberta

Permit holder and report author for a Historic Resources Impact Assessment for a well site, pipeline and associated tie-ins.

PROJECT EXPERIENCE – GREEN ENERGY PROJECTS

**Stage 4 Archaeological
Assessment, Wind
Farm**
Haldimand County,
Ontario

Project Manager and Licensed Archaeologist for a 150MW 67 Turbine Wind Farm Project in South Western Ontario. The Project involved the Stage 4 excavation of 44 Pre-Contact Aboriginal sites and was completed between August 2012 and the Summer of 2014. The project required the coordination of over 120 office and field staff from nine separate Golder Offices across Ontario. It represents the single largest Archaeology project completed by Golder to date.



Stage 1-2 Archaeological Assessment, Wind Farm Chatham-Kent, Ontario	Project Manager for a 150 MW Turbine Wind Farm Project north of Chatham, Ontario. The project involved the successful completion of a Stage 1 and 2 archaeological assessment and Cultural Heritage Impact Assessment. Through discussions with the client all but one culturally significant archaeological sites will be avoided.
Stage 1-2 Archaeological Assessment, Wind Farm Belle River, Ontario	Project Manager for a 150 MW Turbine Wind Farm Project in Belle River, Ontario. The project involved the successful completion of a Stage 1 and 2 archaeological assessment and Cultural Heritage Impact Assessment. Through discussions with the client all but one culturally significant archaeological sites will be avoided.
Stage 4 Archaeological Assessment, Solar Farm Haldimand County, Ontario	Project Manager and Licensed Archaeologist for a solar farm Project in South Western Ontario. The Project involved the Stage 4 excavation of six Pre-Contact Aboriginal sites and was completed between November 2012 and August 2013. The project involved close engagement with three interested First Nations groups and ongoing collaboration with the Ministry of Tourism Culture and Sport.
Stage 1 – 3 Archaeological Assessment Haldimand County, Ontario	Project Manager and Licensed Archaeologist for a Stage 1 - 3 Point of Interconnect for a combined Wind and Solar farm in Haldimand County Ontario. The project involved the completion of field work and associated reporting under a condensed timeline due to construction schedules and required permitting. The project met the schedule timeline and was successfully cleared by the MTCS.
Stage 4 Archaeological Assessment, Solar farm Frontenac County, Ontario	Project Manager and Licensed Archaeologist for a solar farm project situated in Frontenac County, Ontario. The Project involved the Stage 4 excavation of 3 historic Euro-Canadian archaeological sites over a period of two months. The project required the timely production of the preliminary archaeological assessment reports in order to meet construction and permitting timelines. The project was completed successfully.
Stage 3 Archaeological Assessment, Wind and Solar farm Haldimand County, Ontario	Project Manager for a Stage 3 archaeological assessment project in advance of a wind and solar farm project in Haldimand County Ontario. The project involved the excavation and analysis of 54 Stage 3 archaeological sites on the wind lands and 28 archaeological sites on the solar lands. The results of the work and regulatory consultation completed for the Stage 3 assessments was a re-writing of Ministry of Tourism, Culture and Sports guidelines as they specifically relate to wind and solar farm projects.
Archaeological Monitoring Technical Support Eastern Ontario	Provided technical support for the production of project deliverables including an unanticipated discovery plan to the proponent and subcontract for a wind farm project in eastern Ontario. The deliverables provided guidance to construction teams on the responsibilities for those that discover archaeological resources during construction.

Education

M.A. Anthropology and Archaeology, Memorial University of Newfoundland, St. John's, Newfoundland, 2001

B.A. Archaeology (honours), Wilfrid Laurier University, Waterloo, Ontario, 1998

Certifications

Professionally Licensed Archaeologist, Ontario

Golder Committees / Working Groups

HSSE Committee Representative – Archaeology/Bioscience/Surface Water

Ontario Indigenous Relations Team

Canadian Federal Client Team

Votorantim Cimentos Client Development Group

Cultural Heritage Technical Committee

Memberships

Ontario Archaeology Society

Golder Associates Ltd. – Ottawa

Michael Teal is a Senior Archaeologist working out of Golder Associates London, Ontario Office and has been with the company for 7 years. He is a licensed professional Ontario archaeologist (P364) with over 21 years of experience in cultural resource management, including 10 years with the federal government at Parks Canada and 11 years in non-federal and private sectors. At Golder Mr. Teal coordinates and manages archaeological projects including Stage 1, 2, 3 assessments and Stage 4 mitigation, supervises staff, prepares and generates reports, and analyses archaeological data. He also carries out archaeological surveys, excavations, and mitigation in the field and responds to clients' requests for information, technical advice, and action.

Employment History

Golder Associates Ltd. – London, Ontario

Senior Archaeologist (2012 to Present)

Cultural Sciences Team Leader for London. Responsible for the management and coordination of archaeological projects in southwest Ontario. Provision of technical guidance and leadership in the development and implementation of field work programs, the delivery of technical reports, project management, preparing cost estimates and proposals, and carrying out fieldwork for all stages of archaeological investigation.

Parks Canada Agency – Ontario Service Centre, Cornwall

Archaeologist (2002 to 2012)

Archaeologist on Parks Canada's National Parks and Native Sites team in Ontario. Project involvement included identification of impacts to cultural resources and providing recommendations to manage/mitigate effects. Responsible for field work coordination, development of field work strategies, analysis and interpretation of archaeological data, report preparation, adherence to Parks Canada cultural resource management policy.

From 2006 to 2012 acted as Cultural Resource Technical Advisor to Department of National Defence (DND) to identify, protect, and mitigate impacts to cultural resources during DND's UXO, Environmental and Cultural Resource Investigation of the Former Camp Ipperwash.

Various Consultancies

Archaeologist (1997 to 2001)

Completed archaeological assessments through Ontario for a number of different consulting firms specializing in Archaeological Assessments.

SELECT PROJECT EXPERIENCE – FEDERAL

**Stony Point Clearance
and Remediation
Project –
Archaeological
Investigations**
Former Camp
Ipperwash, Ontario

Archaeological Field Leader/Senior Archaeologist. Provision of archaeological support services during UXO clearance activities at Stony Point, Ontario for the Department of National Defence (DND). Archaeological objectives were to identify, protect, and assess the significance of cultural resources encountered and to determine the need for archaeological mitigation through either excavation or avoidance and protection. Attend update meetings and technical discussions and regular liaison with Kettle and Stony Point First Nation representatives.

**Parks Canada
Archaeological Impact
Assessment for
Proposed Renewal
Upgrades**
Point Pelee National
Park, Ontario

Project Manager and Field Lead. Archaeological survey through shovel testing of areas of high archaeological potential within proposed renewal upgrades at tip of Point Pelee National Park, Ontario. Provision of a report with survey results, conclusions regarding the archaeological significance and heritage value of findings, and recommendations for additional investigation, where required.

**Parks Canada
Archaeological Impact
Assessment for
Proposed Trails**
Rouge National Urban
Park, Ontario

Project Manager. Archaeological survey through shovel testing of areas of high archaeological potential along 3.5 km of proposed trail corridors and parking lot areas in Rouge National Urban Park, Ontario. Provision of a report with survey results, conclusions regarding the archaeological significance and heritage value of findings, and recommendations for additional investigation, where required.

**Parks Canada Artifact
Review and Analysis**
Point Pelee National
Park, Ontario

Project Manager. Review and analysis of artifacts previously recovered for the Point Pelee National Park 2011 Visitor Centre Septic Tank Project and provision of a summary report.

**Kayanase Proposed
Facility Expansion**
Six Nations Reserve No.
40, Ontario

Project Manager. Stage 1 and 2 archaeological assessment of 4 ha land parcel prior to a proposed facility expansion by Kayanase Greenhouse. Assessment resulted in the identification of several pre-contact Indigenous and historical sites, of which three were recommended for further assessment. Avoidance and protection plans were developed for the three sites through engagement with the Indigenous community. Construction monitoring services were also provided as part of the avoidance and protection plan.

**Former Camp
Ipperwash
Investigation**
Former Camp
Ipperwash, Ontario

Archaeological Advisor (Golder Associates Ltd.). Provision of archaeological advice to DND to identify, protect, and mitigate impacts to cultural resources during UXO, Environmental, and Cultural Resource Investigation of former Camp Ipperwash. Regular liaison with DND project managers and interfacing with First Nation and independent contractors; assistance in the development of GIS mapping of cultural resources for site planning; review and comment on archaeological work plans, interim results and reports; site inspections and participation in stakeholder meetings.

**Niagara Ranges /
Battlefield of Fort
George National
Historic Site of Canada**
Niagara-on-the-Lake,
Ontario

Project Manager. Provision of archaeological support services during UXO clearance activities, and for subsequent soil investigations on the property known as the Niagara Ranges. Archaeological field work as part of the support services totalled 17 days between October 20 and November 24, 2015, and for four days between January 11 and January 14, 2016. All field work activities were performed in accordance with the Parks Canada *Guidelines for the Management of Archaeological Resources* and *Archaeological Recording Manual: Excavations and Surveys*.

SELECT PROJECT EXPERIENCE – AGGREGATE PROJECTS

**Proposed St Marys
Thomas Quarry
Extension**
St Marys, Ontario

Archaeology Lead and Task Manager. Stage 1 and 2 archaeological assessment for Votorantim Cimentos North America of 45 ha land parcel for proposed pit extension. Role included communication with the client, health and safety plan preparation, and budget and schedule management. Planned and coordinated field program for Stage 2 archaeological assessments, interpreted all archaeological data, and conducted technical review of prepared report. Active engagement with interested First Nations communities.

**Proposed
Flamborough Quarry
Extension**
Flamborough, Ontario

Project Manager. Stage 1 and 2 archaeological assessment for CRH Canada Group Inc. of 27.5 ha land parcel for proposed pit extension. Role included communication with the client, health and safety plan preparation, and budget and schedule management. Planned and coordinated field program for Stage 2 archaeological assessments, interpreted all archaeological data, and conducted technical review of prepared report. Active engagement with interested First Nations communities.

Paris Pit Due Diligence
Paris, Ontario

Project Manager. Stage 1 and 2 archaeological assessment for CRH Canada Group Inc. of 9.4 ha land parcel prior to extraction activities. Role included communication with the client, health and safety plan preparation, and budget and schedule management. Planned and coordinated field program for Stage 2 archaeological assessments, interpreted all archaeological data, and conducted technical review of prepared report.

**Proposed Limestone
Quarry Bruce County**
Bruce County, Ontario

Project Manager. Stage 1 and 2 archaeological assessment of 15.5 ha land parcel for proposed pit. No archaeological sites were identified, and no further work was recommended. Role included communication with the client, health and safety plan preparation, and budget and schedule management. Planned and coordinated field program for Stage 2 archaeological assessments, interpreted all archaeological data, and conducted technical review of prepared report. Active engagement with interested First Nations communities.

SELECT PROJECT EXPERIENCE – MUNICIPAL PROJECTS

Woodhull Cemetery
London, Ontario

Project Manager. Stage 1 background study followed by Stage 2 archaeology survey and GPR survey to identify potential archaeological sites and unmarked burial features. Fieldwork resulted in the identification of one archaeological site and several possible burial features that were recommended for further investigation to meet regulatory requirements. Project involved consultation with municipal and provincial governments and local Indigenous communities.

W12A Landfill Site
London, Ontario

Project Manager. Stage 1 background study followed by Stage 2 archaeology survey of future waste disposal areas as part of the City of London's due diligence process. Fieldwork resulted in the identification of one disturbed archaeological site that was not recommended for further investigation. Project involved consultation with municipal government and local Indigenous communities.

Mud Creek Sub-watershed Class Environmental Assessment
London, Ontario

Project Manager and Archaeology Lead. Stage 1 Archaeological Assessment for study area comprised of 31 land parcels in the City of London. Reporting included background desktop research, evaluation of archaeological potential, and recommendations for appropriate Stage 2 assessment, where required.

SELECT PROJECT EXPERIENCE – INFRASTRUCTURE PROJECTS

Amherstburg Wastewater Servicing Plan
Amherstburg, Ontario

Project Manager and Archaeology Lead; Stage 1 and 2 Archaeological Assessment for 4.2 km long study corridor. Following a property inspection and archaeological survey reporting included background desktop research, evaluation of archaeological potential, and recommendations for further work, where required.

Brantford Water Treatment Complex
Brantford, Ontario

Project Manager and Archaeology Lead; Stage 1 and 2 Archaeological Assessments for the Brantford Water Treatment Complex. Field work included a property inspection followed by Stage 2 test trenching to identify potential cultural resources. Stage 1 reporting included desktop research, evaluation of archaeological potential, and recommendations for appropriate Stage 2 assessment. Stage 2 reporting involved summarizing field assessment results and making recommendations for further work, where required.

Commissioners Road West Realignment EA
London, Ontario

Archaeology Lead; Stage 1 Archaeological Assessment for linear corridor in the City of London. Field work included a property inspection and reporting included background desktop research, evaluation of archaeological potential, and recommendations for appropriate Stage 2 assessment, where required.

Infrastructure Renewal Program, Contract D, Main Street, Lambeth
London, Ontario

Archaeology Lead; Stage 1 Archaeological Assessment for linear corridor in the City of London. Field work included a property inspection and reporting included background desktop research, evaluation of archaeological potential, and recommendations for appropriate Stage 2 assessment, where required.

SELECT PROJECT EXPERIENCE – OIL AND GAS PROJECTS

Stage 1 and 2 Archaeological Assessments, TCPL Northern Ontario Infrastructure Operations and Maintenance Program
Various Locations, Ontario

Project Manager; Provided technical guidance and oversight for Stage 1 and Stage 2 archaeological assessments at various TCPL work sites in northern Ontario. Completed daily quality control and quality assurance reviews of field data and ensured compliance fieldwork and reporting was being completed to *MTCS Standards and Guidelines*.



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