STAGE 2 ARCHAEOLOGICAL ASSESSMENT FOR THE PROPOSED ARNOTT BROS. McKINNON PIT EXPANSION PART LOT 5, CONCESSION 10 GEOGRAPHIC TOWNSHIP OF DALHOUSIE NOW TOWNSHIP OF LANARK HIGHLANDS COUNTY OF LANARK

Past Recovery
Archaeological Services Inc.

STAGE 2 ARCHAEOLOGICAL ASSESSMENT FOR THE PROPOSED ARNOTT BROS. McKINNON PIT EXPANSION, PART LOT 5, CONCESSION 10, GEOGRAPHIC TOWNSHIP OF DALHOUSIE, NOW TOWNSHIP OF LANARK HIGHLANDS, COUNTY OF LANARK

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Re: *Aggregate Resources Act (Ontario)*

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Mr. Gary McLaren, Milestone Aggregate Consulting Services Inc., provided assistance with background information, mapping and coordinating access to the property.

PROJECT PERSONNEL

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EXECUTIVE SUMMARY

Past Recovery Archaeological Services Inc. (Past Recovery) was retained Milestone Aggregate Consulting Services Inc. on behalf of Arnott Brothers Construction Limited to undertake a Stage 2 archaeological assessment as part of an Application of Consent for a proposed expansion to the McKinnon Pit on Part Lot 5, Concession 10 in the geographic Township of Dalhousie, now within the Township of Lanark Highlands (see Maps 1 and 2).

The purpose of the Stage 2 investigation was to determine whether or not there were archaeological resources on the subject property, and if so to recommend an appropriate Stage 3 assessment strategy. In particular, a pre-Contact archaeological site (BfGd-3) had been registered on the adjacent Lot 6, Concession 10, less than 10 m from the study area. The Stage 2 property survey was completed over the course of two days on the 28th and 29th of June, 2021 by means of both a shovel test pit survey and pedestrian survey at 5 m intervals across all portions of the property determined to exhibit archaeological potential (see Map 5). This included field walking intensification at 1 m intervals within 20 m of site BfGd-3. No archaeological resources were found during the course of the survey.

This report forms the basis for the following recommendation:

1) It has been determined that the cultural heritage value or interest of the study area has been sufficiently documented through the Stage 2 research conducted to date, and no further archaeological assessment of the subject area as presently defined on Map 2 is required.

The following recommendation has been included as per a request from the Algonquins of Ontario:

2) Since the potential always exists to miss important information in archaeological surveys, if any artifacts of Indigenous interest or human remains are encountered during the development of the subject property, please contact: Algonquins of

Ontario Consultation Office, 31 Riverside Drive, Suite 101, Pembroke, ON, K8A 8R6; Tel: 613-735-3759; Fax: 613-735-6307; Email: algonquins@tanakiwin.com.

The reader is also referred to Section 7.0 below to ensure compliance with relevant provincial legislation as it may relate to this project.

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1.0 INTRODUCTION

Past Recovery Archaeological Services Inc. (Past Recovery) was retained by Milestone Aggregate Consulting Services Inc. on behalf of Arnott Bros. Construction Ltd. to undertake a Stage 2 archaeological assessment as part of an *Application for Consent* for the extension of the McKinnon Pit from Part Lot 6, Concession 10 and Part of Lot 6, Concession 11 onto Part Lot 5, Concession 10 in the geographic Township of Dalhousie, now within the Township of Lanark Highlands (Maps 1 and 2). The expansion will be confined to the section of the lot to the northwest of Highland Line and southwest of an existing wetland.

The objectives of a Stage 2 archaeological assessment are as follows:

- To document all archaeological resources on the property
- To determine whether the property contains archaeological resources requiring further assessment; and,
- In the even that an archaeological site requiring further assessment is discovered, to recommend an appropriate Stage 3 assessment strategy.

2.0 PROJECT CONTEXT

This section of the report provides the context for the archaeological work undertaken, including a description of the study area, the related legislation or directives triggering the assessment, and the confirmation of permission to access the property.

2.1 Property Description

This report addresses an approximately 6.26 hectare (15.47 acre) property located within Part Lot 5, Concession 10, in the Township of Lanark Highlands in Lanark County (see Maps 1 and 2). The study area was defined on the basis of project mapping supplied by Milestone Aggregate Consulting Services Inc. The property lies in the southern section of the Township of Lanark Highlands to the northwest of Perth, south of McDonald's Corners and approximately three kilometres south of Dalhousie Lake and the Mississippi River. A portion of the property consists of swampy land, drained by the Long Sault Creek. The remainder contains rolling till uplands, consisting of cleared former pasture and forested areas. The height of the esker within the property is such that a portion of the study area is steeply sloped, with some filling of the lower areas begun at the time of the assessment. A laneway extends through the property from Highland Line into the existing McKinnon Pit on the adjoining lot.

2.2 Development Context

An archaeological assessment was required under the *Aggregate Resources Act (Ontario)* as part of the pit expansion application. A Stage 1 assessment for the study area on Lot 5, Concession 10 was completed in 2006, which recommended Stage 2 assessment in the event of proposed disturbance (Adams Heritage 2006).

2.3 Access Permission

Permission to access the subject property and complete all aspects of the archaeological assessment including photography and artifact collection was granted by Arnott Brothers Construction Limited, the property owner.

2.4 Territorial Acknowledgement

The study area falls within the traditional territory of the Anishinaabeg and forms part of the Algonquins of Ontario (AOO) Settlement Area set out by the current Agreement-in-Principle between the AOO and the federal and provincial governments, signed in 2016.[1]

[1] The Agreement-In-Principle is between the Algonquins of Ontario and the Governments of Ontario and Canada. Algonquins have sought recognition and protection of their traditional territory dating back to

3.0 HISTORICAL CONTEXT

This section of the report includes an overview of human settlement in the region, as well as a review of available maps and written records, prepared with the intention of providing a context for the evaluation of known and potential archaeological sites.

3.1 Regional Pre-Contact Cultural Overview

While our understanding of the pre-Contact sequence of human activity in the region is limited, it is possible to provide a general outline of pre-Contact occupation based on archaeological, historical, and environmental research conducted across what is now eastern Ontario.[2] Archaeologists divide the long sequence of Indigenous occupation into both temporal periods and regional groups based primarily on the presence and/or style of various surviving artifact types within the archaeological record. While this provides a means of discussing the past, it is an archaeological construct and interpretation; it does not reflect the generally gradual nature of change over time, nor the complexities of interactions between different Indigenous groups. Archaeology is not a substitute for Indigenous world views and histories as detailed in the oral traditions of Indigenous communities who have long-standing relationships with the land. The following summary uses the generally accepted archaeological chronology for the pre-Contact period while recognizing its limitations.

Across the region, glaciers began to retreat around 15,000 years ago (Munson 2013:1). The earliest human occupation of Ontario began approximately 13,500 years before present (B.P.) with the arrival of small groups of hunter-gatherers referred to by archaeologists as Palaeo-Indians (Ellis 2013:35). These groups gradually moved northward as the glaciers and glacial lakes retreated. While very little is known about their lifestyle, it is likely that Palaeo-Indian groups travelled widely relying on the seasonal migration of caribou as well as small animals and wild plants for subsistence in a sub-arctic environment. They produced a variety of distinctive stone tools including fluted projectile points, scrapers, burins and gravers. Their sites are rare, and most are quite small (Ellis 2013:35-36). Palaeo-Indian peoples tended to camp along shorelines, and because of the changing environment, many of these areas are now inland. Indigenous settlement of much of eastern Ontario was late in comparison to other parts of Ontario as a result of the high-water levels associated with glacial Lake Algonquin, the early stages of glacial Lake Iroquois and the St. Lawrence Marine Embayment of the post-glacial Champlain Sea (Hough 1958:204). In eastern Ontario, the old shoreline ridges of

1772 and in 1983 the Algonquins of Pikwàkanagàn First Nation (previously Algonquins of Golden Lake) formally submitted a petition to the Government of Canada, and in 1985 to the Government of Ontario. The claim was accepted for negotiations in 1991 and 1992 and an Agreement-In-Principle was signed in 2016 and negotiations are on-going.

[2] Current common place names are used throughout this report while recognizing that the many Indigenous peoples who have lived in the region for thousands of years had, and often maintain, their own names for these places and natural features.

Lake Algonquin, Lake Iroquois, the Champlain Sea and of the emergent St. Lawrence and Ottawa river channels and their tributaries would be the most likely areas to find evidence of Palaeo-Indian occupation (Ellis 2013; Ellis and Deller 1990; Watson 1999).

During the succeeding Archaic period (c. 10,000 to c. 3,000 B.P.), the environment of the region approached modern conditions and more land became available for habitation as water levels in the glacial lakes dropped. Populations continued to follow a mobile hunter-gatherer subsistence strategy, although there appears to have been a greater reliance on fishing and gathered food (e.g. plants and nuts) and more diversity between regional groups. The tool kit became increasingly diversified with the introduction of ground stone tools and with a general reduction in the size of flaked stone projectile points. Both technological changes signal past adaptations to environmental conditions more similar to those of today. Tools made from ground stone included axes, adzes, gouges and other implements believed to have been used for the construction of dug-out canoes, grinding stones for processing nuts and seeds, and specialized net sinkers and plummets for fishing. A wide variety of non-utilitarian items such as gorgets, pipes and 'birdstones' were also manufactured from ground stone, and speak to ceremonialism in life and increasingly elaborate burial practices in death. The middle and late portions of the Archaic period saw the development of trading networks spanning the Great Lakes, and by 6,000 years ago copper was being mined in the Upper Great Lakes and traded into southern Ontario. By the end of this period populations had increased substantially over the preceding Palaeo-Indian occupation (Ellis 2013; Ellis et al. 1990).

More extensive Indigenous settlement of the Eastern Ontario region began during this period, sometime between 7,500 and 6,500 B.P. Artifacts from Archaic sites suggest a close relationship between these communities and what archaeologists refer to as the Laurentian Archaic stage peoples who occupied the Canadian biotic province transition zone between the deciduous forests to the south and the boreal forests to the north. This region included northern New York State, the upper St. Lawrence Valley across southern Ontario and Quebec, and the state of Vermont (Richie 1969; Clermont et al. 2003). The 'tradition' associated with this period is characterized by a more or less systematic sharing of several technological features, including large, broad-bladed, chipped stone and ground slate projectile points, and heavy ground stone tools. This stage is also known for the extensive use of cold-hammered copper tools including "*bevelled spear points, bracelets, pendants, axes, fishhooks and knives*" (Kennedy 1970:59). The sharing of this set of features is generally perceived as a marker of historical relatedness and inclusion in the same interaction network (Clermont et al. 2003). Cemeteries also appear for the first time during the Late Archaic. Evidence of Archaic occupation has been found across eastern Ontario (see Clermont 1999; Clermont et al. 2003; Ellis 2013; Kennedy 1962, 1970; Laliberté 2000; Watson 1990).

Archaeologists use the appearance of ceramics in the archaeological record to mark the beginning of the Woodland period (c. 3,000 B.P. to c. 350 B.P.). Ceramic styles and

decorations suggest the continued differentiation between regional populations and are commonly used to distinguish between three periods: Early Woodland (2,900 to 2,300 B.P.), Middle Woodland (2,300 to 1,200 B.P.), and Late Woodland (1,200 to 400 B.P.). The introduction of ceramics to southern Ontario does not appear to have been associated with significant changes to lifeways, as hunting and gathering remained the primary subsistence strategy throughout the Early Woodland and well into the Middle Woodland. It does, however, appear that regional populations continued to grow in size, and communities continued to participate in extensive trade networks that, at their zenith c. 1,750 B.P., spanned much of the continent and included the movement of conch shell, fossilized shark teeth, mica, copper and silver; a large number of other items that rarely survive in the archaeological record would also have been exchanged, as well as knowledge.[3] Social structure appears to have become increasingly complex, with some status differentiation evident in burials. In southeastern Ontario, the first peoples to adopt ceramics are identified by archaeologists as belonging to the Meadowood Complex, characterized by distinctive biface preforms, side-notched points, and Vinette I ceramics which are typically crude, thick, cone-shaped vessels made with coils of clay shaped by cord-wrapped paddles. Meadowood material has been found on sites across southern Ontario extending into southern Quebec and New York State (Fox 1990; Spence et al. 1990).

In the Middle Woodland period, increasingly distinctive trends or 'traditions' continued to evolve in different parts of Ontario (Spence et al. 1990). Although regional patterns are poorly understood and there may be distinctive traditions associated with different watersheds, the appearance of improved (thinner-walled and containing finer grit temper) ceramic vessels decorated with dentate or pseudo-scallop impressions have been used by archaeologists to distinguish the Point Peninsula Complex. These ceramics are identified as Vinette II and are typically found in association with evidence of distinct bone and stone tool industries. Sites exhibiting these traits are known from throughout south-central and eastern Ontario, northern New York, and northwestern Vermont, and are often found overlying earlier occupations. Some groups appear to have practiced elaborate burial ceremonialism that involved the construction of large earthen mortuary mounds and the inclusion of numerous and often exotic materials in burials, construed as evidence of influences from northern Ontario and the Hopewell area to the south in the Ohio River valley. Investigations of sites with occupations dating to this time period have allowed archaeologists to develop a better picture of the seasonal round followed in order to harvest a variety of resources within a home territory. Through the late fall and winter, small groups would occupy an inland 'family' hunting area. In the spring, these dispersed families congregated at specific lakeshore sites to fish, hunt in the surrounding forest and socialize. This gathering would last through to the late summer

[3] For example, the recent discovery of a cache of charred quinoa seeds, dating to 3,000 B.P. at a site in Brantford, Ontario, indicates that crops were part of this extensive exchange network, which in this case travelled from the Kentucky-Tennessee region of the United States. Thus far, there is no indication that these seeds were locally grown (Crawford et al. 2019).

when large quantities of food would be stored up for the approaching winter (Spence et al. 1990).

Towards the end of the Middle Woodland period (1200 B.P.), groups living in southern Ontario included horticulture in their subsistence strategy. Available archaeological evidence, which comes primarily from the vicinity of the Grand and Credit rivers, suggests that this development was not initially widespread. The adoption of maize horticulture instead appears to be linked to the emergence of the Princess Point Complex which is characterized by decorated ceramics combining cord roughening, impressed lines, and punctate designs; triangular projectile points; T-based drills; steatite and ceramic pipes; and ground stone chisels and adzes (Fox 1990). The distinctive artifacts and horticultural practices have led to the suggestion that these populations were ancestral to the Iroquoian-speaking peoples who later inhabited southern Ontario (Warrick 2000:427).[4]

Archaeologists have distinguished the Late Woodland period by the widespread adoption of maize horticulture by some Indigenous groups primarily across much of southern Ontario and portions of the southeast with favourable soils. The cultivation of corn, beans, squash, sunflowers and tobacco radically altered subsistence strategies and gained economic importance in the region over time. This change is associated with increased sedentarism, and with larger and more dense settlements focused on areas of easily tillable farmland. In some areas, semi-permanent villages with communal 'longhouse' dwellings appeared for the first time. These villages were occupied year-round for 12 to 20 years until local firewood and soil fertility had been exhausted. Many were surrounded by defensive palisades, evidence of growing hostilities between neighbouring groups. Associated with these sites is a burial pattern of individual graves occurring within the village. Upon abandonment, the people of one or more villages often exhumed the remains of their dead for reburial in a large communal burial pit or ossuary outside of the village(s) (Birch and Williamson 2013; Wright 1966). More temporary habitations such as small hamlets, agricultural cabin sites, and hunting and fishing camps were also used. Throughout much of eastern Ontario, however, the shield-like terrain limited the adoption of extensive horticulture and Indigenous groups

[4] There have been several studies, however, that indicate assigning ethnicity to archaeological sites based on ceramic typologies and other kinds of artifacts is problematic (see Hart and Englebrecht 2012; Kapyrka 2017). For instance, Iroquoian-style pottery is found on sites within traditional Anishinaabe territories in eastern New York and Ontario (Hart and Englebrecht 2012: 335, 345). Further, artifact traits associated with particular ethnicities are not always agreed upon by archaeologists and in many cases these traits indicate the presence of more than one group (Fox and Garrad 2004). Though valuable "*in terms of the history of archaeological thought*," equating an Indigenous artifact trait with ethnicity is overly simplistic and lacking any means for evaluation, exemplifying the importance of other lines of evidence, including oral histories, in an interpretive historical framework (Kapyrka 2017).

continued to move frequently across this territory hunting, fishing, and gathering (Pilon 1999).

At the end of the Late Woodland period several Indigenous groups were living within eastern Ontario, although the territories associated with each and the relationships between them were complex and are not fully understood. Anishinaabe oral histories suggest a broad homeland extending far to the west of Ontario and include references to a migration from the Atlantic seaboard, as well as a subsequent return via the St. Lawrence River to the Great Lakes region, with the latter having occurred around 500 B.P. (Hessel 1993; Sherman 2015:27). Those who became known as the Algonquin[5] settled along the Ottawa River or Kichi-Sibi[6] and its tributaries in eastern Ontario and western Quebec; the Ojibwa and Nipissing were located further to the north and west. Living on and around the Canadian Shield, all Anishinaabeg maintained a more nomadic lifestyle than their agricultural neighbours to the south, and accordingly their presence is less visible in the archaeological record (Morrison 2005; Sherman 2015:28).

The so-called St. Lawrence Iroquoians inhabited the St. Lawrence River valley from the east end of Lake Ontario to the Quebec City region and beyond, and have been identified archaeologically based on a distinctive material culture, a horticulture-based subsistence supplemented with fishing, hunting and gathering, and the presence of large semi-permanent villages as well as smaller camps. Numerous discrete settlement clusters have been identified across this vast territory; however, the political and social relationships between these populations is unclear (Tremblay 2006). In eastern Ontario, significant St. Lawrence Iroquoian site clusters have been identified near the Spencerville/Prescott area, and just north of Lake St. Francis (sometimes referred to as the 'Cornwall Cluster'; Tremblay 2006). The material culture and settlement patterns of the fourteenth and fifteenth century Iroquoian sites found along the upper St. Lawrence in Ontario are directly related to the Iroquoian-speaking groups that Jacques Cartier and his crew encountered in A.D. 1535 at Stadacona (Quebec City) and Hochelaga (Montreal Island; Jamieson 1990:386; Tremblay 2006). By the late sixteenth century, however, all of the St. Lawrence Iroquoian settlements appear to have been abandoned. There are various hypotheses for the 'disappearance' of the St. Lawrence Iroquoians, although increasing hostilities with neighbouring populations, notably the Mohawk, is the most widely accepted (Tremblay 2006). At the time of their 'disappearance,' there was a significant increase in St. Lawrence Iroquoian ceramic vessel types on ancestral Huron-Wendat sites and also on some Algonquin sites, suggesting segments of the St. Lawrence Iroquoian

[5] The Algonquin of eastern Ontario increasingly use the Anishinaabemowin word Omàmiwinini to refer to themselves. Omàmiwinini describes the relationship with the land in the language, and though it was largely replaced by 'Algonquin' for many years, efforts are underway to reintroduce the term (Sherman 2008:77).

[6] The Algonquin have various names specific to each part of the Ottawa River. The lower part of the river from Mattawa down to Lake of Two Mountains is traditionally known as the Kichi-Sibi, also spelled Kiji Sibi, Kichisipi, Kichissippi, and Kichisippi (AOO 2020; Morrison 2005:9; Sherman 2015:27).

population relocated to other regions as captives or refugees (Birch 2015:291; Sutton 1990:54; Tremblay 2006).

Agricultural villages of ancestral Huron-Wendat have been recorded along the north shore of Lake Ontario and up the Trent River dating to c. 550 B.P. By c. 450 B.P., the easternmost settlements of the ancestral Huron-Wendat were located between Balsam Lake and Lake Simcoe in the region that would become historic Huronia. This population movement is not fully understood, and undoubtedly involved complex interactions between different cultural groups including the Anishinaabeg and, as noted above, may also have included St. Lawrence Iroquoians. As such, there are conflicting interpretations of the archaeological and historical records related to this period (see Gaudreau and Lesage 2016; Gitiga Migizi 2018; Gitiga Migizi and Kapyrka 2015; Lainey 2006; Richard 2016; Pendergast 1972).

Finally, while the Iroquois or Haudenosaunee[7] homeland was initially south of Ontario in New York state, their oral histories suggest their hunting grounds extended along the north shore of Lake Ontario and the St. Lawrence River into southeastern Ontario and Quebec (Hill 2017). Archaeological data indicates some Haudenosaunee were living year-round in Ontario by the early seventeenth century (Konrad 1981).

The Indigenous population shifts and relationships of the late sixteenth and early seventeenth centuries through the period of initial contact with Europeans were complex and are not fully understood. They were, in part, a result of the disruption of traditional Indigenous exchange patterns brought about by the arrival of the French, Dutch and British along the Atlantic seaboard and the subsequent emergence of the lucrative St. Lawrence River trade route.

3.2 Regional Post-Contact Cultural Overview

The first Europeans to travel into eastern Ontario arrived in the early seventeenth century; predominantly French, they included explorers, fur traders and missionaries. While exploring eastern Ontario and the Ottawa River watershed between c. 1610 and 1613,[8] Samuel de Champlain and others documented encounters with different Indigenous groups speaking Anishinaabemowin, including the Matouweskarini along the Madawaska River, the Kichesipirini at Morrison Island on the Ottawa River, the Otaguottouemin along the river northwest of Morrison Island, the Weskarini in the Petite

[7] Sometime between A.D. 1142 and A.D. 1451 the Mohawk, Oneida, Onondaga, Cayuga, and Seneca united to form the Haudenosaunee Confederacy, also known as the League of Five Nations, and called the Iroquois by the French. When the Tuscarora Nation joined the confederacy in 1722, it became the League of Six Nations.

[8] From this section onwards all dates are presented as A.D.

Nation River basin,[9] and the Onontchataronon[10] living in the South Nation River basin as far west as the Gananoque River basin (Hanewich 2009; Hessel 1993; Sherman 2015:29). These extended family communities subsisted by hunting, fishing, and gathering, and undertook some horticulture (see also Pendergast 1999; Trigger 1987). The Anishinaabeg living in the Upper Ottawa Valley and northward towards the headwaters of the Ottawa River included the Nipissing, Timiskaming, Abitibi (Wahgoshig), and others; however, as the French moved inland, they referred to all these groups who spoke different dialects of Anishinaabemowin as Algonquin (Morrison 2005:18).

At the time of Champlain's travels, the Algonquin were already acting as brokers in the fur trade and exacting tolls from those using the Ottawa River trade route which connected the Upper Great Lakes to the west via Lake Nipissing and Georgian Bay, and the St. Maurice and Saguenay via the Rivières des Outaouais (the portion of the Ottawa River extending eastward into Quebec from Lake Timiskaming). These northern exchange routes circumvented the St. Lawrence River and lower Great Lakes waterways and, therefore, potential conflict with the Haudenosaunee (Joan Holmes & Associates Inc. 1993:2-3). As access to the more southerly route and the extent of settlement in the region fluctuated with the state of hostilities (Joan Holmes & Associates Inc. 1993:3), and given that the fur trade in New France was based in Montreal, the Ottawa River navigation routes were of especial strategic importance in the movement of goods inland and the return of furs down to Montreal. In the wake of Champlain's travels, the Ottawa River became the principal route to the interior for the French. The recovery of European trade goods (e.g., iron axes, copper kettle pieces, glass beads, etc.) from sites throughout the Ottawa River drainage basin provides some evidence of the extent of interaction between Indigenous groups and the French during this period (Kennedy 1970).

With Contact, major population disruptions were brought about by the introduction of European diseases against which Indigenous populations had little resistance; severe smallpox epidemics in 1623-24 and again between 1634 and 1640 resulted in drastic population decline among all Indigenous peoples living in the Great Lakes region (Konrad 1981). The expansion of hunting for trade with Europeans also accelerated decline in the beaver population, such that by the middle of the seventeenth century the centre of the fur trade had shifted northward from what became the northeastern states into southern Ontario. The French, allied with the Huron-Wendat, the Petun, and the Anishinaabeg, refused advances by the Haudenosaunee to trade with them directly. Seeking to expand their territory and disrupt the French fur trade, the Haudenosaunee

[9] The Petite Nation River is in Quebec, with its mouth on the north side of the Ottawa River between Ottawa and Hawkesbury. It is sometimes confused with the South Nation River in eastern Ontario which empties into the south side of the Ottawa River opposite the Petite Nation River. Consequently, the Weskarini territory is sometimes associated with the South Nation River, but this appears to be an error (*cf.* Hessel 1993).

[10] This is a Haudenosaunee term and is, therefore, thought to refer to an Algonquin community that adopted displaced Iroquoians from territory along the St. Lawrence River near Montreal (Fox and Pilon 2016).

launched raids into the region and established a series of winter hunting bases and trading settlements near the mouths of the major rivers flowing into the north shore of Lake Ontario and the St. Lawrence River.[11] The first recorded Haudenosaunee settlements were two Cayuga villages established at the northeastern end of Lake Ontario (Konrad 1981). Between 1640 and 1650, the success of the Haudenosaunee Confederacy in warfare led to the dispersal of the Anishinaabeg and Huron-Wendat who had been occupying much of southern Ontario.

Fort Frontenac was established by the French at the present site of Kingston in 1673, and another fort was constructed at La Presentation (Ogdensburg, New York) in 1700. These forts served to solidify control of the fur trade and to enhance French ties with local Indigenous populations. To this end, the French also encouraged the establishment of Indigenous villages near their settlements (Adams 1986). The full extent of Indigenous settlement in eastern Ontario through to the end of the seventeenth century, however, is uncertain. The Odawa appear to have been using the Ottawa River for trade from c. 1654 onward and some Algonquin remained within the area under French influence, possibly having withdrawn to the headwaters of various tributaries in the watershed. In 1677 the Sulpician Mission of the Mountain was established near Montreal where the Ottawa River empties into the St. Lawrence River. While it was mostly a Mohawk community that became known as Kahnawake, some Algonquin who had converted to Christianity settled at the mission for part of the year and were known as the Oka Algonquin (Joan Holmes & Associates Inc. 1993).

As a result of increased tensions between the Haudenosaunee and the French, and declining population from disease and warfare, the Cayuga villages were abandoned in 1680 (Edwards 1984:17). Around this time, Anishinaabeg began to mount an organized counter-offensive against the Haudenosaunee who were pushed back to their traditional lands further south, leading to the return of the Michi Saagig Nishnabeg, or Mississauga, to southern and south-eastern Ontario from their winter hunting grounds in the north. This change saw Anishinaabeg gain wider access to European trade goods and allowed them to use their strategic position to act as intermediaries in trade between the British and Indigenous communities to the north (Edwards 1984:10,17; Ripmeester 1995; Surtees 1982; Curve Lake First Nation n.d.).

Following almost a century of warfare, the Great Peace was signed in Montreal in 1701 between New France and 39 Indigenous Nations, including the Anishinaabeg, Huron-Wendat and Haudenosaunee. This led to a period of relative peace and stability. During the first half of the eighteenth century, the Haudenosaunee occupation appears to have been largely restricted to south of the St. Lawrence River, while Mississauga and Ojibwa were living in southern and central Ontario, generally beyond the Ottawa River

[11] These settlements included: Quinaouatoua near present day Hamilton, Teiaiagon on the Humber River, Ganatswekwyagon on the Rouge River, Ganaraske on the Ganaraska River, Kentsio on Rice Lake, Kente on the Bay of Quinte, and Ganneious, near Napanee (Adams 1986).

watershed (Joan Holmes & Associates Inc. 1993:3). Algonquin were residing along the Ottawa River and its tributaries, as well as outside the Ottawa River watershed at Trois-Rivières; Nipissing were located around Lake Nipissing and at Lake Nipigon. Reports from c. 1752 suggest that some non-resident Algonquin and Nipissing were trading at the mission at Lake of Two Mountains during the summer but returning to their hunting grounds "*far up the Ottawa River*" for the winter, and there is some indication that they may have permitted Haudenosaunee residents of the mission to hunt in their territory (Joan Holmes & Associates Inc. 1993:3; Heidenreich and Noël 1987:Plate 40).

In 1754, hostilities over trade and the territorial ambitions of the French and British led to the Seven Years' War, in which many Anishinaabeg fought on behalf of the French. With the French surrender in 1760, Britain gained control over New France, though in recognition of Indigenous title to the land the British government issued the Royal Proclamation of 1763. This created a boundary line between the British colonies on the Atlantic coast and the 'Indian Reserve' west of the Appalachian Mountains. This line then extended from where the 45th parallel of latitude crossed the St. Lawrence River near present day Cornwall northwestward to the southeast shore of Lake Nipissing and then northeastward to Lac St. Jean. The proclamation specified that "*Indians should not be molested on their hunting grounds*" (Joan Holmes & Associates Inc. 1993:4) and outlawed the private purchase of Indigenous land, instead requiring all future land purchases to be made by Crown officials "*at some public Meeting or Assembly of the said Indians*" occupying the land in question (cited in Surtees 1982: 9). In 1764, the post at Carillon on the Ottawa River was identified as the point beyond which traders could only pass with a specific licence to trade in "*Indian Territory.*" Petitions in 1772 and again in 1791 described Algonquin and Nipissing territory as the lands on both sides of the Ottawa River from Long Sault to Lake Nipissing. Settlers continued to trespass into this territory, however, cutting trees and driving away game vital to Indigenous lifeways (Joan Holmes & Associates Inc. 1993:5). Akwesasne, within the Haudenosaunee hunting territory, became a permanent settlement towards the middle of the eighteenth century.[12]

At first, the end of the French Regime brought little change to eastern Ontario. Between 1763 and 1776 some British traders traveled to the Kingston area, but the British presence remained sporadic until 1783 when Fort Frontenac was officially re-occupied. With the conclusion of the American Revolutionary War (1775 to 1783), however, the British sought additional lands on which to settle United Empire Loyalists fleeing the United States, disbanded soldiers, and the Mohawk who had fought with the British under Thayendanegea (Joseph Brant) and Chief Deserontyon and were, therefore, displaced from their lands in New York State. To this end, the British government undertook hasty negotiations with Indigenous groups to acquire rights to lands; however, these negotiations did not include Algonquin and Nipissing who were continuously ignored, despite much of the area being their traditional territory (Lanark County Neighbours for Truth and Reconciliation 2019). Initially the focus for settlement was the north shore of

[12] www.firstbatuibs.info/akwesasne.html

Lake Ontario and the St. Lawrence River, resulting in a series of 'purchases' and treaties beginning with the Crawford Purchases of 1783. As noted, these treaties did not include all of the Indigenous groups who lived and hunted in the region and the recording of the purchases – including the boundaries – and their execution were problematic; they also did not extinguish Indigenous rights and title to the land (Joan Holmes & Associates Inc. 1993:5; Royal Commission on Aboriginal Peoples 1996). The *Crown Grant to the Mohawks of the Bay of Quinte* was issued in 1784 in recognition of the Six Nations' support during the American Revolutionary War. It included lands on the Bay of Quinte, originally part of the Crawford Purchases, on which Chief Deserontyon and other Haudenosaunee settled.[13]

Major Samuel Holland, Surveyor General for Canada, began laying out the land within the Crawford Purchases in 1784 with such haste that the newly established townships were assigned numbers instead of names. Euro-Canadian settlement along the north shore of the St. Lawrence River and the eastern end of Lake Ontario began in earnest about this time. By the late 1780s the waterfront townships were full and more land was required to meet both an increase in the size of grants to all Loyalists and grant obligations to the children of Loyalists who were now entitled to 200 acres in their own right upon reaching the age of 21 (H. Belden & Co. 1880:16). In 1792 John Graves Simcoe, Lieutenant Governor of the Province of Upper Canada, offered free land grants to anyone who would swear loyalty to the King, a policy aimed at attracting more American settlers. As government policy also dictated the setting aside of one seventh of all land for the Protestant Clergy and another seventh as Crown reserves, pressure mounted to open up more of the interior. As a result, between 1790 and 1800 most of the remainder of the Crawford Purchases was divided into townships (H. Belden & Co. 1880:16).

A number of other purchases during the late eighteenth century between representatives of the Crown and certain Anishinaabe covered lands immediately west of the Crawford Purchases, from the north shore of Lake Ontario northward to Lake Simcoe and Georgian Bay/Lake Huron. These included the John Collins Purchase of 1785, the Johnson-Butler Purchase[14] of 1787-88, and the 1798 Penetanguishene Purchase (Treaty 5) aimed at acquiring a harbour on Lake Huron for British vessels.[15] The lands purportedly covered by these purchases were often poorly defined and were thus included in the later Williams Treaties of 1923 (see below).

The *Constitution Act* of 1791 created Upper and Lower Canada (later Ontario and Quebec) and established the Ottawa River as the boundary between the two provinces. This effectively divided the Algonquin and Nipissing territories, both of which straddled the

[13] https://www.ontario.ca/page/map-ontario-treaties-and-reserves
[14] Sometimes referred to as the 'Gunshot Treaty' as it reportedly covered the land as far back from the lake shore as a person could hear a gunshot (https://www.ontario.ca/page/map-ontario-treaties-and-reserves).
[15] https://www.ontario.ca/page/map-ontario-treaties-and-reserves

river. The Algonquin and Nipissing sent a letter to the Governor General of the Province of Canada in 1798, requesting that settlers be restricted to the banks of the Ottawa River and detailing the difficulties caused by encroaching settlement (Joan Holmes & Associates Inc. 1993:5; see also Lanark County Neighbours for Truth and Reconciliation 2019). In this letter the Chiefs noted the belt of wampum and map of their lands that was given to Governor Carleton some years earlier, pleading for no more of the encroachment that was driving away game and pushing them into infertile lands; however, there was no response. In the early 1800s, a few Algonquin and Nipissing settled on the shores of Golden Lake, known to them as 'Peguakonagang;' they called themselves 'Ininwezi,' which they translated as 'we people here alone' (Johnson 1928; MacKay 2016).[16] The Golden Lake band, as they initially came to be known, resided in this area for at least part of the year, with various band members maintaining traplines, hunting territories, and sugar bushes.

The War of 1812 between the United States and Great Britain (along with its colonies in North America and its Indigenous allies) brought another period of conflict to the region. In 1815, at the conclusion of the war, the British government issued a proclamation in Edinburgh to further encourage settlement in British North America. The offer included free passage and 100 acres of land for each head of family, with each male child to receive his own 100-acre parcel upon reaching the age of 21 (H. Belden & Co. 1880:16). At the same time, the government was seeking additional land on which to resettle disbanded soldiers from the War of 1812. Demobilized forces could thereby act as a 'force-in-being' to oppose any possible future incursions from the United States. Veterans were encouraged to take up residence within a series of newly created 'military settlements' including those at Perth (1816) and Richmond (1818). The pressure to find more land was exacerbated by the sheer number of settlers moving into the region as a result of these initiatives, which began to push settlement beyond the acquired territory into what had formally been protected as 'Indian Land.'[17]

Additional 'purchases' were signed in the early nineteenth century between the Crown and certain Anishinaabe communities including the Lake Simcoe Purchase (Treaty 16) signed in 1815 and covering lands between Lake Simcoe and Georgian Bay, the Nottawasaga Purchase (Treaty 18) of 1818 to the south and west of the Lake Simcoe Purchase, and the Rice Lake Purchase or Treaty 20 of 1818 which covered a large area around Rice Lake.[18]

Further east, with the settlement of the region underway, Lieutenant Governor Gore ordered Captain Ferguson, the Resident Agent of Indian Affairs at Kingston, to arrange

[16] The Algonquin of River Desert identified The Golden Lake Band using the name "Nozebi'wininiwag," translated as "Pike-Water People" (Speck in Johnson 1928:174).
[17] Between 1815 and 1850 over an estimated 800,000 Euro-Canadian settlers moved into the region (https://www. lanarkcountyneighbours.ca/the-petitions-of-chief-shawinipinessi.html).
[18] https://www.ontario.ca/page/map-ontario-treaties-and-reserves

the purchase of additional lands from the chiefs of the Ojibwa and Mississauga or Michi Saagiig Nishnaabeg. The resulting Rideau Purchase (Treaty 27 and 27¼) extended from the rear of the earlier Crawford Purchases to the Ottawa River and was signed by the Michi Saagiig Nishnaabeg in 1819 and confirmed in 1822. This 'purchase', like the earlier Crawford Purchases, was also problematic and excluded the Algonquin whose traditional territory it covered (Canada 1891:62; Surtees 1994:115). As this purchase included lands within the Ottawa River watershed, the Algonquin and Nipissing protested in 1836 when they became aware of its terms (Joan Holmes & Associates Inc. 1993:6).

As Euro-Canadian settlement spread, Indigenous groups were increasingly pushed out of southern and eastern Ontario, generally moving further to the north and west, although some families remained in their traditional lands, at least seasonally. Records relating to the Hudson's Bay Company, the diaries of provincial land surveyors, the reports of geologists sent in by the Geological Survey of Canada, census returns,[19] store account books and settler's diaries all provide indications of the continued Indigenous settlement in the region, as does Indigenous oral history. In addition to their interactions with the Algonquin who remained in the area, the nineteenth century settlers found evidence of the former extent of Indigenous occupation, particularly as they began to clear the land. In 1819, Andrew Bell wrote from Perth:

> *All the country hereabouts has evidently been once inhabited by the Indians, and for a vast number of years too. The remains of fires, with the bones and horns of deers (sic) round them, have often been found under the black mound... A large pot made of burnt clay and highly ornamented was lately found near the banks of the Mississippi, under a large maple tree, probably two or three hundred years old. Stone axes have been found in different parts of the settlement.*
>
> (cited in Brown 1984:8)

While some Algonquin and Nipissing continued to spend part of the summer at Lake of Two Mountains through this period, most of the year appears to have been spent on their traditional hunting grounds, and by the 1830s there were specific claims for land by individuals such as Mackwa on the Bonnechere River and Constant Pennecy on the Rideau waterway. In 1842, Chief Pierre Shawinipinessi,[20] an Algonquin leader, petitioned the Crown for a land tract of 2,000 acres between the townships of Oso, Bedford and South Sherbrooke to enable his people to sustain themselves (Huitema 2001;

[19] While Indigenous peoples were clearly still residing in the area and making use of the land, they often do not appear in the 1851 to 1871 census records. Huitema (2001:129) notes that Algonquin were sometimes listed in these records as 'Frenchmen' or 'halfbreeds' because they had utilized the mission at Lake of Two Mountains as their summer gathering place and, therefore, were thought of as being French.

[20] There are numerous variations in the spelling of Chief Shawinipinessi's name; he is also known by the name of Peter Stephens or Stevens).

Ripmeester 1995:164-166; Sherman 2008:32-33).[21] A licence of occupation for the 'Bedford Algonquin' was granted in 1844, with Michi Saagiig Nishnaabeg from Alnwick reportedly also living at Bedford (Joan Holmes & Associates Inc. 1993:7-8). Illegal logging operations, however, interfered with life on the reserve, and despite protests from Chief Shawinipinessi and legislation passed in 1838 and then later in 1850 to protect Indigenous lands,[22] it was allowed to continue, depleting the local food resources. In response to an 1861 petition to address the trespassing of settlers, the existence of the Bedford tract was denied (LAC microfilm reel C-13419). At this time some of the community moved to nearby lands while others joined the Algonquin at Kitigan Zibi, and at Pikwàkanagàn where the 'Golden Lake Reserve' was created in 1873 (Hanewich 2009; Joan Holmes & Associates Inc. 1993:9). Around 1836 some consideration was given to facilitating Algonquin and Nipissing settlement in the Grand Calumet Portage and Allumette Island area, but this was not pursued (Joan Holmes & Associates Inc. 1993).

Other treaties signed in the mid-nineteenth century included the St. Regis Purchase (Treaty 57) signed in 1847 between the Crown and the Mohawk and covering a narrow parcel of land, known as the 'Nutfield Tract' extending north of the St. Lawrence River at Cornwall towards the Ottawa River, and the Robinson-Huron Treaty (Treaty 61) of 1850 between the Crown and certain Anishinaabeg for lands east of Georgian Bay and the northern shore of Lake Huron eastward to the Ottawa River.[23]

Through the early twentieth century, off-reserve Algonquin and Nipissing were told to move to established reserves at Golden Lake (Pikwàkanagàn), Maniwaki (Desert River) and at Gibson on Georgian Bay (which had been established for the re-settlement of both Algonquin and Mohawk from Lake of Two Mountains), but many remained in their traditional hunting territories. There is also evidence to suggest that Akwesasne Mohawk trapped and hunted north of their reserve as far as Smiths Falls and Rideau Ferry between c. 1924 and 1948 (Joan Holmes & Associates Inc. 1993:10-11; Sherman 2008:33).

The Williams Treaties of 1923 were signed between the Crown and seven Anishinaabe First Nations to address lands that had not been surrendered via a formal treaty process (see above).[24] These lands covered a large area from the north shore of Lake Ontario to Lake Nipissing and overlapped with a number of other treaties and 'purchases.' The Williams Treaties First Nations include the Chippewas of Beausoleil, Georgina Island and

[21] July 17, 1842 petition 115 addressed to Sir Charles Bagot, Governor General, Library and Archives Canada RG10, V186 part 2, as transcribed in Joan Holmes & Associates Inc. (1993) *Report on the Algonquins of Golden Lake Claim* Vol. 10-12:101.

[22] Chapter XV. An Act for the protection of the Lands of the Crown in this Province, from Trespass and Injury. Thirteenth Parliament, 2nd Victoria, A.D. 1839. An Act for the Protection of the Indians in Upper Canada from Imposition and the Property Occupied or Enjoyed by Them from Trespass and Injury; passed by the government of Upper Canada on August 10, 1850. Available from https://bnald.lib.unb.ca/node/5342; United Canadas (1841-1857) 13 & 14 Victoria – Chapter 74:1409.

[23] https://www.ontario.ca/page/map-ontario-treaties-and-reserves

[24] https://www.ontario.ca/page/map-ontario-treaties-and-reserves

Rama, and the Mississaugas of Alderville, Curve Lake, Hiawatha and Scugog Island. To address further issues with a number of the pre-confederation purchases and treaties, the Williams Treaties First Nations ratified the Williams Treaties Settlement Agreement with Canada and Ontario in June, 2018. This agreement recognized harvesting rights in Treaties 5, 16, 18, 20, 27 and 27¼.[25]

As noted above, lands within traditional Algonquin territory were included in various nineteenth century purchases without Algonquin consultation or consent. Algonquin claims to these lands include a series of petitions to the Crown going back to 1772 that asserted Algonquin rights to land and resources. An official land claim was made in the 1980s and, in 2016, an Agreement-in-Principal was signed by Ontario, Canada and the Algonquins of Ontario, a step towards a treaty recognizing Algonquin rights across much of eastern Ontario.[26]

Dalhousie Township

With the available farmland in the townships in the immediate vicinity of the Perth military settlement rapidly filled, additional land was soon needed to meet the needs of the influx of settlers to the region. Consequently several additional townships, including Dalhousie, were surveyed and opened for settlement. Dalhousie was surveyed by Reuben Sherwood in 1820, and while it saw an initial influx of settlers (mostly weavers and tradesmen from Glasgow and Paisley), it was later described, together with the neighbouring smaller townships of North Sherbrooke and Lavant, as owing

> *its limited population to the nature of its soil and character of its surface. The most rugged and uninviting features of the Laurentian geological formation are here displayed; and the succession of rocky hills, dismal swamps, lakes, rivers and ridges sufficiently explains to the observer why these townships never reached an enviable place in the scale of agricultural excellence. It must not be inferred, however, that this stretch of territory is entirely devoid of soil such as would tempt the eye and kindle the admiration of the husbandman; for, scattered through the two southerly townships especially … are many decidedly handsome and comfort-suggesting strips and squares of fertile country, rendered doubly attractive by contrast with the repulsive aspect of their several surroundings.*
>
> (Belden 1880:22)

The 1820s to 1840s saw an increase in immigrants from first Scotland and then Ireland, many of them skilled in cotton weaving, carpentry, blacksmithing, and shoemaking. Most migrated to escape overcrowding in urban centers following the Napoleonic Wars. A lack of roads through the muddy and steep, rocky terrain, however, prevented substantial growth. Give the lack of farmland, timber-related activities and mining

[25] www.williamstreatiesfirstnations.ca

[26] https://www.ontario.ca/page/map-ontario-treaties-and-reserves

became sources of revenue, with the Dalhousie Iron Mine, opened near Playfairville, the earliest iron-producing mine in the region.[27]

By 1850 the township had 1,478 residents and was described as "*pretty well settled*" containing "*some good land*," though "*much of the north and east of the township is rocky, and marble of different shades is plentiful.*" Maple sugar was an important production component for the farms in this area (Smith 1852:331). A severe flood in 1857, known as the Crotch Lake disaster, destroyed all three bridges in Dalhousie Township and the Currie grist mill on Dalhousie Lake, though the region soon rebounded. Together with the sparsely populated North Sherbrooke and Lavant Townships, the population had grown only slightly to 2,295 by 1871, with that in Dalhousie reaching 1,724 by 1880. Many of the nineteenth century township occupants, despairing at the quality of the farmland, eventually moved further west into southern Ontario or the United States where better land was plentiful (Belden 1880:22).

3.3 Property History

Archival research was conducted in order to develop a general picture of the settlement and land use history for the study area through the nineteenth and twentieth centuries, particularly as it relates to the archaeological potential of the property. Information was compiled from a variety of sources, including a Dalhousie Township patent plan based on an 1820s survey and the 1863 Walling map of Lanark County, as well as twentieth century topographic maps and aerial photographs. Census and land registry records and the Stage 1 report were also consulted, though the latter was more focussed on Lot 6, Concession 10 (Adams Heritage 2006).

The study area is located within the northwest section of Lot 5, Concession 10 about 3 km south of Dalhousie Lake. This lot was originally set aside as part of the Crown reserve. The Crown patent for the east half was finally issued to John Campbell on November 6th, 1857 and the patent for the west half to James Duncan on July 6th, 1870 (Map 3; Lanark County Land Registry Office or LCLRO). These were several decades later than the patents received by the surrounding neighbours: John Livingston was issued the patent for the east half of Lot 6, Concession 10 on August 10th, 1825, John McLean the patent for the west half of the same lot on September 28th, 1826, and Campbell's neighbour, Alexander Livingston, on Lot 5, Concession 11 was issued his patent on August 10th, 1825 (LCLRO). It is likely that both Campbell and Duncan were present on the land prior to receiving their patents. Duncan in particular is listed on Lot 5 in the 1851 census, where he was residing with his wife Joan and children Anne, Euphemia, Jane and John in a log house, continuing to be enumerated in the same location in the 1861 and 1871 census returns (LAC microfilm reels C-11731, C-1042, C-1043 and C-10019). The farm can be seen on the 1863 Walling map, on the opposite side of the travelled road from the study area (see Map 3).

[27] https://www.lanarkhighlands.ca/lh-discover/visiting/our-history

It is less certain that the Campbell family resided on the lot – in the 1851 census returns the occupant is listed as John Gordon, and two years after receiving the patent Campbell sold the east half to Alexander Turnbull (LAC microfilm reel C-11731; LCLRO instrument A228). Turnbull is also shown on the 1863 Walling map, with the farmstead in the east half of the lot and as with the Duncan farm on the opposite side of the road from the study area (see Map 3).

The farm of James Duncan had grown to 250 acres from the original 100 by 1871, though apart from 50 acres on Lot 4, for which he received a Crown patent in 1862, the location of their additional acreage is uncertain (LCLRO; LAC microfilm reel C-10019). James Duncan's son John purchased the eastern half of Lot 5, Concession 10 towards the end of the nineteenth century; it is likely that he was the head for the household at the time, his father having died in 1895 (LCLRO instruments D872 and F1748). The family appears to have remained on Lot 5, Concession 10 throughout the twentieth century: land registry records show it being transferred to John Duncan Jr. from John Duncan Sr. in 1928, and the last line of the registry records in the abstract list shows it is still in the Duncan family as late as 1981 (LCLRO instruments J3466 and 56871).

The land use pattern for the study area during the nineteenth century was one of early optimism, tempered by acceptance of the limited agricultural capability of this part of the township (Adams 2006:15). The 1851 census returns enumerator described the land throughout Concessions 7 to 12 of Dalhousie Township was "*scarcely fit for cultivation*" (LAC microfilm reel C-11731). If not abandoned, the land was eventually deemed unacceptable for habitation and was adapted to more passive agricultural usage. The Duncans were one of the few to remain in their original farmstead at the beginning of the twentieth century, which is partially visible just south of Highland Line on a 1934 aerial photograph (see Map 3).

4.0 ARCHAEOLOGICAL CONTEXT

This section of the report describes the environmental and archaeological context of the study area which, combined with the historical context outlined above, provides the necessary information to assess the archaeological potential of the property.

4.1 Previous Archaeological Research

In order to determine whether any previous archaeological fieldwork has been conducted within or in the immediate vicinity of the present study area, a search of the titles of reports in the *Public Register of Archaeological Reports* maintained by the Ministry of Heritage, Sport, Tourism and Cultural Industries (MHSTCI) was undertaken, supplemented by a search of the Past Recovery corporate library.[28]

Known cultural resource management assessments within or in the immediate vicinity of the study area include the following:

- Adams Heritage (2006) undertook a Stage 1 assessment of the initial McKinnon Pit property, mostly on Lot 6, Concession 10 and Lot 6, Concession 11, but also including the present study area (PIF P003-111-2006).
- Kinickinick Heritage Consultants (2006) completed a Stage 2 assessment for the same proposed pit, but the assessment was confined to Lot 6, Concession 10 and Lot 6, Concession 11 (PIF P039-097-2006). This assessment found five scatters of potentially Palaeo-Indian Indigenous artifacts which were registered as archaeological sites BfGd-3, BfGd-4, BfGd-5, BfGd-6 and BfGd-7. A Stage 3 assessment was recommended for site BfGd-3 which was subsequently completed by Kinickinick Heritage Consultants in 2008 (PIF P039-125-2007). This located what were classified as 178 lithic artifacts representing the production of expedient tools at an early postglacial cultural site. Stage 4 was recommended in the event of future pit expansion to the south, though this appears to have been over-ridden by an Archaeological Review Officer at MHSTCI requiring no further archaeological work.
- Golder Associates Ltd. undertook Stage 1 and Stage 2 assessments for the proposed Duncan Pit in 2020, located on Lots 4 and 5 of Concession 10 (2020, PIF P1107-0027-2020). The Stage 2 resulted in the registration of a nineteenth century

[28] In compiling the results, it should be noted that archaeological fieldwork conducted for research purposes should be distinguished from systematic property surveys conducted during archaeological assessments associated with land use development planning (generally after the introduction of the *Ontario Heritage Act* in 1974 and the Environmental Assessment Act in 1975), in that only those studies undertaken to current industry standards can be considered to have adequately assessed properties for the presence of archaeological sites with cultural heritage value or interest. In addition, it should be noted that the vast majority of the research work undertaken in the area has been focused on the identification of pre-Contact Indigenous sites, while current MHSTCI requirements minimally require the evaluation of the material remains of occupations and or land uses pre-dating 1900.

Euro-Canadian farmstead site (BfGd-8) and a scatter of artifacts related to a second farmstead (BfGd-9), both of which were recommended for Stage 3 and then Stage 4 assessments, all completed by Golder in 2020 (2021b, PIF P1107-0029-2020; 2021e, PIF P1107-0032-2020; 2021c, PIF P1107-0030-2020 and 2021d, PIF P1107-0033-2020). An additional Stage 1 assessment for an expanded pit area was also undertaken by Golder, resulting in a recommendation for Stage 2 assessment for parts of the expanded area (2021a, PIF P1107-0035-2020).

To the knowledge of Past Recovery Staff, no additional archaeological fieldwork has previously been conducted within the limits of the study area as defined on Map 2.

4.2 Previously Recorded Archaeological Sites

The primary source for information regarding known archaeological sites in Ontario is the *Ontario Archaeological Sites Database* maintained by MHSTCI. The database includes all archaeological sites that have been reported to the Province, the majority of which consist of sites discovered by professional archaeologists conducting archaeological assessments required by legislated processes under land use development planning (largely since the late 1980s). An updated search of the *Ontario Archaeological Sites Database* for the current study indicated that there are seven registered sites within 1 km of the study area, all but two of the total number registered in Dalhousie Township (Table 1).

Five of these (BfGd-3 to BfGd-7) consisted of possible Palaeo-Indian expedient tools found during the Stage 2 assessment for the initial McKinnon Pit on Lot 6, Concession 10 and Lot 6, Concession 11. Four of these sites - BfGd-4 (a 200 m by 20 m scatter located on Lot 6, Concession 10), BfGd-5 (an 80 m by 20 m scatter located on Lot 6, Concession 11), BfGd-6 (an isolated find spot on Lot 6, Concession 11) and BfGd-7 (an isolated find spot on Lot 6, Concession 11) were found to have no further archaeological concerns after the Stage 2 assessment. The fifth, BfGd-3 (a 30 m by 20 m scatter located on Lot 6, Concession 10) was found to have further cultural heritage value or interest following a Stage 3 assessment (Kinickinick 2008), but this was over-ridden by MHSTCI with the site determined to have no further archaeological concerns.

The remaining two sites (BfGd-8, the Turnbull Farmstead, and BfGd-9, the Duncan site, both on Lot 5, Concession 10, were related to nineteenth century farmsteads and following Stage 4 assessments were determined to have no further archaeological concerns (Golder 2021d and 2021e).

Table 1. Summary of Registered Archaeological Sites within 1 km of the Study Area.

Borden Number	Site Name	Time Period	Inferred Agency	Inferred Function	Review Status
BfGd-3		Pre-Contact	Indigenous	Scatter	In Database - Awaiting Ministry Review
BfGd-4		Pre-Contact	Indigenous	Scatter	No Further CHVI
BfGd-5		Pre-Contact	Indigenous	Scatter	No Further CHVI
BfGd-6		Pre-Contact	Indigenous	Isolated Find	No Further CHVI
BfGd-7		Pre-Contact	Indigenous	Isolated Find	No Further CHVI
BfGd-8	Turnbull Site	Post-Contact	Euro-Canadian	Farmstead, Homestead	No Further CHVI
BfGd-9	Duncan Site	Post-Contact	Euro-Canadian	Scatter	No Further CHVI

CHVI – Cultural Heritage Value or Interest

4.3 Cultural Heritage Resources

The recognition or designation of cultural heritage resources (here referring only to built heritage features and/or cultural heritage landscapes) provides valuable insight into aspects of local heritage and some of these cultural heritage resources may be associated with significant archaeological features or deposits. Accordingly, this assessment included a review of cultural heritage resources previously identified within or immediately adjacent to the current study area. The following sources were consulted:

- Federal Heritage Buildings Review Office online Directory of Heritage Designations (http://www.pc.gc.ca/eng/progs/beefp-fhbro/index.aspx);
- Canada's Historic Places website (http://www.historicplaces.ca/en/home accueil.aspx);
- Ontario Heritage Properties Database (http://www.hpd.mcl.gov.on.ca/scripts/ hpdsearch/english/default.asp);
- Ministry of Heritage, Sport, Tourism and Culture Industries' List of Heritage Conservation Districts (http://www.mtc.gov.on.ca/en/heritage/heritage_ conserving_list.shtml); and,
- Ontario Heritage Trust website (https://www.heritagetrust.on.ca/en/ index.php/online-plaque-guide).

No cultural heritage resources associated with historically significant places, persons, or events were noted within or immediately adjacent to the study area.

4.4 Heritage Plaques and Monuments

The recognition of a place, person, or event through the erection of a plaque or monument may also provide valuable insight into aspects of local history, given that these markers typically indicate some level of heritage recognition. As with cultural heritage resources, some of these plaques and monuments may be associated with significant archaeological features or deposits. Accordingly, this study included a review of heritage plaques and monuments in the vicinity of the study area. The following sources were consulted:

- The Ontario Heritage Trust Online Plaque Guide (https://www.heritagetrust.on.ca/en/index.php/online-plaque-guide);
- Parks Canada Directory of Federal Heritage Designations (https://www.pc.gc.ca/apps/dfhd/default_eng.aspx); and,
- A listing of historical plaques of Ontario maintained by Sarah J. McCabe (https://ontarioplaques.omeka.net/).

No plaques or monuments associated with historically significant places, persons, or events were noted within or immediately adjacent to the study area.

4.5 Cemeteries

The presence of historical cemeteries in proximity to a parcel of land proposed for development can pose archaeological concerns in two respects. First, cemeteries may be associated with related structures or activities that may have become part of the archaeological record, and thus may be considered features indicating archaeological potential. Second, the boundaries of historical cemeteries may have been altered over time, as all or portions may have fallen out of use and been forgotten, leaving potential for the presence of unmarked graves. For these reasons, a Stage 1 archaeological assessment also includes a search of available sources of information regarding historical cemeteries. For this study, the following sources were consulted:

- A complete listing of all registered cemeteries in the province of Ontario maintained by the Consumer Protection Branch of the Ministry of Consumer Services (last updated 06/07/2011);
- Field of Stones website (http://freepages.history.rootsweb.ancestry.com/~clifford/);
- Ontario Cemetery Locator website maintained by the Ontario Genealogical Society (https://vitacollections.ca/ogscollections/2818487/data?g=d);
- Ontario Headstones Photo Project website (https://canadianheadstones.ca/wp/cemetery-lookup/); and,
- Available historical mapping and aerial photography.

There are no known cemeteries or isolated burials within or immediately adjacent to the present study area.[29]

4.6 Mineral Resource Areas

The presence of scarce mineral resources on or near to a property may indicate potential for archaeological resources associated with both pre-Contact and post-Contact exploration and exploitation. For this reason, the background research conducted for the assessment includes a search of available sources of information on the locations of outcrops of rare and highly valued minerals, such as quartz, chert, ochre, copper, and soapstone, as well as minerals sought out by post-Contact prospectors and miners for more industrial-scale exploitation (i.e. gold, copper, iron, mica, etc.). Useful tools in this search are provided by databases maintained by the Ontario Geological Survey and the Ministry of Northern Development and Mines, including:

- The *Abandoned Mines Information System* (AMIS), which contains a list of all known abandoned and inactive mine sites and associated features in the province;
- *Mining Claims*, which contains a list of all active claims, alienations, and dispositions;
- The *Mineral Deposits Inventory*, which contains a list of known mineral occurrences of economic value in the province; and,
- *Bedrock Geology* data set, which shows the distribution of bedrock units and illustrates geologic rock types, major faults, iron formations, kimberlite intrusions, and dike swarms.

There are no historical records of any active mines or exploited mineral outcrops in the immediate area.

4.7 Local Environment

The assessment of present and past environmental conditions in the region containing the study area is a necessary component in determining the potential for past occupation as well as providing a context for the analysis of archaeological resources discovered during an assessment. Factors such as local water sources, soil types, vegetation associations and topography all contribute to the suitability of the land for human exploitation and/or settlement. For the purposes of this assessment, information from local physiographic, geological and soils research was compiled for the Stage 1 assessment to create a picture of the environmental context for both past and present land uses. This has been updated with information specific to Lot 5, Concession 10.

[29] It should be noted that the research undertaken as part of this Stage 1 archaeological assessment is unlikely to identify the potential for the presence of unrecorded burial plots, such as those of individual families on rural properties. See Section 7.0 of this report for information regarding compliance with provincial legislation in the event that human remains are identified during future development.

The physiography and distribution of surficial material in the area are largely the result of glacial activity that took place in the Late Wisconsinan (Bajc 1994). This period, which lasted from approximately 23,000 to 11,000 years before present, was marked by the repeated advance and retreat of the massive Laurentide Ice Sheet. As the ice advanced, debris from the underlying sediments and bedrock accumulated within and beneath the ice. The debris, a mixture of stones, sand, silt, and clay, was deposited over large areas as till plains, drumlins, and moraines. During deglaciation, as the Late Wisconsinan ice margin receded to the north, massive inflows of glacial meltwater into the Huron-Georgian Bay-Lake Simcoe basin flooded adjacent lands, which had been depressed by the weight of the continental ice sheet, forming glacial Lake Algonquin by 11,500 years ago (Eshman and Karrow 1985 in Gao 2010). These waters created shoreline features that, with isostatic rebound, are now as much as 100 to 150 metres above the present water level in Georgian Bay. Where the northern limit of glacial Lake Algonquin was formed by the retreating ice sheet, new lake outlets developed as progressively lower sills were exposed, and water levels dropped to successively lower levels. About 10,100 B.P., during the Ottawa-Marquette Low Stand, Glacial Lake Algonquin drained away and a series of smaller lakes (called Hough and Stanley) occupied depressions in the Huron Basin below the present-day water level. While low-water conditions continued in the former Laurentide Lake basis for millennia, only c. 500 years later water volumes increased rapidly in the French-Nipissing-Mattawa basin. These changing conditions resulted in much higher water levels in the Mattawa Lowlands and Ottawa River Valley, creating a series of raised post-Algonquin relic shorelines. Modern water levels in the Great Lakes basins only developed sometime after 3,000 years ago, with only minor climate-related fluctuations since that time.

The study area is situated near the eastern edge of the Algonquin Highlands physiographic region which consists of rough topography with bedrock knobs and occasional ridges, generally shallow soils and areas of exposed bedrock (Chapman and Putnam 1984:211). The study area is underlain by Proterozoic Helikian granites and gneisses of the Grenville Province of the Canadian Shield (Sanford and Baer 1981). Soils are generally shallow and stony and/or sandy and acidic, consisting of till-derived gravelly and sandy loams. The White Lake sand soils of the upland parts of the study area are generally not favourable for crop agriculture, although historically within the boundaries of the Township of Lanark Highlands some portions have been farmed, including within the study area. The remainder of the soils on the property are muck (Hoffman et al. 1967).

The study area is part of the Middle Ottawa section of the Great Lakes-St. Lawrence Forest Region. The predominant tree species in this area include sugar maple, beech, red maple, yellow birch, eastern hemlock, eastern white pine and red pine, and to a lesser extent white spruce, balsam fir, trembling aspen, white birch, red oak and basswood. In wetter depressions species include eastern white cedar, tamarack, black spruce, black ash, red maple, white elm, black alder, willow, buttonbush and red-osier. Occasionally

butternut, blue-beech, bitternut hickory, shagbark hickory, black cherry, white oak and rock elm intrude from the hardwood forests surrounding the Precambrian Shield (Rowe 1972:100). The area would have been cleared of its original forest cover with the intensification of Euro-Canadian settlement and extensive logging in the early nineteenth century.

The study area included part of Long Sault Creek and surrounding wetlands, with Barber's Lake lying c. 750 m to the east. It lies within the Mississippi River watershed, draining eastwards into the Ottawa River near Galetta.

5.0 SUMMARY OF THE STAGE 1 ARCHAEOLOGICAL ASSESSMENT RESULTS

This section of the report includes a summary of the archaeological potential determination within the study area as presented in the Stage 1 report (Adams Heritage 2006). Given that this report predates the current Standards and Guidelines for Consultant Archaeologists (2011), the archaeological potential determination has also been updated.

5.1 Optional Property Inspection

A Stage 1 property inspection was carried out as part of the initial assessment, with "*'in the field' observations … evaluated in the light of information on the soils, topography, property history and known archaeological record of the area in order to determine the archaeological potential of the property*" (Adamas Heritage 2006:17).

5.2 Evaluation of Archaeological Potential

The Stage 1 assessment determined that parts of the study area retained archaeological potential given the proximity of water sources (Long Sault Creek and surrounding wetlands) and that there were farmsteads dating to the early nineteenth century on the property corresponding to the initial Euro-Canadian settlement of Dalhousie Township. There were also, however, large areas of wetland and steeply sloping terrain that would not have been occupied and therefore had low archaeological potential, as well as some areas that had already been disturbed in anticipation of the pit development where archaeological potential had been removed (Adams Heritage 2006:18).

For the current Stage 2 study area, additional factors indicating archaeological potential included the following:

- Part of the study area consisted of an esker with White Lake sand loam soil, both an area of raised topography that may have seen habitation at an early period and a well-drained location suitable for Indigenous campsites;
- Most of the study area lay within 100 m of Highland Line, a historical transportation corridor depicted on nineteenth century mapping; and,
- Most of the study area lay within 300 m of a registered archaeological site, either BfGd-3 (a concentration of potentially Palaeo-Indian expedient tools) to the immediate northwest, or BfGd-9 (a scatter of nineteenth century artifacts associated with the Duncan farmstead) on the opposite side of Highland Line.

There were also additional areas of disturbance noted on recent aerial photographs, including the entrance road to the current pit extending through the Stage 2 study area. As most of the property was therefore determined to retain archaeological potential requiring testing, the limits of areas with steep slope, permanent water saturation and deep disturbance were left to be determined in the field.

5.4 Stage 1 Recommendations

The results of the Stage 1 assessment formed the basis for the following recommendations:

1) Archaeological field testing (Stage 2) should be conducted within the areas identified as having archaeological site potential prior to any land altering disturbances. Specifically, archaeological testing should focus on the lands which lie within the proposed licence area (once it has been defined).
2) Since the study area contains a variety of terrains, ranging from seasonally flooded swamp margins to steep, forested slopes, too steep ever to have been settled, the specific areas tested should be determined in the field. Any areas which lie within the 'archaeological potential' zone, and which are to be excluded from archaeological testing, should be fully documented and described, and the approach taken justified.
3) Further site preparation work should not occur until such time as the archaeological testing has been completed, and any further investigations arising from this work have been conducted to the satisfaction of the Ontario Ministry of Culture.

(Adams Heritage 2006:23)

6.0 STAGE 2 ARCHAEOLOGICAL ASSESSMENT

This section of the report describes the methodology used and results of the Stage 2 property survey conducted to determine whether the subject property contains significant archaeological resources.

6.1 Field Methods

The archaeological fieldwork for the Stage 2 property survey was completed over the course of two days, on the 28th and 29th of June, 2021. The crew consisted of a licensed field director and up to seven experienced field technicians. All fieldwork was conducted according to criteria outlined in *Standards and Guidelines for Consultant Archaeologists* (MHSTCI 2011). Over the course of the assessment, the weather varied between clear and sunny to overcast and temperatures stayed around 30° C. Visibility and field conditions were good to excellent for the identification, documentation, and recovery of any archaeological resources during the course of the fieldwork.

In order to ensure full coverage of the study area, the Past Recovery field crew used printed 2019 high-resolution orthographic imagery overlain with the limits of the study area. This map allowed the field crew to accurately identify the subject property in relation to fixed reference landmarks, as well as to accurately record field conditions. In addition, the field crew used 'Mapit Pro' GIS software on a tablet loaded with detailed satellite imagery overlain with the study area. This digital mapping interface, along with a high accuracy, GIS-mapping-grade Global Navigation Satellite System (GNSS) receiver, allowed the field crew to accurately delimit the study area in relation to their 'real time' position.

The study area was composed of a mixture of an open, recently active agricultural field (where ploughing was viable), grassed areas that had been pasture for over 50 years, wooded areas, a low and wet portion, some steep slopes, and some sections of modern disturbance including a gravel road cutting through the property leading to the existing pit (see Map 2; Images 1 to 8). As such, the Stage 2 assessment included both a pedestrian survey and a shovel test pit survey at 5 m intervals (Map 5; Images 9 to 12). All test pits were excavated using shovels and trowels, with back-dirt screened through 6 mm hardware mesh. Shovel test pits were at least 30 cm in diameter and excavation continued for 5 cm into sterile subsoil. All pits were examined for soil stratigraphy, cultural features, and/or evidence of deep and intensive disturbance. Sample test pits were documented with digital photographs and field notes. Once all required recording had been completed, all test pits were backfilled. In areas where either deep disturbance or stripped original grade topsoil was noted, testing was completed judgementally to determine the limits of the disturbance. Soil layers within test pits were assigned lot numbers in the order of appearance.

Pedestrian survey was undertaken on the recently cultivated agricultural land within the study area. The field was ploughed and allowed to weather through at least one heavy rainfall prior to the pedestrian survey. Direction was provided to the contractor undertaking the ploughing to plough deep enough to ensure total topsoil exposure, but not deeper than previous ploughing. At the time of the assessment, surface visibility conditions exceeded the minimum requirements established by MHSTCI, where 80% of the ploughed ground surface must be visible (Image 13). The pedestrian survey was conducted by means of the Past Recovery field crew systematically walking the ploughed field at 5 m intervals and inspecting the exposed surface for the presence of archaeological resources. The pedestrian survey was narrowed to 1 m intervals when within 20 m of site BfGd-3 (Image 14; Map 5). Estimates of survey coverage by method are provided in Table 2 below.

Field activities were recorded digitally through the use of field notes, digital photographs, and shapefiles generated within MapIt GIS. A catalogue of the material generated during the Stage 2 property survey can be found below in Table 3. The complete photographic catalogue is included as Appendix 1, and the locations and orientations of all photographs referenced in the report are shown on Map 5. As per *Terms and Conditions for Archaeological Licences* in Ontario, curation of all photographs and field notes generated during the Stage 2 archaeological assessment is being provided by Past Recovery pending the identification of a suitable repository.

Table 2. Estimates of Survey Coverage during the Stage 2 Assessment.

Landscape Unit	Survey Method & Interval Used	Area Covered	Percentage of Study Area
Wooded terrain and open abandoned pasture	Shovel test pit survey at 5 m intervals	1.53 hectares/ 3.78 acres	24.35%
Low-lying and wet areas with permanently saturated soils	Not tested	0.76 hectares/ 1.88 acres	12.16%
Deep and extensively disturbed land	Judgementally test pitted to confirm disturbance and visual inspection	1.23 hectares/ 3.04 acres	19.64%
Steep slope	Not Tested	0.83 hectares/ 2.05 acres	13.23%
Active agricultural field, ploughed	Pedestrian survey at 5 m intervals	1.92 hectares/ 4.74 acres	30.62%

Table 3. Inventory of the Stage 2 Documentary Record.

Type of Document	Description	Number of Records	Location
Photographs	Digital photographs documenting the Stage 2 fieldwork	81 photographs	On Past Recovery computer network – file PR21-014
Mapping data	Shapefiles (*.shp)	1 .gpkg file	On Past Recovery computer network – file PR21-014
Field notes	Scanned and digital notes on the Stage 2 fieldwork; test pit forms	3 pages (3 .pdf files)	On Past Recovery computer network – file PR21-014

6.2 Results

Much of the Stage 2 study area was determined to retain archaeological potential. As stated above, the property consisted of a recent agricultural field, former pasture that had not been ploughed in over 50 years, an existing pit laneway, small wooded areas and sections of steep slope or permanent water saturation. The surface of the ploughed field consisted of dark brown sand-loam with numerous cobbles and rocks. In the former pastureland flanking the entrance road to the existing pit the soil profile consisted of approximately 18 cm of very dark brown sand-loam topsoil over 11 cm of brown coarse sandy loam subsoil with a high concentration of ground pebbles (B-horizon) over a subsoil C-horizon of coarse light grey-brown beach sand (Image 15). Within the wooded areas soils consisted of 13 cm or less of lightly mottled dark grey-brown silt-sand topsoil over brown compact silt-sand subsoil (Image 16). The area surrounding the existing pit laneway was mostly disturbed; however some natural profiles were present. These soils consisted of approximately 13 cm of very dark brown sand-loam topsoil over a subsoil B-horizon of more than 13 cm of brown silt-sand-loam, lightly mottled with dark brown silt-sand-loam appearing to be a product of natural processes (Image 17). No cultural material was recovered.

6.3 Record of Finds

No artifacts or other archaeological finds were found or retained.

6.4 Analysis and Conclusions

The Stage 2 archaeological assessment consisted of a complete property survey, with all areas with archaeological potential subjected to physical testing by means of either a shovel test pit survey or a pedestrian survey of the ploughed field (see Map 5). No cultural material was recovered from either the test pit survey or the pedestrian survey.

6.5 Stage 2 Recommendations

This report forms the basis for the following recommendation:

1) It has been determined that the cultural heritage value or interest of the study area has been sufficiently documented through the Stage 2 research conducted to date, and no further archaeological assessment of the subject area as presently defined on Map 2 is required.

The reader is also referred to Section 7.0 below to ensure compliance with relevant provincial legislation as it may relate to this project.

7.0 ADVICE ON COMPLIANCE WITH LEGISLATION

In order to ensure compliance with provincial legislation, the reader is advised of the following:

1) This report is submitted to the 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 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the Ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.
2) It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.
3) 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*.
4) The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.
5) 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.

8.0 LIMITATIONS AND CLOSURE

Past Recovery Archaeological Services Inc. has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied, is made.

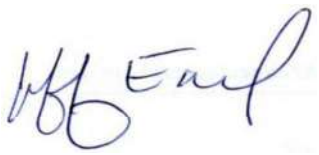
This report has been prepared for the specific site, design objective, developments and purpose prescribed in the client proposal and subsequent agreed upon changes to the contract. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended 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, sample and testing program may fail to detect all or certain archaeological resources. The sampling strategies in this study comply with those identified in the Ministry of Heritage, Sport, Tourism and Culture Industries' *Standards and Guidelines for Consultant Archaeologists* (2011).

The documentation related to this archaeological assessment will be curated by Past Recovery Archaeological Services Inc. until such a time that arrangements for their ultimate transfer to an approved and suitable repository can be made to the satisfaction of the project owner(s), the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries and any other legitimate interest group.

We trust that this report meets your current needs. If you have any questions or if we may be of further assistance, please do not hesitate to contact the undersigned.



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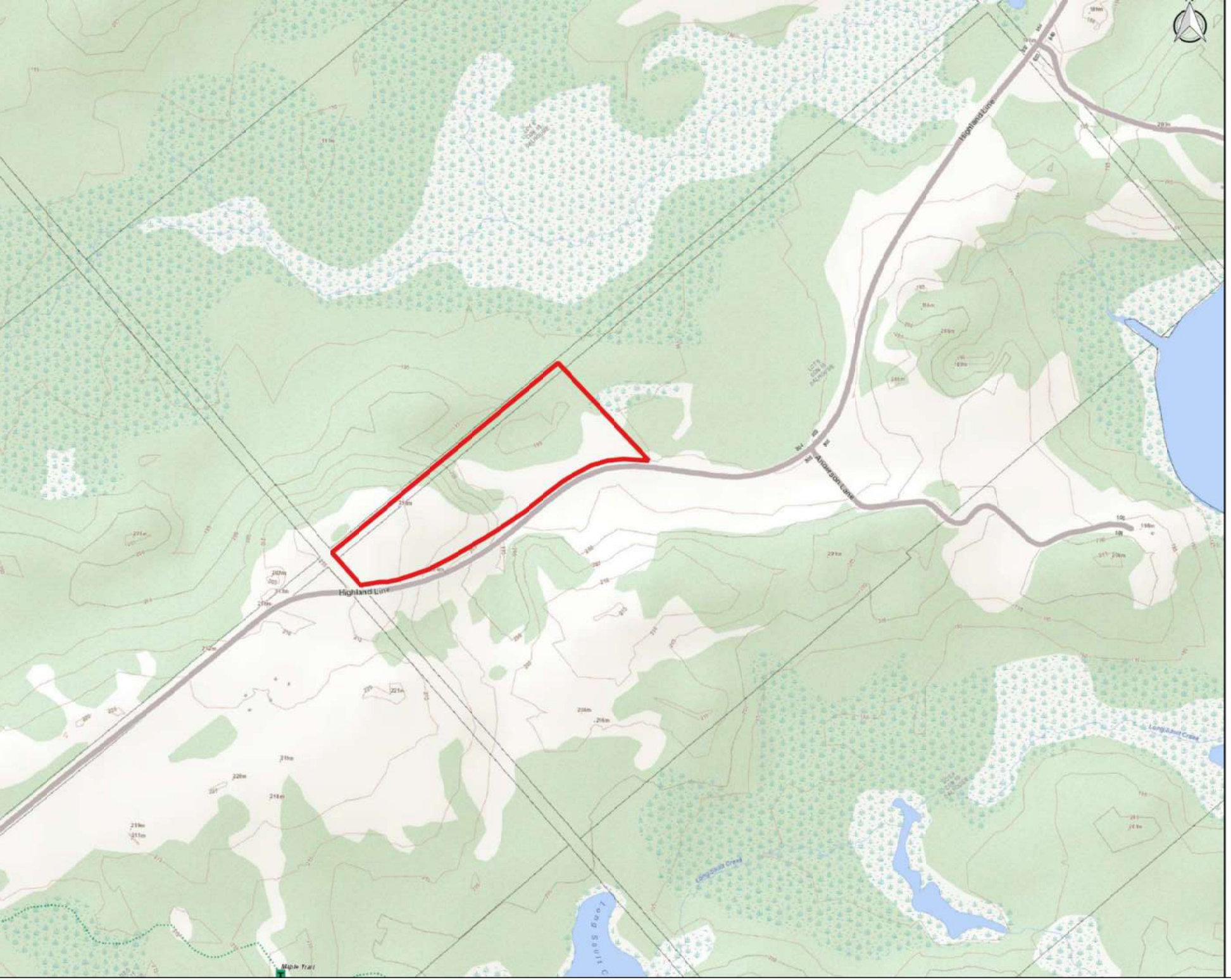
Date	Roll#	Photograph #
1934	A4724	52

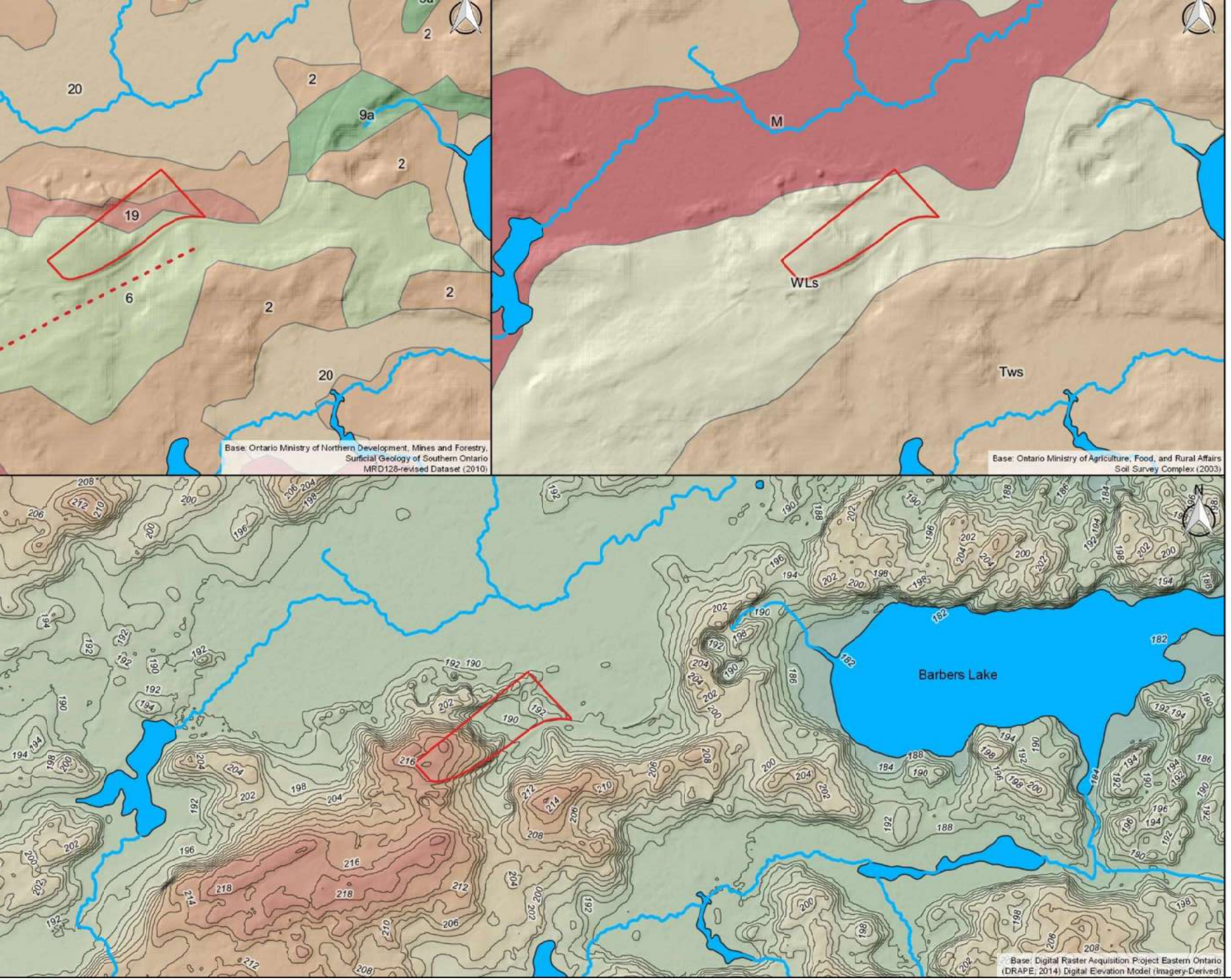
10.0 MAPS


Project Layers
Study Area
Highland Line
Anderson Lane
Long Sault Creek
Maple Trail
100

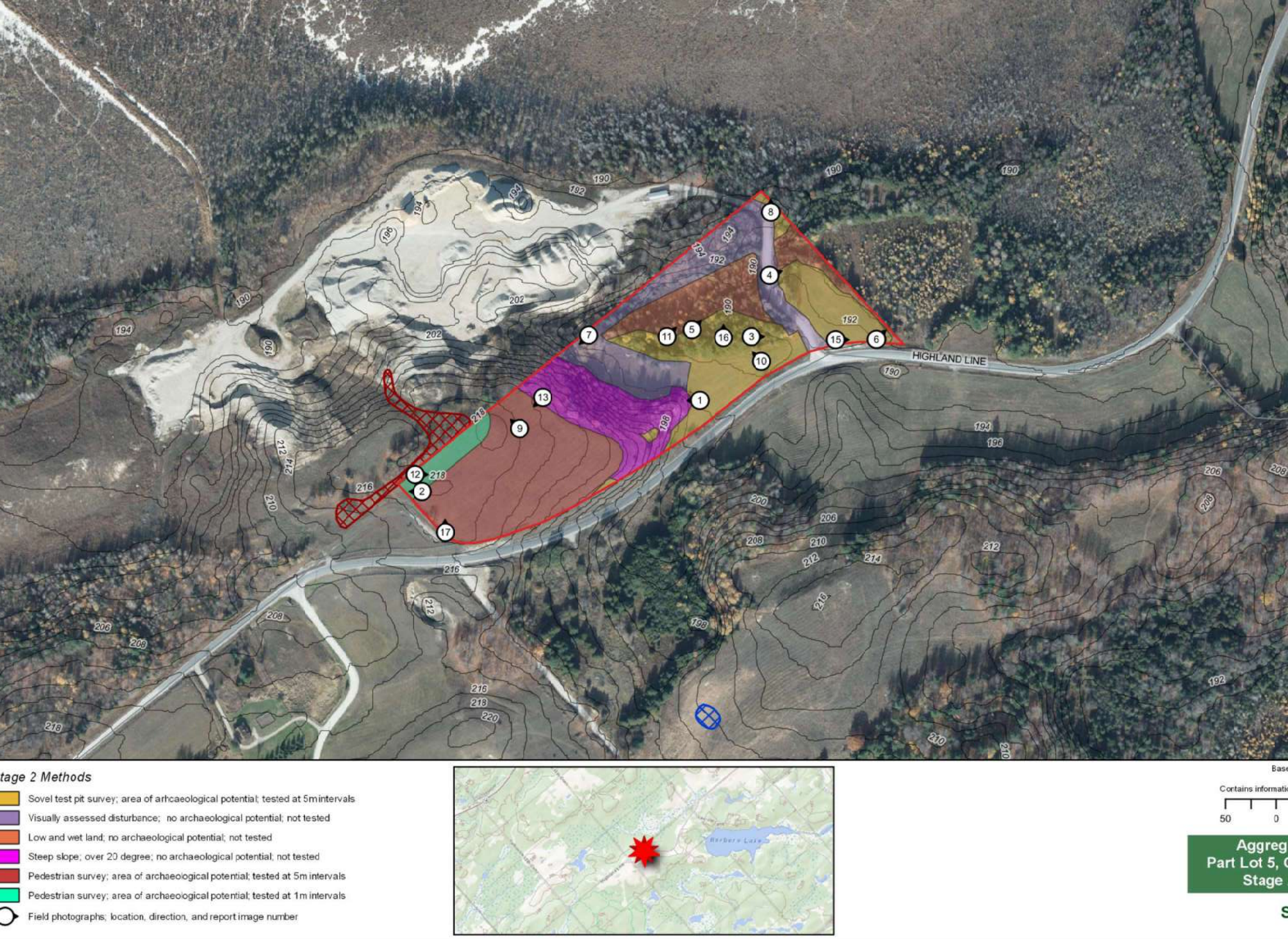
dy area.

ophotography of the study area showing existing conditions.

g and aerial photography showing the historical development of the study area.



cial geology, topography and soil mapping showing the environmental conditions of the study area.



ophotography of the study area showing the methods and results of the Stage 2 assessment.

11.0 IMAGES

Image 1. Open grassy former pasture in the centre of the property with the crew approaching an area of steep slope, facing west. (PR21-014D041)

Image 2. Recently active ploughed agricultural field, facing west. (PR21-014D015)

Image 3. Crew testing in one of the wooded areas on the property, facing east. (PR21-014D036)

Image 4. Low, wet area to the east of the pit entrance road, facing east-northeast. (PR21-014D071)

Image 5. Low, wet area with standing water in the centre of the property, facing northeast. (PR21-014D043)

Image 6. View from the southwest edge of the property looking towards steep slope in the background, facing northeast. (PR21-014D069)

Image 7. Disturbed area in the central northern section of the property, facing southwest. (PR21-014D046)

Image 8. Pit entrance road showing added fill to the east, facing north. (PR21-014D072)

Image 9. Crew members undertaking pedestrian survey, facing northwest. (PR21-014D002)

Image 10. Crew field walking at 5 m intervals, facing west. (PR21-014D033)

Image 11. Crew testing at 5 m intervals in former pasture, facing northwest. (PR21-014D034)

Image 12. Crew testing at 5 m intervals in a wooded area, facing northeast. (PR21-014D045)

Image 13. Photograph showing surface visibility, facing southwest. (PR21-014D001)

Image 14. Crew field walking at 1 m intensification intervals near archaeological site BfGd-3, facing east. (PR21-014D003)

Image 15. Typical soil stratigraphy in the former pasture, facing east. (PR21-014D031)

Image 16. Typical soil stratigraphy in the wooded area, facing north. (PR21-014D039)

Image 17. Typical soil stratigraphy in the open area west of the gravel road, facing north. (PR21-014D060)

APPENDIX 1: Photographic Catalogue

Camera: Panasonic Lumix DMC-TS3 and Samsung Galaxy Tablet

Catalogue No.	Description	Dir.
PR21-014D001	Showing condition of ploughing for pedestrian survey	SW
PR21-014D002	Crew completing pedestrian survey	NW
PR21-014D003	1 m intensification previous near site	E
PR21-014D004	1 m intensification previous near site	W
PR21-014D005	Pedestrian survey	S
PR21-014D006	Pedestrian survey intensification	S
PR21-014D007	Crew testing in the field in the northeast end of the property	N
PR21-014D008	Crew testing in the field in the northeast end of the property	NW
PR21-014D009	Field in the northeast end of the property	SW
PR21-014D010	Field in the northeast end of the property	SE
PR21-014D011	Crew testing in the field in the northeast end of the property	N
PR21-014D012	Field in the northeast end of the property	W
PR21-014D013	Crew preforming pedestrian survey	S
PR21-014D014	Ploughed field	W
PR21-014D015	Ploughed field	W
PR21-014D016	Ploughed field	N
PR21-014D017	Crew testing in the field in the northeast end of the property	NW
PR21-014D018	Crew testing in the remnant wooded area to the east of the pit entrance road	NW
PR21-014D019	Crew testing in the remnant wooded area to the east of the pit entrance road	N
PR21-014D020	Crew testing in the remnant wooded area to the east of the pit entrance road	NE
PR21-014D021	Low wet area to the east of the pit entrance road	ENE
PR21-014D022	Crew testing in the remnant wooded area to the east of the pit entrance road	S
PR21-014D023	Pit entrance road showing push-piles	N
PR21-014D024	Pit entrance road showing push-piles	NE
PR21-014D025	Pit entrance road showing added fill to the west	S
PR21-014D026	Crew testing in the remnant wooded area to the east of the pit entrance road, north of the wet area	E
PR21-014D027	Crew testing in the remnant wooded area to the east of the pit entrance road, north of the wet area	S
PR21-014D028	North edge of the wooded area west of the pit entrance road showing disturbance	SW
PR21-014D029	Typical soil stratigraphy in unploughed field	E
PR21-014D030	Typical soil stratigraphy in unploughed field	E
PR21-014D031	Typical soil stratigraphy in unploughed field	E
PR21-014D032	Image of proposed plan	NE
PR21-014D033	Crew field walking at 5 m intervals	W
PR21-014D034	Crew shovel testing at 5 m intervals	NW
PR21-014D035	Crew testing in wooded area in centre of property	W
PR21-014D036	Crew testing in wooded area in centre of property	E
PR21-014D037	Standard stratigraphy for wooded area	N
PR21-014D038	Standard stratigraphy for wooded area	N
PR21-014D039	Standard stratigraphy for wooded area	N

Catalogue No.	Description	Dir.
PR21-014D040	Shovel Test south of gravel pit	NW
PR21-014D041	Crew Testing open field in centre of property	W
PR21-014D042	Ground conditions	W
PR21-014D043	Low wet area with standing water in centre of property	NE
PR21-014D044	Low wet area with standing water in centre of property	NE
PR21-014D045	Crew testing wooded area	NE
PR21-014D046	Disturbed area in centre north of the property	SW
PR21-014D047	Disturbed area in centre north of the property	S
PR21-014D048	Disturbed area in centre north of the property	S
PR21-014D049	Disturbed area in centre north of the property	SE
PR21-014D050	Disturbed area in centre north of the property	E
PR21-014D051	Disturbed area in centre north of the property	E
PR21-014D052	Disturbed area in centre north of the property	N
PR21-014D053	Disturbed area in centre north of the property	W
PR21-014D054	Low wet land in the centre of property	
PR21-014D055	Low wet land in the centre of property	E
PR21-014D056	Disturbed area due to former gravel road	S
PR21-014D057	Buried utilities	S
PR21-014D058	Buried utilities	SW
PR21-014D059	Disturbed area due to former gravel road	S
PR21-014D060	Standard stratigraphy for open area in middle of the property	N
PR21-014D061	Standard stratigraphy for open area in middle of the property	N
PR21-014D062	Disturbed area due to former gravel road	S
PR21-014D063	Pile of deadfall	NE
PR21-014D064	Wet lowlands in middle of study area	NW
PR21-014D065	Gravel pit road entry	N
PR21-014D066	Gravel pit road entry	NW
PR21-014D067	Conditions to the west end of the property near the road	W
PR21-014D068	Wooded area near wetland	N
PR21-014D069	View from SW edge of property	NE
PR21-014D070	Wooded area near wetland	NW
PR21-014D071	Low wet area to the east of the pit entrance road	ENE
PR21-014D072	Gravel road showing disturbance on either side	N
PR21-014D073	Disturbed soils near gravel road	NW
PR21-014D074	Edge of gravel road, showing disturbed area	NE
PR21-014D075	Edge of gravel road, showing disturbed area	NE
PR21-014D076	Edge of gravel road, showing disturbed area	NE
PR21-014D077	Edge of gravel road, showing disturbed area	N
PR21-014D078	Disturbed soils near gravel road	NW
PR21-014D079	Disturbed soils near gravel road	W
PR21-014D080	Wooded area near gravel road	E
PR21-014D081	Wooded area near gravel road	W

APPENDIX 2: Glossary of Archaeological Terms

Archaeology:
The study of human past by excavation of cultural material.

Archaeological Sites:
The physical remains of any building, structure, cultural feature, object, human event or activity which, because of the passage of time, are on or below the surface of the land or water.

Archaic:
A term used by archaeologists to designate a distinctive cultural period dating between c. 8000 and c. 1000 B.C. in eastern North America. The period is divided into Early (8000 to 6000 B.C.), Middle (6000 to 2500 B.C.) and Late (2500 to 1000 B.C.). It is characterized by hunting, gathering and fishing.

Artifact:
An object manufactured, modified or used by humans.

B.P.:
Before Present. Often used for archaeological dates instead of B.C. or A.D. Present is taken to be 1951, the date from which radiocarbon assays are calculated.

Backdirt:
The soil excavated from an archaeological site. It is usually removed by shovel or trowel and then screened to ensure maximum recovery of artifacts.

Chert:
A type of silica rich stone often used for making chipped stone tools. A number of chert sources are known from southern Ontario. These sources include outcrops and nodules.

Contact Period:
The period of initial contact between Indigenous and European populations. In Ontario, this generally corresponds to the seventeenth and eighteen centuries depending on the specific area.

Cultural Resource / Heritage Resource:
Any resource (archaeological, historical, architectural, artifactual, archival) that pertains to the development of our cultural past.

Cultural Heritage Landscapes:
Cultural heritage landscapes are groups of features made by people. The arrangement of features illustrates noteworthy relationships between people and their surrounding environment. They can provide information necessary to preserve, interpret or reinforce the understanding of important historical settings and changes to past patterns of land use. Cultural landscapes include neighbourhoods, townscapes and farmscapes.

Diagnostic:
An artifact, decorative technique or feature that is distinctive of a particular culture or time period.

Disturbed:
In an archaeological context, this term is used when the cultural deposit of a certain time period has been intruded upon by a later occupation.

Excavation:
The uncovering or extraction of cultural remains by digging.

Feature:
This term is used to designate modifications to the physical environment by human activity. Archaeological features include the remains of buildings or walls, storage pits, hearths, post moulds and artifact concentrations.

Flake:
A thin piece of stone (usually chert, chalcedony, etc.) detached during the manufacture of a chipped stone tool. A flake can also be modified into another artifact form such as a scraper.

Fluted:
A lanceolate shaped projectile point with a central channel extending from the base approximately one third of the way up the blade. One of the most diagnostic Palaeo-Indian artifacts.

Lithic:
Stone. Lithic artifacts would include projectile points, scrapers, ground stone adzes, gun flints, etc.

Lot:
The smallest provenience designation used to locate an artifact or feature.

Midden:
An archaeological term for a garbage dump.

Mitigation:
To reduce the severity of development impact on an archaeological or other heritage resource through preservation or excavation. The process for minimizing the adverse impacts of an undertaking on identified cultural heritage resources within an affected area of a development project.

Multicomponent:
An archaeological site which has seen repeated occupation over a period of time. Ideally, each occupation layer is separated by a sterile soil deposit that accumulated during a period when the site was not occupied. In other cases, later occupations will be directly on top of earlier ones or will even intrude upon them.

Operation:
The primary division of an archaeological site serving as part of the provenience system. The operation usually represents a culturally or geographically significant unit within the site area.

Palaeo-Indian:
The earliest human occupation of Ontario designated by archaeologists. The period dates between c. 9000 and c. 8000 B.C. and is characterized by small mobile groups of hunter-gatherers.

Profile:
The profile is the soil stratigraphy that shows up in the cross-section of an archaeological excavation. Profiles are important in understanding the relationship between different occupations of a site.

Projectile Point:
A point used to tip a projectile such as an arrow, spear or harpoon. Projectile points may be made of stone (either chipped or ground), bone, ivory, antler or metal.

Provenience:
Place of origin. In archaeology this refers to the location where an artifact or feature was found. This may be a general location or a very specific horizontal and vertical point.

Salvage:
To rescue an archaeological site or heritage resource from development impact through excavation or recording.

Stratigraphy:
The sequence of layers in an archaeological site. The stratigraphy usually includes natural soil deposits and cultural deposits.

Sub-operation:
A division of an operation unit in the provenience system.

Survey:
To examine the extent and nature of a potential site area. Survey may include surface examination of ploughed or eroded areas and sub-surface testing.

Test Pit:
A small pit, usually excavated by hand, used to determine the stratigraphy and presence of cultural material. Test pits are often used to survey a property and are usually spaced on a grid system.

Woodland:
The most recent major division in the pre-Contact cultural sequence of Ontario. The Woodland period dates from between c. 1000 B.C. and A.D. 1550. The period is characterized by the introduction of ceramics and the beginning of agriculture in southern Ontario. The period is generally divided into Early (1000 B.C. to A.D. 0), Middle (A.D. 0 to A.D. 900) and Late (A.D. 900 to A.D. 1550).

APPENDIX 3: Licensee Qualifications

STEPHANIE CLELAND, M.A.

Staff Archaeologist

Stephanie Cleland is a staff archaeologist with Past Recovery Archaeological Services Inc. Over the past fifteen years Stephanie has participated in archaeological research and cultural resource management projects (Stages 1 through 4) throughout eastern Ontario, in addition to her field school experiences in Belize. She has worked on over 50 Stage 1 through 4 archaeological assessments in the province. Stephanie has an extensive knowledge of both the pre-Contact and historical period cultural chronology of eastern Ontario, expertise in the interpretation of archaeological sites and is proficient in the interpretation and implementation of the 2011 *Standards and Guidelines for Consultant Archaeologists* (Ontario Ministry of Citizenship and Multiculturalism).

EDUCATION

M.A. Anthropology with a special emphasis on Bioarchaeology, University of Western Ontario, 2006
B.Sc. (Hons.), Anthropology/Archaeology, Trent University, 2004

Ontario Ministry of Citizenship and Multiculturalism Professional Licence: P1201
Licensed since 2011

ARCHAEOLOGICAL EXPERIENCE

STAFF ARCHAEOLOGIST, Past Recovery Archaeological Services Inc., 2009-present

- Directed and supervised fieldwork and prepared reports for Stage 1 through 4 archaeological assessments in Eastern Ontario, for clients including private developers, engineering firms, the National Capital Commission, the City of Kingston, the Ontario Ministry of Transportation, and the Ontario Ministry of Natural Resources and Forestry. • Engagement with Indigenous communities. • Field Archaeologist on numerous other projects. • Historical research. • Laboratory assistant.

ARCHAEOLOGICAL TECHNICIAN, Golder Associates Ltd., 2008-2009

- Field archaeologist for a variety of Stage 2 to 4 archaeological assessments in Eastern Ontario for private developments, the National Capital Commission, green energy projects, infrastructure and municipal development. • Historical research. • Laboratory assistant.

VOLUNTEER, 2007

- Archaeo Apprentice Program, Murphy's Point Provincial Park, Ontario.

ANTHROPOLOGY TEACHING ASSISTANT, University of Western Ontario, 2004-2006
Courses included: Mesoamerican Archaeology, Biological Anthropology, Introduction to Physical Anthropology and Introduction to Archaeology. Teaching Assistant Award Nominee (2006).

JUNIOR STAFF ARCHAEOLOGIST, 2003
Social Archaeology Research Project (SARP) Field School, Cayo District Belize

FIELD SCHOOL STUDENT, 2002
SARP Field School, Cayo District Belize

STEPHANIE CLELAND, M.A.

PUBLICATIONS AND REPORTS

Past Recovery Archaeological Services:

2022 Stage 1 Archaeological Assessment Point Crescent Open Space, Lot 9, Broken Front, Geographic Township of Kingston, City of Kingston, Ontario. *Prepared for the City of Kingston.*

2022 Stage 1 & 2 Archaeological Assessments, 100 Foot Park, Part Lots 14 and 15, Concession East of the Cataraqui River, Geographic Township of Pittsburgh, City of Kingston, Ontario. *Prepared for the City of Kingston*

2021 Stage 1 & 2 Archaeological Assessments, Proposed Cooney Pit, Part Lots 22 and 23, Concession 3, Geographic Township of Darling, Now Township of Lanark Highlands, County of Lanark. *Prepared for Cooney Construction & Landscape Ltd.*

2021 Stage 1&2 Archaeological Assessments for the Proposed Houchaimi Subdivision, Part Lot 14, Concession 10, Geographic Township of Ramsay, Now Municipality of Mississippi Mills, County of Lanark.

2021 Stage 1 Archaeological Assessment, Proposed Cooney Pit, Part Lots 22 and 23, Concession 3, Geographic Township of Lanark Highlands, County of Lanark. *Prepared for Cooney Construction and Landscape Ltd.*

2020 Stage 1 and 2 Archaeological Assessments of Bellwood Ridge Subdivision, Part Lots 8 and 9, Concession 2, Geographic Township of Cornwall, Now City of Cornwall, Ontario. *Prepared for Cornwall Gravel Co. Ltd.*

2020 Stage 2 Archaeological Assessment for a Proposed Campsite Electrification Project and Canoe Rack Installation, Lake St. Peter Provincial Park, Part Lots 5 and 6, Concession 12, Geographic Township of McClure, Now Municipality of Hastings Highlands, Hastings County, Ontario. *Prepared for Ontario Parks.*

2020 Stage 1 Archaeological Assessment Bassile Subdivision, Part Lots 7 and 8, Concession A, Geographic Township of Wolford, Now in the Village of Merrickville-Wolford, United Counties of Leeds and Grenville. *Prepared for Zander Plan Inc.*

2019 Stage 1 and 2 Archaeological Assessments, 'Earnscliffe' – 140 Sussex Drive, Part Lot o, Broken Front C, Geographic Township of Nepean, City of Ottawa, Ontario. *Prepared for Gemtec Consulting Engineers and Scientists.*

2019 Stage 1 and 2 Archaeological Assessments for the Replacement of the Laronde Creek Bridge and the Little Cache Creek Culvert, Highway 17 (GWP 5198-13-00), Part of the Nipissing Nation Lands and Part Lot 8, Concession 1, Geographic Township of Beaucage, and Part of Lots 10 and 11, Concession 2, Geographic Township of Springer, Nipissing District. *Prepared for McIntosh Perry Consulting Engineers Ltd.*

2019 Stage 2 Archaeological Assessment for Five Ottawa River Outfalls (Package 2 Locations), Various Los, Geographic Townships of Nepean and Gloucester, City of Ottawa, Ontario. *Prepared for Parsons Inc.*

2019 Stage 1 Archaeological Assessment 7913 Flewellyn Road (Area 6), Part Lots 8 and 10, all of Lot 9, Concession 9, Geographic Township of Goulbourn, City of Ottawa, Ontario. *Prepared for CDCI Research.*

2018 Stage 1 Archaeological Assessment of the Maple Ridge Subdivision (Phases 2 and 3), Part Lot 3, Concession 3, Geographic Township of South Elmsley, Town of Smiths Falls, Ontario. *Prepared for Zander Plan Inc.*

2018 Stage 1 Archaeological Assessment, Class EA for Bell Boulevard Widening Project, Part of Lots 37 and 38, Concession 2, Geographic Township of Sidney, Now City of Belleville, County of Hastings. *Prepared for the City of Belleville.*

2018 Stage 1 Archaeological Assessment of Brockville Long Swamp Fen Provincial Park, Various Lots, Concession 6, Geographic Township of Elizabethtown, Now Township of Elizabethtown-Kitley, United Counties of Leeds and Grenville, Ontario. *Prepared for Ontario Parks.*

2018 Stage 1 Archaeological Assessment of 910 Montreal Road, Part Lot 5, Concession 1, Geographic Township of Cornwall, City of Cornwall, Ontario.

2018 Stage 1 & 2 Archaeological Assessments for the Detail Design Study for the Replacement of Structures on Highway 400 at Innisfil Beach Road and the Barrie-Collingwood Railway and Reconstruction of Innisfil Beach Road I/C and Associated Works (GWP 2493-15-00; Assignment 2017-E-0030), Part Lots 6 and 7, Concessions 6 to 9, Geographic Township of Innisfil, New Town of Innisfil, County of Simcoe. *Prepared for McIntosh Perry Consulting Engineers* Ltd.

2018 Stage 2 Archaeological Assessment for Eleven Ottawa River Outfalls (Package 1 Locations), Various Lots, Geographic Townships of Nepean and Gloucester, City of Ottawa, Ontario. *Prepared for Parsons Inc.*

2018 Stage 1 and 2 Archaeological Assessments, Wellington Road Realignment, Kemptville, Part Lots 28 and 28, Concession 3, Geographic Township of Oxford on Rideau, Municipality of North Grenville. *Prepared for the Municipality of North Grenville.*

2018 Stage 1 and 2 Archaeological Assessment, for 6012 Garvin Road, Ottawa Hydro Substation Class EA, Part Lot 25, Concession 4, Geographic Township of Goulbourn, Village of Richmond, City of Ottawa, Ontario. *Prepared for exp Services Inc.*

2017 Stage 1 Archaeological Assessment, Woodbine Park, Part Lots 3 and 4, Concession 3, Geographic Township of Kingston, City of Kingston, Ontario. *Prepared for the City of Kingston.*

2017 Stage 1 Archaeological Assessment, West Park, Part Lot 4, Concession 1, Geographic Township of Kingston, City of Kingston, Ontario. *Prepared for the City of Kingston.*

2017 Stage 1 Archaeological Assessment, Springer Park, Part Lot 17, Concession 2, Geographic Township of Kingston, City of Kingston, Ontario. *Prepared for City of Kingston.*

2017 Stage 1 Archaeological Assessment, Meadowbrook Park, Part Lots 14 and 15, Concession 2, Geographic Township of Kingston, City of Kingston, Ontario. *Prepared for City of Kingston.*

2017 Stage 1 Archaeological Assessment, Queen Mary to Parkway Pathway, Part Lot 16, Concession 2, Geographic Township of Kingston, City of Kingston, Ontario. *Prepared for City of Kingston.*

2017 Stage 1 and 2 Archaeological Assessments for the McBean Street Bridge Replacement, Part Lot 24, Concession 3, Geographic Township of Goulbourn, Village of Richmond, City of Ottawa, Ontario. *Prepared for Morrison Hershfield Ltd.*

2017 Stage 1 and 2 Archaeological Assessment, for the Proposed Mallorytown Carpool Lot, County Road 5, Part Lot 20, Broken Front Concession, Geographic Township of Yonge, Now Township of Front of Yonge, United Counties of Leeds and Grenville. *Prepared for McIntosh Perry Consulting Engineers Ltd.*

2017 Stage 2 Archaeological Assessment of Proposed Infrastructure Projects at the Lally Homestead Site (BeGb-15), Murphy's Point Provincial Park, Part Lot 14, Concessions 4&5, Geographic Township of North Burgess, Now Tay Valley Township, Lanark County, Ontario. *Prepared for Ontario Parks.*

2017 Stage 1 & 2 Archaeological Assessments, Carp River Erosion Control Project, Part Lot 32, Concession 11, Geographic Township of Goulbourn, Carleton County, Now City of Ottawa, Ontario. *Prepared for McIntosh Perry Consulting Engineers Ltd.*

2017 Stage 1 Archaeological Assessment for Seven Ottawa River Outfalls (Package 2 Locations), Various Lots, Geographic Townships of Nepean and Gloucester, City of Ottawa, Ontario. *Prepared for Parsons Inc.*

2017 Stage 1 Archaeological Assessment for Thirteen Ottawa River Outfalls (Package 1 Locations), Various Lots, Geographic Townships of Nepean and Gloucester, City of Ottawa, Ontario. *Prepared for Parsons Inc.*

2017 Stage 1 Archaeological Assessment of 840 Princess Street, Pat Farm Lot 21, Concession 1, Geographic Township of Kingston, City of Kingston, Ontario. *Prepared for API Development Consultants Inc.*

2017 Stage 1 Archaeological Assessment, Proposed Shea Road, Community, Part Lot 25, Concession 10, Geographic Township pf Goulbourn, Carleton County, Now City of Ottawa, Ontario.

2017 Stage 1 Archaeological Assessment Proposed Pinery Estates Subdivision, Part Lots 1 & 2, Concession 6, Geographic Township of Huntley, Carleton County, Now City of Ottawa, Ontario.

2017 Stage 1 & 2 Archaeological Assessment of 7771/7775 Snake Island Road, Part Lot 20, Concession 6, Geographic Township of Osgoode, Carleton County, Now City of Ottawa, Ontario. *Prepared for McIntosh Perry Consulting Engineers Ltd.*

2017 Stage 1 Archaeological Assessment for the Main Street Reconstruction Project, Highway 15 to Summers Road, Village of Elgin, Geographic Township of South Crosby, Now Township of Rideau Lakes, United Counties of Leeds and Grenville, Ontario. *Prepared for Public Works, United Counties of Leeds and Grenville.*

2017 Stage 1 Archaeological Assessment, 2175 Prince of Wales Drive, Part Lot 26, Concession A, Geographic Township of Nepean, Carleton County, Now City of Ottawa, Ontario. *Prepared for Myers Automotive Group.*

2017 Stage 1 and 2 Archaeological Assessments, of the Proposed South Gower Pit, Part Lots 5 and 6, Concession 5, Geographic Township of South Gower, Municipality of North Grenville. *Prepared for Cornwall Gravel Co. Ltd.*

2017 Stage 1 Archaeological Assessment, 2113-2125 Carp Road, Part Lot 2, Concession 3, Geographic Township of Huntley, Carleton County, Now City of Ottawa, Ontario. *Prepared for Myers Automotive Group.*

2017 Stage 1 Archaeological Assessment, 5639 Bank Street, Part Lot 1, Concession 5, Geographic Township of Osgoode, Carleton County, Now City of Ottawa, Ontario. *Prepared for Myers Automotive Group.*

2013 Stage 1 Archaeological Assessment of the Stonebridge Phase 14 Property, Part Lot 7, Concession 2, Rideau Front, Geographic Township of Nepean, Carleton County, Now in the City of Ottawa. *Prepared for Monarch Corporation.*

2012 Stage 1 & 2 of the Longfields Community Church Property, Part of Lot 13, Concession II, Rideau Front, Geographic Township of Nepean, Carleton County, Now in the City of Ottawa. *Prepared for Vandenberg & Wildeboer Architects Inc.*

2012 Stage 1 Archaeological Assessment for the North Glengarry Regional Water Supply Project Class EA, Various Lots, Geographic Townships of Kenyon and Charlottenburg, Now in the Townships of North and South Glengarry, Current United Counties of Stormont, Dundas and Glengarry. *Prepared for CH2M Hill Canada Limited*

2012 Stage 1 Archaeological Assessment of the Proposed Hammond Pit, Part Lot 2, Concession 5, Geographic Township of Leeds, Now the Township of Leeds and the Thousand Islands, United Counties of Leeds and Grenville, Ontario. *Prepared for ZanderPlan Inc.*

2012 Stage 1 Archaeological Assessment of the Proposed Redeemer Christian Highschool Expansion, Part Lot 30, Concession A, Rideau Front, Geographic Township of Nepean, Carleton County, Now in the City of Ottawa. *Prepared for Kollaard Associates*

2012 Stage 1 &2 Archaeological Assessment of the Bernard Property, Township of Central Frontenac, Official Plan Amendment, Pert Lots 1 and 2, Concession X, Geographic Township of Olden, Frontenac County. *Prepared for Robert Bernard, property owner*

2011 Stage 1 & 2 Archaeological Assessment, the Proposed Shamess Subdivision, Part Lot 4, Concession 8, Geographic Township of Petawawa, Town of Petawawa, Renfrew County, Ontairo. *Prepared for Novatech Engineering Consultants Ltd.*

2011 Stage 1 & 2 Archaeological Assessment of the J.W. Southwell Property, Part Lot 12, Concession XII, Geographic Township of Beckwith, Lanark County. *Prepared for Carlgate Development Inc.*

2011 Stage 1 Archaeological Assessment of Intersection Modifications at Bank Street/Conroy Road/Kemp Drive, Part Lot 14, Concessions IV and V, Geographic Township of Gloucester, City of Ottawa, Ontario. *Prepared for Morrison Hershfield.*

2011 Stage 1 Archaeological Assessment of the Proposed McNabb Single Family Home, Part Town Lot 67 within Lot 14, Concession XII, Geographic Township of Beckwith, Lanark County. *Prepared for Ruth and Brooke McNabb*

2011 Stage 2 Archaeological Assessment of Two Proposed Severances for S&A Developing, Part Lot 6, Concession V, Geographic Township of Pittsburgh, City of Kingston, Frontenac County. *Prepared for S&A Developing.*

2011 Stage 1 & 2 Archaeological Assessment of the Proposed Cronk Severance, Lot 27, Concession VII, Geographic Township of Hinchinbrooke, Frontenac County. *Prepared for Mr. Lynn Cronk.*

2011 Stage 1 Archaeological Assessment of 318 and 320 Alfred Street and 1, 11 and 15 Mack Street, City of Kingston, Ontario. *Prepared for Podium Development.*

2011 Stage 1 & 2 Archaeological Assessment of 505, 513 Albert Street and 605 Princess Street, City of Kingston, Ontario. *Prepared for Podium Development.*

2010 Stage 1 and 2 Archaeological Assessments of the Proposed Ralph Shaw – Townline Road Subdivision, Part Lot 11, Concession XII, Geographic Township pf Beckwith, Lanark County.

2011 Stage 1, 2 & 3 Archaeological Assessment of the Proposed Badger Daylighting Services, Carp Road Property, Part Lot 7, Concession 2, Geographic Township of Huntley, City of Ottawa, Ontario. *Prepared for McIntosh Perry Consulting Engineers Ltd.*

2010 Stage 1 & 2 Archaeological Assessment of the Proposed Kennedy Severance, Part Lots 1 & 2, Concession VII, Geographic Township of Oso, Frontenac County, Ontario. *Prepared for Mr. L. Kennedy.*

2010 Stage 1 & 2 Archaeological Assessment of the Ennis Road Bridge Replacement, Tay Valley Township, Lanark County, Ontario. *Prepared for McIntosh Perry Consulting Engineers Ltd.*

2010 Stage 2 Archaeological Assessment of the Joe's Lake Bridge Replacement, Part Lot 14, Concession III, Geographic Township of Lavant, Lanark County. *Prepared for AECOM & The Township of Lanark Highlands.*

2010 Stage 2 Archaeological Assessment of the Southwest Transitway Extension Proposed Pinecrest Creek Outfall Sewer (North of Baseline Road), City of Ottawa. *Prepared for MMM Group Limited.*

2010 Stage 3 Archaeological Assessment Rock Island Site (BdFx-2), Rock Island Camp Senior's Resort Property, Lot 9, Front of Yonge Township, United Counties of Leeds and Grenville. *Prepared for Mr. Bill Hallett and Mr. Bob Race, Rock Island Camp.*

2010 Stage 1 Archaeological Assessment of the Proposed Don Cooney Gravel Pit, Part Lot 9, Concession VI, Geographic Township of Sidney, Hastings County. *Prepared for G.D. Jewell Engineering Inc.*

2010 Stage 1 Archaeological Assessment of the Dobbs Subdivision, Part Lots 22 and 23, Concession I, Geographic Township of Pembroke, Renfrew County, Ontario. *Prepared for Zander Plan Inc.*

2010 Stage 2 Archaeological Assessment of the Dobbs Subdivision, Part Lots 22 and 23, Concession I, Geographic Township of Pembroke, Renfrew County, Ontario. *Prepared for Zander Plan Inc.*

2009 Stage 1 Archaeological Assessment of the North Grenville Public Library, Lot 27, Concession III, Geographic Township of Oxford, Kemptville, Ontario. *Prepared for MHPM Project Managers Inc.*

2009 Stage 1 Archaeological Assessment of the Proposed Kennebec Lake Development, Part Lots 18 & 19, Concession IX, Geographic Township of Kennebec, Frontenac County, Ontario. *Prepared for McIntosh Perry Consulting Engineers Ltd.*

2009 Stage 2 Archaeological Assessment of the Town of Mississippi Mills Almonte Ward Communal Sewage System Pumping and Treatment Plant Location, Part Lot 16, Concession VIII, , Geographic Township of Ramsay, Lanark County. *Prepared for The Thompson Rosemount Group Inc.*

2009 Stage 1 Archaeological Assessment of the Proposed Russell Pumping Station Sites, Lot 11, Concession III, Geographic Township of Russell, Russell, Ontario. *Prepared for AECOM.*

2009 Stage 2 Archaeological Assessment of the Proposed Russell Pumping Station Sites, Lot 11, Concession III, Geographic Township of Russell, Russell, Ontario. *Prepared for AECOM.*

Golder Associates:

2009 Stage 1 Archaeological Assessment of the Longfields-Jockvale Connecting Link, Strandherd Drive to Jockvale Road, Lots 13, 14, 15, Concession 2, Rideau Front, Geographic Township of Nepean.

Academic:

Primary Author:

2006 Dental Microwear Analysis at Altun Ha, Belize. M.A. Thesis, University of Western Ontario.

Co-Author:

2014 Human Dedicatory Burials from Altun Ha, Belize: Exploring Residentical History Through Enamel Microwear and Tissue Isotopic Compositions. In, The Bioarcheology of Space and Place: Ideology, Power, and Meaning in Maya Mortuary Contexts. Pages 169-192. Springer, New York.

2009 Human Dedicatory Burials from Altun Ha, Belize: Exploring Residential History through Enamel Microwear and Isotopic Analysis. Article submitted to Latin American Antiquity, review pending.

2008 Examining Sacrifice: The Symbolic Roles of 'the other' and the Ideological Role of the Warrior. Presented by Karyn Olsen at the 73rd Annual Meeting of the Society for American Archaeology, Symposium on the Meaning of Violence in Ancient Societies, Vancouver B.C.

2007 Exploring Residential History of Dedicatory Burials at Altun Ha, Belize Using Enamel Microwear and Isotopic Analysis. Presented by Karyn Olsen at the 72nd Annual Meeting of the Society for American Archaeology, Symposium on Maya Archaeology in Belize, Austin TX.

2005 Bioarchaeology Redux: A Holistic Approach to the Study of Biological Material. Presented by Lana Williams at the Annual Meeting of the Canadian Association for Physical Anthropology, London ON.