



1.0 PROJECT REPORT COVER PAGE

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PROJECT INFORMATION:

Corporate Project Number:

2021-579

MCM Project Number:

P058-2103-2022

Investigation Type:

Stage 1-2 Archaeological Property Assessment

Project Name:

Grey Road 4, Durham

Project Location:

Park Lots 9-12, Town Plot of Durham, Part of Lot 24,
Concession 1 West of the Owen Sound Road
(Geographic Township of Bentinck), Municipality of
West Grey, County of Grey.

Project Designation Number:

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2.0 EXECUTIVE SUMMARY

This report describes the results of the 2022 Stage 1-2 Archaeological Property Assessment of Park Lots 9-12, Town Plot of Durham, Part of Lot 24, Concession 1 West of the Owen Sound Road (Geographic Township of Bentinck), Municipality of West Grey, County of Grey, conducted by AMICK Consultants Limited. This study was conducted under Professional Archaeologist License #P058 issued to Michael Henry by the Minister of Citizenship and Multiculturalism for the Province of Ontario. This assessment was undertaken as a requirement under the Planning Act (RSO 1990) and the Provincial Policy Statement (2020) in order to support a Site Plan and companion Zoning By-law Amendment application as part of the pre-submission process. Within the land use planning and development context, Ontario Regulation 544/06 under the Planning Act (1990b) requires an evaluation of archaeological potential and, where applicable, an archaeological assessment report completed by an archaeologist licensed by the Ministry of Citizenship and Multiculturalism (MCM). Policy 2.6 of the Provincial Policy Statement (PPS 2020) addresses archaeological resources. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011), the Ontario Heritage Act (RSO 1990a).

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. The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment, which included high intensity test pit methodology at a five-metre interval between individual test pits, and by test pit survey at a ten-metre interval to confirm disturbance on 13-14 April 2022. 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 Ontario Ministry of Citizenship and Multiculturalism on behalf of the government and citizens of Ontario.

During the Stage 1-2 assessment, twenty (24) positive test pits were encountered in two loci; Locus A is in the North-Central portion of the study area and Locus B is approximately 30 metres Southwest. However, the positive test pits at each loci produced insufficient archaeological resources to determine if a Stage 3 archaeological assessment would be necessary. Therefore, radial test pits were dug around each positive test pit at a maximum distance of 2.5 metres within a 5-metre radius around each positive test pit.

As a result, fifty-three (53) additional positive test pits were encountered. A total of one hundred and eight (108) artifacts of 19th century Euro-Canadian origin were recovered within an area measuring 23 metres north to south by 28 metres east to west termed Locus A. A further ninety-three (93) artifacts of 19th century Euro-Canadian origin were recovered within an area measuring 23 metres north to south by 23 metres east to west termed Locus B twenty

metres to the north of Locus A. All of the artifacts recovered appear to be 19th century in origin ranging in date from 1840-1880. In accordance with the Standards and Guidelines for Consultant Archaeologists, it was determined that a Stage 3 Site-specific Archaeological Assessment would be required.

As a result of the property Assessment of the study area, a historic Euro-Canadian Site with artifacts concentrated in two discrete and contemporaneous loci (A & B) was located. The site has been registered within the Archaeological Sites Database administered by MCM as the County Road 4 site (BbHe-13). Based on the characteristics of the site and the analysis of artifacts the site has yielded evidence that the site may be of cultural heritage significance and the following recommendations are made:

- 1. The Cultural Heritage Value or Interest (CHVI) of the County Road 4 site (BbHe-13) has not been completely documented. There is potential for further CHVI for this location. The County Road 4 site requires Stage 3 Site-specific Assessment to gather further data to determine if Stage 4 Mitigation of Development Impacts will be required.*
- 2. A Stage 3 Site-Specific Assessment of the County Road 4 site (BbHe-13) must be completed for this site in accordance with the Standards and Guidelines for Consultant Archaeologists (MTC 2011). The Stage 3 Site-specific assessment will consist of the excavation of 1 by 1 metre square test units on a 10 by 10 metre square grid; the grid squares will be referred to by the intersection coordinates of their southwest corner. Each test unit will be excavated stratigraphically by hand into the first 5 centimetres of subsoil. Each unit will be examined for stratigraphy, cultural features, or evidence of fill, and all soil was screened through wire mesh of 6-millimetre width. Infill test units will be placed throughout the grid in areas of interest (i.e., exposing features, high artifact yields) amounting to 20% of the grid unit total. All artifacts will be retained and recorded by the corresponding grid unit designation and will be held at the Southwestern District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the Ontario Ministry of Citizenship and Multiculturalism (MCM) on behalf of the government and citizens of Ontario.*
- 3. The Stage 3 Site-Specific Assessment of the County Road 4 site must include further archival research in order to establish the details of the occupation and land use history of the rural township lot of which the study area was a part.*

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4.0 PROJECT PERSONNEL

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5.0 PROJECT CONTEXT

5.1 DEVELOPMENT CONTEXT

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. The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment, which included high intensity test pit methodology at a five-metre interval between individual test pits, and by test pit survey at a ten-metre interval to confirm disturbance on 13-14 April 2022.

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 Ontario Ministry of Citizenship and Multiculturalism (MCM) on behalf of the government and citizens of Ontario.

The proposed development of the study area includes 30 townhouse units, 69 single detached residences, two roadways, and associated services and landscape modifications. A preliminary plan of the proposed development has been submitted together with this report to MCM for review and reproduced within this report as Map 3.

5.2 HISTORICAL CONTEXT

5.2.1 PRE-CONTACT LAND-USE OUTLINE

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.

5.2.1.1 PALAEO-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.

5.2.1.2 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).

5.2.1.3 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 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-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 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-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.

5.2.2 GENERAL HISTORICAL OUTLINE

The Huron, Petun and various Algonkian First Nations resided in this area for an extended period of time prior to any European visitors to the area. The County of Grey was first established in 1852. Before the county was organized, the British referred to the entire area as “The Queen’s Bush.” Until 1852 this area was known for its dangerous travelling conditions for Euro-Canadians. The first townships within Grey County were originally called “Alta” and “Zero” which were quickly renamed Collingwood and St. Vincent respectively. During the colonization of the County, a quickly established network of trails and roads, in an addition to several natural harbours, provided easy access for settlers. However, due to the great distances involved and dangerous traveling conditions, the early settlers of this area relied heavily on First Nations to advise on settlement area selection, crop planting, medicine, and survival. From the start of colonization, it was easy to use the numerous natural resources easily available in the area as a means to generate income. Typically, fish, furs, minerals, and forestation were the initial main industries. By 1865 Grey County consisted of 16 townships, four towns and 44 villages or post offices (Grey County 2010).

Map 2 is a facsimile segment of the Township of Bentinck map reproduced from The Illustrated Historical Atlas of the Township of Bentinck (Walker & Miles 1880). Map 3 illustrates the location of the study area and environs as of 1880. The study area is not shown to belong to anyone, and no structures are shown to be within the study area. This map illustrates an unnamed stream channel situated west of the study area and a settlement road is depicted as adjacent to the study area to the south. This road is the current Grey Road No. 4/Durham Road West, and the stream channel is a tributary stream of the Saugeen River. Although the study area is shown within the Town Plot for Durham on the Historic Atlas map, it appears that the lots within the study area were never developed as part of the urban density of the community.

It must be borne in mind that inclusion of names of property owners and depictions of structures and other features within properties on these maps were sold by subscription. Property owners paid to include information or details about their properties. While information included within these maps may provide information about the occupation of a property at a specific moment in time when the information was collected, the absence of such information does not necessarily indicate that the property was not occupied.

5.2.2 CURRENT CONDITIONS

The present use of the study area is as a vacant lot. The study area is roughly 11.69 hectares in area. The study area includes mostly meadow and woodlot. The property contains a large

fan shaped area of dumped soil and fill immediately north of Grey Road No. 4/Durham Road West. There are no buildings or structural footprints within the study area. A pond lies near the eastern boundary. The Saugeen River is located approximately 340 metres west of the study area which is a primary water source and a navigable waterway. This water source is too far to have a direct impact on archaeological potential. The study area also contains large low-lying and wet areas surrounding the fan shaped disturbance in the south. In addition to another low-lying and wet area in the northern portion of the study area. The study area is bounded on the north by agricultural fields, on the east and on the west by woodlot and on the south by Grey Road No. 4/Durham Road West. The study area is approximately 735 metres to the west of the intersection of Durham Road East and Garafraxa Street North. A plan of the study area is included within this report as Map 3. Current conditions encountered during the Stage 1-2 Archaeological Property Assessment are illustrated in Maps 4 & 5.

5.2.3 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 study area is shown within the Town Plot for Durham on the Historic Atlas map, it appears that the lots within the study area were never developed as part of the urban density of the community, and the likelihood of locating significant Post-contact archaeological deposits of cultural heritage value or interest (CHVI) 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. There was an unnamed tributary stream of the Saugeen River in close proximity to the study area. This stream is depicted on Map 6 of this report. The Saugeen River is located approximately 340 metres west of the study area which is a primary water source and a navigable waterway. Although it is too far to have direct impact in archaeological potential, the presence of the Saugeen River suggests archaeological potential in the wider landscape that the study area is situated.

5.3 ARCHAEOLOGICAL CONTEXT

The Archaeological Sites Database administered by the Ministry of Citizenship and Multiculturalism (MCM) indicates that there are no (0) previously documented sites within one kilometre of the study area. However, it must be noted that this is based on the assumption of 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 MCM. 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.

On the basis of information supplied by MCM, no archaeological assessments have been conducted within 50 metres of the study area. AMICK Consultants Limited assumes no responsibility for the accuracy of previous assessments, interpretations such as cultural affiliation, or location information derived from the Archaeological Sites Database administered by MCM. In addition, it must also be noted that the lack of formerly documented previous assessments does not indicate that no assessments have been conducted.

Data contained in previous archaeological reports in close proximity to the study area that is relevant to Stage 1 Background Study is defined within the Standards and Guidelines for Consultant Archaeologists in Section 7.5.8 Standard 4 as follows:

“Provide descriptions of previous archaeological fieldwork carried out within the limits of, or immediately adjacent to the project area, as documented by all available reports that include archaeological fieldwork carried out on the lands to be impacted by this project, or where reports document archaeological sites immediately adjacent (i.e., within 50 m) to those lands.”

(MTC 2011: 126 Emphasis Added)

In accordance with data supplied by MCM for the purposes of completing this study, there are no previous reports detailing, *“archaeological fieldwork carried out on the lands to be impacted by this project,”* nor do any previous reports document known archaeological sites within 50 metres of the study area.

The Standards and Guidelines for Consultant Archaeologists stipulates that the necessity to summarize the results of previous archaeological assessment reports, or to cite MCM File Numbers in references to other archaeological reports, is reserved for reports that are directly relevant to the fieldwork and recommendations for the study area (S & G 7.5.7, Standard 2, MTC 2011: 125). This is further refined and elaborated upon in Section 7.5.8, Standards 4 & 5, MTC 2011:

“4. Provide descriptions of previous archaeological fieldwork carried out within the limits of, or immediately adjacent to the project area, as documented by all available reports that include archaeological fieldwork carried out on the lands to be impacted by this project, or where reports document archaeological sites immediately adjacent (i.e., within 50m) to those lands.”

“5. If previous findings and recommendations are relevant to the current stage of work, provide the following:

- a. *a brief summary of previous findings and recommendations*
- b. *documentation of any differences in the current work from the previously recommended work*
- c. *rationale for the differences from the previously recommended work”*

(Emphasis Added)

The study area is situated in area for which there is no archaeological master plan. However, Durham Region has compiled an Official Plan wherein the region affirms the requirement of an archaeological assessment (Durham Region 2017).

It must be further noted that there are no relevant plaques associated with the study area, which would suggest an activity or occupation within, or in close proximity to, the study area that may indicate potential for associated archaeological resources of significant CHVI.

5.3.1 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 MCM. As a result, it was determined that zero (0) 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.

There was an unnamed tributary stream of the Saugeen River in close proximity to the study area, which is a source of potable water and a navigable water way. The distance to water criteria used to establish potential for archaeological sites suggests potential for Pre-contact occupation and land use in the area in the past., this stream is depicted on Map 6 of this report. The presence of this unnamed stream prior to urban development in the vicinity of the study area indicates that there was potential for First Nations occupation and land use activities in the immediate vicinity in the past and therefore, there is potential for associated archaeological resources to be encountered within the study area. The Saugeen River is located approximately 340 metres west of the study area which is a primary water source and a navigable waterway. Although it is too far to have direct impact in archaeological potential, the presence of the Saugeen River suggests archaeological potential in the wider landscape that the study area is situated.

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 2000	Initial Woodland	Princess Point, Saugeen, Point Peninsula, and Meadowood Cultures
3000 4000 5000 6000	Archaic	Laurentian Culture
7000 8000 9000 10000 11000	Palaeo-Indian	Plano and Clovis Cultures
		(Wright 1972)

5.3.2 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 MCM. As a result, it was determined that zero (0) archaeological sites relating directly to Post-contact habitation/activity had been formally registered within the immediate vicinity of the study area.

5.3.3 LOCATION AND CURRENT CONDITIONS

The study area is described as Park Lots 9-12, Town Plot of Durham, Part of Lot 24, Concession 1 West of the Owen Sound Road (Geographic Township of Bentinck), Municipality of West Grey, County of Grey. The study area was subject to this assessment as a requirement under the Planning Act (RSO 1990) the Provincial Policy Statement (2020) in order to support a Site Plan and companion Zoning By-law Amendment application as part of the pre-submission process.

The present use of the study area is as a vacant lot. The study area is roughly 11.69 hectares in area. The study area includes mostly meadow and woodlot. The property contains a large fan shaped area of dumped soil and fill immediately north of Grey Road No. 4/Durham Road West. There are no buildings or structural footprints within the study area. A pond lies near the eastern boundary. The Saugeen River is located approximately 340 metres west of the study area which is a primary water source and a navigable waterway. This water source is too far to have a direct impact on archaeological potential. The study area also contains large low-lying and wet areas surrounding the fan shaped disturbance in the south. In addition to another low-lying and wet area in the northern portion of the study area. The study area is bounded on the north by agricultural fields, on the east and on the west by woodlot and on the south by Grey Road No. 4/Durham Road West. The study area is approximately 735 metres to the west of the intersection of Durham Road East and Garafraxa Street North. A

plan of the study area is included within this report as Map 3. Current conditions encountered during the Stage 1-2 Archaeological Property Assessment are illustrated in Maps 4 & 5.

5.3.4 PHYSIOGRAPHIC REGION

The study area is situated within the Horseshoe Moraines physiographic region. The surface is composed of two chief landform components (a) the irregular stony knobs and ridges which are composed mostly of till with some sand and gravel deposits (kames) and (b) the more or less pitted sand and gravel terraces and swampy valley floors. Huron clay is the most representative soil type. The average depth is 18-20 inches, and it is generally susceptible to erosion. The general elevation is from 800 to 1700 feet a.s.l. (Chapman and Putnam 1984: 127-129).

5.3.5 SURFACE WATER

Sources of potable water, access to waterborne transportation routes, and resources associated with watersheds are each considered, both individually and collectively to be the highest criteria for determination of the potential of any location to support extended human activity, land use, or occupation. Accordingly, proximity to water is regarded as the primary indicator of archaeological resource potential. The Standards and Guidelines for Consultant Archaeologists stipulates that undisturbed lands within 300 metres of a water source are considered to have archaeological potential (MTC 2011: 21).

The study area is located east of an unnamed tributary stream of the Saugeen River that is shown on the Illustrated Historical Atlas of the County of Bentinck, Ont. (Walker & Miles 1880). The Saugeen River is located approximately 340 metres west of the study area which is a primary water source and a navigable waterway. Although it is too far to have a direct impact on archaeological potential, the presence of the Saugeen River suggests archaeological potential in the wider landscape that the study area is situated.

5.3.6 CURRENT PROPERTY CONDITIONS CONTEXT

Current characteristics encountered within an archaeological research study area determine if property Assessment of specific portions of the study area will be necessary and in what manner a Stage 2 Property Assessment should be conducted, if necessary. Conventional assessment methodologies include pedestrian survey on ploughable lands and test pit methodology within areas that cannot be ploughed. For the purpose of determining where property Assessment is necessary and feasible, general categories of current landscape conditions have been established as archaeological conventions. These include:

5.3.6.1 BUILDINGS AND STRUCTURAL FOOTPRINTS

A building, for the purposes of this particular study, is a structure that exists currently or has existed in the past in a given location. The footprint of a building is the area of the building

formed by the perimeter of the foundation. Although the interior area of building foundations would often be subject to property Assessment when the foundation may represent a potentially significant historic archaeological site, the footprints of existing structures are not typically assessed. Existing structures commonly encountered during archaeological assessments are often residential-associated buildings (houses, garages, sheds), and/or component buildings of farm complexes (barns, silos, greenhouses). In many cases, even though the disturbance to the land may be relatively shallow and archaeological resources may be situated below the disturbed layer (e.g., a concrete garage pad), there is no practical means of assessing the area beneath the disturbed layer. However, if there were evidence to suggest that there are likely archaeological resources situated beneath the disturbance, alternative methodologies may be recommended to study such areas.

The study area contains no buildings or structural footprints.

5.3.6.2 DISTURBANCE

Areas that have been subjected to extensive and deep land alteration that has severely damaged the integrity of archaeological resources are known as land disturbances. Examples of land disturbances are areas of past quarrying, major landscaping, and sewage and infrastructure development (MTC 2011: 18), as well as driveways made of gravel, asphalt or concrete, in-ground pools, and wells or cisterns. Surfaces paved with interlocking brick, concrete, asphalt, gravel and other surfaces meant to support heavy loads or to be long wearing hard surfaces in high traffic areas, must be prepared by the excavation and removal of topsoil, grading, and the addition of aggregate material to ensure appropriate engineering values for the supporting matrix and also to ensure that the installations shed water to avoid flooding or moisture damage. All hard surfaced areas are prepared in this fashion and therefore have no or low archaeological potential. Major utility lines are conduits that provide services such as water, natural gas, hydro, communications, sewage, and others. These major installations should not be confused with minor below ground service installations not considered to represent significant disturbances removing archaeological potential, such as services leading to individual structures which tend to be comparatively very shallow and very narrow corridors. Areas containing substantial and deeply buried services or clusters of below ground utilities are considered areas of disturbance and may be excluded from Stage 2 Property Assessment. Disturbed areas are excluded from Stage 2 Property Assessment due to no or low archaeological potential and often because they are also not viable to assess using conventional methodology.

*“Earthwork is one of the major works involved in road construction. This process includes excavation, material removal, filling, compaction, and construction. Moisture content is controlled, and compaction is done according to standard design procedures. Normally, rock explosion at the roadbed is not encouraged. While filling a depression to reach the road level, **the original bed is flattened after the removal of the topsoil.** The fill layer is distributed and compacted to the designed specifications. This procedure is repeated until the compaction desired is reached.*

*The fill material should not contain organic elements, and possess a low index of plasticity. Fill material can include gravel and decomposed rocks of a particular size, but should not consist of huge clay lumps. Sand clay can be used. The area is considered to be adequately compacted when the roller movement does not create a noticeable deformation. **The road surface finish is reliant on the economic aspects, and the estimated usage.**” [Emphasis Added]*

(Goel 2013)

The supporting matrix of a hard paved surface cannot contain organic material which is subject to significant compression, decay, and moisture retention. Topsoil has no engineering value and must be removed in any construction application where the surface finish at grade requires underlying support.

Installation of sewer lines and other below ground services associated with infrastructure development often involves deep excavation that can remove archaeological potential. This consideration does not apply to relatively minor below ground services that connect structures and facilities to services that support their operation and use. Major servicing corridors will be situated within adjacent road allowances with only minor, narrow, and relatively shallow underground services entering into the study area to connect existing structures to servicing mainlines. The relatively minor, narrow, and shallow services buried within a residential property do not require such extensive ground disturbance to remove or minimize archaeological potential within affected areas.

The study area does contain previous disturbances. There is a large fan shaped disturbance in the southern central portion of the study area. Maps 4 &5 of this report show the location of these features.

5.3.6.3 LOW-LYING AND WET AREAS

Landscape features that are covered by permanently wet areas, such as marshes, swamps, or bodies of water like streams or lakes, are known as low-lying and wet areas. Low-lying and wet areas are excluded from Stage 2 Property Assessment due to inaccessibility.

The study area does contain low-lying and wet areas. Low-lying and wet areas surround the disturbed fan shaped area, and a low-lying and wet area at the north end of the property. The study area also contains an artificial pond on eastern side of the study area. Maps 4 &5 of this report show the location of these features.

5.3.6.4 STEEP SLOPE

Landscape which slopes at a greater than (>) 20-degree change in elevation, is known as steep slope. Areas of steep slope are considered uninhabitable and are excluded from Stage 2 Property Assessment.

Generally, steep slopes are not assessed because steep slopes are interpreted to have low potential, not due to viability to assess, except in cases where the slope is severe enough to become a safety concern for archaeological field crews. In such cases, the Occupational Health and Safety Act takes precedence as indicated in the introduction to the Standards and Guidelines. AMICK Consultant Limited policy is to assess all slope areas whenever it is safe to do so. Assessment of slopes, except where safety concerns arise, eliminates the invariably subjective interpretation of what might constitute a steep slope in the field. This is done to minimize delays due to conflicts in such interpretations and to increase the efficiency of review.

The study area does not contain areas of steep slope.

5.3.6.5 WOODED AREAS

Areas of the property that cannot be ploughed, such as natural forest or woodlot, are known as wooded areas. These wooded areas qualify for Stage 2 Property Assessment and are required to be assessed using test pit survey methodology.

The study area does contain wooded areas, concentrated to the east and west site boundaries, bisected by meadow. Woodlot accounts for approximately 40% of the study area. Maps 4 & 5 of this report illustrate the locations of these features.

5.3.6.6 PLOUGHABLE AGRICULTURAL LANDS

Areas of current or former agricultural lands that have been ploughed in the past are considered ploughable agricultural lands. Ploughing these lands regularly turns the soil, which in turn brings previously buried artifacts to the surface, which are then easily identified during visual inspection. Furthermore, by allowing the ploughed area to weather sufficiently through rainfall, soil is washed off of exposed artifacts at the surface and the visibility of artifacts at the surface of recently worked field areas is enhanced markedly. Pedestrian survey of ploughed agricultural lands is the preferred method of physical assessment because of the greater potential for finding evidence of archaeological resources if present.

The study area does not contain any ploughable lands.

5.3.6.7 LAWN, PASTURE, MEADOW

Landscape features consisting of former agricultural land covered in low growth, such as lawns, pastures, meadows, shrubbery, and immature trees. These are areas that may be considered too small to warrant ploughing, (i.e., less than one hectare in area), such as yard areas surrounding existing structures, and land-locked open areas that are technically workable by a plough but inaccessible to agricultural machinery. These areas may also include open area within urban contexts that do not allow agricultural tillage within

municipal or city limits or the use of urban roadways by agricultural machinery. These areas are required to be assessed using test pit survey methodology.

The study area does contain areas of lawn, pasture, and meadow. Approximately 60% of the total study area is meadow, which extends east to west along both north and south site boundaries and bisects the wooded area. Maps 4 & 5 of this report illustrate the locations of these features.

5.3.7 SUMMARY

Background research indicates the vicinity of the study area has potential for archaeological resources of Native origins based on proximity to a source of potable water that was also used as a means of waterborne trade and communication. Background research also suggests potential for archaeological resources of Post-contact origins based on proximity to a historic roadway, and proximity to areas of documented historic settlement.

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 areas that are not accessible due to previously dumped soil and fill covering the original surface of the ground. A significant proportion of the study area does exhibit archaeological potential and therefore a Stage 2 Property Assessment is required.

Archaeological potential does not indicate that there are necessarily sites present, but that environmental and historical factors suggest that there may be as yet undocumented archaeological sites within lands that have not been subject to systematic archaeological research in the past.

6.0 FIELD WORK METHODS AND WEATHER CONDITIONS

This report confirms that the study area was subject to Stage 2 Property Assessment by high intensity test pit methodology at a five-metre interval between individual test pits, and by test pit survey at a ten-metre interval to confirm disturbance on 13-14 April 2022.

The fieldwork undertaken as a component of this study was conducted according to the archaeological fieldwork standards and guidelines (including weather and lighting conditions). 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. The locations from which photographs were taken and the directions toward which the camera was aimed for each photograph are illustrated in Maps 4 & 5 of this report. Upon completion of the property inspection of the study area, it was determined that select areas would require Stage 2 Property Assessment.

It must be noted that AMICK Consultants Limited has been retained to assess lands as specified by the proponent. As such, AMICK Consultants Limited is constrained by the terms of the contract in place at the time of the Archaeological Assessment and can only enter into lands for which AMICK Consultants Limited has received consent from the owner or their agent(s). The proponent has been advised that the entire area within the planning application must be subject to archaeological assessment and that portions of the planning application may only be excluded if they are of low potential, are not viable to assess, or are subject to planning provisions that would restrict any such areas from any form of ground altering activities.

Environmentally protected (EP) lands within the study area may be excluded from Stage 2 Property Assessment if appropriate documentation is provided that must accompany an archaeological assessment report when submitted for review purposes.

- *a map depicting the exact limits of the area.*
- *a copy of the existing or proposed formal condition, zoning bylaw or easement agreement confirming prohibition of alteration.*
- *a copy of a statement from the approval authority that it has implemented or is about to implement the constraint (in writing, by letter or email, submitted as part of the supplementary documentation).*
- *a copy of confirmation from the proponent regarding the manner in which “no-go” instructions to construction crews will be implemented (in writing, by letter or email, submitted as part of the supplementary documentation).*

Any applicable proposed EP lands within the planning application for which the above documentation cannot be provided must be subject to Stage 2 Property Assessment before the Stage 2 Property Assessment report can be submitted.

6.1 PROPERTY INSPECTION

A detailed examination and photo documentation was carried out on the study area in order 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 4 and 5. 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 4 & 5 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. As this study was undertaken during winter conditions, a Stage 1 Property Inspection was not viable. Therefore, no part of the study area may be excluded from the Stage 2 Property Assessment. The Stage 1 Property Inspection will have to be undertaken concurrently with the Stage 2 Property Assessment.

6.2 TEST PIT SURVEY

In accordance with the Standards and Guidelines for Consultant Archaeologists, test pit survey is required to be undertaken for those portions of the study area where deep prior disturbance had not occurred prior to assessment, or which were accessible to survey. Test pit survey is only used in areas that cannot be subject to ploughing or cultivation. This report confirms that the conduct of test pit survey within the study area conformed to the following standards:

1. Test pit survey only on terrain where ploughing is not possible or viable, as in the following examples:

a. wooded areas

[All wooded areas were test pit surveyed at an interval of 5 m between individual test pits]

b. pasture with high rock content

[Not Applicable - The study area does not contain any pastures with high rock content]

c. abandoned farmland with heavy brush and weed growth

[Not Applicable - The study area does not contain any abandoned farmland with heavy brush and weed growth]

d. orchards and vineyards that cannot be strip ploughed (planted in rows 5 m apart or less), gardens, parkland or lawns, any of which will remain in use for several years after the survey

[Not Applicable - The study area does not contain any of the above-mentioned circumstances]

e. properties where existing landscaping or infrastructure would be damaged. The presence of such obstacles must be documented in sufficient detail to demonstrate that ploughing or cultivation is not viable.

[Not Applicable - The study area does not contain the above-mentioned circumstances]

f. narrow (10 m or less) linear survey corridors (e.g., water or gas pipelines, road widening). This includes situations where there are planned impacts 10 m or less beyond the previously impacted limits on both sides of an existing linear corridor (e.g., two linear survey corridors on either side of an existing roadway). Where at the time of fieldwork the lands within the linear corridor

meet the standards as stated under the above section on pedestrian survey land preparation, pedestrian survey must be carried out. Space test pits at maximum intervals of 5 m (400 test pits per hectare) in areas less than 300 m from any feature of archaeological potential.

[Not Applicable – The study area does not contain any linear corridors]

- 2. Space test pits at maximum intervals of 5 m (400 test pits per hectare) in areas less than 300 m from any feature of archaeological potential.*

[The entirety of the test pitted areas of the study area were assessed using high intensity test pit methodology at an interval of five metres between individual test pits and at a 10-metre interval to confirm extent of disturbances where applicable. When artifacts were encountered, the test pit interval was intensified (See Section 6.4)]

- 3. Space test pits at maximum intervals of 10 m (100 test pits per hectare) in areas more than 300 m from any feature of archaeological potential.*

[The entirety of the test pitted areas of the study area were assessed using high intensity test pit methodology at an interval of five metres between individual test pits and at a 10-metre interval to confirm extent of disturbances where applicable. When artifacts were encountered, the test pit interval was intensified (See Section 6.4)]

- 4. Test pit to within 1 m of built structures (both intact and ruins), or until test pits show evidence of recent ground disturbance.*

[Not Applicable]

- 5. Ensure that test pits are at least 30 cm in diameter.*

[All test pits were at least 30 cm in diameter]

- 6. Excavate each test pit, by hand, into the first 5 cm of subsoil and examine the pit for stratigraphy, cultural features, or evidence of fill.*

[Regardless of the interval between individual test pits, all test pits were excavated by hand into the first 5 cm of subsoil where possible and examined for stratigraphy, cultural features, or evidence of fill. In areas where topsoil was not present, test pits were excavated to a minimum of 30cm in depth to ensure that suspected subsoils, if present, were not layers of fill or waterborne materials overlying buried topsoil. If these areas consisted of fill soils, test pits were also excavated a minimum of 30 cm below grade in order to ensure disturbance extended below even deep topsoil layers such as those encountered in agricultural fields to ensure that the depth of disturbance was sufficient to remove archaeological potential in most contexts. Where other evidence indicates locations of potentially significant archaeological sites that may include cultural deposits below fill soils, alternative strategies to explore beneath the fill layers found in some areas may be necessary to complete the Stage 2 Property Assessment. In such cases, further Stage 2 Property Assessment may be

recommended following completion of the property survey under conventional methodologies.]

7. *Screen soil through mesh no greater than 6 mm.*
[All soil was screened through mesh no greater than 6 mm]
8. *Collect all artifacts according to their associated test pit.*
[All artifacts were collected according to the test pit location from which they were recovered. The original five metre grid yielded too few artifacts to support Stage 3 Site-specific Assessment and therefore test pits were intensified to 2.5 metres and eight additional units were excavated surrounding each initial test pit. Sufficient artifacts were recovered from the intensified test pit coverage to warrant a recommendation for Stage 3 Site-specific Assessment.]
9. *Backfill all test pits unless instructed not to by the landowner.*
[All test pits were backfilled.]

(MTC 2011: 31-32)

“A combination of property inspection and test pitting may be used when initial Stage 2 results determine that all or part of the project area may in fact be disturbed. The Stage 2 survey may then consist of a detailed inspection (equivalent to Stage 1), combined with test pitting.”

1. *If it was not done as part of Stage 1, inspect and document the disturbed areas according to the standards described for Stage 1 property inspections.*
[The disturbed areas of the study area were inspected and documented as per the standards described for Stage 1 property inspections. These include the fan shaped area of dumped soil and fill.]

Standard archaeological survey methodologies employed in Ontario for Stage 2 Archaeological Property Assessment (i.e., pedestrian survey and test pit survey) cannot determine if deeply buried cultural remains are or are not present. The purpose of Stage 2 Property Assessment is not to test for deeply buried deposits. The Standards and Guidelines for Consultants Archaeologists recognize this fact and have a whole separate section covering this specific issue. The only way to determine if deeply buried remains are present is to follow those standards not via a standard Stage 1-2 Archaeological Property Assessment.

In most cases, unless there is documentation or evidence to the contrary, areas where grading has exceeded topsoil depth are areas considered to have no or low archaeological potential because in most cases removal of the topsoil will remove archaeological sites. While archaeological sites are popularly thought of as being deeply buried, archaeological sites begin on the surface of the ground and for most of humanity’s history involved no substantial excavations or significant landscape alterations. Only with the rise of urbanization and sedentary settlement do sites

begin to accumulate depth. This is a result of continuous building and rebuilding over top of earlier settlements. Deep archaeological sites are created by adding to the surface of an area and building the landform up. Deeply buried archaeological deposits are relatively rare outside of urban environments in Ontario and even within urban contexts, this seldom occurs outside of the historic core of the community where redevelopment has occurred since initial settlement.

If an area was not occupied during a period of potential archaeological significance, there is no potential to locate deeply buried significant archaeological resources. There are only a few very rare exceptions related to historical significance that are not tied to the time period of activity or occupation of a site but to certain historical events and/or personalities.

2. *Place Stage 2 test pits throughout the disturbed areas according to professional judgment (and where physically viable) as to confirm that these areas have been completely disturbed.*

[The fan shaped area of suspected disturbance was shovel tested at a 10m interval; this confirmed the extent of the disturbance.]

(MTC 2011: 38)

6.3 INTENSIFIED TEST PIT SURVEY

According to the Standards and Guidelines for Consultant Archaeologists the initial finds of archaeological resources through test pitting may be insufficient to make it clear that a Stage 3 archaeological assessment is necessary, and it may therefore be desirable to carry out further work within Stage 2 rather than proceeding to Stage 3. If that is the case, the following requirements must be met in determining whether a Stage 3 should be carried out. This section of the report confirms that the following standards were met:

1. *Continue test pit excavation on the survey grid to determine whether there are further positive test pits. This may produce sufficient archaeological resources to meet the criteria for making a recommendation to carry out a Stage 3 assessment, in which case further Stage 2 fieldwork is not necessary.*
[All remaining test pits were excavated, but insufficient archaeological resources were encountered]
2. *When insufficient archaeological resources are found through continued survey on the grid to meet the criteria for continuing to Stage 3, intensify survey coverage around the positive test pit to determine whether a recommendation for a Stage 3 assessment can be supported.*
 - a. *Excavate a maximum of eight additional test pits within this intensified area, and*
 - b. *one or more 1 m test units, placing at least one unit over the positive test pit*

[Intensification of test pits within the area of the original positive test pits yielded ample evidence to continue to Stage 3 Site-specific Assessment for the site and therefore, excavation of one metre test units was not required for this purpose as the objectives of intensification to determine further CHVI was achieved through intensified test pit survey around the original positive test pits.]

7.0 RECORD OF FINDS

Section 7.8.2 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 137-138) outlines the requirements of the Record of Finds component of a Stage 2 report:

1. *For all archaeological resources and sites that are identified in Stage 2, provide the following:*
 - a. *a general description of the types of artifacts and features that were identified*
 - b. *a general description of the area within which artifacts and features were identified, including the spatial extent of the area and any relative variations in density*
 - c. *a catalogue and description of all artifacts retained*
 - d. *a description of the artifacts and features left in the field (nature of material, frequency, other notable traits).*
2. *Provide an inventory of the documentary record generated in the field (e.g., photographs, maps, field notes).*
3. *Submit information detailing exact site locations on the property separately from the project report, as specified in section 7.6. Information on exact site locations includes the following:*
 - a. *table of GPS readings for locations of all archaeological sites*
 - b. *maps showing detailed site location information.*

7.1 ARCHAEOLOGICAL RESOURCES

As a result of the property Assessment of the study area, a historic Euro-Canadian Site with artifacts concentrated in two discrete and contemporaneous loci (A & B) was located. The site has been registered within the Archaeological Sites Database administered by MCM as the County Road 4 site (BbHe-13). Based on the characteristics of the site and the analysis of artifacts the site has yielded evidence that the site may be of cultural heritage significance and Stage 3 Site-specific Assessment is required. The number and types of artifacts collected from the Locus A Site and Locus B Site are listed in Appendix A. Descriptions of the artifact types collected from the Locus A Site and Locus B Site can be found appended to this report in Appendix A. Detailed description of the location of these sites can be found in the supplementary information package of this report filed under separate cover with the Ministry of Citizenship and Multiculturalism.

7.1.1 COUNTY ROAD 4 SITE (BBHE-13)

During the Stage 2 test pit survey of the study area twenty-four (24) positive test pits were encountered in two loci; Locus A is in the North-Central portion of the study area and Locus B is approximately 30 metres to the southwest of Locus A. However, the initial positive test pits excavated at a five-metre interval produced insufficient archaeological resources to determine if a Stage 3 Archaeological Site-specific Assessment would be necessary. Radial test pits were dug around each original positive test pit at a maximum distance of 2.5 metres within a 5-metre radius around each positive test pit. As a result, fifty-three (53) additional positive test pits were encountered. A total of one hundred and eight (108) artifacts of 19th century Euro-Canadian origin were recovered within an area measuring 23 metres north to south by 23 metres east to west termed Locus A. A further ninety-three (93) artifacts of 19th century Euro-Canadian origin were recovered within an area measuring 23 metres north to south by 27 metres east to west termed Locus B. All of the artifacts recovered appear to be 19th century in origin ranging in date from 1840-1880. In accordance with the Standards and Guidelines for Consultant Archaeologists, it was determined that a Stage 3 Site-specific Archaeological Assessment would be required.

TABLE 2 LOCUS A ARTIFACT SUMMARY

Description	type	colour	Freq
Bottle Glass Total			3
Button Total			1
Coarse Red Earthenware Total			22
Ironstone Total			4
Nail Total			11
Refined White Earthenware Total			51
White Clay Pipe Bowl Total			2
White Clay Pipe Stem Total			1
Window Glass Total			12
Yellowware Total			1
Grand Total			108

TABLE 2 LOCUS B ARTIFACT SUMMARY

Description	type	colour	Freq
Bone Fragment Total			1
Bottle Glass Total			1
Coarse Red Earthenware Total			16
Ironstone Total			4
Nail Total			13
Refined White Earthenware Total			38
Stoneware Total			1
White Clay Pipe Stem Total			4
Window Glass Total			14
Yellowware Total			1
Grand Total			93

The artifacts collected from each of the two loci are remarkably similar in terms of artifact types collected and the proportion of these finds to each other. This suggests that the two loci are contemporaneous in origins and may represent two concentrations of material associated with the same occupation of the study area or potentially two discrete occupation sites dating to the same period. Stage 3 Site-Specific Assessment through more detailed physical evidence and the collection of archival data, should shed some light on this relationship. The artifacts suggest a date range of 1840-1880. The presence of clarified glass indicates that the site was occupied to sometime after 1870, but not for long as the glass is proportionately very low. This would be markedly higher at the end of the 19th century and into the early 20th century. Plain Ironstone also suggests the site was occupied to around 1870 when it became very popular and again, the low frequencies of this material suggest that the occupation did not persist long after 1870. The decorated wares were all produced from refined white earthenware which began to dominate the ceramics market between 1820 and 1830. The styles of decoration in the collection included polychrome hand painted, sponge decorated, and stamp decorated. These decorative styles persisted into the 20th century, but their most popular period was between 1840 and 1860 when they were amongst the cheapest decorated. Ceramics on the market. The lack of any transfer printed ceramics in the collection suggests that the site is of a low-income family or families, perhaps original settlers with little material goods and limited cash before the farm was well established.

The collection of artifacts from this assessment is packaged in a single banker's box and housed at the 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.

7.2 ARCHAEOLOGICAL FIELDWORK DOCUMENTATION

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 47 digital photographs.

8.0 ANALYSIS AND CONCLUSIONS

AMICK Consultants Limited was engaged by the proponent to undertake a Stage 1-2 Archaeological Assessment of lands potentially affected by the proposed undertaking and was granted permission to carry out archaeological fieldwork. The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment on 13-14 April 2022, consisting of a high-intensity test pit survey at an interval of five metres between individual test pits, and at a 10-metre interval where applicable. 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 Ontario Ministry of Citizenship and Multiculturalism on behalf of the government and citizens of Ontario.

8.1 STAGE 1 ANALYSIS AND CONCLUSIONS

As part of the present study, background research was conducted in order to determine the archaeological potential of the proposed project area.

“A Stage 1 background study provides the consulting archaeologist and Ministry report reviewer with information about the known and potential cultural heritage resources within a particular study area, prior to the start of the field assessment.” (OMCzCR 1993)

The evaluation of potential is further elaborated Section 1.3 of the Standards and Guidelines for Consultant Archaeologist (2011) prepared by the Ontario Ministry of Tourism and Culture:

“The Stage 1 background study (and, where undertaken, property inspection) leads to an evaluation of the property’s archaeological potential. If the evaluation indicates that there is archaeological potential anywhere on the property, the next step is a Stage 2 assessment.” (MTC 2011: 17)

Features or characteristics that indicate archaeological potential when documented within the study area, or within close proximity to the study area (as applicable), include:

- “- previously identified archaeological sites*
 - water sources (It is important to distinguish types of water and shoreline, and to distinguish natural from artificial water sources, as these features affect site locations and types to varying degrees.):*

ORIGINAL 03 April 2023 Stage 1-2 Archaeological Assessment of Park Lots 9-12, Town Plot of Durham, Part of Lot 24, Concession 1 West of the Owen Sound Road (Geographic Township of Bentinck), Municipality of West Grey, County of Grey (AMICK File #2021-579/MCM File #P058-2103-2022)

- *primary water sources (lakes, rivers, streams, creeks)*
- *secondary water sources (intermittent streams and creeks, springs, marshes, swamps)*
- *features indicating past water sources (e.g., glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches)*
- *accessible or inaccessible shoreline (e.g., high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh)*
- *elevated topography (e.g., eskers, drumlins, large knolls, plateaux)*
- *pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground*
- *distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings.*
- *resource areas, including:*
 - *food or medicinal plants (e.g., migratory routes, spawning areas, prairie)*
 - *scarce raw materials (e.g., quartz, copper, ochre, or outcrops of chert)*
 - *early Post-contact industry (e.g., fur trade, logging, prospecting, mining)*
- *areas of early Post-contact settlement. These include places of early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks.*
- *Early historical transportation routes (e.g., trails, passes, roads, railways, portage routes)*
- *property listed on a municipal register or designated under the Ontario Heritage Act that is a federal, provincial, or municipal historic landmark or site*
- *property that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations”*

(MTC 2011: 17-18)

The evaluation of potential does not indicate that sites are present within areas affected by proposed development. Evaluation of potential considers the possibility for as yet undocumented sites to be found in areas that have not been subject to systematic archaeological investigation in the past. Potential for archaeological resources is used to determine if property assessment of a study area or portions of a study area is required.

“Archaeological resources not previously documented may also be present in the affected area. If the alternative areas being considered, or the preferred alternative selected, exhibit either high or medium potential for the discovery of archaeological remains an archaeological assessment will be required.”

(MCC & MOE 1992: 6-7)

“The Stage 1 background study (and, where undertaken, property inspection) leads to an evaluation of the property’s archaeological potential. If the evaluation indicates that there is archaeological potential anywhere on the property, the next step is a Stage 2 assessment.”

(MTC 2011: 17)

In addition, archaeological sites data is also used to determine if any archaeological resources had been formerly documented within or in close proximity to the study area and if these same resources might be subject to impacts from the proposed undertaking. This data was also collected in order to establish the relative cultural heritage value or interest of any resources that might be encountered during the conduct of the present study. For example, the relative rarity of a site can be used to assign an elevated level of cultural heritage value or interest to a site that is atypical for the immediate vicinity. The requisite archaeological sites data of previously registered archaeological sites was collected from the MCM and the corporate research library of AMICK Consultants Limited. The Stage 1 Background Research methodology also includes a review of the most detailed available topographic maps, historical settlement maps, archaeological management plans (where applicable) and commemorative plaques or monuments. When previous archaeological research documents lands to be impacted by the proposed undertaking or archaeological sites within 50 metres of the study area, the reports documenting this earlier work are reviewed for pertinent information. AMICK Consultants Limited will often modify this basic methodology based on professional judgment to include additional research (such as, local historical works or documents and knowledgeable informants).

Section 7.7.3 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 132) outlines the requirements of the Analysis and Conclusions component of a Stage 1 Background Study.

- 1) *“Identify and describe areas of archaeological potential within the project area.*
- 2) *Identify and describe areas that have been subject to extensive and deep land alterations. Describe the nature of alterations (e.g., development or other activity) that have severely damaged the integrity of archaeological resources and have removed archaeological potential.”*

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: 17-18). 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 are listed below together with considerations derived from the conduct of this study.

1) *Previously Identified Archaeological Sites*

Previously registered archaeological sites have not been documented within 300 metres of the study area.

2) *Water Sources*

Primary water sources are described as including lakes, rivers streams and creeks. Close proximity to primary water sources (300 metres) indicates that people had access to readily available sources of potable water and routes of waterborne trade and communication should the study area have been used or occupied in the past.

There are no identified primary water sources within 300 metres of the study area.

Secondary water sources are described as including intermittent streams and creeks, springs, marshes, and swamps. Close proximity (300 metres) to secondary water sources indicates that people had access to readily available sources of potable water, at least on a seasonal basis, and in some cases seasonal access to routes of waterborne trade and communication should the study area have been used or occupied in the past.

There is one identified secondary water source within the study area. An unnamed pond is located near the eastern site boundary.

3) *Features Indicating Past Water Sources*

Features indicating past water resources are described as including 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. Close proximity (300 metres) to features indicating past water sources indicates that people had access to readily available sources of potable water, at least on a seasonal basis, and in some cases seasonal access to routes of waterborne trade and communication should the study area have been used or occupied in the past.

There are no identified features indicating past water sources within 300 metres of the study area.

4) *Accessible or Inaccessible Shoreline*

This form of landscape feature would include high bluffs, swamp, or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.

There are no shorelines within 300 metres of the study area.

5) Elevated Topography

Features of elevated topography that indicate archaeological potential include eskers, drumlins, large knolls, and plateaux.

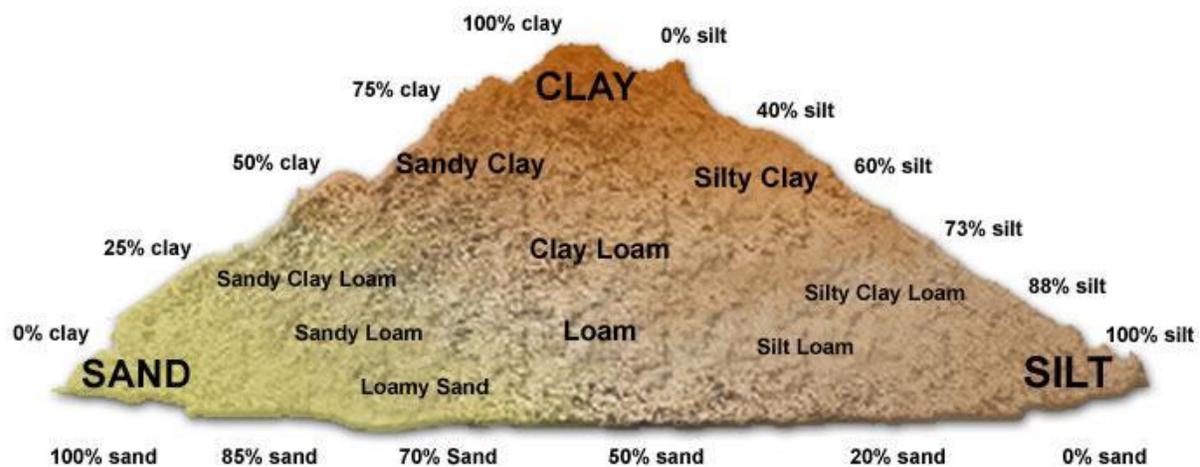
There are no identified features of elevated topography within the study area.

6) Pockets of Well-drained Sandy Soil

Pockets of sandy soil are considered to be especially important near areas of heavy soil or rocky ground.

The soil throughout the study area is dark brown silty loam, which is consistent with the wider area surrounding the property. Therefore, the presence of this soil has no impact on potential within the study area, as the wider area is not known for clay soils or exposed bedrock.

The image below (Kuhlmann, Stacy 2017) shows the consistencies of soil types and how they compare to one another. The soil found within the study area was a silt loam, which contains a higher percentage of silt with a lower percentage of sand and an even lower percentage of clay. The lower percentage of clay allows the soil to break up from the action of ploughing alone when not compacted or bound by extensive root masses.



(Kuhlmann, Stacy 2017)

7) Distinctive Land Formations

These are landscape features 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.

There are no identified distinctive land formations within the study area.

8) Resource Areas

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

There are no identified resource areas within the study area.

9) Areas of Early Post-contact Settlement

These include places of early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, and farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks.

The study area is not situated in close proximity to any historic structures but is in close proximity to the historic community of Durham identified on the historic atlas map. Although the study area is shown within the Town Plot for Durham on the Historic Atlas map, it appears that the lots within the study area were never developed as part of the urban density of the community.

10) Early Historical Transportation Routes

This includes evidence of trails, passes, roads, railways, portage routes.

The study area is situated within 100 metres of an early settlement roads that appears on the Historic Atlas Map of 1877. This historic road corresponds to the road presently known as Grey Country 4, which is adjacent to the study area.

11) Heritage Property

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

There are no listed or designated heritage buildings or properties that form a part of the study area. There are no listed or designated heritage buildings or properties that are adjacent to the study area.

12) Documented Historical or Archaeological Sites

This includes 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.

There are no known heritage features, or known historic sites, or known archaeological sites within the study area in addition to those formally documented with the appropriate agencies or previously noted under a different criterion.

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: 18-19). These characteristics are listed below together with considerations derived from the conduct of this study.

The introduction of Section 1.3.2 (MTC 2011: 18) notes that “*Archaeological potential can be determined not to be present for either the entire property or a part(s) of it when the area under consideration has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. This is commonly referred to as ‘disturbed’ or ‘disturbance,’ and may include:*”

1) Quarrying

There is no evidence to suggest that quarrying operations were ever carried out within the study area.

2) Major Landscaping Involving Grading Below Topsoil

Unless there is evidence to suggest the presence of buried archaeological deposits, such deeply disturbed areas are considered to have lost their archaeological potential. Properties that do not have a long history of Post-contact occupation can have archaeological potential removed through extensive landscape alterations that penetrate below the topsoil layer. This is because most archaeological sites originate at grade with relatively shallow associated excavations into the soil. Pre-contact sites and early historic sites are vulnerable to extensive damage and complete removal due to landscape modification activities. In urban contexts where a lengthy history of occupation has occurred, properties may have deeply buried archaeological deposits covered over and sealed through redevelopment activities that do not include the deep excavation of the entire property for subsequent uses. Buildings are often erected directly over older foundations preserving archaeological deposits associated with the earlier occupation.

There is no evidence to suggest that major landscaping operations involving grading below topsoil were ever carried out within the study area. Surfaces paved with interlocking brick, concrete, asphalt, gravel and other surfaces meant to support heavy loads or to be long wearing hard surfaces in high traffic areas, must be prepared by the excavation and removal of topsoil, grading, and the addition of aggregate material to ensure appropriate engineering values for the supporting matrix and also to ensure that the installations shed water to avoid flooding or moisture damage. All hard surfaced areas are prepared in this fashion and therefore have no or low archaeological potential. Disturbed areas are excluded from Stage 2 Property

Assessment due to no or low archaeological potential and often because they are also not viable to assess using conventional methodology.

3) *Building Footprints*

Typically, the construction of buildings involves the deep excavation of foundations, footings and cellars that often obliterate archaeological deposits situated close to the surface.

There are no buildings within the study area.

4) *Sewage and Infrastructure Development*

Installation of sewer lines and other below ground services associated with infrastructure development often involves deep excavation that can remove archaeological potential.

There is no evidence to suggest that substantial below ground services of any kind have resulted in significant impacts to any significant portion of the study area. Major utility lines are conduits that provide services such as water, natural gas, hydro, communications, sewage, and others. These major installations should not be confused with minor below ground service installations not considered to represent significant disturbances removing archaeological potential, such as services leading to individual structures which tend to be comparatively very shallow and vary narrow corridors. Areas containing substantial and deeply buried services or clusters of below ground utilities are considered areas of disturbance and may be excluded from Stage 2 Property Assessment.

“Activities such as agricultural cultivation, gardening, minor grading and landscaping do not necessarily affect archaeological potential.”

(MTC 2011: 18)

“Archaeological potential is not removed where there is documented potential for deeply buried intact archaeological resources beneath land alterations, or where it cannot be clearly demonstrated through background research and property inspection that there has been complete and intensive disturbance of an area. Where complete disturbance cannot be demonstrated in Stage 1, it will be necessary to undertake Stage 2 assessment.”

(MTC 2011: 18)

SUMMARY

Table 2 below summarizes the evaluation criteria of the Ministry of Citizenship and Multiculturalism (MCM) 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 to water, and the location of early historic settlement roads adjacent to the study area.

TABLE 2 EVALUATION OF ARCHAEOLOGICAL POTENTIAL

FEATURE OF ARCHAEOLOGICAL POTENTIAL		YES	NO	N/A	COMMENT
1	Known archaeological sites within 300m		N		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, riverbed, 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.

8.2 STAGE 2 ANALYSIS AND CONCLUSIONS

Section 7.8.3 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 138-139) outlines the requirements of the Analysis and Conclusions component of a Stage 2 Property Assessment.

1. *Summarize all finding from the Stage 2 survey, or state that no archaeological sites were identified.*
2. *For each archaeological site, provide the following analysis and conclusions:*
 - a. *A preliminary determination, to the degree possible, of the age and cultural affiliation of any archaeological sites identified.*
 - b. *A comparison against the criteria in 2 Stage 2: Property Assessment to determine whether further assessment is required*
 - c. *A preliminary determination regarding whether any archaeological sites identified in Stage 2 show evidence of a high-level cultural heritage value or interest and will thus require Stage 4 mitigation.*

No archaeological sites or resources were found during the Stage 2 survey of the study area.

9.0 RECOMMENDATIONS

9.1 STAGE 1-2 RECOMMENDATIONS

Under Section 7.8.4 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 139) the recommendations to be made as a result of a Stage 2 Property Assessment are described.

- 1) *For each archaeological site, provide a statement of the following:*
 - a. *Borden number or other identifying number*
 - b. *Whether or not it is of further cultural heritage value or interest*
 - c. *Where it is of further cultural heritage value or interest, appropriate Stage 3 assessment strategies*
- 2) *Make recommendations only regarding archaeological matters. Recommendations regarding built heritage or cultural heritage landscapes should not be included.*
- 3) *If the Stage 2 survey did not identify any archaeological sites requiring further assessment or mitigation of impacts, recommend that no further archaeological assessment of the property be required.*

As a result of the property Assessment of the study area, a historic Euro-Canadian Site with artifacts concentrated in two discrete and contemporaneous loci (A & B) was located. The site has been registered within the Archaeological Sites Database administered by MCM as the County Road 4 site (BbHe-13). Based on the characteristics of the site and the analysis of

artifacts the site has yielded evidence that the site may be of cultural heritage significance and the following recommendations are made:

4. *The Cultural Heritage Value or Interest (CHVI) of the County Road 4 site (BbHe-13) has not been completely documented. There is potential for further CHVI for this location. The County Road 4 site requires Stage 3 Site-specific Assessment to gather further data to determine if Stage 4 Mitigation of Development Impacts will be required.*
5. *A Stage 3 Site-Specific Assessment of the County Road 4 site (BbHe-13) must be completed for this site in accordance with the Standards and Guidelines for Consultant Archaeologists (MTC 2011). The Stage 3 Site-specific assessment will consist of the excavation of 1 by 1 metre square test units on a 10 by 10 metre square grid; the grid squares will be referred to by the intersection coordinates of their southwest corner. Each test unit will be excavated stratigraphically by hand into the first 5 centimetres of subsoil. Each unit will be examined for stratigraphy, cultural features, or evidence of fill, and all soil was screened through wire mesh of 6-millimetre width. Infill test units will be placed throughout the grid in areas of interest (i.e., exposing features, high artifact yields) amounting to 20% of the grid unit total. All artifacts will be retained and recorded by the corresponding grid unit designation and will be held at the Southwestern District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the Ontario Ministry of Citizenship and Multiculturalism (MCM) on behalf of the government and citizens of Ontario.*
6. *The Stage 3 Site-Specific Assessment of the County Road 4 site must include further archival research in order to establish the details of the occupation and land use history of the rural township lot of which the study area was a part.*

10.0 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, 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 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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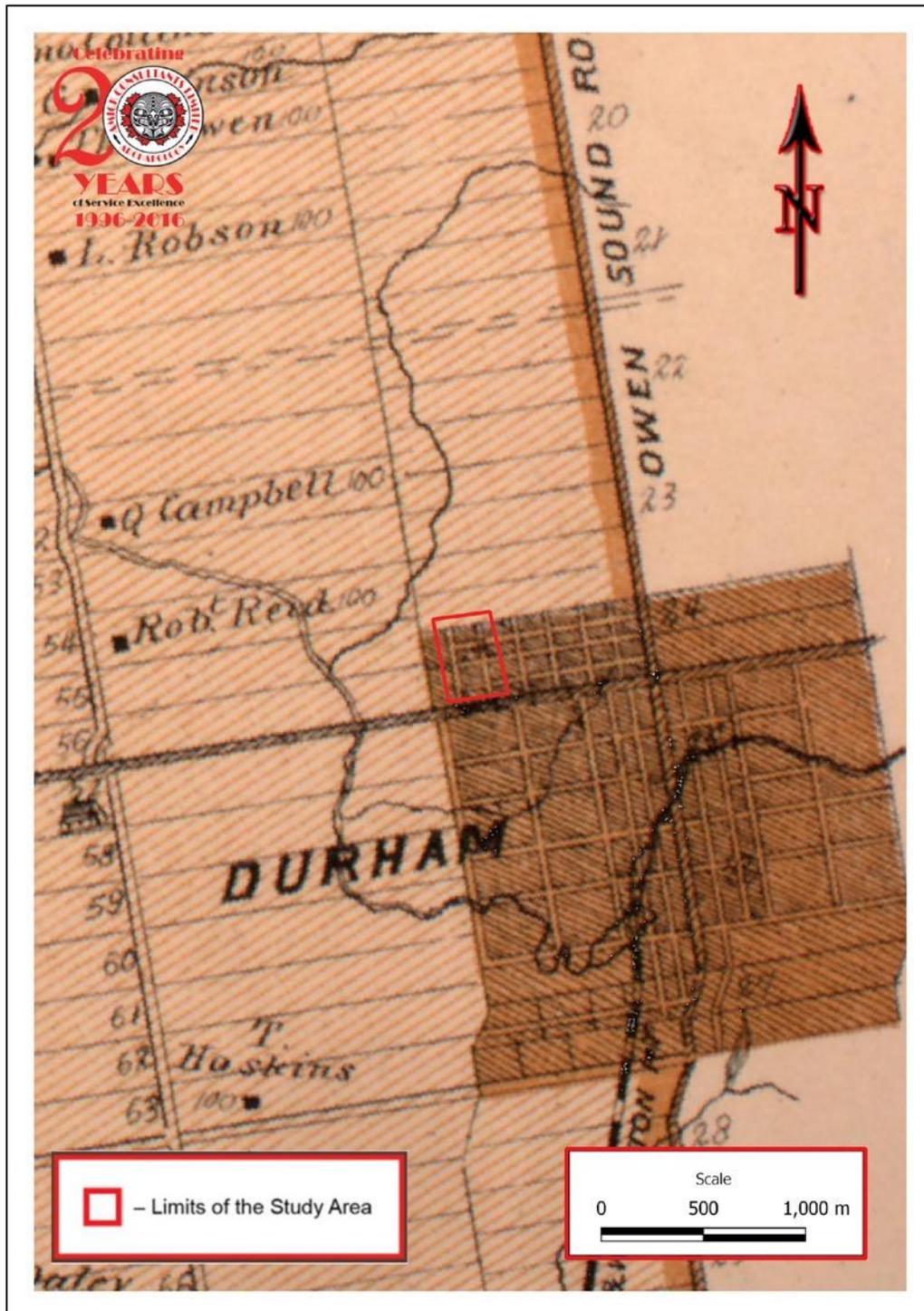
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12.0 MAPS

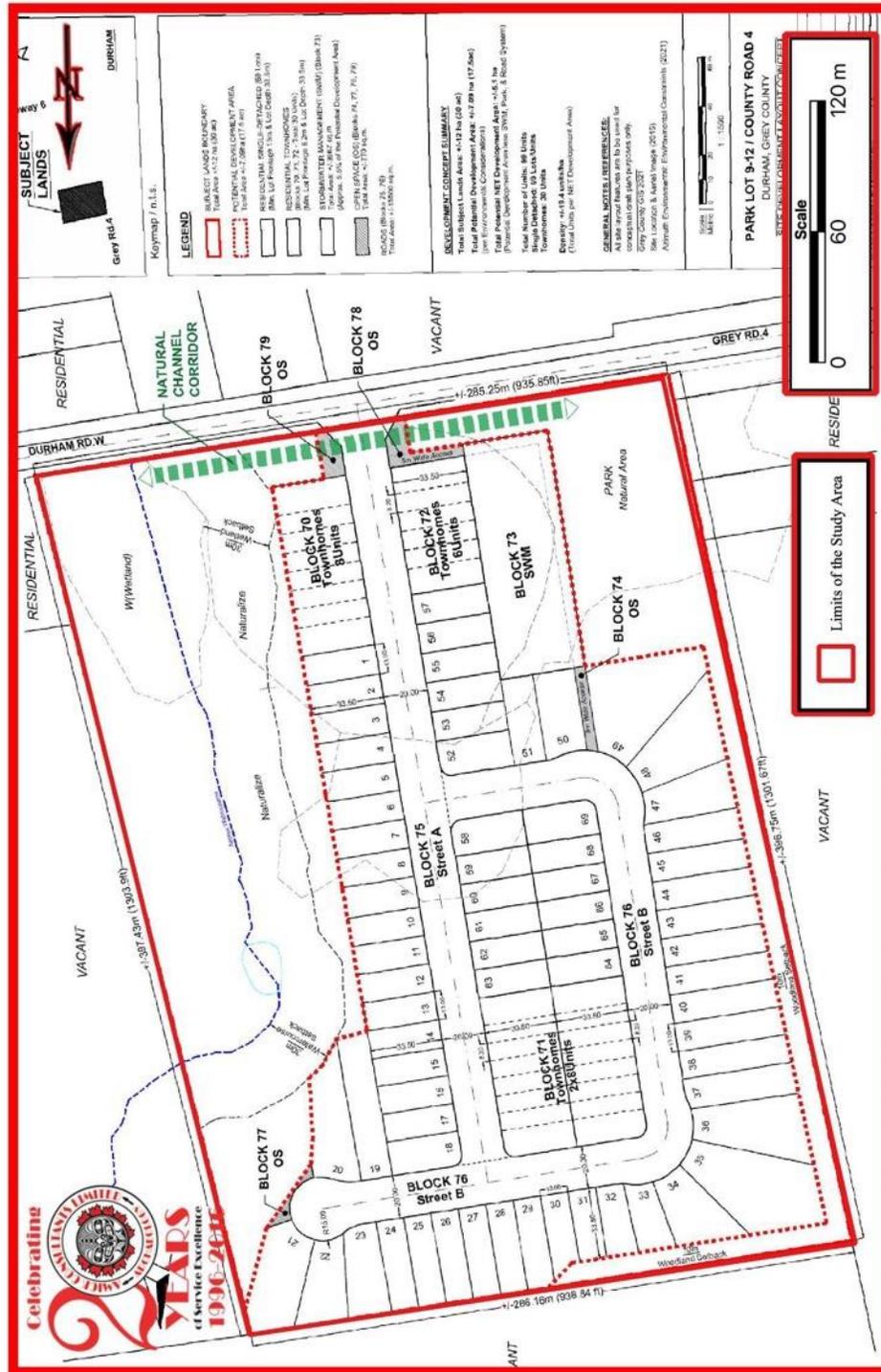


MAP 1 LOCATION OF THE STUDY AREA (ESRI 2019)

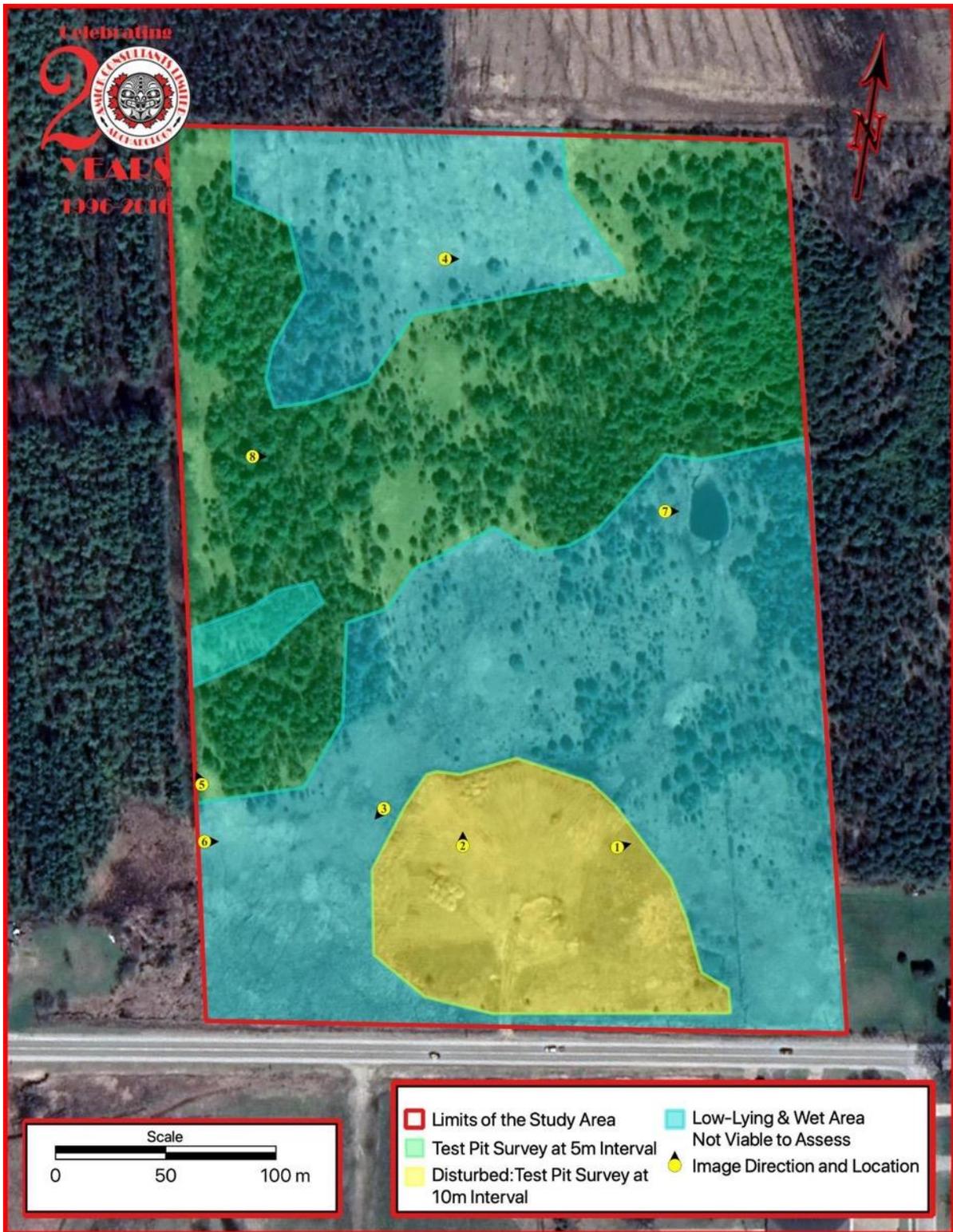


MAP 2 FACSIMILE SEGMENT OF THE HISTORIC ATLAS MAP OF THE TOWNSHIP OF BENTINCK (WALKER & MILES 1880)

ORIGINAL 03 April 2023 Stage 1-2 Archaeological Assessment of Park Lots 9-12, Town Plot of Durham, Part of Lot 24, Concession 1 West of the Owen Sound Road (Geographic Township of Bentinck), Municipality of West Grey, County of Grey (AMICK File #2021-579/MCM File #P058-2103-2022)



MAP 3 DEVELOPMENT CONCEPT PLAN (GEORGIAN PLANNING SOLUTIONS 2021)



MAP 4 AERIAL PHOTO OF THE STUDY AREA (GOOGLE EARTH 2020)

13.0 IMAGES



IMAGE 1 PROPERTY CONDITIONS: DISTURBED AREA



IMAGE 2 TEST PIT IN PROGRESS: DISTURBED



IMAGE 3 PROPERTY CONDITIONS: LOW-LYING AND WET AREA



IMAGE 4 TEST PIT IN PROGRESS: FILLING IN WITH WATER



IMAGE 5 PROPERTY CONDITIONS: WOODLOT AND MEADOW



IMAGE 6 TEST PIT SURVEY IN PROGRESS

*ORIGINAL 03 April 2023 Stage 1-2 Archaeological Assessment of Park Lots 9-12, Town Plot of Durham,
Part of Lot 24, Concession 1 West of the Owen Sound Road (Geographic Township of Bentinck),
Municipality of West Grey, County of Grey (AMICK File #2021-579/MCM File #P058-2103-2022)*



IMAGE 7 PROPERTY CONDITIONS: POND



IMAGE 8 TEST PIT IN PROGRESS



Image 9 Representative Artifacts from County Road 4 Site (BbHe-13) Locus A

Top Row (Left to Right): Monochrome Cobalt Blue Hand Painted Refined White Earthenware; Monochrome Cobalt Blue Stamp Decorated Refined White Earthenware; Monochrome Cobalt Blue Stamp Decorated Refined White Earthenware; Monochrome Light Blue Stamp Decorated Refined White Earthenware; Monochrome Cobalt Blue Straight Rim Shell Edge Refined White Earthenware; Plain Refined White Earthenware; Clear Glazed Coarse Red Earthenware;

Bottom Row (Left to Right): Rib and Flute Decorated White Clay Pipe Bowl; Unmarked White Clay Pipe Stem; Olive Green Bottle Glass; Stamped 4 Hole Milk Glass Button; Cut Nails.



Image 10 Representative Artifacts from County Road 4 Site (BbHe-13) Locus B

Top Row (Left to Right): Monochrome Cobalt Blue Stamp Decorated Refined White Earthenware; Monochrome Light Blue Stamp Decorated Refined White Earthenware; Monochrome Cobalt Blue Sponge Decorated Refined White Earthenware; Monochrome Cobalt Blue Hand Painted Refined White Earthenware; Polychrome Hand Painted Refined White Earthenware; Plain Refined White Earthenware;

Bottom Row (Left to Right): Relief Moulded Ironstone; Plain Ironstone; Salt Glazed Stoneware; Clear Glazed Coarse Red Earthenware; White Clay Pipe Stem; Cut Nail.

Appendix A: Historic Artifact Types

HISTORIC 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 wares 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 flowware (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

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Transfer Printed Ironstone

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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).

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ORIGINAL 03 April 2023 Stage 1-2 Archaeological Assessment of Park Lots 9-12, Town Plot of Durham, Part of Lot 24, Concession 1 West of the Owen Sound Road (Geographic Township of Bentinck), Municipality of West Grey, County of Grey (AMICK File #2021-579/MCM File #P058-2103-2022)

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Appendix B: Locus A Artifact Catalogue

Appendix C: Locus B Artifact Catalogue