***ORIGINAL: 15 JANUARY 2024***

# STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT

*Fallis Line and County Road 10, Lot 12, Concession 6 (Geographic Township of Cavan, County of Durham), Town of Millbrook, Township of Cavan-Monoghan(Millbrook), County of Peterborough, Ontario (AMICK Corporate Project #2023-260/MCM File #P038-1292-2023)*

**SUBMITTED TO:**

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**15 JANUARY 2024**

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# EXECUTIVE SUMMARY

This report describes the results of the 2023 Stage 1-2 Archaeological Property Assessment of Fallis Line and County Road 10, Lot 12, Concession 6 (Geographic Township of Cavan, County of Durham), Town of Millbrook, Township of Cavan- Monoghan (Millbrook), County of Peterborough, Ontario, conducted by AMICK Consultants Limited. This assessment was undertaken as a requirement under the Planning Act (RSO 1990) and was conducted under Professional Archaeologist License #P038 issued to Marilyn Cornies by the Minister of Citizenship and Multiculturalism (MCM) for the Province of Ontario. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011) and the Ontario Heritage Act (RSO 1990a).

The entirety of the study area is approximately 15.5 hectares (ha) in area and includes within it a house, a garage, a greenhouse, lawn and meadow areas, and ploughed agricultural fields. The study area is bounded on the north by agricultural fields, on the east by agricultural fields, on the south by agricultural fields and on the west by County Road 10. AMICK Consultants Limited was engaged by the proponent to undertake a Stage 1-2 Archaeological Property Assessment of lands potentially affected by the proposed undertaking and was granted permission to carry out archaeological fieldwork. Following the criteria outlined by MCMS (2011) for determining archaeological potential, portions of the study area were determined as having archaeological potential for Pre-contact and Post-contact archaeological resources. Consequently, this report is being prepared in advance of the planning process for this property.

The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment which consisted of high intensity test pit methodology at a five-metre interval between individual test pits and high intensity pedestrian survey at an interval of 5 metres between individual transects on 24 & 29 August 2023. All records, documentation, field notes, photographs, and artifacts (as applicable) related to the conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the MCM on behalf of the government and citizens of Ontario.

As a result of the property Assessment of the study area, two (2) isolated findspots and fourteen (14) isolated test pits with a total of 43 artifacts were documented. Based on the characteristics of these sites and the analysis of artifacts, the following recommendations are made:

1. *The Cultural Heritage Value or Interest (CHVI) of the isolated finds and isolated test pits have been completely documented and have been removed from the study area as a result of standard Stages 2 Property Assessment procedure. There is no remaining CHVI for these locations. No further archaeological assessment of the isolated finds and isolated test pits is warranted;*
2. *No further archaeological assessment of the study area is warranted.*

3. *The Provincial interest in archaeological resources with respect to the proposed undertaking has been addressed.*
4. *The proposed undertaking is clear of any archaeological concern.*
5. *The lands to the north of the study area (see Maps 5 & 7) is owned by the proponent and will require a Stage 1-2 Archaeological Property Assessment if future impacts are planned as it retains potential.*

# 1.0 PROJECT CONTEXT

## 1.1 DEVELOPMENT CONTEXT

This report describes the results of the 2023 Stage 1-2 Archaeological Property Assessment of Fallis Line and County Road 10, Lot 12, Concession 6 (Geographic Township of Cavan, County of Durham), Town of Millbrook, Township of Cavan- Monoghan (Millbrook), County of Peterborough, Ontario, conducted by AMICK Consultants Limited. This assessment was undertaken as a requirement under the Planning Act (RSO 1990) and was conducted under Professional Archaeologist License #P038 issued to Marilyn Cornies by the Minister of Citizenship and Multiculturalism (MCM) for the Province of Ontario. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011) and the Ontario Heritage Act (RSO 1990a).

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The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment which consisted of high intensity test pit methodology at a five-metre interval between individual test pits and high intensity pedestrian survey at an interval of 5 metres between individual transects on 24 & 29 August 2023. All records, documentation, field notes, photographs, and artifacts (as applicable) related to the conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the MCM on behalf of the government and citizens of Ontario.

A development plan has not been submitted to AMICK Consultants Limited at the time this report was written. A survey of the study area has been reproduced within this report as Map 4.

## 1.2 HISTORICAL CONTEXT

### *1.2.1 PRE-CONTACT LAND-USE OUTLINE*

Table 1 illustrates the chronological development of cultures within southern Ontario prior to the arrival of European cultures to the area at the beginning of the 17th century. This general cultural outline is based on archaeological data and represents a synthesis and summary of research over a long period of time. It is necessarily generalizing and is not necessarily representative of the point of view of all researchers or stakeholders. It is offered here as a rough guideline and as a very broad outline to illustrate the relationships of broad cultural groups and time periods.

**TABLE 1 PRE-CONTACT CULTURAL CHRONOLOGY FOR SOUTHERN ONTARIO**

| Years ago | Period | Southern Ontario |
|---|---|---|
| 250 | Terminal Woodland | Ontario and St. Lawrence Iroquois Cultures |
| 1000<br>2000 | Initial Woodland | Princess Point, Saugeen, Point Peninsula, and Meadowood Cultures |
| 3000<br>4000<br>5000<br>6000 | Archaic | Laurentian Culture |
| 7000<br>8000<br>9000<br>10000<br>11000 | Palaeo-Indian | Plano and Clovis Cultures |
| | | (Wright 1972) |

What follows is an outline of Aboriginal occupation in the area during the Pre-Contact Era from the earliest known period, about 9000 B.C. up to approximately 1650 AD.

#### *1.2.1.1 PALEO-INDIAN PERIOD (APPROXIMATELY 9000-7500 B.C.)*

North of Lake Ontario, evidence suggests that early occupation began around 9000 B.C. People probably began to move into this area as the glaciers retreated and glacial lake levels began to recede. The early occupation of the area probably occurred in conjunction with environmental conditions that would be comparable to modern Sub-Arctic conditions. Due to the great antiquity of these sites, and the relatively small populations likely involved, evidence of these early inhabitants is sparse and generally limited to tools produced from stone or to by-products of the manufacture of these implements.

#### *1.2.1.2 ARCHAIC PERIOD (APPROXIMATELY 8000-1000 B.C.)*

By about 8000 B.C. the gradual transition from a post glacial tundra-like environment to an essentially modern environment was largely complete. Prior to European clearance of the landscape for timber and cultivation, the area was characterized by forest. The Archaic Period is the longest and the most apparently stable of the cultural periods identified through

archaeology. The Archaic Period is divided into the Early, Middle and Late Sub-Periods, each represented by specific styles in projectile point manufacture. Many more sites of this period are found throughout Ontario, than of the Palaeo-Indian Period. This is probably a reflection of two factors: the longer period of time reflected in these sites, and a greater population density. The greater population was likely the result of a more diversified subsistence strategy carried out in an environment offering a greater variety of abundant resources (Smith 2002:58-59).

Current interpretations suggest that the Archaic Period populations followed a seasonal cycle of resource exploitation. Although similar in concept to the practices speculated for the big game hunters of the Palaeo-Indian Period, the Archaic populations utilized a much broader range of resources, particularly with respect to plants. It is suggested that in the spring and early summer, bands would gather at the mouths of rivers and at rapids to take advantage of fish spawning runs. Later in the summer and into the fall season, smaller groups would move to areas of wetlands to harvest nuts and wild rice. During the winter, they would break into yet smaller groups probably based on the nuclear family and perhaps some additional relatives to move into the interior for hunting. The result of such practices would be to create a distribution of sites across much of the landscape (Smith 2002: 59-60).

The material culture of this period is much more extensive than that of the Palaeo-Indians. Stylistic changes between Sub-Periods and cultural groups are apparent, although the overall quality in production of chipped lithic tools seems to decline. This period sees the introduction of ground stone technology in the form of celts (axes and adzes), manos and metates for grinding nuts and fibres, and decorative items like gorgets, pendants, birdstones, and bannerstones. Bone tools are also evident from this time period. Their presence may be a result of better preservation from these more recent sites rather than a lack of such items in earlier occupations. In addition, copper and exotic chert types appear during the period and are indicative of extensive trading (Smith 2002: 58-59).

#### *1.2.1.3 WOODLAND PERIOD (APPROXIMATELY 1000 B.C.-1650 A.D.)*

The primary difference in archaeological assemblages that differentiates the beginning of the Woodland Period from the Archaic Period is the introduction of ceramics to Ontario populations. This division is probably not a reflection of any substantive cultural changes, as the earliest sites of this period seem to be in all other respects a continuation of the Archaic mode of life with ceramics added as a novel technology. The seasonally based system of resource exploitation and associated population mobility persists for at least 1500 years into the Woodland Period (Smith 2002: 61-62).

The Early Woodland Sub-Period dates from about 1000-400 B.C. Many of the artifacts from this time are similar to the late Archaic and suggest a direct cultural continuity between these two temporal divisions. The introduction of pottery represents an entirely new technology that was probably acquired through contact with more southerly populations from which it likely originates (Smith 2002:62).

The Middle Woodland Sub-Period dates from about 400 B.C.-800 A.D. Within the region including the study area, a complex emerged at this time termed "Point Peninsula." Point Peninsula pottery reflects a greater sophistication in pottery manufacture compared with the earlier industry. The paste and temper of the new pottery is finer and new decorative techniques such as dentate and pseudo-scallop stamping appear. There is a noted Hopewellian influence in southern Ontario populations at this time. Hopewell influences from south of the Great Lakes include a widespread trade in exotic materials and the presence of distinct Hopewell style artifacts such as platform pipes, copper or silver panpipe covers and shark's teeth. The populations of the Middle Woodland participated in a trade network that extended well beyond the Great Lakes Region.

The Late Woodland Sub-Period dates from about 500-1650 A.D. The Late Woodland includes four separate phases: Princess Point, Early Ontario Iroquoian, Middle Ontario Iroquoian and Late Ontario Iroquoian.

The Princess Point phase dates to approximately 500-1000 A.D. Pottery of this phase is distinguished from earlier technology in that it is produced by the paddle method instead of coil and the decoration is characterized by the cord wrapped stick technique. Ceramic smoking pipes appear at this time in noticeable quantities. Princess Point sites cluster along major stream valleys and wetland areas. Maize cultivation is introduced by these people to Ontario. These people were not fully committed to horticulture and seemed to be experimenting with maize production. They generally adhere to the seasonal pattern of occupation practiced by earlier occupations, perhaps staying at certain locales repeatedly and for a larger portion of each year (Smith 2002: 65-66).

The Early Ontario Iroquoian stage dates to approximately 950-1050 A.D. This stage marks the beginning of a cultural development that led to the historically documented Ontario Iroquoian groups that were first contacted by Europeans during the early 1600s (Petun, Neutral, and Huron). At this stage formal semi-sedentary villages emerge. The Early stage of this cultural development is divided into two cultural groups in southern Ontario. The areas occupied by each being roughly divided by the Niagara Escarpment. To the west were located the Glen Meyer populations, and to the east were situated the Pickering people (Smith 2002: 67).

The Middle Ontario Iroquoian stage dates to approximately 1300-1400 A.D. This stage is divided into two sub-stages. The first is the Uren sub-stage lasting from approximately 1300-1350 A.D. The second of the two sub-stages is known as the Middleport sub-stage lasting from roughly 1350-1400 A.D. Villages tend to be larger throughout this stage than formerly (Smith 2002: 67).

The Late Ontario Iroquoian stage dates to approximately 1400-1650 A.D. During this time the cultural divisions identified by early European explorers are under development and the geographic distribution of these groups within southern Ontario begins to be defined.

### *1.2.2 Post-Contact Land Use Outline*

The County of Peterborough occupies a central position between the western and eastern counties and is one of the largest in Ontario. It is separated on the south from the Counties of Durham and Northumberland by the chain of waters known as the Otonabee River, Rice Lake, and River Trent. The topography of the County is described as undulating with the southern portion being decidedly hilly with numerous swamps and "drowned land". The indigenous tree species include oak, maple and other hardwoods intermixed with birch, cedar and pine. The county is known for having large lakes and swift rivers which include Pigeon, Buckhorn, Chemong, Clear, Katchewanooka, and Stony Lakes as well as Lakefield and Peterborough rivers. The shores of these lakes and rivers provide excellent accommodation for camping parties and the American Canoe Association meetings. The County of Peterborough is comprised of fifteen townships which include: Galway, Cavendish, Anstruther, Chandos, Harvey, Burleigh, Methuen, Ennismore, Smith, Douro, Dummer, Belmont, North Monaghan, Otonabee, and Asphodel (Ryan et al., 215-17).

Millbrook had thirteen founding settlers who each owned 100 acres of land. James and John built the Deyell Mill between 1820 and 1822. One owned the land on which it was built and the other financed the project. The Deyell Mill began the establishment of the village. In the following years, additional mills were built and included a furniture factory, planning mill, shingle mill and flax mill. The close proximity of a number of streams to Millbrook enabled so many mills to be built and flourish. The well-established mills and the construction of the Midland Railway from Port Hope made Millbrook an important market town for the Cavan Township. This enabled Millbrook to grown in several different aspects, the population increased expanding the initial village north and west, technology advanced allowing the construction of grain storage structures, the economic standing of the village grew facilitating the building of new churches, new schools and in the late 1800's lavish brick houses and eventually banks. (Tinney, Cora & Urbanowicz, NiShier & Ward 2011).

Map 2 is a facsimile segment from Tremaine's Map of the County of Durham, Upper Canada (Shier & Ward 1861). Map 2 illustrates the location of the study area and environs as of 1861. The study area is shown to belong to J. & R. Gardener; no structures are shown to be within the study area; however, a W.M. Church is depicted north of the study area. This demonstrates that the original property of which the study area is a part was settled by the time that the atlas data was compiled. Accordingly, it has been determined that there is potential for archaeological deposits related to early Post-contact settlement within the study area. In addition, this map illustrates an unnamed water course situated north of the study area and settlement roads are depicted as adjacent to the study area to the south and west. The road depicted to the south of the study area is no longer present, while the road depicted to the west is the current County Road 10. The watercourse depicted north of the study area is an unnamed tributary of the Otonabee River. The Midland Railway is depicted as south of the study area and the Midland Railway Lindsay Branch is depicted as west of the study area.

Map 3 is a facsimile segment of the Township of Cavan map reproduced from the Illustrated Historical Atlas of the Counties of Northumberland and Durham, Ont (Belden & Co. 1878). Map 3 illustrates the location of the study area and environs as of 1878. The study area is

shown to belong to Ralph Gardner; two structures are shown to be within the study area. Structures are also shown to be north, east, and west of the study area. This demonstrates that the original property of which the study area is a part was settled by the time that the atlas data was compiled. Accordingly, it has been determined that there is potential for archaeological deposits related to early Post-contact settlement within the study area. . In addition, this map illustrates an unnamed water course situated north of the study area and settlement roads are depicted as adjacent to the study area to the south and west. The road depicted to the south of the study area is no longer present, while the road depicted to the west is the current County Road 10. The watercourse depicted north of the study area is an unnamed tributary of the Otonabee River. The Midland Railway is depicted as south of the study area and the Midland Railway Lindsay Branch is depicted as west of the study area.

A survey of the study area is included within this report as Map 4. Current conditions encountered during the Stage 1-2 Property Assessment are illustrated in Maps 5 – 8.

### *1.2.3 Summary of Historical Context*

The brief overview of readily available documentary evidence indicates that the study area is situated within an area that was close to historic transportation routes and in an area well populated during the nineteenth century and therefore has potential for sites relating to early Post-contact settlement in the region. However, it also appears that while the area was moving toward urban development by the fourth quarter of the 19th century, it was still predominantly rural in character and the likelihood of locating significant Post-contact archaeological deposits of cultural heritage value or interest (CHVI) on a very small parcel of the original township lot is not likely. Background research indicates the property has potential for significant archaeological resources of Native origins based on proximity to a natural source of potable water in the past. An unnamed tributary of the Otonabee River is located approximately 300m north of the study area.

## 1.3 Archaeological Context

The study area is located in Millbrook and is bounded on the north by agricultural field, on the east by agricultural field, on the south by agricultural field and on the west by County Road 10.

A house, a garage, and a greenhouse are present within the study area, which impact the southwestern portion of the study area. The remainder of the study area consists of ploughed fields, lawn, and meadow areas. The study area does not contain any areas of steep slope. A former pine plantation is situated in the southwest quadrant of the study area. A low-lying and wet areas associated with an unnamed tributary of the Otonabee River is located centrally within the study area.

### *1.3.1 Physiographic Region*

The study area is situated within the Peterborough Drumlin Field physiographic region. The Peterborough Drumlin Field is a rolling till plain with an area of roughly 1,750 square miles,

containing approximately 3,000 full drumlins amongst other lesser ones. The rock underlying this region is mostly limestone, which is highly fossiliferous and tends to disintegrate easily. Drumlins in this area are of typical shape with many swampy areas intervening. Valleys across the entire drumlin field break the continuity of the physiographic region and are deep enough to provide excellent drainage to the adjacent uplands (Chapman and Putnam 1984: 169-172).

### *1.3.2 SURFACE WATER*

A low-lying and wet areas associated with an unnamed tributary of the Otonabee River is located centrally within the study area. An unnamed tributary of the Otonabee River is located approximately 300 metres north of the study area, which is shown on the Tremaine's Map of the County of Durham, Upper Canada (Shier & Ward 1861) and the Illustrated Historical Atlas of the Counties of Northumberland and Durham, Ont. (Belden & Co. 1878) maps.

### *1.3.3 LITHIC SOURCES*

The study area is not located in close proximity to any lithic sources.

### *1.3.4 REGISTERED ARCHAEOLOGICAL SITES*

The Archaeological Sites Database administered by the MCMS indicates that there are nineteen (19) previously documented sites within 1 kilometre of the study area. However, it must be noted that this assumes the accuracy of information compiled from numerous researchers using different methodologies over many years. AMICK Consultants Limited assumes no responsibility for the accuracy of site descriptions, interpretations such as cultural affiliation, or location information derived from the Archaeological Sites Database administered by MCMS. In addition, it must also be noted that a lack of formerly documented sites does not indicate that there are no sites present as the documentation of any archaeological site is contingent upon prior research having been conducted within the study area.

#### *1.3.4.1 PRE-CONTACT REGISTERED SITES*

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MCMS. As a result, it was determined that three (3) archaeological sites relating directly to Pre-contact habitation/activity had been formally registered within the immediate vicinity of the study area. However, the lack of formally documented archaeological sites does not mean that Pre-contact people did not use the area; it more likely reflects a lack of systematic archaeological research in the immediate vicinity. Even in cases where one or more assessments may have been conducted in close proximity to a proposed landscape alteration, an extensive area of physical archaeological assessment coverage is required throughout the region to produce a representative sample of all potentially available archaeological data in

order to provide any meaningful evidence to construct a pattern of land use and settlement in the past. All previously registered Pre-contact sites are briefly described below in Table 2:

**TABLE 2 PRE-CONTACT SITES WITHIN 1KM**

| Borden # | Site Name | Time Period | Affinity | Site Type |
|---|---|---|---|---|
| BaGo-45 | | Woodland | Aboriginal | Camp/ Campsite |
| BaGo-41 | | Pre-Contact, Woodland, Late | | |
| BaGo-16 | Clarke | Archaic | Aboriginal | Findspot |

One of the above noted archaeological sites (BaGo-16) is situated within 300 metres of the study area. This archaeological sites is situated with 50 metres of the study area. Therefore, it demonstrate archaeological potential for further archaeological resources related to Pre-contact activity and occupation with respect to the archaeological assessment of the proposed undertaking.

### *1.3.4.2 POST-CONTACT REGISTERED SITES*

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MCMS. As a result, it was determined that fifteen (15) archaeological sites relating directly to Post-contact habitation/activity had been formally registered within the immediate vicinity of the study area. All previously registered Post-contact sites are briefly described below in Table 3:

**TABLE 3 POST-CONTACT SITES WITHIN 1KM**

| Borden # | Site Name | Time Period | Affinity | Site Type |
|---|---|---|---|---|
| BbGo-31 | Tenant Scatter | Post-Contact | Euro-Canadian | Dump |
| BbGo-30 | Tenant Field | Post-Contact | Euro-Canadian | Dump |
| BaGo-57 | Tenant Pond | Post-Contact | | Dump |
| BaGo-56 | Tenant Knoll | Post-Contact | | Dump |
| BaGo-55 | Tenant | Post-Contact | | Dump |
| BaGo-54 | John Ball | Post-Contact | | Burial |
| BaGo-53 | Grace | Post-Contact | Euro-Canadian | Unknown |
| BaGo-52 | New Connexion Church | Post-Contact | | Church/Chapel |
| BaGo-50 | Patrick Maguire | Post-Contact | | OtherBrick Scatter, Possible area of manufacture |
| BaGo-49 | Maguire's Castle | Post-Contact | | Farmstead |
| BaGo-47 | | Post-Contact | Euro-Canadian | Cabin |
| BaGo-46 | | Post-Contact | Euro-Canadian | Cabin |

| | | | | |
|---|---|---|---|---|
| BaGo-44 | | Post-Contact | Euro-Canadian | Farmstead/ Homestead |
| BaGo-43 | Needlers Mill | Post-Contact | Euro-Canadian | Mill |
| BaGo-42 | Millbrook H1 | Post-Contact | Euro-Canadian | Homestead |
| BaGo-62 | Hutchinson Site | Post-Contact | Euro-Canadian | |

Three (3) of the above noted archaeological sites (BaGo-54, BaGo-53 & BaGo-50) are situated within 300 metres of the study area. Two (2) of the above noted archaeological sites are situated with 50 metres of the study area (BaGo-54 & BaGo-53) Therefore, they demonstrate archaeological potential for further archaeological resources related to Post-contact activity and occupation with respect to the archaeological assessment of the proposed undertaking.

#### *1.3.4.3 Registered Sites of Unknown Cultural Affiliation*

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MCMS. As a result, it was determined that one (1) archaeological sites of unknown cultural affiliation have been formally registered within the immediate vicinity of the study area. All previously registered sites of unknown cultural affiliation are briefly described below in Table 4:

**Table 4 Registered Sites of Unknown Cultural Affiliation within 1km**

| Borden # | Site Name | Time Period | Affinity | Site Type |
|---|---|---|---|---|
| BaGo-19 | Draper | | | |

The above noted archaeological sites is not situated within 300 metres of the study area. Therefore, it has no impact on determinations of archaeological potential for further archaeological resources related to human activity and occupation with respect to the archaeological assessment of the proposed undertaking.

### *1.3.5 Previous Archaeological Assessments*

Background research shows that five (5) previous studies have taken place within 50m of the study area. One (1) of the previous studies' report (under P1077-0037-2017) is awaiting review and is not accessible at the time this report was written. AMICK Consultants Limited has not received permission to obtain a copy of a separate report; however, AMICK Consultants Limited was able to obtain an original site form for one of the sites (BaGo-16) located within 50 metres of the current study area. The remaining three archaeological assessments' reports were available and are described below. For more information see:

AMICK Consultants Limited. (2023). *Stage 3 Archaeological Site-Specific Assessment, Hutchinson Site (BaGo-62), County Road 10 and Fallis Line, Millbrook, Part of Lot 13, Concession 5 (Geographical Township of Cavan), Township of Cavan-Monoghan, County of Peterborough.* Exeter, Ontario. (Corporate Project # 2023-450, MCM File # P384-0169-2014).

AECOM. (2021). *Stage 1-2 Archaeological Assessment of County Road 10 and Fallis Line, Millbrook.* Markham, Ontario. Archaeological License Report on File with MCM, Toronto, Ontario (Project Number 60654064, MCM File # P123-0478-2021).

Archeoworks Inc. (2014). *Stage 1 Archaeological Assessments (AA) for the Environmental Assessment of the Millbrook Wastewater Treatment Plant, Tupper Street Sewage Pumping Station and Water Storage Facilities Within Part of Lots 12-13, Concession 5; Lot 12, Concession 6 Geographic Township of Cavan Historic County of Durham Now in the Township of Cavan-Monaghan County of Peterborough Ontario.* Newmarket, Ontario. Archaeological License Report on File with MCM, Toronto, Ontario (MCM File # P029-792-2012).

#### *1.3.5.1 AMICK CONSULTANTS LIMITED (2023)*

AMICK Consultants Limited is currently in the process of drafting a report for a Stage 3 Site-Specific Assessment of the lands directly adjacent to the south of the current study area. The report is incomplete and therefore has not been submitted or filed with the MCM at the time this report was written.

#### *1.3.5.2 AECOM (2021)*

In 2021, AECOM completed a Stage 1-2 Archaeological Assessment of the lands directly south of the study area. Below is a summary of the assessment and the resulting recommendations:

> "*AECOM Canada Ltd. (AECOM) was retained by Bromont Homes to conduct a Stage 1-2 archaeological assessment (AA) for the County Road 10 and Fallis Line study area, in the community of Millbrook, Township of Cavan-Monaghan, County of Peterborough, Ontario. The study area spans the north half of Lot 11, Concession 5, Geographic Township of Cavan, Durham County.*
> *This report details the rationale, methods and results of the Stage 1-2 AA. The Stage 1 AA was completed using background research to describe the geography, land use history, previous archaeological fieldwork and current conditions of the study area to determine its archaeological potential. In addition, satellite imagery and thematic and historic maps were analyzed.*
> *The Stage 2 AA was completed between 2021 and 2023. The assessment involved both pedestrian survey and test pitting in keeping with the Standards and Guidelines for Consultant Archaeologists (Ontario Government 2011). The Stage 2 assessment resulted in the discovery of the Hutchinson site (BaGo-62). It contained 54 historic artifacts dating around the mid to late 19th century (1850's to 1900's).*
> *Given the results of this assessment, AECOM makes the following recommendations:*
>
> 1) *the Hutchinson site (BaGo-62) should be subject to Stage 3 AA if they cannot be avoided by development. The assessments should be completed using Table 3.1 in the Standards and Guidelines for Consultant Archaeologists (Ontario Government 2011). This site type is described as a small pre-contact or post-contact sites where it is not yet evident that the level of cultural heritage value*

*or interest will result in a recommendation to proceed to Stage 4 should be used. This assessment should be completed on a 5m grid with 20% additional infill units. All units are to be dug stratigraphically, checked for cultural features and backfilled. All soil is to be screened through 6mm mesh and checked for artifacts. All artifacts are to be collected and retained with their associated unit.*

2) *All other areas are cleared of further archaeological concerns."*

(AECOM 2021).

#### *1.3.5.3 ARCHEOWORKS INC. (2014)*

In 2014, Archeoworks conducted a Stage 1 Archaeological Assessment of for the Environmental Assessment (EA) of the Millbrook Wastewater Treatment Plant (WWTP), the Tupper Street Sewage Pumping Station, and water storage facilities, located within part of Lots 12-13, Concession 5, and Lot 12, Concession 6, in the Geographic Township of Cavan, Historic County of Durham, now in the Township of Cavan- Monaghan, County of Peterborough, Ontario. The following is the executive summary and recommendations from their report for their study area within 50m west of the current study area:

*"The Stage 1 AA identified potential for the recovery of historic Euro-Canadian and Aboriginal archaeological resources within undisturbed portions of the study area. This assessment was based on the proximity of the Baxter Creek, which would have been able to sustain food resources within 300 metres of its limits. Also, the MTCS confirms the presence of two Aboriginal findspots within one kilometre of the study area, one of which is located within 50 metres. In addition, a review of historic maps revealed that the study area lies immediately adjacent to historic structures and a historically surveyed roadway, and consultation of the County of Peterborough's Cultural Resource Mapping confirmed the presence of the Grace Presbyterian Cemetery, established circa 1840, which is located immediately adjacent to the study area.*

*A property inspection of the study area confirmed the presence of features indicating extensive disturbance (i.e. removal of archaeological potential). These include the footprints of several existing buildings, paved areas, along the right-of-way (ROW) of County Road 10 in the form of road embankments, utilities and gravel shoulders, and within areas that have been subjected to construction activities. The remainder of the study area was found to still contain archaeological potential. As a result of these findings, the areas within the project area that were identified as disturbed can be considered exempted from further archaeological work. The remainder of the study area is considered to have high archaeological potential, and thus recommended to undergo a Stage 2 AA at standard intervals of 5 metres, prior to any construction activities.*

*Lastly, the pioneer Grace Presbyterian Cemetery (c.1840) is located immediately adjacent to the County Road 10 ROW. Burials in nineteenth century historic cemeteries were not highly regulated; these burials often employing markers of little substance and have since disappeared. Thus, to avoid construction impacts to any potential grave shafts that may be present within the ROW of Country Road 10, a*

*Stage 3 investigation, involving the mechanical stripping of topsoil running the length of the cemetery, and extending to the width of proposed construction activities, will need to be undertaken following the completion of the Stage 2 AA.*
*In light of the results of the Stage 1 AA, the following recommendations are presented:*

1. *Area adjacent to Grace Presbyterian Cemetery: Given the location of the pioneer Grace Presbyterian Cemetery adjacent to and within the County Road 10*
   *Stage 1 AA for the: Environmental Assessment of the Millbrook Wastewater Treatment Plant, Tupper Street Sewage Pumping Station and Water Storage Facilities, within Part of Lots 12-13, Concession 5; Lot 12, Concession 6, Geographic Township of Cavan, Historic County of Durham, Now in the Township of Cavan-Monaghan, County of Peterborough, Ontario*
   *ROW, further Stage 3 investigation will be necessary to confirm whether the cemetery extends into the study area. This will entail the use of a smooth-bucket backhoe or Gradall® to strip topsoil following the length of the cemetery limits, with a width of ten metres, along its eastern boundary which falls within the study area limits. Once the subsoil is exposed, if it has been determined that no grave shafts fall within the limits of construction, the topsoil will be returned and all excavated areas filled in. Should grave shafts be encountered, the MTCS and the Registrar of Cemeteries must be contacted immediately for further instruction.*

2. *The areas described in Section 3.1 and marked on Map 4 of this report are considered to have had their archaeological potential removed due to extensive disturbance. Therefore, these areas may be considered exempt from further assessment.*

3. *The remainder of the study area, which was determined to contain high archaeological potential, consists largely of manicured lawn, undisturbed portions of the County Road 10 ROW, and wooded areas. These areas should be subjected to a Stage 2 AA, under the field direction of a licensed archaeologist prior to any construction activities, in order to minimize impacts to heritage resources. The Stage 2 AA should commence with a property survey to assess current land conditions, identify areas of low archaeological potential and determine appropriate fieldwork strategies.*

   *Should significant archaeological resources be encountered, additional background research or fieldwork may be required by the MTCS.*

*No excavation activities shall take place within the study area prior to the MTCS (Archaeology Program Unit) confirming in writing that all archaeological licensing and technical review requirements have been satisfied."*

(Archeoworks 2014).

#### *1.3.5.4 BaGo-16*

BaGo-16 is a post-contact site, located in an orchard and garden area of the study area in which the site was found. The study area is located in Lot 13, Concession 6 of Cavan Township.

#### *1.3.5.2 Previous Regional Archaeological Potential Modelling*

The study area is situated in area for which there is no archaeological master plan.

### *1.3.6 Historic Plaques*

There are no relevant plaques associated with the study area, which would suggest an activity or occupation within, or near, the study area that may indicate potential for associated archaeological resources of significant CHVI.

### *1.3.7 Summary of Archaeological Context*

The study area contains a house, a garage, and a greenhouse, which impact the southwestern portion of the study area. The remainder of the study area consists of ploughed fields, lawn, and meadow areas. The study area does not contain any areas of steep slope. A former pine plantation is situated in the southwest quadrant of the study area. A low-lying and wet areas associated with an unnamed tributary of the Otonabee River is located centrally within the study area.

Current conditions within the study area indicate that some areas of the property may have no or low archaeological potential and do not require Stage 2 Property Assessment or should be excluded from Stage 2 Property Assessment. These areas would include the footprint of existing structures. A significant proportion of the study area does exhibit archaeological potential and therefore a Stage 2 Property Assessment is required.

Background research also indicates that the study area is situated in the Peterborough Drumlin Field physiographic region, which is characterized by limestone, which is highly fossiliferous and tends to disintegrate easily. In addition, the study area is not located in close proximity to any lithic sources.

A total of nineteen (19) previously registered archaeological sites have been documented within 1km of the study area. Of these, three (3) are Pre-contact, fifteen (15) are Post-contact and one (1) is of unknown cultural affiliation. Four (4) of these sites (BaGo-54, BaGo-53, BaGo-16, BaG0-50) are located within 300m of the study area and, therefore, do demonstrate archaeological potential for further archaeological resources of Pre-contact and Post-contact activity and occupation with respect to the archaeological assessment of the current study area.

The study area is situated in area for which there is no archaeological master plan. There are no relevant plaques associated with the study area.

The study area has potential for archaeological resources of Native origins based on proximity to previously registered archaeological sites of Pre-contact origins and proximity to a source of potable water. Background research also suggests potential for archaeological resources of Post-contact origins based on proximity to previously registered archaeological sites of Post-contact origins, proximity to a historic roadway, and proximity to areas of documented historic settlement.

# 2.0 FIELD WORK METHODS AND WEATHER CONDITIONS

## 2.1 INTRODUCTION

A property inspection was carried out in compliance with Standards and Guidelines for Consultant Archaeologists (MTC 2011) to document the existing conditions of the study area to facilitate the Stage 2 Property Assessment. All areas of the study area were visually inspected and select features were photographed as a representative sample of each area defined within Maps 5 – 8. Observations made of conditions within the study area at the time of the inspection were used to inform the requirement for Stage 2 Property Assessment for portions of the study area as well as to aid in the determination of appropriate Stage 2 Property Assessment strategies. The locations from which photographs were taken and the directions toward which the camera was aimed for each photograph are illustrated in Maps 5 – 8 of this report.

A property inspection or field reconnaissance is not required as part of a Stage 1 Background Study unless there is reason to believe that portions of the study area may be excluded from physical assessment on the basis of the conditions of the property or portions thereof and it is desired by the proponent to formally exclude any such areas from a Stage 2 Property Assessment. The Stage 1 Property Inspection was undertaken concurrently with the Stage 2 Property Assessment.

The Stage 2 Assessment of the study area was carried out on 24 & 29 August 2023 and consisted of high intensity test pit methodology at a five-metre interval between individual test pits and by high intensity pedestrian survey at an interval of 5 metres between individual transects which was conducted in compliance with the Standards and Guidelines for Consultant Archaeologists, section 2.1.1: Pedestrian Survey and 2.1.2: Test Pit Survey (MTC 2011). Weather conditions were appropriate for the necessary fieldwork required to complete the Stage 2 Property Assessment and to create the documentation appropriate to this study.

## 2.2 PEDESTRIAN SURVEY

Approximately 12.9 ha of the study area was subjected to pedestrian survey at 5m transect intervals. All actively or recently cultivated agricultural land within the study area was recently ploughed deep enough to provide total topsoil exposure but not deeper than previous ploughing and was weathered by a heavy rainfall. In addition, approximately 98% of the ploughed field surface was exposed and visible per Section 2.1.1, Standards 1-6 (MTC 2011). All work was photo-documented.

While conducting the pedestrian survey, archaeological resources were identified and survey transects were reduced to 1m intervals over a minimum of a 20m radius around individual finds. All artifacts found on the surface were marked with numbered flags. The artifacts were collected and bagged according to the numbered location where each was found. Every find location was individually recorded using GPS with an accuracy of 5 metres or less. All artifacts were collected. As a result of the completion of the CSPs on all archaeological locations, this component of Stage 3 Site-specific Assessment has been completed and is not required for subsequent investigations of these sites.

### 2.3 TEST PIT SURVEY

Approximately 1.76 ha of the study area was meadow and lawn that cannot be strip ploughed as they are occupied by existing landscaping or infrastructure that would be damaged where ploughing or cultivation would not be viable and was subjected to test pit survey at 5m intervals per Section 2.1.2, Standard 1 (MTC 2011).

All test pits were excavated within 1m of all built structures, were at least 30cm in diameter and were excavated into the first 5cm of subsoil to examine stratigraphy, cultural features and evidence of fill. All soils were screen through mesh no greater than 6mm and all test pits were backfilled. All work was photo documented.

During the 5m test pit survey, fourteen (14) test pits produced a total of 1 Pre-contact artifacts and 29 Post-contact artifacts. However, this was not enough to determine if a Stage 3 Site-Specific Assessment would be necessary. Therefore, test pit excavation was continued on the survey grid, but no further archaeological resources were encountered. An additional 8 radial test pits at an interval of 2.5m around the positive test pit(s) were completed as part of an intensified test pit survey. No further archaeological resources were encountered during the intensified test pit survey. All artifacts were collected according to their associated test pit.

Approximately 11% of the study area consisted of lawn and meadow area that was test pit surveyed at an interval of 5 metres between individual test pits. Approximately 83% of the study area was ploughed field that was pedestrian surveyed at an intervals of 5 meters between interval transects. Approximately 0.03% of the study area was not assessable due to the presence of existing structures and disturbed gravel driveway. Maps 5 – 8 of this report illustrate the Stage 2 Assessment methodology within the study area.

## 3.0 RECORD OF FINDS

### 3.1 INTRODUCTION

As a result of the Stage 1-2 Assessment of the study area, two (2) isolated findspots and fourteen (14) isolated test pits were encountered. The isolated find spots and test pits are described below. Descriptions of the artifact types collected from the isolated findspots and test pits can be found appended to this report as Appendix D and Appendix E. Detailed description of the location of these sites can be found appended to this report as Appendix C.

## 3.2 ISOLATED FINDS

The catalogue of this report details artifact categories, material, provenience, measurements and heat alteration where applicable. The following sources were consulted: Cherts of Southern Ontario (Eley & von Bitter 1989), The Basics of Biface Knapping in the Eastern Fluted Point Tradition, a Manual for Flintknappers and Lithic Analysts. (Callahan, Errett 1979), SW Ontario Point Chronology, (Kewa, 1980), The Production of Stone Tools, (Museum of Indian Archaeology n.d.), A Typology and Nomenclature for the New York Projectile Points (Ritchie, 1961), Lithic Identification and Analysis (SCARF 2013), The Archaeology of Southern Ontario to A. D. 1650 (Ellis & Ferris 1990), Ceramic Types in Ontario (Latta, 1983) and the Ontario Iroquois Tradition (Wright, 1973) and the library of AMICK Consultants Limited.

***Isolated Find 1***

Isolated Find 1 (CAT# 2023-260-1) consists of eleven (11) shards of the body and neck of a commercial container.

***Isolated Find 2***

Isolated Find 2 (CAT# 2023-260-2) consists of a single fragment of refined white earthenware with blue transfer print.

***Isolated Test Pit 1***

Isolated Test Pit 1 (CAT# 2023-260-3) consists of a single fragment of ironstone with blue glaze.

***Isolated Test Pit 2***

Isolated Test Pit 2 consists of a single fragment of undecorated refined white earthenware (CAT# 2023-260-4), a single fragment of refined white earthenware with blue transfer print (CAT# 2023-260-5), and a single fragment of calcined bone (CAT# 2023-260-6).

***Isolated Test Pit 3***

Isolated Test Pit 3 consists of a single fragment of refined white earthenware with flown mulberry transfer print (CAT# 2023-260-7), two fragments of undecorated refined white earthenware (CAT# 2023-260-8), a single marine shell fragment (CAT# 2023-270-9), and two fragments of refined white earthenware with flown blue transfer print (CAT# 2023-260-10).

***Isolated Test Pit 4***

Isolated Test Pit 4 consists of a single fragment of refined white earthenware with black transfer print (CAT# 2023-260-11) and a single wire nail (CAT# 2023-260-12).

***Isolated Test Pit 5***

Isolated Test Pit 5 consists of a single square cut nail (CAT# 2023-260-13), a single shard of olive green commercial container glass (CAT# 2023-260-14), and a single marine shell fragment (CAT# 2023-260-15).

***Isolated Test Pit 6***

Isolated Test Pit 6 consists of two undecorated fragments of refined white earthenware (CAT# 2023-260-16 & CAT# 2023-260-21), a single square cut nail (CAT# 2023-260-17), two shards of amber commercial container glass (CAT# 2023-260-18), two shards of clear commercial container glass (CAT# 2023-260-19), and a single fragment of coarse red earthenware with brown glaze (CAT# 2023-260-20).

***Isolated Test Pit 7***

Isolated Test Pit 7 (CAT# 2023-260-22) consists of a single fragment of calcined bone.

***Isolated Test Pit 8***

Isolated Test Pit 8 (CAT# 2023-260-23) consists of a single fragment of marine shell.

***Isolated Test Pit 9***

Isolated Test Pit 9 (CAT# 2023-260-24) consists of a single shell button.

***Isolated Test Pit 10***

Isolated Test Pit 10 (CAT# 2023-260-25) consists of a single shatter of Gull River chert.

***Isolated Test Pit 11***

Isolated Test Pit 11 (CAT# 2023-260-26) consists of a single undecorated fragment of refined white earthenware.

***Isolated Test Pit 12***

Isolated Test Pit 12 (CAT# 2023-260-27) consists of a single sandstone fragment.

***Isolated Test Pit 13***

Isolated Test Pit 13 (CAT# 2023-260-28) consists of a single fragment of stoneware with salt glaze.

***Isolated Test Pit 14***

Isolated Test Pit 14 (CAT# 2023-260-29) consists of a single canid molar tooth.

The collection of artifacts from this assessment is packaged in a single banker's box and housed at the Exeter office of AMICK Consultants Limited until such time as an appropriate permanent location, as approved by MCM, is located and appropriate arrangements for the transfer of the collection and associated responsibilities for the material is made.

The documentation produced during the field investigation conducted in support of this report includes: one sketch map, one page of photo log, one page of field notes, and 40 digital photographs.

# 4.0 Analysis and Conclusions

## 4.1 Stage 1 Analysis and Conclusions

### 4.1.1 Characteristics Indicating Archaeological Potential

Section 1.3.1 of the Standards and Guidelines for Consultant Archaeologists specifies the property characteristics that indicate archaeological potential (MTC 2011). Factors that indicate archaeological potential are features of the local landscape and environment that may have attracted people to either occupy the land or to conduct activities within the study area. One or more of these characteristics found to apply to a study area would necessitate a Stage 2 Property Assessment to determine if archaeological resources are present. These characteristics include:

1) Within 300m of Previously Identified Archaeological Sites

2) Within 300m of Primary Water Sources (e.g., lakes, rivers, streams, and creeks)

3) Within 300m of Secondary Water Sources (e.g., intermittent streams and creeks, springs, marshes, and swamps)

4) Within 300 m of Features Indicating Past Water Sources (e.g., glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, and cobble beaches)

5) Within 300m of an Accessible or Inaccessible Shoreline (e.g., high bluffs, swamp, or marsh fields by the edge of a lake, sandbars stretching into marsh)

6) Elevated Topography (e.g., eskers, drumlins, large knolls, and plateaux)

7) Pockets of Well-drained Sandy Soil, especially near areas of heavy soil or rocky ground.

8) Distinctive Land Formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings.

9) Resource Areas, including:
   - food or medicinal plants (e.g., migratory routes, spawning areas, and prairie)
   - scarce raw materials (e.g., quartz, copper, ochre or outcrops of chert)
   - resources of importance to early Post-contact industry (e.g., logging, prospecting, and mining)

10) Within 300m of Areas of Early Post-contact Settlement, including:
   - military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, and farmstead complexes)
   - early wharf or dock complexes, pioneer churches and early cemeteries

11) Within 100m of Early Historical Transportation Routes (e.g., trails, passes, roads, railways, portage routes)

12) Heritage Property – A property listed on a municipal register or designated under the Ontario Heritage Act or is a federal, provincial, or municipal historic landmark or site.

13) Documented Historical or Archaeological Sites – property that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations. These are properties which have not necessarily been formally recognized or for which there is additional evidence identifying possible archaeological resources associated with historic properties in addition to the rationale for formal recognition.

The study area is situated approximately 300 metres south of an unnamed tributary of the Otonabee River. The unnamed tributary is a secondary water source. The study area contains two historic farmstead identified on the historic atlas map of 1878. The study area is situated within 100m of two early settlement roads that appear on the historic atlas maps of 1861 and 1878. The road depicted as adjacent to the south of the study area on the historic atlas maps is no longer present, while the historic road depicted as adjacent to the west of the study area corresponds to the road presently known as County Road 10.

### 4.1.2 CHARACTERISTICS INDICATING REMOVAL OF ARCHAEOLOGICAL POTENTIAL

Section 1.3.2 of the Standards and Guidelines for Consultant Archaeologists specifies the property characteristics which indicate no archaeological potential or for which archaeological potential has been removed (MTC 2011). These characteristics include:

1) Quarrying

2) Major Landscaping Involving Grading Below Topsoil

3) Building Footprints

4) Sewage and Infrastructure Development

The study area contains a farm complex consisting of a house, a greenhouse, and a garage.

### 4.1.3 SUMMARY OF ARCHAEOLOGICAL POTENTIAL

Table 5 below summarizes the evaluation criteria of the Ministry of Citizenship and Multiculturalism together with the results of the Stage 1 Background Study for the proposed undertaking. Based on the criteria, the property is deemed to have archaeological potential on the basis of proximity registered sites, proximity to water, proximity to historic settlement structures, and the location of early historic settlement roads adjacent to the study area.

## TABLE 5 EVALUATION OF ARCHAEOLOGICAL POTENTIAL

| FEATURE OF ARCHAEOLOGICAL POTENTIAL | | YES | NO | N/A | COMMENT |
|---|---|---|---|---|---|
| 1 | Known archaeological sites within 300m | **Y** | | | If Yes, potential determined |
| PHYSICAL FEATURES | | | | | |
| 2 | Is there water on or near the property? | **Y** | | | If Yes, what kind of water? |
| 2a | Primary water source within 300 m. (lakeshore, river, large creek, etc.) | | **N** | | If Yes, potential determined |
| 2b | Secondary water source within 300 m. (stream, spring, marsh, swamp, etc.) | **Y** | | | If Yes, potential determined |
| 2c | Past water source within 300 m. (beach ridge, river bed, relic creek, etc.) | | **N** | | If Yes, potential determined |
| 2d | Accessible or Inaccessible shoreline within 300 m. (high bluffs, marsh, swamp, sand bar, etc.) | | **N** | | If Yes, potential determined |
| 3 | Elevated topography (knolls, drumlins, eskers, plateaus, etc.) | | **N** | | If Yes, and Yes for any of 4-9, potential determined |
| 4 | Pockets of sandy soil in a clay or rocky area | | **N** | | If Yes and Yes for any of 3, 5-9, potential determined |
| 5 | Distinctive land formations (mounds, caverns, waterfalls, peninsulas, etc.) | | **N** | | If Yes and Yes for any of 3-4, 6-9, potential determined |
| HISTORIC/PREHISTORIC USE FEATURES | | | | | |
| 6 | Associated with food or scarce resource harvest areas (traditional fishing locations, agricultural/berry extraction areas, etc.) | | **N** | | If Yes, and Yes for any of 3-5, 7-9, potential determined. |
| 7 | Early Post-contact settlement area within 300 m. | **Y** | | | If Yes, and Yes for any of 3-6, 8-9, potential determined |
| 8 | Historic Transportation route within 100 m. (historic road, trail, portage, rail corridors, etc.) | **Y** | | | If Yes, and Yes for any 3-7 or 9, potential determined |
| 9 | Contains property designated and/or listed under the Ontario Heritage Act (municipal heritage committee, municipal register, etc.) | | **N** | | If Yes and, Yes to any of 3-8, potential determined |
| APPLICATION-SPECIFIC INFORMATION | | | | | |
| 10 | Local knowledge (local heritage organizations, Pre-contact, etc.) | | **N** | | If Yes, potential determined |
| 11 | Recent disturbance not including agricultural cultivation (post-1960-confirmed extensive and intensive including industrial sites, aggregate areas, etc.) | | **N** | | If Yes, no potential or low potential in affected part (s) of the study area. |

If **YES** to any of 1, 2a-c, or 10 Archaeological Potential is **confirmed**
If **YES** to 2 or more of 3-9, Archaeological Potential is **confirmed**
If **YES** to 11 or No to 1-10 Low Archaeological Potential is **confirmed** for at least a portion of the study area.

### 4.2 STAGE 2 ANALYSIS AND CONCLUSIONS

As a result of the Stage 2 Property Assessment two (2) isolated findspots and fourteen (14) isolated test pits with a total of 43 artifacts were encountered.

The isolated findspots and isolated test pits do not exhibit potential to produce further data of significance beyond what has been collected already form the isolated find locations and they are not part of larger site areas. Therefore, the isolated finds are not considered to have any further CHVI.

## 5.0 RECOMMENDATIONS

### 5.1 STAGE 1-2 RECOMMENDATIONS

As a result of the property Assessment of the study area, two (2) isolated findspots and fourteen (14) isolated test pits with a total of 43 artifacts were documented. Based on the characteristics of these sites and the analysis of artifacts, the following recommendations are made:

1. *The Cultural Heritage Value or Interest (CHVI) of the isolated finds and isolated test pits have been completely documented and have been removed from the study area as a result of standard Stages 2 Property Assessment procedure. There is no remaining CHVI for these locations. No further archaeological assessment of the isolated finds and isolated test pits is warranted;*
2. *No further archaeological assessment of the study area is warranted.*
3. *The Provincial interest in archaeological resources with respect to the proposed undertaking has been addressed.*
4. *The proposed undertaking is clear of any archaeological concern.*
5. *The lands to the north of the study area (see Maps 5 & 7) is owned by the proponent and will require a Stage 1-2 Archaeological Property Assessment if future impacts are planned as it retains potential.*

# 6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

While not part of the archaeological record, this report must include the following standard advisory statements for the benefit of the proponent and the approval authority in the land use planning and development process:

a. *This report is submitted to the Minister of Citizenship and Multiculturalism 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 issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.*

b. *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.*

c. *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 archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage Act.*

d. *The Cemeteries Act, R.S.O. 1990, c. C.4 and the Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.*

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

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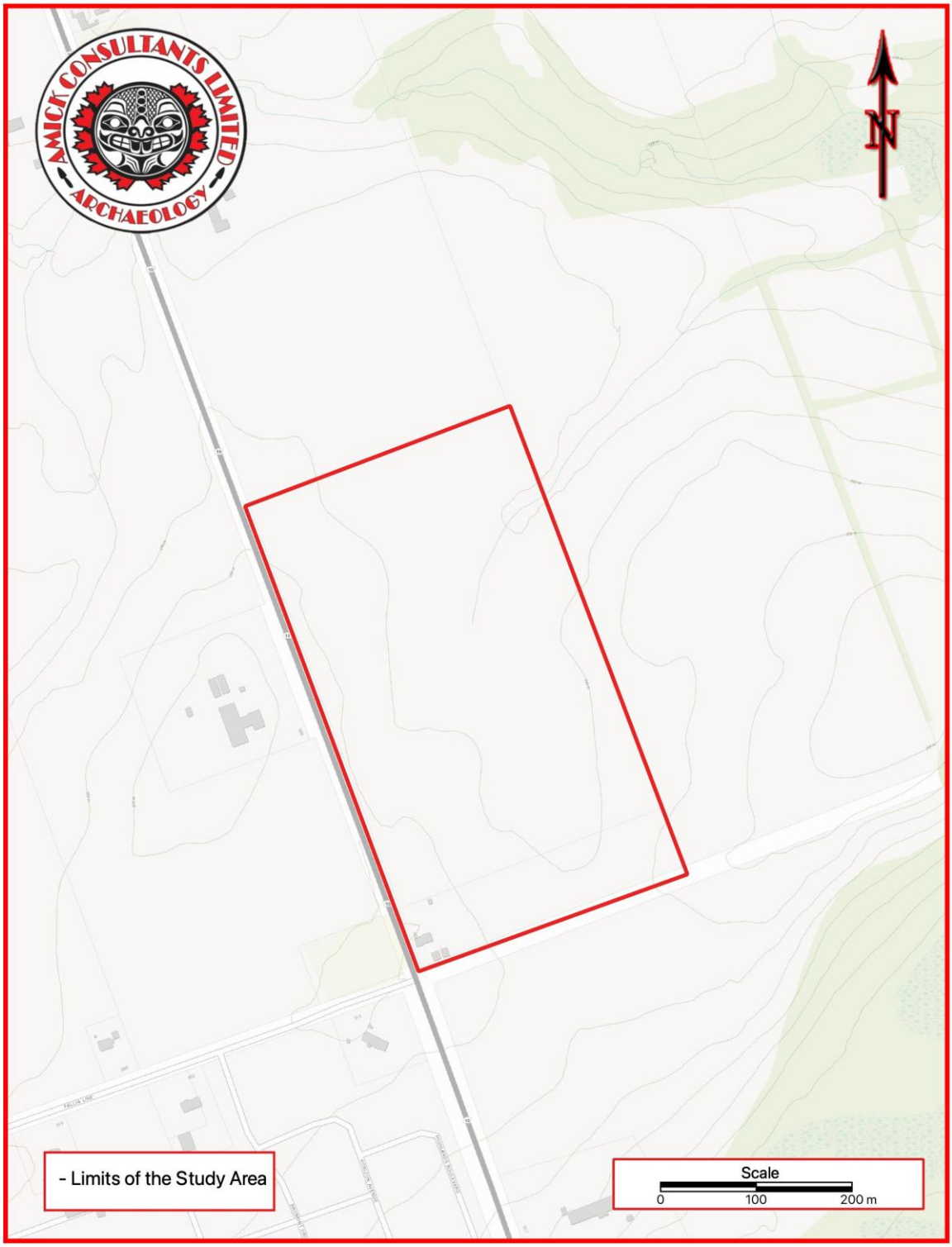
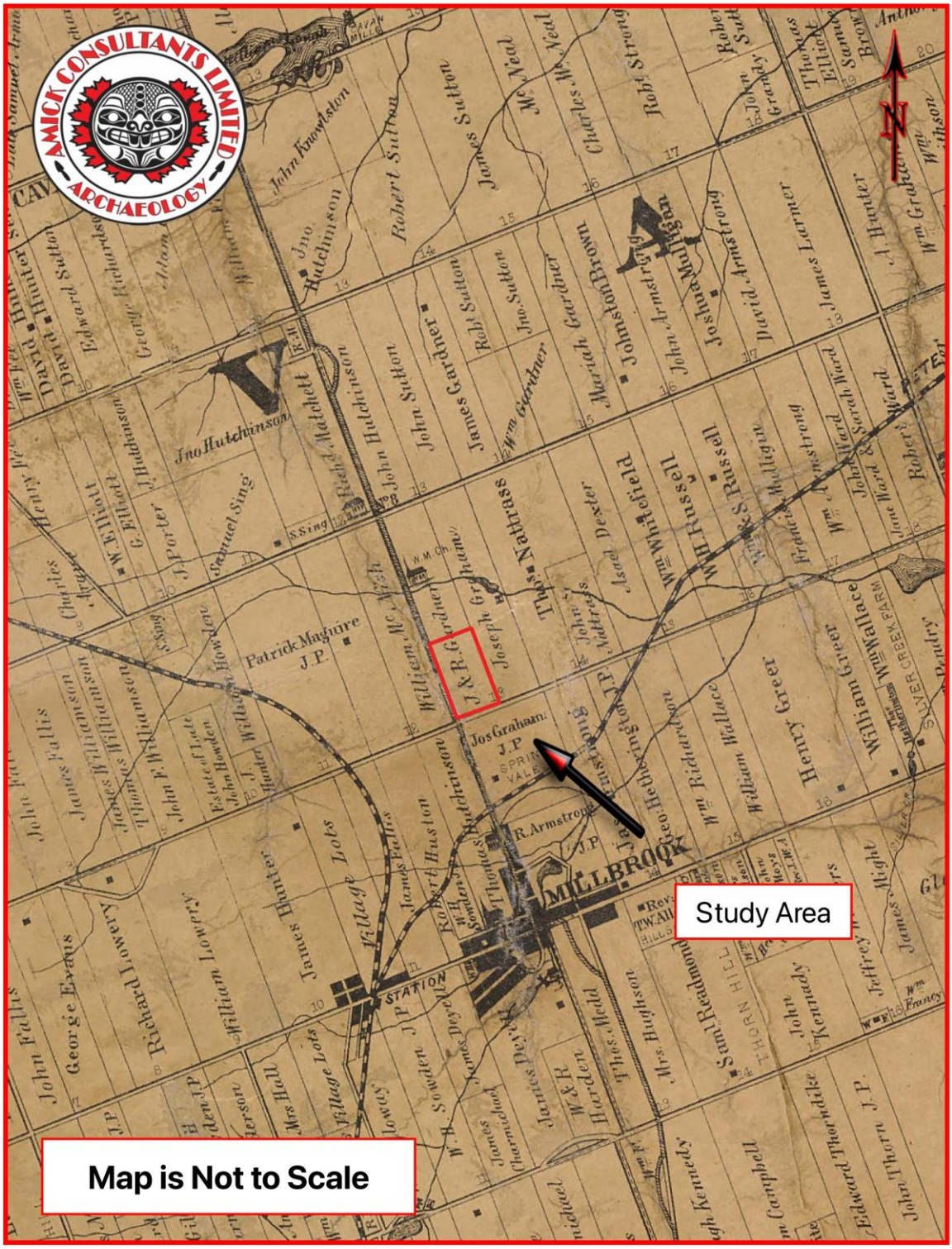
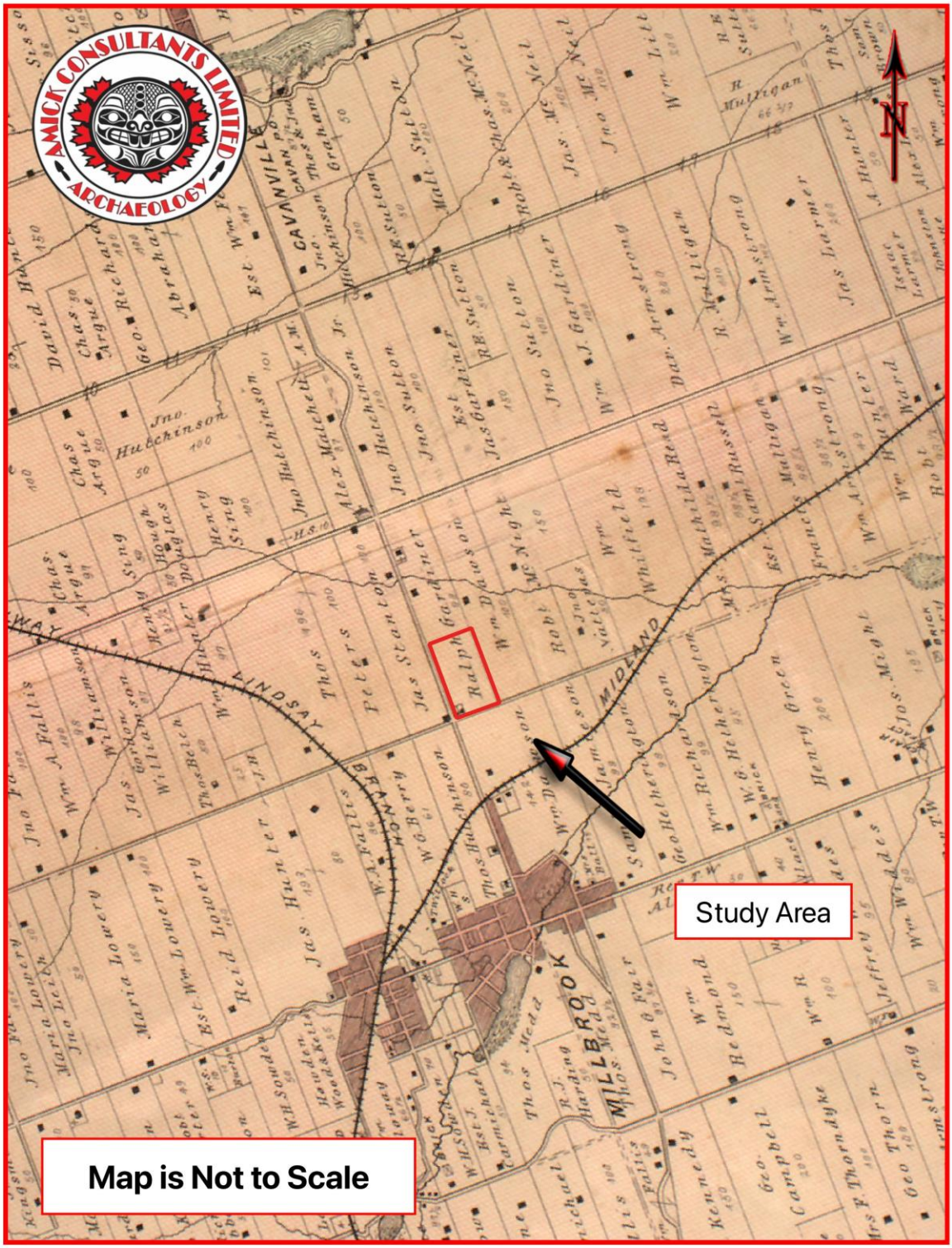
# MAPS



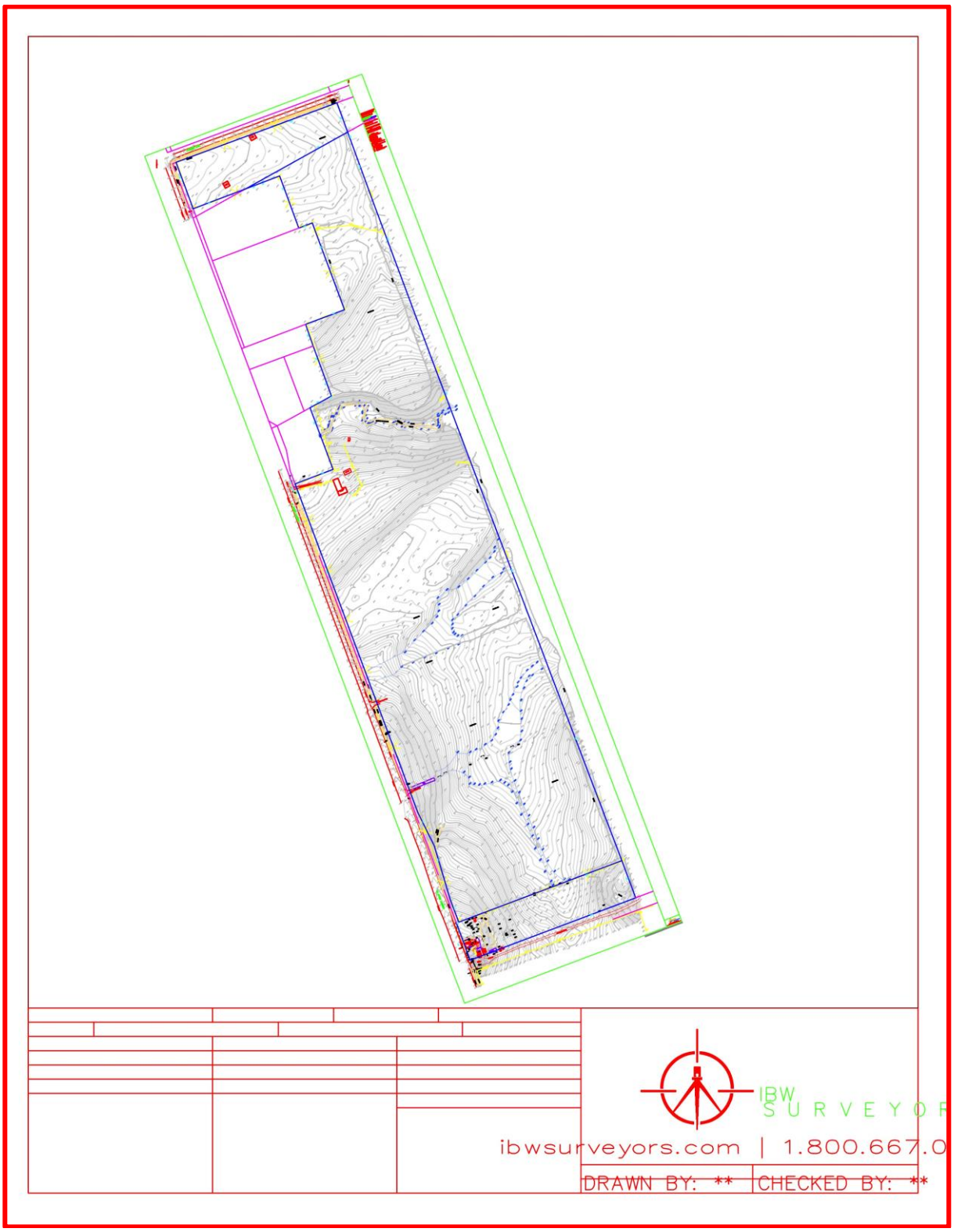

**MAP 1 LOCATION OF THE STUDY AREA (ESRI 2019)**



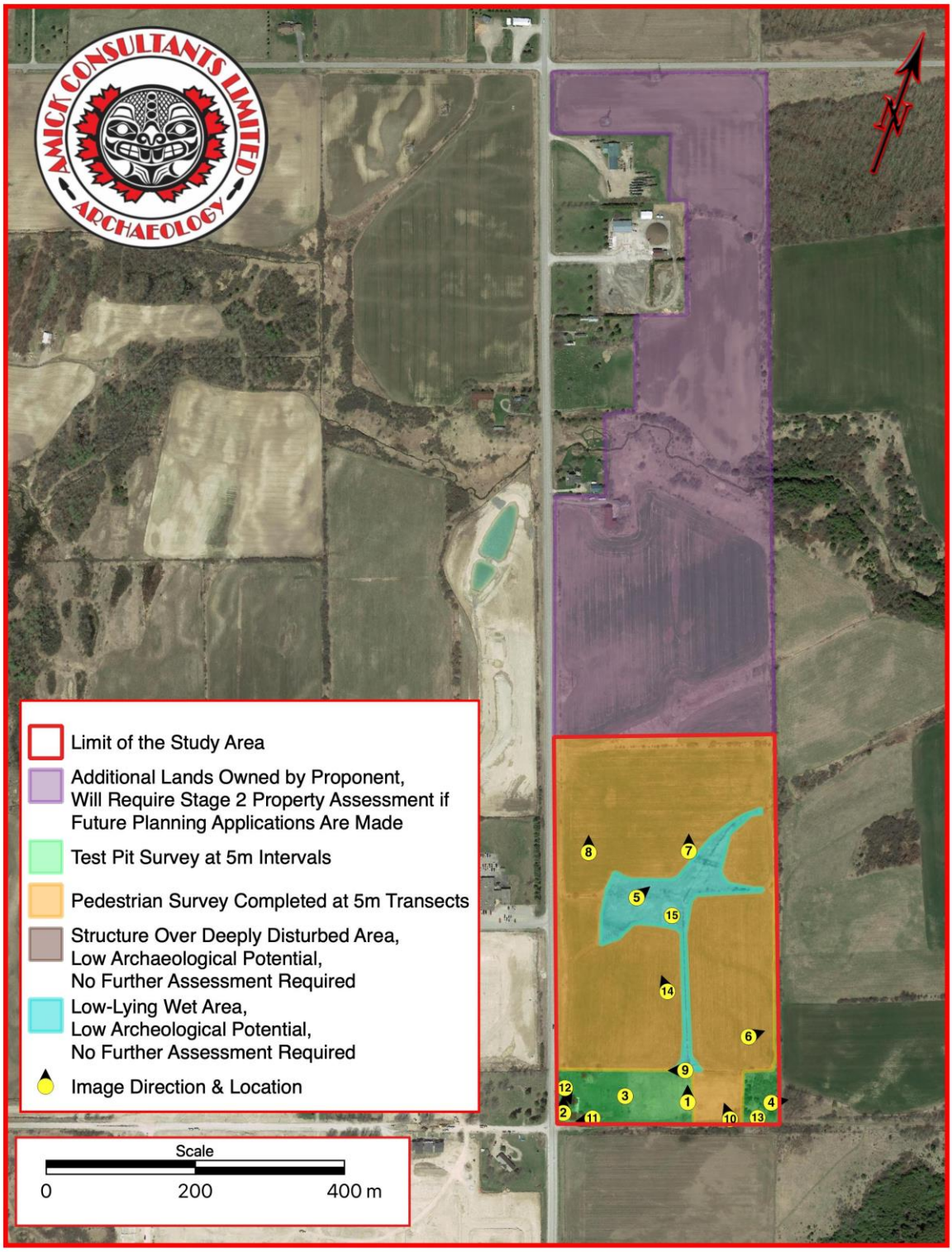

**MAP 2 FACSIMILE SEGMENT OF TREMAINE'S MAP OF THE COUNTY OF DURHAM, UPPER CANADA (SHIER & WARD 1861)**




**MAP 3 FACSIMILE SEGMENT OF THE ILLUSTRATED HISTORIC ATLAS MAP OF THE TOWNSHIP OF CAVAN (BELDEN & CO. 1878)**

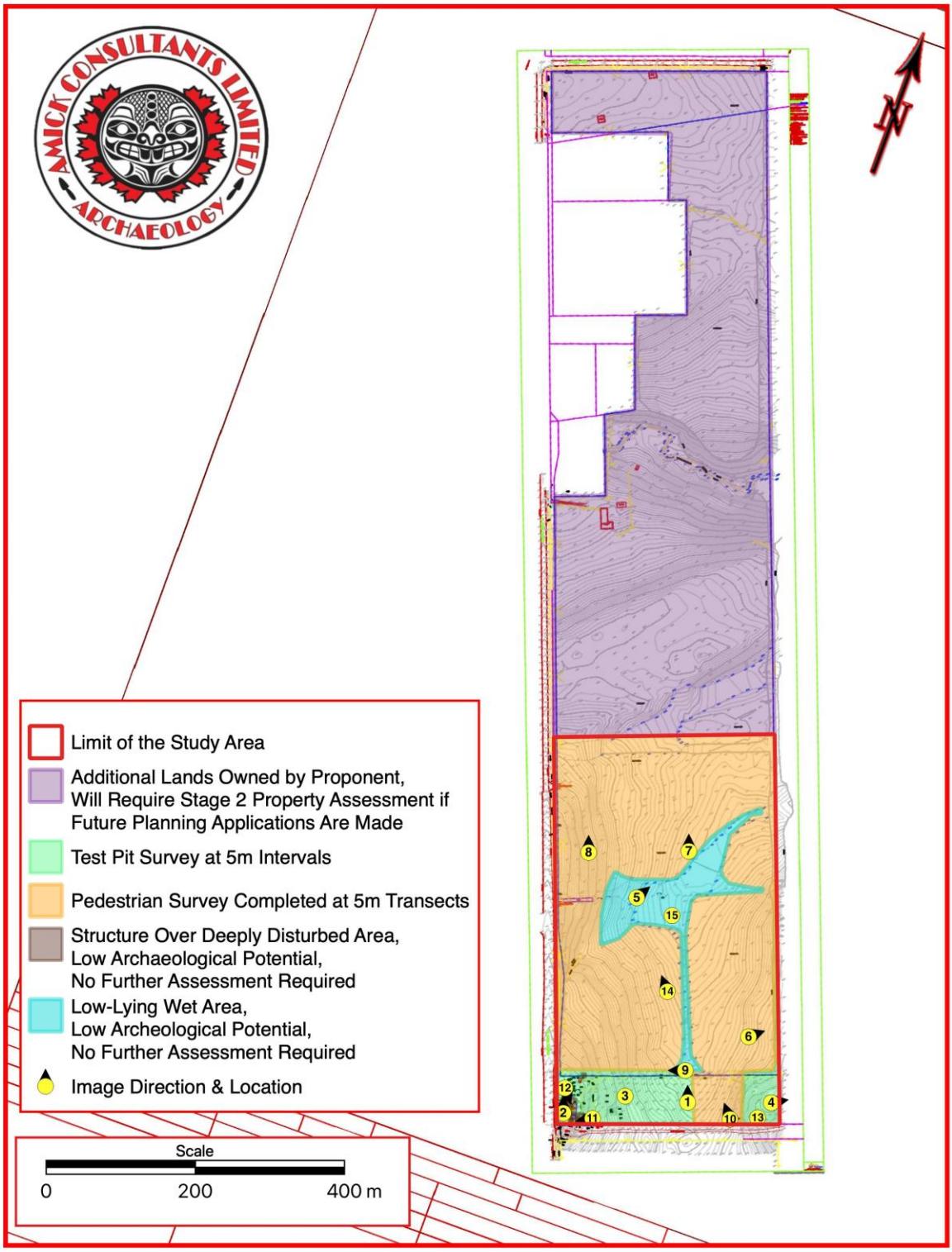



**MAP 4 SITE PLAN (AFTER IBW SURVEYORS N.D.)**



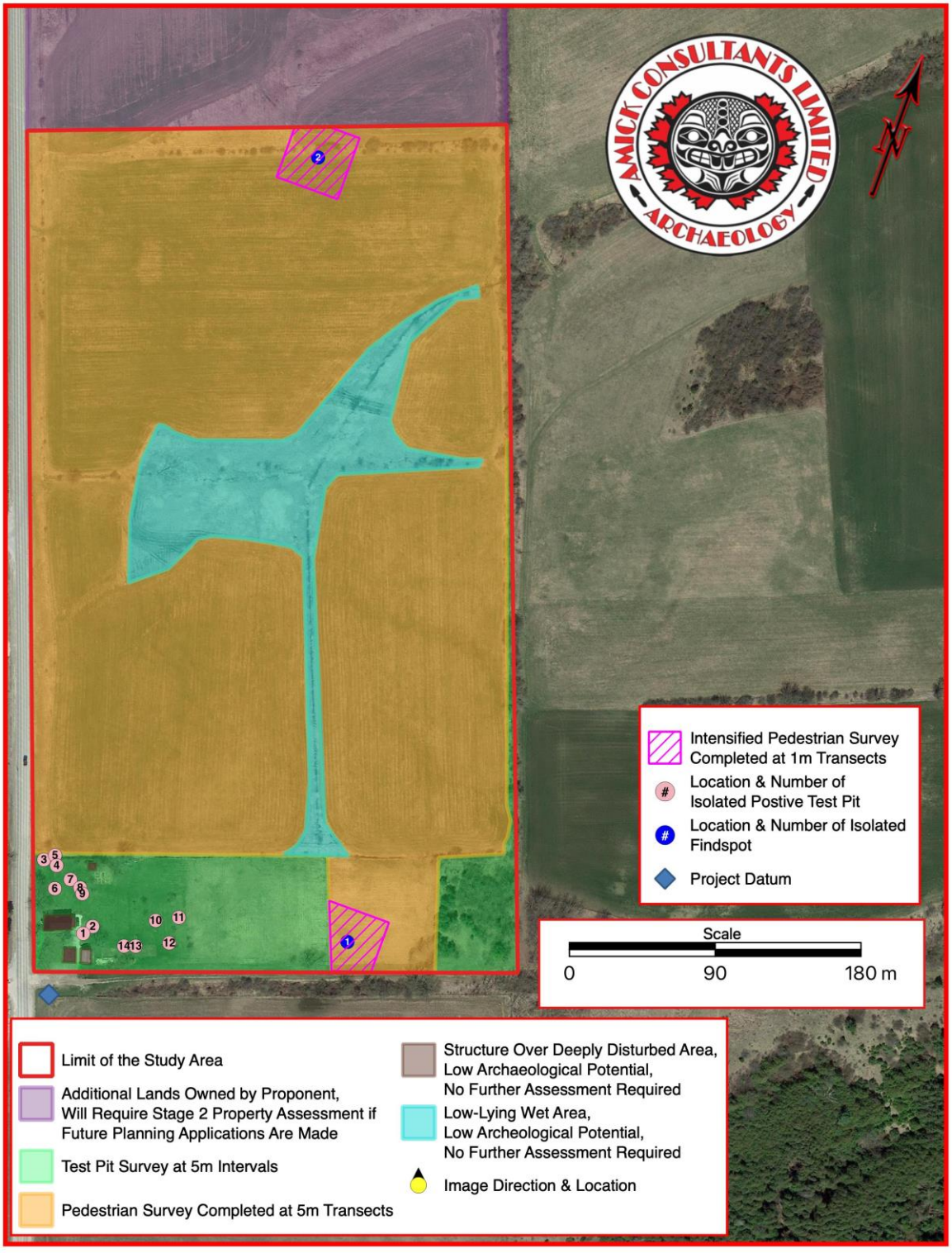

**MAP 5 AERIAL PHOTO OF THE STUDY AREA (GOOGLE EARTH 2016)**


**MAP 6 ZOOMED IN AERIAL PHOTO OF THE STUDY AREA (GOOGLE EARTH 2016)**

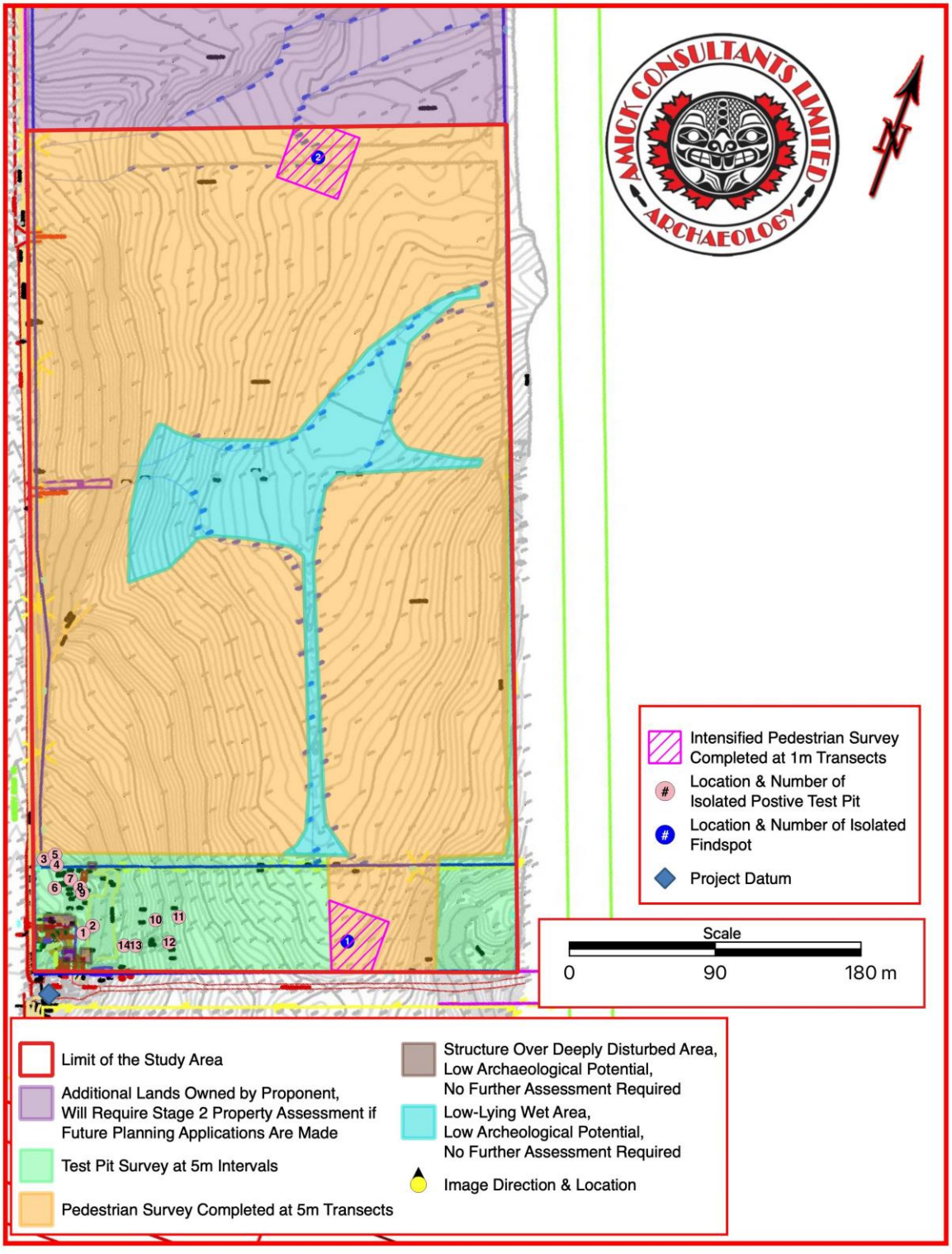



**MAP 7 DETAILED PLAN OF THE STUDY AREA (AFTER IBW SURVEYORS N.D.)**


**MAP 8 ZOOMED IN DETAILED PLAN OF THE STUDY AREA (AFTER IBW SURVEYORS N.D.)**

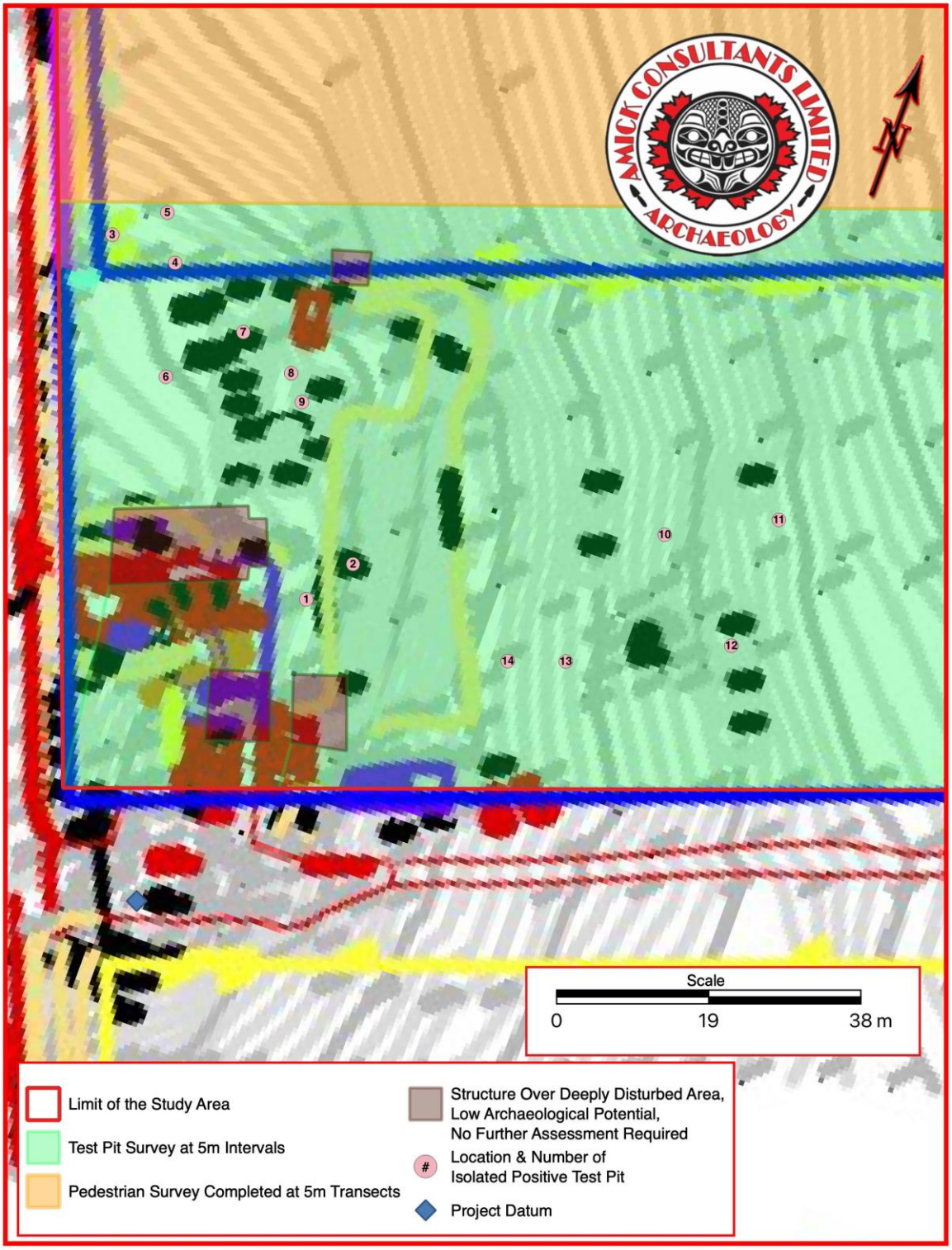



**MAP 9 AERIAL MAP SHOWING LOCATION OF ISOLATED TEST PITS AND ISOLATED FINDSPOTS (GOOGLE EARTH 2016)**




**MAP 10 SURVEY MAP SHOWING LOCATION OF ISOLATED TEST PITS AND ISOLATED FINDSPOTS (AFTER IBW SURVEYORS N.D.)**


**MAP 11 ZOOMED IN AERIAL MAP SHOWING LOCATIONS OF ISOLATED POSITIVE TEST PITS**




**MAP 12 ZOOMED IN SURVEY MAP SHOWING LOCATIONS OF ISOLATED POSITIVE TEST PITS**

# IMAGES

**IMAGE 1 OVERVIEW OF STUDY AREA**

**IMAGE 2 CREW CONDUCTING TEST PIT SURVEY AT 5M INTERVALS**

**IMAGE 3 COMPLETED TEST PIT**

**IMAGE 4 CREW CONDUCTING TEST PIT SURVEY AT 5M INTERVALS**

**IMAGE 5 OVERVIEW OF LOW-LYING WET AREA**

**IMAGE 6 CREW CONDUCTING PEDESTRIAN SURVEY AT 5M INTERVAL TRANSECTS**

**IMAGE 7 OVERVIEW OF PLOUGHED FIELD**

**IMAGE 8 OVERVIEW OF PLOUGHED FIELD & CREW CONDUCTING PEDESTRIAN SURVEY AT 5M INTERVALS TRANSECTS**

**IMAGE 9 OVERVIEW OF LOW-LYING WET AREA**

**IMAGE 10 OVERVIEW OF PLOUGHED FIELD**

**IMAGE 11 OVERVIEW OF STUDY AREA AND VIEW OF STRUCTURE**

**IMAGE 12 CREW CONDUCTING TEST PIT SURVEY AT 5M INTERVALS**

**IMAGE 13 COMPLETED TEST PIT**

**IMAGE 14 OVERVIEW OF PLOUGHED FIELD**

**IMAGE 15 WATERLOGGED TEST PIT**

# APPENDIX A: ISOLATED FINDSPOT CATALOGUE

| Providence | CAT # | CATEGORY | MATERIAL | DESCRIPTION | TYPE | PORTION | QUANTITY | DATE RANGE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| **FS1** | 2023-260-1 | tableware | glass | container glass | clear | body/neck | 11 | | |
| **FS2** | 2023-260-2 | tableware | ceramic | blue transfer | RWE | fragment | 1 | 1830-present | M' on reverse |

## APPENDIX B: ISOLATED TEST PIT CATALOGUE

| UNIT | CAT # | CATEGORY | MATERIAL | DESCRIPTION | TYPE | PORTION | QUANTITY | DATE RANGE |
|---|---|---|---|---|---|---|---|---|
| **P1** | 2023-260-3 | tableware | ceramic | blue glaze | ironstone | fragment | 1 | 1840-present |
| **P2** | 2023-260-4 | tableware | ceramic | undecorated | RWE | fragment | 1 | 1830-present |
| | 2023-260-5 | tableware | ceramic | blue transfer | RWE | fragment | 1 | 1830-present |
| | 2023-260-6 | faunal | bone | calcined | unknown | fragment | 1 | |
| **P3** | 2023-260-7 | tableware | ceramic | flow mulberry | RWE | fragment | 1 | 1820-present |
| | 2023-260-8 | tableware | ceramic | undecorated | RWE | fragment | 2 | 1830-present |
| | 2023-260-9 | faunal | shell | | marine shell | fragment | 1 | |
| | 2023-260-10 | tableware | ceramic | flow blue | RWE | fragment | 2 | 1830-present |
| **P4** | 2023-260-11 | tableware | ceramic | black transfer | RWE | fragment | 1 | 1830-1845 |
| | 2023-260-12 | architectural | metal | nail | wire cut | shaft | 1 | 1890-present |
| **P5** | 2023-260-13 | architectural | metal | nail | square | shaft | 1 | 1800-1914 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2023-260-14 | tableware | glass | container glass | olive | fragment | 1 | 1860-present |
| | 2023-260-15 | faunal | shell | | marine shell | fragment | 1 | |
| **P6** | 2023-260-16 | tableware | ceramic | undecorated | RWE | fragment | 1 | 1830-present |
| | 2023-260-17 | architectural | metal | nail | square | shaft | 1 | 1800-1914 |
| | 2023-260-18 | tableware | glass | container glass | amber | fragment | 2 | 1890-present |
| | 2023-260-19 | tableware | glass | container glass | clear | fragment | 2 | |
| | 2023-260-20 | tableware | ceramic | brown galze | coarse earthernware | fragment | 1 | 1400-present |
| | 2023-260-21 | tableware | ceramic | undecorated | RWE | fragment | 1 | 1830-present |
| **P7** | 2023-260-22 | faunal | bone | calcined | unknown | fragment | 1 | |
| **P8** | 2023-260-23 | faunal | shell | | marine shell | fragment | 1 | |
| **P9** | 2023-260-24 | personal | shell | button | marine shell | whole | 1 | |
| **P10** | 2023-260-25 | lithic | chert | shatter | gull river | fragment | 1 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **P11** | 2023-260-26 | tableware | ceramic | undecorated | RWE | fragment | 1 | 1830-present |
| **P12** | 2023-260-27 | lithic | stone | whetstone | sandstone | fragment | 1 | |
| **P13** | 2023-260-28 | tableware | ceramic | stoneware | salt-glaze | fragment | 1 | 1840-1900 |
| **P14** | 2023-260-29 | faunal | bone | tooth | canid | molar | 1 | |

# APPENDIX C: GPS COORDINATES

**GPS Receiver:**

| TRIMBLE TD600 SPECIFICATIONS | | |
|---|---|---|
| Form-factor | | All-in-one GNSS data collector and smartphone; Ultra-rugged design with MIL-STD-810G certification |
| CPU Speed | | Qualcomm Snapdragon 626, Octa-core, Clock frequency: 2.2GHz |
| OS | | Android 10 |
| RAM | | 4GB RAM |
| Storage | | 64GB Flash Memory |
| Card slots | | 1 MicroSDHC memory card slot; 2 NanoSIM |
| Satellites | | GPS, GLONASS, Galileo, QZSS, BeiDou, SBAS |
| GNSS Receiver | | U-blox Neo-M8T |
| GNSS Accuracy | | 1.5m or less |
| Wireless | | Integrated 4G cellular data, text and voice capability; 5MP front camera and 13 MP rear camera; Bluetooth v 4.1; Wi-Fi IEEE 802-11 a/b/g/n/ac, 2.4 GHz / 5 GHz dual-band; integrated speaker and microphone |

**Project Datum – Hydro Pole**
Project datum is a hydro pole on the east side of the Fallis Line and County Road 10 intersection, south of the southwest corner of the study area.

Latitude/Longitude
44.162665, -78.452072
UTM Grid reference
17N 703720.870700 Easting, 4893096.886264 Northing
NAD 83

**Isolated Findspot Coordinates**
UTM Grid reference
17N
NAD 83

| IFS # | Easting | Northing |
|---|---|---|
| **1** | 703882.953232 | 4893190.477368 |
| **2** | 703700.501669 | 4893638.882512 |

**Isolated Test Pit Coordinates**
UTM Grid reference
17N
NAD 83

| Isolated Test Pit # | Easting | Northing |
|---|---|---|
| **1** | 703727.908347 | 4893139.528300 |
| **2** | 703731.880126 | 4893145.655222 |
| **3** | 703689.543311 | 4893174.028064 |
| **4** | 703698.126171 | 4893173.404677 |
| **5** | 703695.072142 | 4893178.980238 |
| **6** | 703701.914748 | 4893159.624488 |
| **7** | 703709.092433 | 4893168.185583 |
| **8** | 703716.461431 | 4893165.412147 |
| **9** | 703718.953098 | 4893162.487506 |
| **10** | 703767.215003 | 4893162.427404 |
| **11** | 703779.975035 | 4893169.049252 |
| **12** | 703779.775569 | 4893152.254711 |
| **13** | 703761.004245 | 4893143.334016 |
| **14** | 703754.196860 | 4893140.899307 |

# APPENDIX D: PRE-CONTACT ARTIFACT TYPE DESCRIPTIONS

**The following descriptions serve as a general description of tool types or pottery styles and represents a comprehensive, but not exhaustive, reference guide for identifiable objects and is not limited to finds specific to a particular project or site assemblage.**

## Pottery

*Rim Sherds and Fragmentary Rim Sherds*

The presence of diagnostic artifacts such as decorated pottery fragments known as castellations, rim sherds and fragmentary rim sherds assist in the determination of the temporal and cultural affiliation of sites. Middle to Late Woodland typology of the Niagara area has not been developed to the extent of Iroquioan ceramics. Therefore, the rims have been documented through attribute analysis.

For the purposes of this discussion, a rim sherd must possess sufficient portions of the interior, lip, rim, exterior, and neck portions of the original vessel. An artifact possessing some but not all of the above mentioned attributes is considered a fragmentary rim sherd.

*Fragmentary Sherds*

Fragmentary sherds are those pieces which are smaller than a 25 cent piece, are missing either the interior or exterior and are undecorated. Construction method is very difficult to determine in such small or incomplete pieces.

## Lithics

*Lithic Debitage*

Debitage or chipping detritus, is the remaining waste material as a result of the tool manufacturing process. The category is further divided into primary, secondary, tertiary, and (biface) thinning flakes. Primary flakes exhibit cortex on the dorsal face and cortex; secondary flakes exhibit cortex on approximately half of the dorsal face but have no cortex on the platform; tertiary flakes exhibit little to no cortex; thinning flakes are relatively flat, have broad, shallow flake scars, the proximal end of the flake often retains the edge of the biface and, if the platform is retained, it often exhibits a low angle and evidence of crushing or grinding. If a flake is missing the proximal, or distal ends it is described as fragmentary; if a piece of debitage is recovered without a distinct ventral or dorsal surface, it is described as shatter.

*Retouched/Utilized Flakes*

A retouched flake exhibits unifacial or bifacial reworking often as a means of creating or maintaining a working edge. Retouched flakes often exhibit small flake scars. A utilized flake is unifacially reduced and generally considered to be expedient. Polishing, rounding, and microchipping fractures are all indicators of use and can be accurately identified using at least 100X magnification. Since microscopic analysis was not performed on the current assemblage, the characterization of use-wear cannot be accurately determined; therefore, only the presence or absence of macroscopically visible flake scars were noted.

*Shatter*

Shatter is also categorized as debitage. Shatter consists of waste fragments that are angular and blocky and do not show the typical characteristics of a reduction flake (i.e., absence of bulb of percussion, striking platforms, or dorsal flake scars).

*Projectile Points/Point Fragments/Point Preforms*

A projectile point is an object that was hafted to weapon that was capable of being thrown or projected, such as a spear, dart, or arrow, or perhaps used as a knife.

A projectile point preform is often an ovate or triangular shaped rock that has been flaked on both sides using percussion and pressure flaking techniques. A projectile point fragment is often an ovate or triangular shaped rock that has been flaked on both sides using percussion and pressure flaking techniques and conforms to the general size and shape of a projectile point but has been fractured and discarded. This type of artifact was likely either in the early stages of becoming some form of tool before it was discarded by the flintknapper, was fractured in use or was reworked until exhaustion.

### *Formal Tool Types*

*Bifaces*

The term biface here is used to describe an artifact that was subject to flake reduction on both surfaces but cannot be assigned to a formal tool category.

*Scrapers*

A scraper is a unifacial tool of varying in shape, size, and location of the working edge(s). Scrapers are typically formed by chipping the end of a flake of stone in order to create one sharp side and to keep the rest of the sides dull to facilitate grasping it. Most scrapers are either circle or blade-like in shape. The working edges of scrapers tend to be convex, and many have trimmed and dulled lateral edges to facilitate hafting. Scrapers are thought to have been used for hide-working and woodworking.

*Spokeshave*

A spokeshave is a unifacial tool of varying in shape, size, and location of the working edge(s). Similar to scrapers, spokeshaves exhibit a pronounced concave working edge thought to have been used to shape spear or arrow shafts and bows.

*Drills*

A drill is an elongated tool used for making holes and perforations. When made of stone, drills are frequently a bifacially worked tool of equal width and thickness and often t-shaped to facilitate hafting; however, examples of thin t-shaped drills have been encountered. Drills could sometimes be repurposed tips of exhausted bifaces or projectile points.

*Perforators/Gravers*

Perforators, gravers, piercers, borers and awls are formal tools that exhibit fine unifacial or bifacial retouching in order to accentuate a fine, triangular point. These tools serve a variety of purposes that involve piercing, incising, or engraving materials.

***Informal Tool Types***

*Cores*

Cores are the initial nodes of material that are subject to the reduction process in order to manufacture tools using either the waste flakes struck off the core or the core itself. An exhausted core is node which no longer produces desirable flakes and was discarded by the flint knapper.

*Fire bow drill base*

A bow drill base is an object of stone or wood that was used to hold the base of the drill shaft and tinder to create an ember used to start a fire. The downward pressure and rotation of the drill shaft against the stone creates heat, which eventually creates powdered charcoal and ignites to form a small ember. Bow drill bases exhibit horizontal striations within small, circular boreholes.

***Ground Stone Tools***

*Adzes, Axes, and Celts*

An adze is an elongated ground stone tool with one sharpened edge typically used as a wood-working tool. An adze differs from an axe or celt in a couple of typological and ethnographically documented ways. Typologically, adzes are bifacial tools with a pronounced asymmetry and a plano-convex cross-section; axes are generally symmetrical bifacial tools with biconvex cross-sections. Ethnographically, axes are used for hewing trees and the ground stone tool head is set in the handle so the working edge is parallel to the handle. In contrast, adzes are used for shaping wood and the ground stone tool head is set in

the handle so the working edge is perpendicular to the handle. The difference between celts and axes is that celts are ungrooved.

*Hammerstone*

A hammerstone is a hard, stone cobble used to remove lithic flake from cores during lithic tool reduction. Hammerstones can also be used to grind, crush, and polish tool edges; to process minerals such as iron ore; or in food-processing (nuts, marrow extraction).

*Abraders*

Abraders are a multi-functional tool type that can be used for sharpening, shaping, grinding, polishing, or smoothing organic and inorganic materials. Abraders are usually made of granular, relatively soft stone, such as sandstone, and can range in size from large and flat to hand-sized stones. They are typified by abrasion marks or worn grooves along the surface of the stone in U- or V-shapes, the width of which can imply what materials the abrader was used to manipulate. Abraders will often exhibit a polished edge.

**Faunal Tools**

*Modified Bone Fragments*

Modified bone fragments are those pieces which are not formal artifact types but exhibit evidence of cultural modification.

*Bone Awls*

Bone awls are perforating tools, manufactured primarily from long bones and tapered to a point at one end.

# APPENDIX E: DATABLE POST-CONTACT ARTIFACT TYPE DESCRIPTIONS

**The descriptions offered below are confined to datable historic artifacts typically recovered during field investigations. Although other materials are often found, they do not necessarily lend themselves to dating archaeological assemblages and are therefore not included in the following discussion. Additionally, the following represents a comprehensive reference guide for datable objects and is not limited to finds specific to a particular project or site assemblage.**

## CERAMICS

### *Creamware*

Cream coloured earthenware was developed during the early 18th Century in England. It's development is attributed to Thomas Astbury of Shelton England during the reign of George I (Hughes n.d.: 104). George I reigned from 1714-1727 (Neumann 1967: 360). In the early period the lead glaze of this ware was applied in powdered form known as smithum or galena. Creamware achieved widespread production and general popularity as tableware by about 1750 as a result of Thomas Frye's development of a new process of applying the glaze in liquid form. This allowed for consistent and even application of decorative finishes and was quickly copied by other potters (Hughes n.d.: 105). Almost universal popularity was achieved by this ware when Josiah Wedgwood (founder of the renowned Wedgwood potteries) presented a creamware caudle and breakfast set of 73 pieces to Queen Charlotte as a gift to celebrate the birth of the Prince of Wales in 1762. It is said that the Queen was so impressed by this ware that she ordered a table service of the same ware but modified the design to her own taste. The resulting pattern became known as "Queen's Ware". When this set was delivered, George III saw it and likewise placed an order for an additional set altered to suit his own tastes. This further modification became known as the "Royal Pattern". As a result of these regal commissions, creamware achieved immense popularity (Hughes n.d.: 108).

By the late 1790s Creamware became the cheapest tableware in production. This was due to a number of factors, but it was mainly due to the introduction of pearlware which was whiter and more closely resembled oriental porcelain. This new ware quickly displaced Creamware as the most popular of the tableware produced during the late 18th and early 19th Centuries. By 1830 truly white (refined white earthenware) tableware was available. Creamware, known from about 1790 as "CC Ware", had changed as well. Officially "CC Ware" remained in production throughout the 19th Century but it became indistinguishable from refined white earthenware by about 1830.

#### Plain Creamware

Plain creamware was in production throughout the production history of the ware; however it is uncommon prior to 1790.

### *Pearlware*

Pearlware was the next stage after creamware in the quest for a white ceramic body. For many years the development of pearlware was attributed to Josiah Wedgwood, who, after many experiments introduced a ceramic which he termed "pearl white" in 1779 (Hume 1982: 128; Sussman 1977: 105). Recently, a reconsideration of the evidence seems to suggest that pearlware, termed "china glaze", may have been in production sometime in the 1760s and certainly by 1775 (for a detailed discussion see Miller 1987).

Pearlware is essentially a variation of creamware. The body of the ware is essentially the same with slightly higher flint content, but the real difference is in the glaze. Cobalt was added to the glaze of this ceramic as a bluing agent to make the off-white colour of the glaze appear whiter. This ceramic was called "pearl white and "china glaze" amongst other things, but is now more commonly identified as pearlware.

**Plain Pearlware**

Plain undecorated pearlware fragments can be dated within the general production range of the ware itself, 1770 – 1830.

**Polychrome Hand Painted Pearlware**

Polychrome painted pearlware is simply pearlware which has been hand painted with more than one colour. There has been some attempt to differentiate polychrome painted wares based upon visibly identifiable distinctions in the particular hues employed. It has been suggested that from 1795 – 1815 colours were done in soft pastel hues, and thence onward colours were of bright blues, greens, and pinkish reds (Humes 1982: 129). Others have suggested that underglaze pinks and reds were not seen on datable pieces prior to 1820 and that this is also true of certain shades of purple and green (Sussman and Moyle 1988: 1). While this is generally the case and can aid in the further refinement of dates applied to collections of hand painted wares, the unfamiliar should remain leery. These distinctions result from the use of chromium oxide as a constituent element of pigments beginning sometime around 1820. One must bear in mind that the particular colouring oxides used are only one of several factors which can have great effect on the final appearance of any ceramic product.

Many factors can affect the final colouration of the ware such as: the specific proportion of each of the elements used in both the underglaze pigment and the glaze itself; the constituent elements of, and colour of the vessel body; and the internal conditions of the kiln during the firing process (the purity of the atmosphere and the temperature being chief among these). With respect to the use of chromium oxide in particular, the specific ingredients of a glaze recipe and variations in the temperature used in firing will yield dramatically different results. Chromium oxide will produce the colours of red, pink, yellow, brown, green and blue-green (Rhodes 1983: 209). Each of these colours can also be produced using other oxides which have a longer history of use in ceramic production. The essential difference is in the specific hues which chromium oxide produces in each of these colours which cannot be precisely duplicated by other means.

**Relief Moulded Pearlware**

This decorative technique is most commonly identified with ironstone. Raised designs on the vessels were incorporated into the moulding of the objects themselves. Many of the early patterns produced in this medium persist to the present day. Many ceramics manufactured prior to the introduction of ironstone, such as pearlware, incorporated the use of embossed designs, but this form of decoration had never been so closely identified with a particular ceramic as it became with ironstone.

**Slip Decorated Pearlware**

This type of decoration is made by applying slip in patterns to the exterior surface of vessels. This type of decoration was used on ceramics both before and after the production of pearlware and is therefore not useful in refining a date from that of general pearlware production.

**Transfer Printed Pearlware**

Transfer printing was a method for transferring pictures to the surface of ceramic vessels which was developed during the late 18th Century. The use of colours other than cobalt blue for transfer printing was not attempted on any large scale until after 1828. The reason for this was that cobalt blue oxide was the only colouring agent which remained stable during the firing when used in conjunction with the transfer printing process. In 1828 a process was patented which allowed for the use of other colours. Immediately after this development colours such as red, brown, green, black and light blue were used on a popular level. Coloured transfers were popular in England by 1830 and had achieved similar appeal in North America by the early 1830s (Collard 1984: 117-118).

**Shell Edge Decorated Pearlware**

Shell edge came into production on creamware during the 1770s. It remained a status item of the middle and upper classes until the close of the century. Following the War of 1812, transfer printed wares began to rise very quickly in popularity and edged wares quickly became the cheapest of the decorated wares in the 19th Century. Edged wares remained in production on refined white earthenware long after pearlware ceased to be produced as a table ware around 1830 (Miller 1990: 115).

***Refined Red Earthenware***

Similar to refined white earthenware, refined red earthenware (RRE) is a semi-vitreous refined earthenware with a red clay paste rather than a white clay paste (Ricardi, 2020: 103). Fired at temperatures of 1100-1200° C, RRE is often clear, lead-glazed, hard and compact; it is only slightly porous and the compaction texture may be visible (Groover, 2003: 231-233).

***Refined White Earthenware***

The various forms of refined white earthenware which came into production during the 1820s remained in production for an extended period of time and do not lend themselves well to dating unless one has the advantage of makers' marks. In the case of this site there is not one example of refined white earthenware which has a maker's mark. This is not surprising since the ceramics from this ware category recovered from this site represent the cheapest types produced. The cheapest goods were often not marked since it was not considered worth the time and material.

Refined white earthenware (or RWE) was one of the most popular mid-nineteenth century ceramic wared in Ontario. Decorated motifs identified include: factory-slipped annular ware and banded (ca. 1830-1920), scalloped blue edgeware (ca. 1830-1850), flow blue (ca. 1840-1860), hand-painted late palette (ca. 1830-1870s), Rockingham (ca. 1855-1890s), spongeware (ca. 1840-1870), blue (1820 to present), black (ca. 1830-1840s), brown (ca. 1830-1860; 1880s) green and red/pink transferprint (1830-1850). Spongeware motifs were common between ca. 1840-1870, while transferprint ranges in date from ca. 1820 to the present.

The highest frequency of decoration noted are the various transferprints (n=369). Annularware or banded ceramics are the next highest in frequency (n=62), followed by late palette hand painted (n=50), blue floware (n=34), spongeware (n=14) and scalloped edgeware (n=9).

**Plain Refined White Earthenware**

Lacking any definitive attributes, these sherds have been assigned a date of post 1825.

**Polychrome Hand Painted Refined White Earthenware**

Polychrome painted refined white earthenware is simply refined white earthenware which has been hand painted with more than one colour. There have been some attempts to differentiate polychrome painted wares based upon visibly identifiable distinctions in the particular hues employed. It has been suggested that from 1795 – 1815 colours were done in soft pastel hues, and from thence onward colours were of bright blues, greens, and pinkish reds (Humes 1982: 129). Others have suggested that underglaze pinks and reds were not seen on datable pieces prior to 1820 and that this is also true of certain shades of purple and green (Sussman and Moyle 1988: 1). While this is generally the case and can aid in the further refinement of dates applied to collections of hand painted wares, the unfamiliar should remain leery. These distinctions result from the use of chromium oxide as a constituent element of pigments beginning sometime around 1820. One must bear in mind that the particular colouring oxides used are only one of several factors which can have great effect on the final appearance of any ceramic product.

Many factors can affect the final colouration of the ware such as: the specific proportion of each of the elements used in both the underglaze pigment and the glaze itself; the constituent elements of, and colour of the vessel body; and the internal conditions of the kiln during the

firing process (the purity of the atmosphere and the temperature being chief among these). With respect to the use of chromium oxide in particular, the specific ingredients of a glaze recipe and variations in the temperature used in firing will yield dramatically different results. Chromium oxide will produce the colours of red, pink, yellow, brown, green and blue-green (Rhodes 1983: 209). Each of these colours can also be produced using other oxides which have a longer history of use in ceramic production. The essential difference is in the specific hues which chromium oxide produces in each of these colours which cannot be precisely duplicated by other means.

**Slip Decorated Refined White Earthenware**

This type of ceramic is decorated by applying slip in patterns to the exterior surface of the vessels.

**Sponge Decorated Refined White Earthenware**

This decorative style is produced by applying pigment to the surface of vessels using sponges. This type of decoration enjoyed tremendous popularity during the middle of the 19th Century. Blue was the first colour used for this purpose and was most prevalent during the 1840s. Sponged wares were shipped to North America in quantity as cheap decorative kitchen and toiletry articles by mainly Scottish potteries until about 1890 (Collard 1984: 144-145).

**Transfer Printed Refined White Earthenware**

Transfer printing was a method for transferring pictures to the surface of ceramic vessels which was developed during the late 18th Century. The use of colours other than cobalt blue for transfer printing was not attempted on any large scale until after 1828. The reason for this was that cobalt blue oxide was the only colouring agent which remained stable during the firing when used in conjunction with the transfer printing process. In 1828 a process was patented which allowed for the use of other colours. Immediately after this development colours such as red, brown, green, black and light blue were used on a popular level. Coloured transfers were popular in England by 1830 and had achieved similar appeal in North America by the early 1830s (Collard 1984: 117-118).

***Ironstone***

Ironstone is partially vitrified white earthenware. Plain ironstone was first produced in the 1840s and featured no decorative elements apart from ribs, scrolls, or panels which were an intrinsic part of the vessel design. Various designs in relief moulded decoration were patterned from 1848 onward. One pattern, known generally as the “wheat” Pattern has remained in production in various styles from 1848 up to the present day (Sussman 1985: 7). Ironstone is first mentioned on Ontario store records in 1847 (Kenyon 1988: 25). This ware gained popularity throughout the second half of the nineteenth century until by the 1880s it far outsold other ceramic types (Kenyon 1988: 20).

Ironstone was manufactured specifically for the North American market. In general, those potteries which produced this ceramic did so to the exclusion of all others (Sussman 1985: 8). During its early history, throughout the 1850s and early 1860s, ironstone was evidently as expensive as the costly transfer printed wares (Sussman 1985: 9). This ware was being advertised in London (Ontario) newspapers by the early 1860s and by the 1870s was one of the most popular ceramics available on the market (Kenyon n.d.: 11). By 1897 it was the cheapest ceramic sold by the T. Eaton Company. Prices charged for either plain or relief decorated ironstone were the same (Sussman 1985: 9).

**Plain Ironstone**

These pieces are not precisely datable and were most likely produced some time after 1840. Ironstone and a number of related vitrified and semi-vitrified wares were produced in great quantities during the second half of the 19th Century and into the 20th Century. These ceramics were a continuation of the development techniques and styles employed in the production of other earlier contemporary wares.

**Relief Moulded Ironstone**

The most common decorative technique identified with ironstone is relief moulding. Raised designs on the vessels were incorporated into the moulding of the objects themselves. Many of the early patterns produced in this medium persist to the present day. Many ceramics manufactured prior to the introduction of ironstone incorporated the use of embossed designs, but this form of decoration had never been so closely identified with a particular ceramic as it became with ironstone.

**Slip Decorated Ironstone**

This type of ceramic is decorated by applying slip in patterns to the exterior surface of the vessels.

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***Soft Paste Porcelain***

Porcelain was first produced in Europe at Meissen by the firm "Royal Saxon Porcelain Manufacture" in 1710, although it had been developed by Johann Friedrich Bottger two years previously in 1708 (Savage 1954:125). This development reflects the high regard Europeans had held for porcelain imported from China and Japan. Loved for their beauty and durability, European ceramic producers lost considerable revenue to this import and were determined to discover a means of duplicating the ware. In England the discovery of a formula for porcelain production was not achieved until probably 1743 when the "Chelsea" works went into production. A patent for soft paste porcelain was made the following year in the joint names of Edward Heylyn and Thomas Frye (Savage 1954: 210). Throughout the early period of European production these wares tended to be heavily ornamented with thick overglaze polychrome enamels and as processes were refined the decorative techniques of underglaze painting and transfer patterns were used extensively. These decoration techniques predominated well into the 19th Century. It was not until the late 19th Century, and particularly, the 20th Century that porcelain became accessible as a standard household ware. By this time its decorative characteristics were substantially debased, with plain porcelain becoming increasingly common.

Soft paste porcelain is the lowest grade of this ware, and is different from the more costly hard paste porcelain in a number of ways. First, soft paste porcelain generally exhibits a greyish cast, whereas hard paste porcelain or true porcelain is white. When broken soft paste porcelain has a granular paste in appearance and a glassy glaze which is visibly distinct from the body. Hard paste is entirely glassy in cross section and it is very difficult to assess where the body ends and the glaze begins. High firing in this case ensures a more complete fusion of body and glaze which accounts for the difference in appearance of these two wares.

**Plain Soft Paste Porcelain**

Lacking any other diagnostic datable attributes, plain sherds of this ware cannot be more precisely dated beyond the general date range of this type of ceramic.

**Semi-Porcelains:**

A total of 36 semi-porcelain ceramic fragments was recovered during the assessment. Semi-porcelain was known outside of Canada as a hard-paste porcelain produced in England and continental Europe during the late nineteenth and twentieth centuries. The clay is fired to a hard-paste consistency so that it has a fine-grained, dense, and hard body. It is extremely

white in colour and the clear glaze has a high firing point which creates a glassy appearance. Semi-porcelain can be produced in moulded forms or have sprig moulding attached, as well as have transfer print and hand-painted motifs. In the twentieth century, semi-porcelain was exclusively decorated with overglaze decalcomania patterns and liquid gold embellishment (DAACS 2013).

DAACS (2013). Digital Archaeological Archive of Comparative Slavery Cataloging Manual: Ceramics. October 2003, updated October 2013.

***Stoneware***

Stoneware is a class of ceramic which belongs under the larger heading of vitrified wares. Stoneware is manufactured from different clays that that used to make earthenware. This is because the objects in this medium are fired at much higher temperatures such that the clay is brought nearly to its melting point thereby causing the body to fuse together. It renders the body of the finished product much harder and therefore more durable. It has the added effect of rendering the paste of the fired ware wholly or partially water impermeable. Stoneware has been used to produce a wide variety of goods from the most elaborate and expensive to the most robust and utilitarian of the potter's craft.

**Salt Glazed Stoneware**

Salt glazed stoneware was first made in England during the latter years of the 16th Century. This particular variety of stoneware is relatively cheap and easy to produce as it requires only one firing to harden the vessel and to apply the glaze. The name "salt glaze" derives from the process by which this product is manufactured. At the appropriate time during the firing of the vessels, salt is shoveled into the kiln. The heat of the kiln causes the salt to separate into its constituent elements of sodium and chloride. The chloride gas escapes through the vent holes of the kiln and the sodium bonds with the silica present in the clay of the vessels to form a glass over the surface of the vessel. The manufacture of utilitarian wares of this type has been popular from the time of its development until well into the 20th Century. Salt glazed vessels rose to prominence as larger more efficient potteries were established in North America which could produce these high firing durable products at low cost. The industrial production of utilitarian stoneware goods displaced the localized red earthenware industry in the closing decades of the 19th Century.

**Bristol Glazed Stoneware**

Invented by William Powell of Bristol, Bristol glaze stoneware was manufactured from circa 1835 to the mid-20th century. Initially used as an alternative to salt and lead glazes to produce a smooth, white surface on stoneware pastes, Bristol glaze became popular in North America in the 20th century (Greer 1981:265). Bristol Glaze is a feldspathic glaze-slip using zinc oxide, that requires only a single firing. It is sometimes called "double glazed ware" because the two-toned effect required dipping each vessel in the glaze two times (Noël Hume 2001:324).

***Yellow Ware***

Yellow ware was generally used for kitchen crockery and utility bowls. Yellow ware which is decorated with coloured horizontal bands is often referred to as "banded ware". This is the most readily recognizable of the yellow ware products which became popular after 1840. Undecorated plain yellow ware is termed "common yellow" and dates from about 1830 onward. Yellow ware did not pass out of common usage in Canada until the 1930s (Lueger 1981: 141).

### ***Coarse Red Earthenware***

Coarse red earthenware refers to a class of ceramic which was used largely for general purpose utilitarian kitchen and household wares. It is very difficult to date with precision as this form of vessel manufacture was pursued in the main by small cottage industries supplying what was normally a local market. As a result, they appear in highly variant forms based upon the clays, glazes, and techniques of each potter. They are common on historic sites from the beginning of settlement in North America until 1900. Two of the earliest potteries to be established in Ontario both began production in 1849. Many other potteries were soon established which provided domestic and utilitarian wares to primarily local consumers.

### ***Coarse Yellow Earthenware***

Coarse yellow earthenware (CYE) refers to coarse earthenware fabricated and decorated in the same way but the mineral composition of the clay produced a yellow paste rather than a red one.

#### Slip Lined Coarse Red Earthenware

This type of ceramic is decorated by applying slip in patterns to the exterior surface of the vessels.

### *Clay Pipes/White Ball Clay*

White clay pipes were being mass-produced in Scotland, England, Canada, Germany and France by the 19th century. These pipes stems were typically marked along the stem with the maker and city of manufacture. These marks do not provide a specific date but provide the manufacturing date ranges of production (Walker 1970). As white clay pipes have a long use history they are very difficult to date with precision and are typically not used for dating a site.

### ***Bottle Glass***

#### Machine Made Bottle Glass

In the late 19th Century a trend started toward the manufacture of bottles with semi-automatic and fully automatic machines. Machine made bottles are hollowware containers shaped using air pressure supplied by a machine, both automatic and semi-automatic machines

produce bottle with similar characteristics. The first workable semi-automatic machines were patented in 1881 in the United States and in 1886 in England, in the next few decades machine made containers become increasingly popular as they are cheaper to produce with continually refined techniques; by the early 20th Century hand blown bottle are becoming uncommon.

**Undiagnostic Bottle Glass**

These pieces are likely from two-piece moulded vessels or from vessels produced using two-or-more vertical body moulds with separate bases. However these pieces were too small or did not have any diagnostic traits needed to identify the technology used in there manufacture.

**Contact Moulded Bottle Glass**

Contact moulding is a process by which full-sized objects or portions of objects are formed in a mould using air pressure from a mouth or machine. Hot glass is introduced into a mould, that may or may not have had a design, and expanded by air pressure until it fills the mould, at which point the object or partial object is removed. This technique was used during Roman times extensively for containers. It was reintroduced in the 17th Century but did not come into wide use in containers until the 18th Century (Jones and Sullivan 1989: 23-24).

***Pressed Glass Tableware***

During the press moulding manufacturing process hot glass is dripped into a mould which might consist of any number of pieces. The only limitation to the process is that the plunger must be able to enter and exit the mould without the necessity of it being opened. For decorated pieces, a design is embossed on the on the interior surface of the mould. The glass takes the form of the mould on its outer surface while the plunger shapes the inner surface. Once the object is removed from the mould it may be fire polished to restore the brilliance of the glass which has been lost due to contact with the mould (Jones and Sullivan 1989: 33)

Press moulding has been used on a small scale in England since the late 17th Century. At this time it was employed in the production of small solid objects such as imitation precious stones, glass seals, watch faces, etc. By the 1780s decanter stoppers and feet for vessels were being made using this technique. During the 1820s the technique was further developed in the United States and applied to the manufacture of complete vessels. By the early 1830s mass production of pressed table wares was underway in the New England states. Early pressed glass was manufactured primarily out of lead glass. William Leighton developed a lime glass in 1864 which resembled lead glass, but was one third cheaper. Non-lead glass becomes common on Canadian sites from about 1870 onward (Jones and Sullivan 1989: 34-35)

***Nails***

**Cut Nails**

Around 1800, machines for cutting nails began to be used. At first these were simple machines resembling a table with a guillotine-like knife at one end. Strips of metal which were as broad as the resulting nails were to be long were fed against the blade. The strip of metal was shifted from side-to-side following each cut. This produced the tapered shank of the nail. Nails made by this method remained square in cross section and still required heads to be fashioned by hand. Around 1820 improved machines were developed for the manufacture of cut nails which included mechanical headers (Rempel 1980: 369). In general terms, cut nails dominated the construction industry from roughly 1825 to 1890 when they were displaced by wire nails.

**Forged Nails**

Towards the end of the 18th Century all nails were made by the blacksmith out of nail stock. Nail stock was typically produced by a special mill on location at the iron works. Wrought iron strips were fed into the mill which cut it into sections which were square in cross-section. The resulting nail stock was cut into the required length by the smith, then heated, tapered and headed. These nails were not displaced by cut nails until around 1825 in developed areas. In more remote areas forged nails remained in use quite longer. This was especially the case with larger spikes which were often required to meet very particular specifications and not required in quantity (Rempel 1980: 367). Blacksmiths continued to fill the void between accessibility to commercial products and the needs of their clients into the first three decades of the twentieth century. Forged nails most likely date to the first half of the 19th Century although it is possible that they were produced at a later date.

**Bullets**

In 1823 Captain Norton of the British Army introduced devised a bullet shaped like a cylinder with a hollow concave base and a pointed tip. This became the basis for the modern bullet and the mathematical term for the shape is a "right-truncated cylindro-ogival". Twenty-five years later, the bullet was matched to a workable paper cartridge by Captain C. E. Minie of France and the "minny ball" was born. The earliest self-igniting metal cartridge followed soon after the union of these two pieces. In 1842 Dreyse's needle gun was patented. The needle gun cartridge had a projecting pin from the base of the cartridge that was struck by the flat hammer of the firearm. This development included the innovation of the expansive gas cartridge. This important development allows a brass cartridge to expand under pressure once ignited. This at once releases the bullet and forms an air tight pressure seal in the breach of the weapon and results in higher pressure behind the fired cartridge leading to higher velocity and longer distance of travel. The drawbacks to this cartridge design were that they were easily damaged and ignited if mishandled or dropped and they tended to corrode around the protruding pin in storage or moist environments making them unserviceable. The solution to this problem took two forms: the rimfire cartridge and the centrefire cartridge. In a rim fire cartridge the fulminate for ignition of the main charge is in a narrow band around the crimped edge of the cartridge. This design works well but only for small caliber low velocity rounds. The modern .22 cartridge is an example of this method. The centrefire cartridge was developed during the 1850s. In this configuration a percussion cap is seated in the centre of the base of the round. By 1870 this form of cartridge was used

for nearly all high velocity rounds and after 1870 for nearly every caliber of small arms ammunition (Held 1959: 183-184).

**Bakelite**

Bakelite is an early form of brittle plastic made from formaldehyde and phenol, used chiefly for electrical equipment. It was developed in 1907 and patented in New York state in 1909 (American Chemical Society, 1993: 1).