

**Stage 1-2 Archaeological Assessment,
53814 Zion Road, Wainfleet, Ontario**

Part of Lot 38, Concession 5,
Geographic Township of Wainfleet,
Historical County of Welland, now the Regional Municipality
of Niagara, Ontario

Submitted to:

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and

Ontario's Ministry of Heritage, Sport, Tourism and Culture
Industries

Submitted by:



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ORIGINAL REPORT

September 21, 2022

Executive Summary

Detritus Consulting Ltd. ('Detritus') was retained by William Heikoop of Upper Canada Consultants ('the Proponent') to conduct a Stage 1-2 archaeological assessment on Lot 38, Concession 5 within the Geographic Township of Wainfleet and the historical County of Welland, now the Regional Municipality of Niagara, Ontario (Figure 1). This investigation was conducted in advance of a proposed residential development on the southern end of the larger residential property located at 53814 Zion Road in the Town of Wainfleet, Ontario (Figure 4). At some point prior to the current investigation, this southern parcel was severed from the larger 53814 Zion Road property. For the purposes of this investigation, the Study Area will refer to severance parcel only.

An archaeological assessment was triggered by the Provincial Policy Statement ('PPS') that is informed by the *Planning Act* (Government of Ontario 1990a), which states that decisions affecting planning matters must be consistent with the policies outlined in the larger *Ontario Heritage Act* (Government of Ontario 1990b). According to Section 2.6.2 of the PPS, "development and site alteration shall not be permitted on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved." To meet this condition, a Stage 1-2 archaeological assessment of the Study Area was conducted as during the approval stage of the development under archaeological consulting license PO17 issued to Mr. Garth Grimes by the Ministry of Heritage, Sport, Tourism and Culture Industries ('MHSTCI') and adheres to the archaeological license report requirements under subsection 65 (1) of the *Ontario Heritage Act* (Government of Ontario 1990b) and the MHSTCI's *Standards and Guidelines for Consultant Archaeologists* ('Standards and Guidelines'; Government of Ontario 2011).

The Study Area is a roughly square parcel generally located on the northwestern corner of the intersection of Zion Road and Highway 3, to the west of the community of Winger Ontario. The small triangular park in the very corner of the intersection was not included in the Study Area. At the time of assessment, most of the Study Area was covered by trees and long grass. The northern half contained the southern end of the larger agricultural field that covered most of the retained portion of 53814 Zion Road. A small corrugated metal cabin was located amidst the trees in the middle of the Study Area with a laneway leading to Zion Rd. The southeastern corner of the Study Area contains an unnamed tributary of Big Forks Creek. Lastly, a portion of the treed area in the southwestern corner of the Study Area is an environmentally protected area, as noted on Figure 4 and 5. Development, site alteration and non-linear infrastructure shall not be permitted in areas designated as environmentally protected as per the Township of Wainfleet Official Plan (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016).

The Stage 1 background research indicated that the Study Area exhibited moderate to high potential for the identification and recovery of archaeological resources. A Stage 2 assessment was recommended for agricultural land and the grassy tree covered areas. The existing cabin and laneway were determined to retain no or low archaeological potential based on the Stage 2 identification of extensive a deep land alteration that has severely damaged the integrity of archaeological resources. The Stage 2 property inspection, conducted according to Section 2.1.8 of the *Standards and Guidelines* (Government of Ontario 2011), revealed that the unnamed tributary of Big Forks Creek in the southeastern corner of the Study Area was permanently wet. Therefore, this area was determined to retain no archaeological potential. The previously disturbed and permanently wet areas, as confirmed during a Stage 2 property inspection, were mapped and photo documented only. Lastly, the environmentally protected area, as indicated by the Township of Wainfleet Official Plan (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016; Figures 3 -5) are lands prohibited from development, site alteration, and non-linear infrastructure, therefore this area did not require a Stage 2 assessment as per Section 2.1, Standard 2e of the *Standards and Guidelines* (Government of Ontario 2011).

The Stage 2 field survey was conducted on July 5th and 7th, 2021 and July 22nd, 2022. This investigation consisted of a typical test pit assessment of the tree and grass covered portions of the Study Area, excluding the environmentally protected area and its required 30 metre buffer,

and a typical pedestrian survey of the agricultural land. The test pit survey resulted in the documentation of a single findspot, identified as FS1, along the western edge of the Study Area.

The Stage 2 assessment of FS1 resulted in the recovery of two pieces of pre-contact Aboriginal chipping detritus manufactured from Onondaga chert. Morphological analysis identified the specimens as a secondary and a thinning flake respectively. Given the small sample size, no site function can be determined.

Given the isolated nature of the two non-diagnostic artifacts, the cultural heritage value or interest of FS1 is judged to be sufficiently documented. FS1 does not fulfill any of the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines* (Government of Ontario 2011); therefore, **no further archaeological assessment is recommended for FS1.**

According to the *Township of Wainfleet Official Plan* (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016), a portion of the treed area in the southwestern corner of the Study Area has been identified as an environmentally protected area (Figures 3 and 4). *Township of Wainfleet Official Plan* (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016) states that Development, site alteration and non-linear infrastructure shall not be permitted in areas designated as environmentally protected. See correspondence in Supplementary Documentation for a copy of *Township of Wainfleet Official Plan* (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016). As per Section 7.8.1 Standard 1e of the *Standards and Guidelines* (Government of Ontario 2011) a no-go letter has been signed by the Proponent, indicating no development is to occur within the unassessed portion of the property zoned as an environmentally protected area (see Supplementary Documentation). In addition, a letter from the Approval Authority indicating alterations are prohibited within the environmentally protected areas.

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

Table of Contents

Executive Summary	ii
1.0 Project Context	6
1.1 Development Context	6
1.2 Historical Context.....	7
1.2.1 Post-Contact Aboriginal Resources	7
1.2.2 Euro-Canadian Land Use	8
1.3 Archaeological Context.....	9
1.3.1 Property Description and Physical Setting	9
1.3.2 Pre-Contact Aboriginal Land Use	10
1.3.3 Previous Identified Archaeological Work.....	10
1.3.4 Archaeological Potential.....	11
2.0 Field Methods	13
3.0 Record of Finds	15
3.1 FS1	15
3.1.5 Artifact Catalogue	16
4.0 Analysis and Conclusions	17
5.0 Recommendations.....	18
6.0 Advice on Compliance with Legislation	19
7.0 Bibliography and Sources	20
8.0 Maps.....	22
9.0 Images.....	27
9.1 Field Photos	27
9.2 Artifact Photo	30

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Acknowledgments

Generous contributions by William Heikoop of Upper Canada Consultants made this report possible.

1.0 Project Context

1.1 Development Context

Detritus Consulting Ltd. ('Detritus') was retained by William Heikoop of Upper Canada Consultants ('the Proponent') to conduct a Stage 1-2 archaeological assessment on Lot 38, Concession 5 within the Geographic Township of Wainfleet and the historical County of Welland, now the Regional Municipality of Niagara, Ontario (Figure 1). This investigation was conducted in advance of a proposed residential development on the southern end of the larger residential property located at 53814 Zion Road in the Town of Wainfleet, Ontario (Figure 4). At some point prior to the current investigation, this southern parcel was severed from the larger 53814 Zion Road property. For the purposes of this investigation, the Study Area will refer to severance parcel only.

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The purpose of a Stage 1 Background Study is to compile all available information about the known and potential archaeological heritage resources within the Study Area and to provide specific direction for the protection, management and/or recovery of these resources. In compliance with the *Standards and Guidelines* (Government of Ontario 2011), the objectives of the following Stage 1 assessment were as follows:

- To provide information about the Study Area's geography, history, previous archaeological fieldwork and current land conditions;
- to evaluate in detail, the Study Area's archaeological potential which will support recommendations for Stage 2 survey for all or parts of the property; and
- to recommend appropriate strategies for Stage 2 survey.

To meet these objectives Detritus archaeologists employed the following research strategies:

- A review of relevant archaeological, historic and environmental literature pertaining to the Study Area;
- a review of the land use history, including pertinent historic maps; and
- an examination of the Ontario Archaeological Sites Database ('ASDB') to determine the presence of known archaeological sites in and around the Study Area.

The purpose of a Stage 2 Property Assessment is to provide an overview of any archaeological resources within the Study Area; to determine whether any of the resources might be archaeological sites with cultural heritage value or interest ('CHVI'); and to provide specific direction for the protection, management and/or recovery of these resources. In compliance with the *Standards and Guidelines* (Government of Ontario 2011), the objectives of the following Stage 2 Property Assessment are as follows:

- To document all archaeological resources within the Study Area;
- to determine whether the Study Area contains archaeological resources requiring further assessment; and
- to recommend appropriate Stage 3 assessment strategies for archaeological sites identified.

The licensee received permission from the Proponent to enter the Study Area and conduct all required archaeological fieldwork activities, including the recovery of artifacts.

1.2 Historical Context

1.2.1 Post-Contact Aboriginal Resources

Prior to the arrival of European settlers, much of the central and southern Ontario was occupied by Iroquoian speaking linguistic groups that had united to form confederacies, including the Huron-Wendat, the Neutral (or Attawandaran), and the Petun in Ontario, as well as the Five Nations Iroquois Confederacy in Upper New York State (Birch 2010; Warrick 2013). Of these groups, the Huron-Wendat established themselves to the east of the Niagara escarpment and the Neutral, to the west (Warrick 2000).

Throughout the middle of the 17th century, the Iroquois Confederacy sought to expand upon their territory and to monopolize the fur trade between the European markets and the tribes of the western Great Lakes region. A series of bloody conflicts followed known as the Beaver Wars or the French and Iroquois Wars, contested between the Iroquois Confederacy and the Algonkian speaking communities of the Great Lakes region. Many communities were destroyed including the Huron, Neutral, Susquehannock and Shawnee leaving the Iroquois as the dominant group in the region. By 1653 after repeated attacks, the Niagara peninsula and most of Southern Ontario had been vacated (Heidenreich 1990).

At this same time, the Anishinaabeg Nation, an Algonkian-speaking community situated inland from the northern shore of Lake Huron, began to challenge the Haudenosaunee for dominance in the Lake Huron and Georgian Bay region in order to advance their own role in the fur trade (Gibson 2006). The Algonkian-speaking groups that settled in the area bound by Lake Ontario, Lake Erie, and Lake Huron were referred to by the English as the Chippewas or Ojibwas. By 1680, the Ojibwa began expanding into the evacuated Huron-Wendat territory, and eventually into Southern Ontario. By 1701, the Haudenosaunee had been driven out of Ontario completely and were replaced by the Ojibwa (Schmaltz 1991; Gibson 2006).

The late 17th and early 18th centuries also mark the arrival of an Ojibwa band known as the Mississaugas into Southern Ontario and, in particular, the watersheds of the lower Great Lakes. 'The Mississaugas' is the name that the Jesuits had used in 1840 for the Algonquin community living near the Mississagi River on the northwestern shore of Lake Huron (Smith 2002). The oral traditions of the Mississaugas, as recounted by Chief Robert Paudash and recorded in 1904, suggest that the Mississaugas defeated the Mohawk Nation, who retreated to their homeland south of Lake Ontario. Following this conflict, a peace treaty was negotiated between the two groups (Praxis Research Associates n.d.).

From the beginning of the 18th century until the end of the Seven Year War in 1763, the Ojibwa nation, including the Mississaugas, experienced a golden age in trade holding no alliance with either the French or the British (Schmaltz 1991). At the end of the 17th century, the Mississaugas' settled permanently in Southern Ontario (Praxis Research Associates n.d.). Around this same time, in 1722, the Five Nation Iroquois Confederacy adopted the Tuscarora in New York becoming the Six Nations (Pendergast 1995).

The Study Area first entered the Euro-Canadian historical record on December 7th, 1792 as part of Treaty No. 3, which included land acquired in the 'Between the Lakes Purchase' dating to May 22, 1784. According to the terms of the treaty, the Mississaugas ceded to the Crown approximately 3,000,000 acres of land between Lake Huron, Lake Erie, and Lake Ontario in return for trade goods valued at £1180.

The limits of the Treaty 3 lands are documented as comprising,

Lincoln County excepting Niagara Township; Saltfleet, Binbrook, Barton, Glanford and Ancaster Townships, in Wentworth County; Brantford, Onondaga, Tusc[a]r[o]ra, Oakland and Burford Townships in Brant County; East and West Oxford, North and South Norwich, and Dereham Townships in Oxford County; North Dorchester Township in Middlesex County; South Dorchester, Malahide

and Bayham Township in Elgin County; all Norfolk and Haldimand Counties; Pelham, Wainfleet, Thorold, Cumberland and Humberstone Townships in Welland County.

Morris 1943: 17-18

One of the stated objectives of the Between the Lakes Purchase was “to procure for that part of the Six Nation Indians coming into Canada a permanent abode” (Morris 1943: 17). Shortly after the transaction had been finalised in May of 1784, Sir Frederick Haldimand, the Governor of Québec, made preparations to grant a portion of land to those Six Nations who remained loyal to the Crown during the American War of Independence. More specifically, Haldimand arranged for the purchase of approximately 550,000 acres of land adjacent to the Treaty 3 limits from the Mississaugas. This tract of land, referred to as either the Haldimand Tract or the 1795 Crown Grant to the Six Nations, was provided for in the Haldimand Proclamation of October 25th, 1784 and was intended to extend a distance of six miles on each side of the Grand River from mouth to source (Weaver 1978). By the end of 1784, representatives from each constituent nation of the Six Nations, as well as other allies, relocated to the Haldimand Tract with Joseph Brant (Weaver 1978; Tanner 1987).

Throughout southern Ontario, the size and nature of the pre-contact settlements and the subsequent spread and distribution of Aboriginal material culture began to shift with the establishment of European settlers. By 1834 it was accepted by the Crown that losses of portions of the Haldimand Tract to Euro-Canadian settlers were too numerous for all lands to be returned. Lands in the Lower Grand River area were surrendered by the Six Nations to the British Government in 1832, at which point most Six Nations people moved into Tuscarora Township in Brant County and a narrow portion of Oneida Township (Page & Co. 1879; Weaver 1978; Tanner 1987). Following the population decline and the surrender of most of their lands along the Credit River, the Mississaugas were given 6000 acres of land on the Six Nations Reserve, establishing the Mississaugas of New Credit First Nation, now the Mississaugas of the Credit First Nation (‘MCFN’), in 1847 (Smith 2002).

Despite the encroachment of European settlers on previously established Aboriginal territories, “written accounts of material life and livelihood, the correlation of historically recorded villages to their archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to Iroquoian systems of ideology and thought” (Ferris 2009: 114). As Ferris observes, despite the arrival of a competing culture, First Nations communities throughout Southern Ontario have left behind archaeologically significant resources that demonstrate continuity with their pre-contact predecessors, even if they have not been recorded extensively in historical Euro-Canadian documentation.

1.2.2 Euro-Canadian Land Use

The Study Area is located within the Geographic Township of Wainfleet and the historical County of Welland, now the Regional Municipality of Niagara, Ontario (Figure 1).

The history of the region began in 1763, when the Treaty of Paris brought an end to the Seven Years War, contested between the French and the British and their respective allies. Under the Royal Proclamation of that same year, the large stretch of land from Labrador in the east, moving southwest through the Saint Lawrence River Valley to the Great Lakes, and on to the confluence of the Ohio and Mississippi Rivers became the British Province of Québec (Niagara Historical Society and Museum 2008).

On July 24, 1788, Sir Guy Carleton, the Governor-General of British North America, divided the Province of Québec into the administrative districts of Hesse, Nassau, Mecklenburg, and Lunenburg (Archives of Ontario 2012-2015). Further change came in December 1791 when the former province was rearranged into Upper Canada and Lower Canada under the provisions of the Constitutional Act. Colonel John Graves Simcoe was appointed as Lieutenant-Governor of Upper Canada and he spearheaded several initiatives to populate the province including the establishment of shoreline communities with effective transportation links between them (Coyne 1895).

In July 1792, Simcoe divided Upper Canada into 19 counties stretching from Essex in the west to Glengarry in the east. Each new county was named after a county in England or Scotland; the constituent townships were then given the names of the corresponding townships from each original British county (Powell and Coffman 1956).

Later that year, the four districts originally established in 1788 were renamed the Western, Home, Midland, and Eastern Districts. As population levels in Upper Canada increased, smaller and more manageable administrative bodies were needed resulting in the establishment of many new counties and townships. As part of this realignment, the boundaries of the Home and Western Districts were shifted and the London and Niagara Districts were established (Archives of Ontario 2012-15).

Wainfleet Township is characterised by poorly drained, often marshy land and, as a result, was one of the slowest in Lincoln County to be settled (Wainfleet Historical Society 1992). Among the first settlers in Wainfleet Township was David Morgan, who arrived from Pennsylvania during the American Revolution. Other early settlers included William Fares, Jacob Minor, Henry Zavitz, Abram Kinnaird, and Lawrence Furry, the founder of the community of Lowbanks (Sidey et al., 1887). The construction of the Feeder Canal between 1824 and 1829 further connected Wainfleet Township with neighbouring communities, but more importantly contributed to the drainage of the surrounding area (Wainfleet Historical Society 1992).

The *Illustrated Historical Atlas of the Counties of Lincoln and Welland* ('Historical Atlas', Figure 2) demonstrates the extent to which Wainfleet Township had been settled by 1876 (Page & Co 1876). Landowners are listed for every lot within the township, many of which had been subdivided multiple times into smaller parcels to accommodate an increasing population throughout the late 19th century. Structures and orchards are prevalent throughout the township, almost all of which front early roads or water courses.

The Study Area occupies the southeastern corner of Lot 38, Concession 5. At that time the lot was divided into two smaller parcels. R. A. Mewhinney is listed as the owner of the eastern half of the portion of Lot 38 that occurs between tributaries of Forks Creek. The Study Area is situated at the southern end of the Mewhinney property, adjacent to one of the two Forks Creek tributaries. A house and an orchard are illustrated within the Study Area. A second structure is depicted on the other side of this tributary, in the area currently occupied by a public park. A school house is depicted in the southwestern corner of neighbouring Lot 37. A blacksmith shop and a hotel are also visible in the vicinity on Lots 36, and 35, Concession 5 respectively.

It should be recognized, however, that historical county atlases were funded by subscriptions fees and were produced primarily to identify factories, offices, residences and landholdings of subscribers. Landowners who did not subscribe were not always listed on the maps (Caston 1997). Moreover, associated structures were not necessarily depicted or placed accurately (Gentilcore and Head 1984).

A branch of the Air Line Railroad spans the northern end of Lot 38, Concession 5, approaching from Marshville Station to the east. A parallel branch of the Canada Railroad is illustrated farther to the north, passing through the lots in Concession 6. Looking farther afield, the historical community of Winger can be observed to the east of the Study Area on Lots 31 and 32, Concession 5.

1.3 Archaeological Context

1.3.1 Property Description and Physical Setting

The Study Area is a roughly square parcel generally located on the northwestern corner of the intersection of Zion Road and Highway 3, to the west of the community of Winger Ontario. The small triangular park in the very corner of the intersection was not included in the Study Area. At the time of assessment, most of the Study Area was covered by trees and long grass. The northern half contained the southern end of the larger agricultural field that covered most of the retained portion of 53814 Zion Road. A small corrugated metal cabin was located amidst the trees in the middle of the Study Area with a laneway leading to Zion Rd. The southeastern corner of the Study Area contains an unnamed tributary of Big Forks Creek. Lastly, a portion of the treed area in the

southwestern corner of the Study Area is an environmentally protected area, as noted on Figure 4, which is prohibited from development, site alteration, and non-linear infrastructure as per the *Township of Wainfleet Official Plan* (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016).

The majority of the land surrounding the Study Area was subject to European-style agricultural practices for over 100 years, having been settled by Euro-Canadian farmers by the early 19th century.

The Study Area is situated within the Haldimand Clay Plain. According to Chapman and Putnam

...although it was all submerged in Lake Warren, the till is not all buried by stratified clay; it comes to the surface generally in low morainic ridges in the north. In fact, there is in that area a confused intermixture of stratified clay and till. The northern part has more relief than the southern part where the typically level lake plains occur.

Chapman and Putnam 1984:156

Haldimand clay is slowly permeable, imperfectly drained with medium to high water-holding capacities. Surface runoff is usually rapid, but water retention of the clayey soils can cause it to be droughty during dry periods (Kingston and Presant 1989). The soil is suitable for corn and soy beans in rotation with cereal grains as well as alfalfa and clover (Huffman and Dumanski 1986).

The closest source of potable water is the unnamed tributary of Big Forks Creek that runs through the southeastern corner of the Study Area. Looking farther afield, Lake Erie is located approximately 7.8 kilometres ('km') to the south.

1.3.2 Pre-Contact Aboriginal Land Use

The Study Area is situated in a portion of Southwestern Ontario has been occupied by people as far back as 11,000 years ago as the glaciers retreated. For the majority of this time, people were practicing hunter gatherer lifestyles with a gradual move towards more extensive farming practices. Table 1 provides a general outline of the cultural chronology of Wainfleet Township (Ellis and Ferris 1990).

Table 1: Cultural Chronology for Wainfleet Township

Time Period	Cultural Period	Comments
9500 – 7000 BC	Paleo Indian	first human occupation hunters of caribou and other extinct Pleistocene game nomadic, small band society
7500 - 1000 BC	Archaic	ceremonial burials increasing trade network hunter gatherers
1000 - 400 BC	Early Woodland	large and small camps spring congregation/fall dispersal introduction of pottery
400 BC – AD 800	Middle Woodland	kinship based political system incipient horticulture long distance trade network
AD 800 - 1300	Early Iroquoian (Late Woodland)	limited agriculture developing hamlets and villages
AD 1300 - 1400	Middle Iroquoian (Late Woodland)	shift to agriculture complete increasing political complexity large palisaded villages
AD 1400 - 1650	Late Iroquoian	regional warfare and political/tribal alliances destruction of Huron and Neutral

1.3.3 Previous Identified Archaeological Work

In order to compile an inventory of known archaeological resources in the vicinity of the Study Area, Detritus consulted the ASDB. The ASDB, which is maintained by the MHSTCI (Government

of Ontario n.d.), contains information concerning archaeological sites that have been registered according to the Borden system. Under the Borden system, Canada is divided into grid blocks based on latitude and longitude. A Borden Block is approximately 13km east to west and approximately 18.5km north to south. Each Borden Block is referenced by a four-letter designator and sites within a block are numbered sequentially as they are found. The Study Area lies within block AfGu.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information and Protection of Privacy Act* (Government of Ontario 1990c). The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MHSTCI will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

According to the ASDB, no sites have been registered within a 1km radius of the Study Area. To the best of Detritus knowledge, no sites are located within 50m of the Study Area and no field surveys have been conducted on adjacent properties.

1.3.4 Archaeological Potential

Detritus applied archaeological potential criteria commonly used by the MHSTCI to determine areas of archaeological potential within the Study Area. According to Section 1.3.1 of the *Standards and Guidelines* (Government of Ontario 2011), these variables include proximity to previously identified archaeological sites, distance to various types of water sources, soil texture and drainage, glacial geomorphology, elevated topography, and the general topographic variability of the area.

Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and, when considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential. When evaluating distance to water it is important to distinguish between water and shoreline, as well as natural and artificial water sources, as these features affect site locations and types to varying degrees. As per Section 1.3.1 of the *Standards and Guidelines* (Government of Ontario 2011), water sources may be categorized in the following manner:

- Primary water sources lakes, rivers, streams, creeks;
- secondary water sources intermittent streams and creeks, springs, marshes and swamps;
- past water sources, glacial lake shorelines, relic river or stream channels, cobble beaches, shorelines of drained lakes or marshes; and
- accessible or inaccessible shorelines high bluffs, swamp or marshy lake edges, sandbars stretching into marsh.

As was stated above, the closest source of potable water is the unnamed tributary of Big Forks Creek that runs through the southeastern corner of the Study Area. Looking farther afield, Lake Erie is located approximately 7.8km to the south.

Soil texture is also an important determinant of past settlement, usually in combination with other factors such as topography. The Study Area is situated within the Haldimand Clay Plain physiographic region. As mentioned above, the primary soils within the Study Area are well-watered and imperfectly drained. The soil is considered to have been suitable for pre-contact and post-contact Aboriginal practices. Considering also the length of occupation of the area prior to the arrival of European settlers, the pre-contact and post-contact Aboriginal archaeological potential of the Study Area is judged to be moderate to high.

For Euro-Canadian sites, archaeological potential can be extended to areas of early Euro-Canadian settlement, including places of military or pioneer settlements; early transportation routes; and properties listed on the municipal register or designated under the *Ontario Heritage Act* (Government of Ontario 1990b) or property that local histories or informants have identified with possible historical events.

As was discussed above in Section 1.2.2, Wainfleet Township was occupied by European settlers from the early 19th century onwards. R. A. Mewhinney is listed as the owner of the Study Area on the *Historical Atlas* map of Wainfleet Township as of 1877. Considering also the proximity of the Air Line and Canada Railroads, and the historical community of Winger, the Euro-Canadian archaeological potential of the Study Area is judged to be moderate to high.

Finally, despite the factors mentioned above, extensive land disturbance can eradicate archaeological potential within a Study Area, as per Section 1.3.2 of the *Standards and Guidelines* (Government of Ontario 2011). No visible areas of previous disturbance were observed on current aerial imagery of the Study Area; therefore, the entire Study Area is recommended for a Stage 2 field assessment.

2.0 Field Methods

The Stage 2 field assessment was conducted on July 5th and 7th, 2021 and July 22nd, 2022 under consulting license PO17 issued to Mr. Garth Grimes by the MHSTCI. The limits of the Study Area were established using a georeferenced shapefile produced using QGIS and uploaded to a hand-held GPS device running Qfield.

During the Stage 2 field work, the weather was overcast and warm daily high temperatures ranging from 27° to 30° Celsius (°C) (Table 2). Assessment conditions were excellent; at no time were the field, weather, or lighting conditions detrimental to the recovery of archaeological material. Photos 1 to 20 demonstrate the field conditions throughout the Study Area at the time of the assessment, including areas that met the requirements for a Stage 2 archaeological assessment, as per Section 7.8.6, Standards 1a and b of the *Standards and Guidelines* (Government of Ontario 2011). Figure 3 illustrates the Stage 2 assessment methods, including all photograph locations and directions, in relation to the current development map.

Table 2: Daily Weather and Field Conditions

Date	Field Director	Activity	Weather	Field Conditions
July 5 th , 2021	Mathew Gibson, R1160	test pit survey	sunny, high of 27° C	soil dry, screened easily
July 7 th , 2021	Mathew Gibson, R1160	test unit excavation	mix of sun and clouds, high of 30° C	soil dry, screened easily
July 22 nd , 2022	Michael Pitul, P462	pedestrian survey	partly cloudy, high of 27° C	soil visibility >80%

Approximately 40% of the Study Area comprised the overgrown grass and tree covered areas that were determined to be inaccessible to ploughing. These areas were subject to a typical Stage 2 test pit survey, conducted at 5m intervals in accordance with Section 2.1.2, Standards 1 and 2 of the *Standards and Guidelines* (Government of Ontario 2011; Photos 5-7, 16, 17). Test pits were excavated to within 1m of the small cabin as per Section 2.1.2, Standard 4 of the *Standards and Guidelines* (Government of Ontario 2011). Each test pit was at least 30 centimetres (‘cm’) in diameter and excavated 5cm into sterile subsoil as per Section 2.1.2, Standards 5 and 6 of the *Standards and Guidelines* (Government of Ontario 2011).

The test pits in area to the north and northwest of the cabin featured over 50 centimetres (‘cm’) of sterile sandy soil that resembled builders’ sand above an orange brown sandy subsoil. Test pits throughout the remainder of the Study Area ranged from 30-40cm and featured a dark grey sandy silt identified as topsoil above the same orange brown sandy subsoil. Considering that each test pit was excavated 5cm into sterile subsoil, the topsoil ranged in thickness from 25-35cm.

All excavated soil was examined for stratigraphy, cultural features, or evidence of fill. All soil was screened through six-millimetre mesh hardware cloth to facilitate the recovery of small artifacts and was then used to backfill the pits as per Section 2.1.2, Standards 7 and 9 of the *Standards and Guidelines* (Government of Ontario 2011). The test pit survey resulted in the documentation of a single pre-contact Aboriginal artifact from a test pit along the western edge of the Study Area.

When archaeological resources were encountered, the test pit survey was continued on the survey grid to determine whether there were further positive test pits in the vicinity of FS1, as per Section 2.1.2, Standard 1 of the *Standards and Guidelines* (Government of Ontario 2011). Given that insufficient archaeological resources were found through continued survey on the 5m grid to meet the criteria for continuing to Stage 3, the survey coverage was intensified around the positive test pit using Option A within Section 2.1.2, Standard 2 of the *Standards and Guidelines* (Government of Ontario 2011). More specifically, eight additional test pits were excavated around the positive test pit within at a distance of 2.5m; and a single 1m square test unit was excavated over it. This intensification resulted in the decimation of a second pre-contact Aboriginal artifact from the test unit. The two artifacts were designated in the field as FS1.

Approximately 20% of the Study Area comprised active agricultural land was accessible to ploughing, and thus met the criteria for a Stage 2 pedestrian survey as per Section 2.1.1, Standard 1 of the *Standards and Guidelines* (Government of Ontario 2011). The land was ploughed and allowed to weather prior to assessment, as per Section 2.1.1, Standards 2 and 3 of the *Standards*

and Guidelines (Government of Ontario 2011). The ploughing was deep enough to provide total topsoil exposure, and provided a minimum of 80% surface visibility as per Section 2.1.1, Standards 4 and 5 of the *Standards and Guidelines* (Government of Ontario 2011). The ploughed land was subject to pedestrian survey at a 5m interval in accordance with Section 2.1.1, Standard 6 of the *Standards and Guidelines* (Government of Ontario 2011; Photos 1-4). No archaeological material was encountered therefore no further assessment methods were employed.

Approximately 25% of the Study Area comprised the environmentally protected area identified on the development map provided by the Proponent (Figure 4). This area (Photos 13-15) is prohibited from development, site alteration, and non-linear infrastructure as per the *Township of Wainfleet Official Plan* (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016), and did not require a Stage 2 assessment as per Section 2.1, Standard 2e of the *Standards and Guidelines* (Government of Ontario 2011).

Approximately 10% of the Study Area comprised the possible disturbance area identified on the current aerial imagery of the Study Area. Following a Stage 2 property inspection (see Section 1.3.4 above), the small metal cabin, the laneway, and the area surrounding the cabin were evaluated as having no potential based on the identification of extensive and deep land alteration that has severely damaged the integrity of archaeological resources, as per Section 2.1, Standard 2b of the *Standards and Guidelines* (Government of Ontario 2011). This area of previous disturbance was mapped and photo documented in accordance with Section 2.1, Standard 6 and Section 7.8.1, Standard 1b of the *Standards and Guidelines* (Government of Ontario 2011; Photos 8-10).

The remaining 5% of the Study Area comprised an unnamed tributary of Big Forks Creek. Following a Stage 2 property inspection (see Section 1.3.4 above), the unnamed tributary was evaluated as having no potential, as per Section 2.1, Standard 2.a.i of the *Standards and Guidelines* (Government of Ontario 2011). This permanently wet area was mapped and photo documented in accordance with Section 2.1, Standard 6 and Section 7.8.1, Standard 1a of the *Standards and Guidelines* (Government of Ontario 2011; Photos 11, 12).

3.0 Record of Finds

The Stage 2 archaeological assessment was conducted employing the methods described in Section 2.0 above resulting in the documentation of a single pre-contact Aboriginal findspots, identified in the field as FS1. An inventory of the documentary record generated by the fieldwork is provided in Table 3 below.

Table 3: Inventory of Document Record

Document Type	Current Location	Additional Comments
1 page of field notes	Detritus' office	Stored digitally in project file
1 map provided by the proponent	Detritus' office	Stored digitally in project file
1 field map	Detritus' office	Stored digitally in project file
47 digital photographs	Detritus' office	Stored digitally in project file

All of the material culture collected during the Stage 2 survey is contained in one box and will be temporarily housed in the offices of Detritus until formal arrangements can be made for its transfer to Her Majesty the Queen in right of the Province of Ontario or another suitable public institution acceptable to the MHSTCI.

3.1 FS1

The Stage 2 assessment of FS1 resulted in the documentation of two pre-contact Aboriginal artifacts, both of which were identified as pieces of Onondaga chert chipping detritus.

Onondaga chert is a dense non-porous rock that derives from the Middle Devonian age, with outcrops occurring along the north shore of Lake Erie between Long Point and the Niagara River. It typically occurs in nodules or irregular thin beds, and may appear light to dark grey, bluish grey, brown, or black; it can also be mottled with a dull to vitreous or waxy lustre. Onondaga chert is often found at archaeological sites in southern Ontario, and is commonly recognised as a high-quality raw material that was frequently utilized by pre-contact Aboriginal people (Eley and von Bitter 1989).

Chipping detritus is the waste product from the production of stone tools and is the most frequently recovered artifact on pre-contact Aboriginal sites in southern Ontario. Chipping detritus has a low significance and interpretive value when it is not associated with any diagnostic material, therefore they cannot be used to determine the cultural affiliation or time period of the occupation of a site.

Both pieces of chipping detritus from FS1 were subject to morphological analysis following the classification scheme described by Lennox, Dodd and Murphy for the Wiacek Site (Lennox *et al.* 1986) and expanded upon by Fisher for the Adder Orchard site (Fisher 1997). Primary and secondary flakes, along with cortical removal flakes, are a product of percussion flaking undertaken during the initial reduction phases of raw material into blanks, bifaces and preforms. These early-stage reduction flakes tend to exhibit minimal dorsal flake scarring, and are often characterized by the presence of cortex, or the original unflaked chert exterior, on their dorsal surfaces and proximal ends. For cortical removal flakes, over half of the dorsal surface comprises cortex; for primary flakes, less than half. Secondary flakes, meanwhile, may not contain any cortex. Thinning flakes are produced during the latter stages of lithic reduction, when blanks, bifaces, and preforms are shaped into projectile points and formal tools. They are the result of pressure flaking, where the maker uses a softer material such as antler, wood or bone to apply direct pressure onto a specific part of the tool. Pressure flaking generally produces smaller, thinner flakes than does percussion flaking. Thinning flakes also exhibit more flake scars on their dorsal surface than do primary or secondary flakes.

A morphological analysis of the two flakes recovered indicate that one is a tool thinning flake, and the other is a secondary flake. Given the small sample size, no site function could be determined.

3.1.5 Artifact Catalogue

The complete catalogue of artifacts recovered during the Stage 2 assessment of FS1 is provided in Table 4 on the following page.

Table 4: FS1 Stage 2 Catalogue

Cat #	Context	Artifact	Frequency	Chert	Morphology
1	test pit	chipping detritus	1	Onondaga	thinning flake
2	test unit	chipping detritus	1	Onondaga	secondary flake

4.0 Analysis and Conclusions

Detritus was retained by the Proponent to conduct a Stage 1-2 archaeological assessment in advance of a proposed residential development on the southern severed portion of 53814 Zion Road in the Town of Wainfleet, Ontario.

The Stage 1 background research indicated that the Study Area exhibited moderate to high potential for the identification and recovery of archaeological resources. A Stage 2 assessment was recommended for agricultural land and the grassy tree covered areas. The existing cabin and laneway were determined to retain no or low archaeological potential based on the Stage 2 identification of extensive a deep land alteration that has severely damaged the integrity of archaeological resources. The Stage 2 property inspection, conducted according to Section 2.1.8 of the *Standards and Guidelines* (Government of Ontario 2011), revealed that the unnamed tributary of Big Forks Creek in the southeastern corner of the Study Area was permanently wet. Therefore, this area was determined to retain no archaeological potential. The previously disturbed and permanently wet areas, as confirmed during a Stage 2 property inspection, were mapped and photo documented only. Lastly, the environmentally protected area, as indicated by the *Township of Wainfleet Official Plan* (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016; Figures 3 -5) are lands prohibited from development, site alteration, and non-linear infrastructure, therefore this area did not require a Stage 2 assessment as per Section 2.1, Standard 2e of the *Standards and Guidelines* (Government of Ontario 2011).

The Stage 2 field survey was conducted on July 5th and 7th, 2021 and July 22nd, 2022. This investigation consisted of a typical test pit assessment of the tree and grass covered portions of the Study Area, excluding the environmentally protected area and its required 30 metre buffer, and a typical pedestrian survey of the agricultural land. The test pit survey resulted in the documentation of a single findspot, identified as FS1, along the western edge of the Study Area.

The Stage 2 assessment of FS1 resulted in the recovery of two pieces of pre-contact Aboriginal chipping detritus manufactured from Onondaga chert. Morphological analysis identified the specimens as a secondary and a thinning flake respectively. Given the small sample size, no site function can be determined.

5.0 Recommendations

Given the isolated nature of the two non-diagnostic artifacts, the CHVI of FS1 is judged to be sufficiently documented. FS1 does not fulfill any of the criteria for a Stage 3 archaeological investigation as per Section 2.2 of the *Standards and Guidelines* (Government of Ontario 2011); therefore, **no further archaeological assessment is recommended for FS1.**

Additionally, according to the *Township of Wainfleet Official Plan* (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016), a portion of the treed area in the southwestern corner of the Study Area has been identified as an environmentally protected area (Figures 3 and 4). *Township of Wainfleet Official Plan* (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016) states that Development, site alteration and non-linear infrastructure shall not be permitted in areas designated as environmentally protected. See correspondence in Supplementary Documentation for a copy of *Township of Wainfleet Official Plan* (Sorensen Gravely Lowes Planning Associates Inc. *et al.* 2016). As per Section 7.8.1 Standard 1e of the *Standards and Guidelines* (Government of Ontario 2011) a no-go letter has been signed by the Proponent, indicating no development is to occur within the unassessed portion of the property zoned as an environmentally protected area (see Supplementary Documentation). In addition, a letter from the Approval Authority indicating alterations are prohibited within the environmentally protected areas.

6.0 Advice on Compliance with Legislation

This report is submitted to the Minister of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

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 Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

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

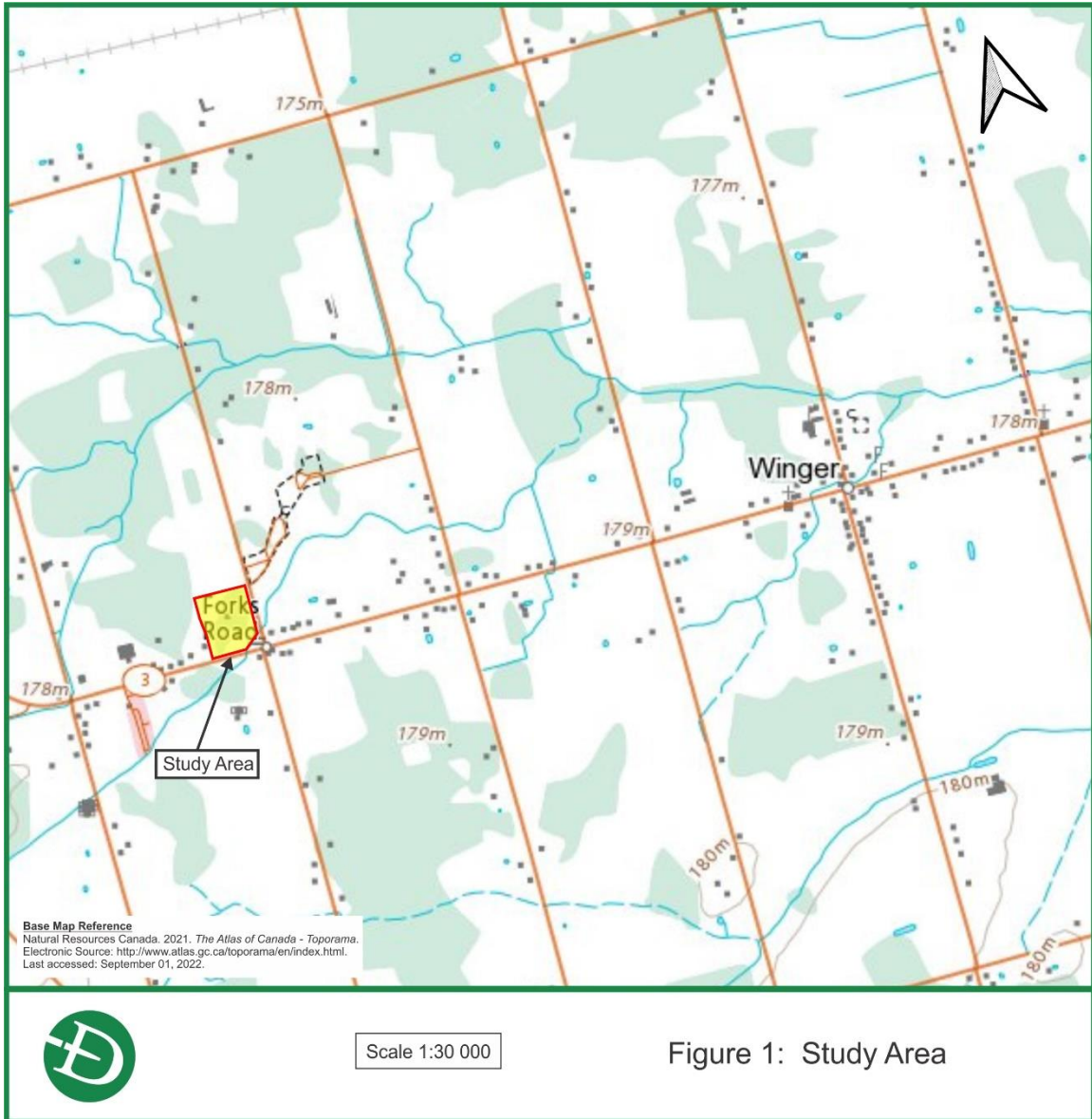
The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

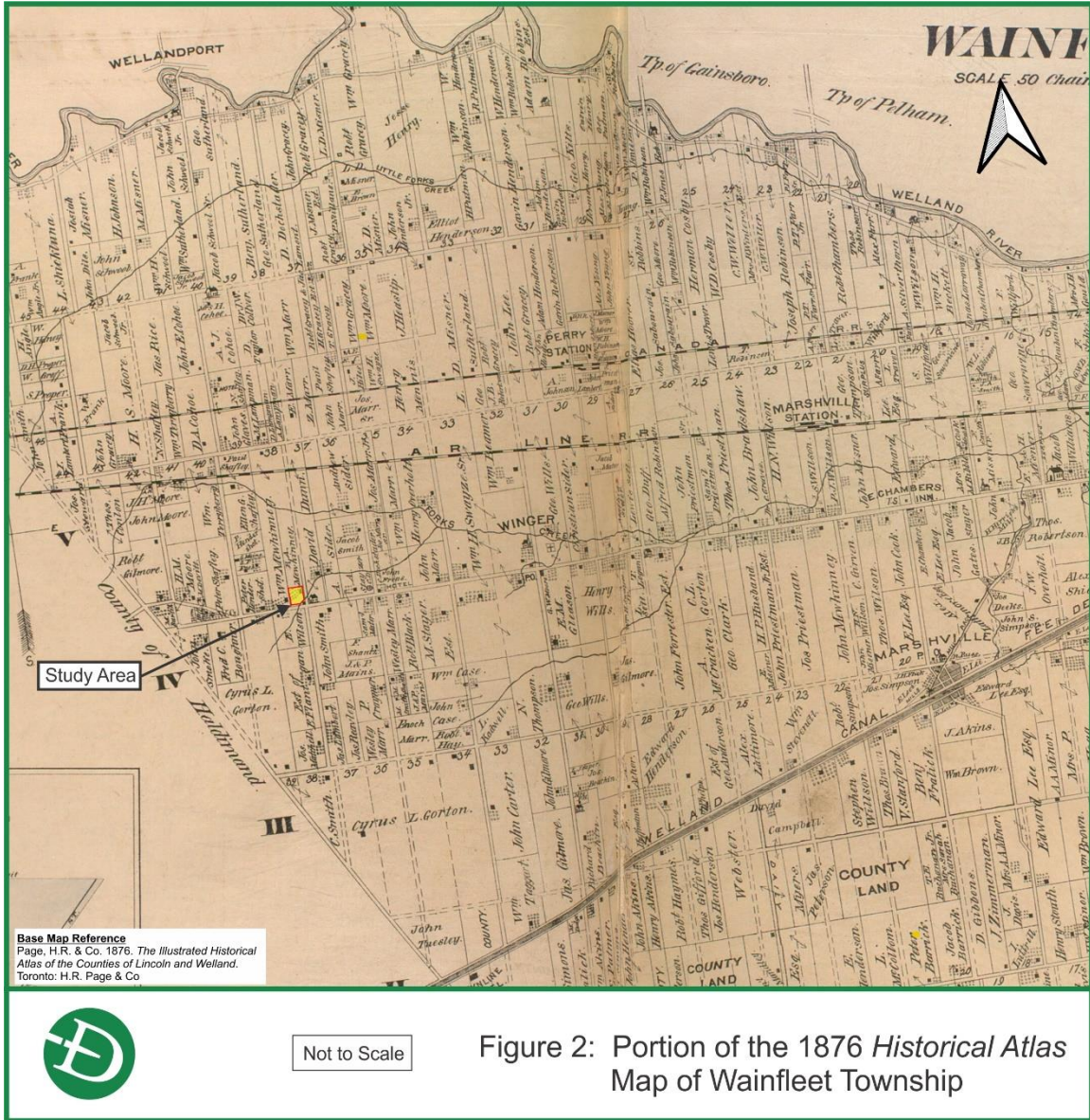
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8.0 Maps





Not to Scale

Figure 2: Portion of the 1876 Historical Atlas Map of Wainfleet Township

Stage 1-2 Archaeological Assessment, 53814 Zion Road, Wainfleet



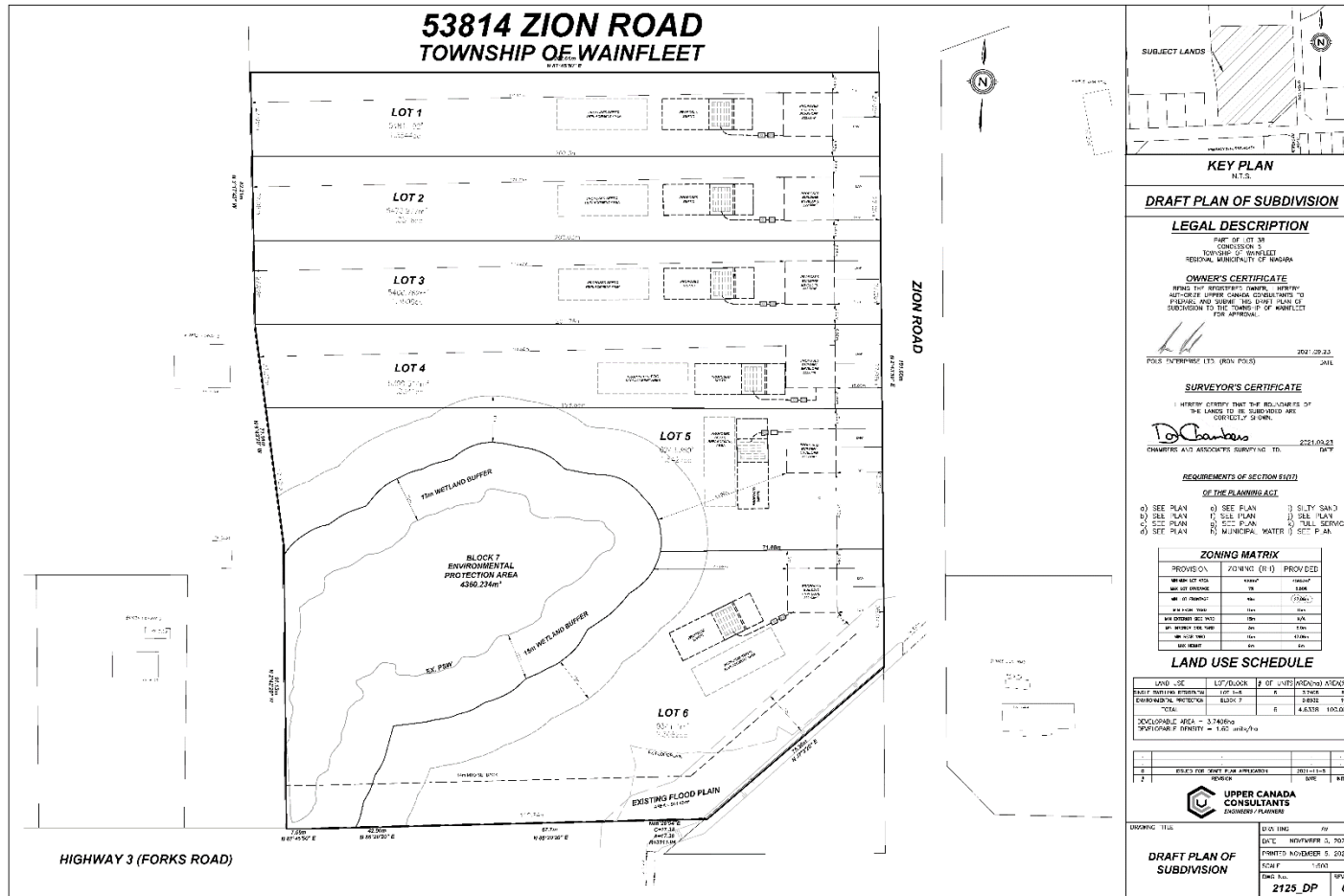
Legend

- Study Area
- Test Pit Survey at 5m Intervals
- Pedestrian Survey at 5m Intervals
- Environmental Protection Area, Not Assessed
- Previously Disturbed, Not Assessed
- Permanently Wet, Not Assessed
- Ⓢ Photo Location and Direction



Figure 3: Stage 2 Survey Methods in Relation to the Development of the Study Area

Figure 4: Development Map



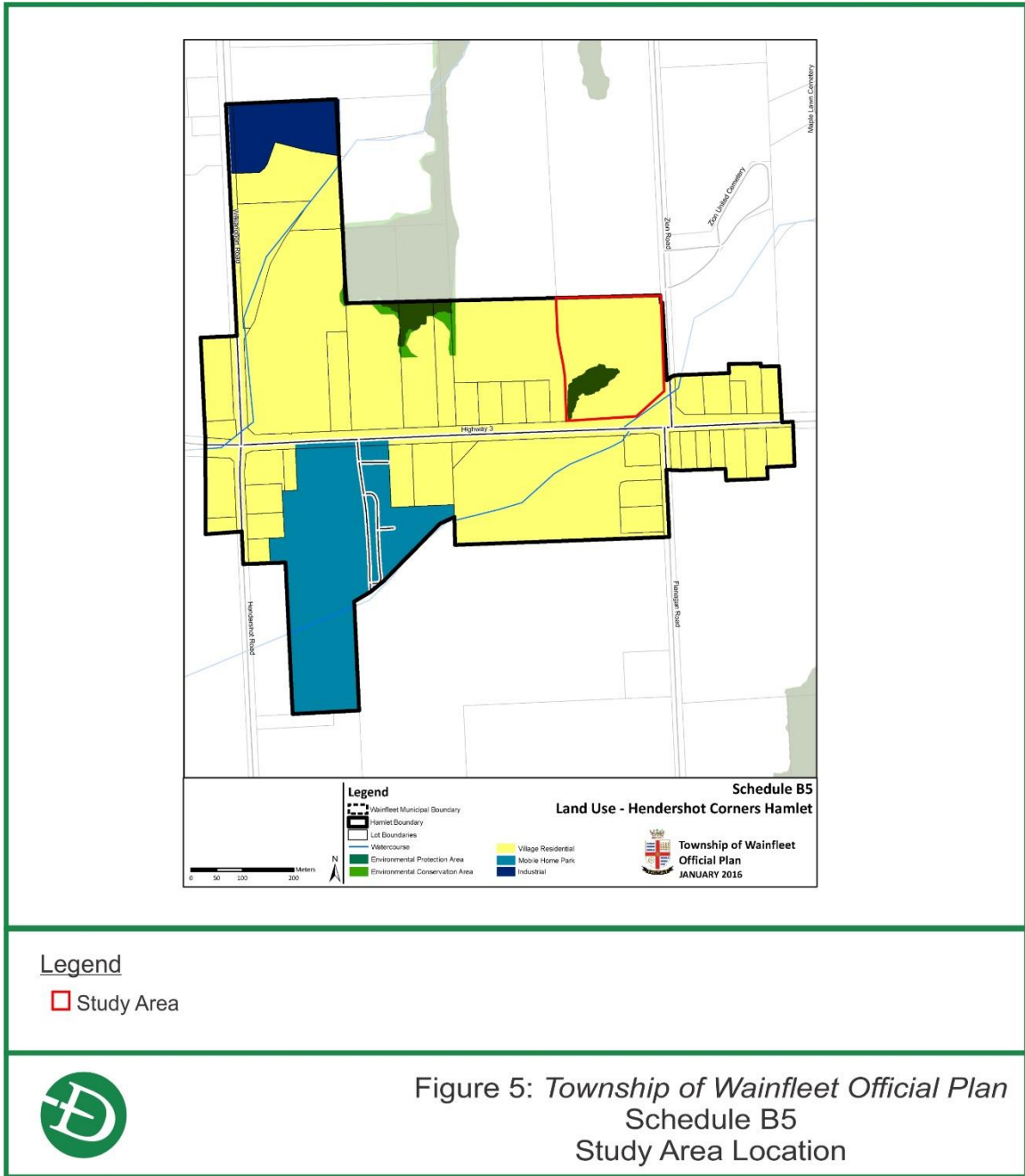


Figure 5: Township of Wainfleet Official Plan
Schedule B5
Study Area Location

9.0 Images

9.1 Field Photos

Photo 1: Pedestrian Survey at 5m Intervals, looking southwest



Photo 2: Pedestrian Survey at 5m Intervals, looking northeast



Photo 3: Pedestrian Survey at 5m Intervals, looking southeast



Photo 4: Pedestrian Survey at 5m Intervals, looking southeast



Photo 5: Test Pit Survey at 5m Intervals, looking southwest



Photo 6: Test Pit Survey at 5m Intervals, looking north

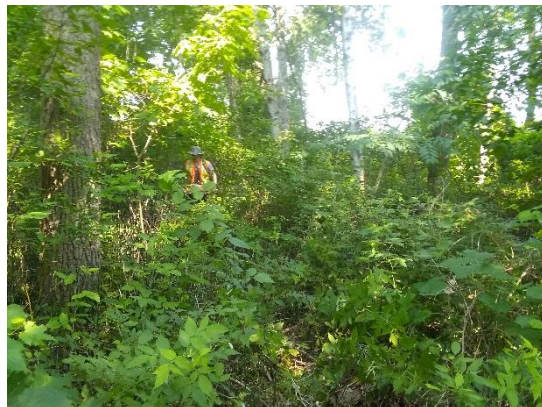


Photo 7: Test Pit Survey at 5m Intervals, looking south



Photo 8: Disturbed Laneway and Metal Cabin Area Not Assessed, looking southeast



Photo 9: Disturbed Laneway Not Assessed, looking west



Photo 10: Disturbed Metal Cabin Area Not Assessed, looking south



Photo 11: Permanently Wet Not Assessed, looking southwest



Photo 12: Permanently Wet Not Assessed, looking southwest



Photo 13: Environmentally Protected Area Not Assessed, looking northeast



Photo 14: Environmentally Protected Area Not Assessed, looking south



Photo 15: Environmentally Protected Area Not Assessed, looking northeast



Photo 16: Typical Test Pit



Photo 17: Typical Test Pit



Photo 18: Test Unit Excavation, looking north



Photo 19: Test Unit Plan, looking north



Photo 20: Test Unit Profile, looking north



9.2 Artifact Photo

Plate 1: Chipping Detritus Recovered from FS1

