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Appendix C

Stage 1 Archaeological Assessment (Archeoworks Inc.)

ARCHEOWORKS INC.

Stage 1 Archaeological Assessment for the Schedule B Class Environmental Assessment Study For New Wastewater Forcemain from Fulton Street Pumping Station To Derry Road and Santa Maria Boulevard Within Part of Lots 10 to 13, Concession 2 In the Geographic Township of Trafalgar (North) Former County of Halton Town of Milton Regional Municipality of Halton Ontario

Project #: 145-MI1412-15
Licensee (#): Nimal Nithiyanantham (P390)
PIF#: P390-0229-2016

Revised Report

April 20th, 2018
*Revised Based on MTCS Comments dated September 12, 2017

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EXECUTIVE SUMMARY

In October 2016, Halton Regional Council approved the preferred option to close the Milton WWTP and divert all its flow to the much larger lake-based Mid-Halton WWTP located in Oakville. To facilitate this preferred option, a second wastewater forcemain (WWFM) from the Fulton Street Wastewater Pumping Station (WWPS) is required.

Archeoworks Inc. was retained by *CIMA* in support of a Municipal Class Environmental Assessment (EA) study to conduct a Stage 1 AA to evaluate the proposed construction of a new 600 mm forcemain from the Milton Wastewater Treatment Plant (WWTP) and Fulton Pumping Station (PS), along Commercial Street to approximately 35 metres south of Derry Road. The proposed construction will be confined to the Commercial Street Right-Of-Way (ROW). This property will herein be referred to as the "study corridor". The study corridor is situated within part of Lots 10 to 13, Concession 2, in the Geographic Township of Trafalgar (North), historical County of Halton, Town of Milton, Regional Municipality of Halton, Ontario.

Background research identified elevated potential for the recovery of archaeologically significant materials within the study corridor based on the close proximity (within 300 metres) of: historic structures, historic transportation routes, previously registered archaeological sites, designated and listed cultural heritage resources, and a primary water source.

An on-site property inspection was conducted, where disturbances were documented within the study corridor, including paved roads/sidewalks/driveways, roadside ditches, utilities, a former landfill, a culvert, extensive landscaping, and grading. Additionally, physiographic features with no or low archaeological potential were identified, consisting of areas of steep slopes associated with Sixteen Mile Creek. The remaining balance of the study corridor was identified as retaining archaeological potential, and thus, require a Stage 2 AA. Areas requiring a Stage 2 AA include (but are not limited to): woodlots and manicured grassed margins.

Based on a collective review of all the background data and property inspection, the following recommendations are presented:

1. As per *Section 1.3.2* of the *2011 S&G,* portions of the study corridor exhibit disturbed conditions where archaeological potential has been removed. These disturbed areas are recommended to be exempt from further Stage 2 AA.

2. As per *Section 2.1, Standard 2.a* of the *2011 S&G,* lands evaluated as having no or low potential are recommended to be exempt from further Stage 2 AA.

3. All identified areas which contain archaeological potential, must be subjected to a Stage 2 AA. Given the urban location and narrow width of each alignment, the manicured grass areas and woodlots must be subjected to a shovel test pit archaeological survey in accordance with *Section 2.1.2* of the *2011 S&G*.

4. Should construction activities associated with this development project extend beyond the assessed limits of the study corridor, further archaeological investigation will be required to assess the archaeological potential of these lands.

No construction activities shall take place within the study corridor prior to the *Ministry of Tourism, Culture and Sport* (Archaeology Program Unit) confirming in writing that all archaeological licensing and technical review requirements have been satisfied.

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PROJECT PERSONNEL

Project and Field Director ..... Nimal Nithiyanantham - MTCS licence P390

Report Preparation .....Alvina Tam - MTCS licence P1016
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1.0 PROJECT CONTEXT

1.1 Objective

The objectives of a Stage 1 Archaeological Assessment (AA), as outlined by the 2011 *Standards and Guidelines for Consultant Archaeologists* (‘*2011 S&G’*) published by the *Ministry of Tourism, Culture, and Sport* (*MTCS*) (2011), are as follows:

- To provide information about the property’s geography, history, previous archaeological fieldwork and current land condition;
- To evaluate in detail the property’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.

1.2 Development Context

In October 2016, Halton Regional Council approved the preferred option to close the Milton WWTP and divert all its flow to the much larger lake-based Mid-Halton WWTP located in Oakville. To facilitate this preferred option, a second wastewater forcemain (WWFM) from the Fulton Street Wastewater Pumping Station (WWPS) is required.

Archeoworks Inc. was retained by *CIMA* in support of a Municipal Class Environmental Assessment (EA) study to conduct a Stage 1 AA to evaluate the proposed construction of a new 600 mm forcemain from the Milton Wastewater Treatment Plant (WWTP) and Fulton Pumping Station (PS), along Commercial Street to approximately 35 metres south of Derry Road. The proposed construction will be confined to the Commercial Street Right-Of-Way (ROW) (***see Appendix A – Maps 1-2***). This property will herein be referred to as the “study corridor”. The study corridor is situated within part of Lots 10 to 13, Concession 2, in the Geographic Township of Trafalgar (North), historical County of Halton, Town of Milton, Regional Municipality of Halton, Ontario.

The Regional Municipality of Halton has an archaeological management plan (AMP) that is founded on the principles of archaeological potential modeling. Archaeological site potential modeling incorporates a variety of sources, such as history, human geography, settlement archaeology, ecological archaeology, and paleoecology, in an attempt to reconstruct past land use patterns. The predictive model employs two approaches, using known site locations and attempts to predict site locations on the basis of expected behavioural patterns, such as access to water for travel and subsistence (ASI, 2009, p.2). According to the Regional Municipality of Halton AMP, numerous archaeological features have been identified within and adjacent to the study corridor (***see Maps 3-4***).

This study was triggered by the Municipal Class EA process under 'Schedule B'. This Stage 1 AA was conducted under the project direction of Mr. Nimal Nithiyanantham, under the archaeological consultant licence number P390, in accordance with the *Ontario Heritage Act* (2009). Permission to investigate the study corridor was granted by *CIMA* on April 14th, 2016.

1.3 Historical Context

To establish the archaeological and historical significance of the study corridor, *Archeoworks Inc*. conducted a comprehensive review of Aboriginal and Euro-Canadian settlement history, local history, designated and listed heritage properties, commemorative markers, as well as consulted with available historical mapping. Furthermore, an examination of registered archaeological sites and previous AAs within close proximity to its limits, and review of the physiography of the overall area and its correlation to locating archaeological remains, was performed.

The results of this background research are documented below and summarized in **Appendix B – Summary of Background Research.**

1.3.1 Pre-Contact Period

1.3.1.1 The Paleoindian Period (ca. 11,000 to 7,500 B.C.)

The region in which the study corridor is situated was first inhabited after the final retreat of the North American Laurentide ice sheet 15,000 years ago (or 13,000 B.C.) (Stewart, 2013, p.24). Initial vegetation of the majority of Southern Ontario was tundra-like. As the average climatic temperature began to warm, small groups of Paleoindians entered Ontario (Karrow and Warner, 1990, p.22; Stewart, 2013, p.28). Generally, Paleoindians are thought to have been small groups of nomadic hunter-gatherers who depended on naturally available foodstuffs such as game or wild plants (Ellis and Deller, 1990, p.38). For much of the year, Paleoindians "hunted in small family groups; these would periodically gather into a larger grouping or bands during a favourable period in their hunting cycle, such as the annual caribou migration" (Wright, 1994, p.25).

Paleoindian sites are extraordinarily rare and consist of "stone tools clustered in an area of less than 200-300 metres" (Ellis, 2013, p.35). These sites appear to have been campsites used during travel episodes and can be found on well-drained soils in elevated situations, which would have provided a more comfortable location in which to camp and view the surrounding territory (Ellis and Deller, 1990, p.50). Traditionally, Paleoindian sites have been located primarily along abandoned glacial lake strandlines or beaches. However, this view is biased as these are only areas in which archaeologists have searched for sites, due to the current understanding of the region's geological history (Ellis and Deller, 1990, p.50; Ellis, 2013, p.37). In areas where attention has been paid to non-strandline areas and to older strandlines, sites are much less concentrated and more ephemeral (Ellis and Deller, 1990, p.51).

Artifact assemblages from this period are characterized by fluted and lanceolate stone points, scrapers, and small projectile points produced from specific chert types (Ellis and Deller, 1990).

Distinctive dart heads were used to kill game, and knives were used for butchering and other tasks (Wright, 1994, p.24). These items were created and transported over great distances while following migratory animals within a massive territory.

1.3.1.2 The Archaic Period (ca. 7,800 to 500 B.C.)

As the climate continued to warm and the post-glacial environment began to normalize, deciduous trees slowly began to permeate throughout Southern Ontario, creating mixed deciduous and coniferous forests (Karrow and Warner, 1990, p.30). The "Archaic peoples are the direct descendants of Paleoindian ancestors" having adapted to meet new environmental and social conditions (Ellis, 2013, p.41; Wright, 1994, p.25). The Archaic period is divided chronologically and cultural groups are divided geographically and sequentially. Archaic Aboriginals lived in "hunter-gatherer bands whose social and economic organization was probably characterized by openness and flexibility" (Ellis et al., 1990, p.123). This fluidity creates 'traditions' and 'phases' which encompasses large groups of Archaic Aboriginals (Ellis et al., 1990, p.123).

Few Archaic sites have faunal and floral preservation; hence lithic scatters are often the most commonly encountered Archaic Aboriginal site type (Ellis et al., 1990, p.123). House structures have "left no trace" due to the high acidic content of Ontario soils (Wright, 1994, p.27). Burial/grave goods and ritual items appear, although very rarely. By the Late Archaic, multiple individuals were interred together suggesting semi-permanent communities were in existence (Ellis, 2013, p.46). Ceremonial and decorative items also appear on Archaic Aboriginal sites through widespread trade networks, such as conch shells from the Atlantic coast and galena from New York (Ellis, 2013, p.41). Through trade with the northern Archaic Aboriginals situated around Lake Superior, native copper was initially utilized to make hooks and knives but gradually became used for decorative and ritual items (Ellis, 2013, p.42).

During the Archaic period, stone points were reformed from fluted and lanceolate points to stone points with notched bases to be attached to a wooden shaft (Ellis, 2013, p.41). The artifact assemblages from this period are characterized by a reliance on a wide range of raw lithic materials in order to make stone artifacts, the presence of stone tools shaped by grinding and polishing, and an increase in the use of polished stone axes and adzes as wood-working tools (Ellis et al., 1990, p.65; Wright, 1994, p.26). Ground-stone tools were also produced from hard stones and reformed into tools and throwing weapons (Ellis, 2013, p.41). The bow and arrow was first used during the Archaic period (Ellis, 2013, p.42).

1.3.1.3 The Early Woodland Period (ca. 800 to 0 B.C.)

Early Woodland cultures evolved out of the Late Archaic period (Ferris and Spence, 1995, p.89; Spence et al., 1990, p.168). The Early Woodland period is divided into two complexes: the Meadowood complex and the Middlesex complex. The Middlesex complex appears to be restricted to Eastern Ontario, particularly along the St. Lawrence River while Meadowood materials depict a broad extent of occupation in southwestern Ontario (Spence et al., 1990, p.134, 141). The distinguishing characteristic of the Early Woodland period is the introduction of pottery (ceramics). The earliest forms were coil-formed, "thick, friable and often under fired, and

must have been only limited to utility usage" (Ferris and Spence, 1995, p.89; Williamson, 2013, p.48).

Cache Blades, a formal chipped stone technology, and side-notched Meadowood points, were commonly employed tools that were often recycled into a number of other tool forms such as end scrapers (Spence et al., 1990, p.128; Ferris and Spence, 1995, p.93). These tools were primarily formed from Onondaga chert (Spence et al., 1990, p.128). Meadowood sites have produced a distinctive material culture that functioned in both domestic and ritual spheres (Ferris and Spence, 1995, p.90; Spence et al., 1990, p.128). This allows correlations to be made between habitations and mortuary sites, creating a well-rounded view of Meadowood culture (Ferris and Spence, 1995, p.90; Spence et al., 1990, p.128). However, their settlement-subsistence system is poorly understood as only a "few settlement types have been adequately investigated, and not all of these are from the same physiographic regions" (Ferris and Spence, 1995, p.93; Spence et al., 1990, p.136). Generally, Meadowood sites are in association with the Point Peninsula and Saugeen complexes which "then eventually changed or were absorbed into the Point Peninsula complex" (Wright, 1994, pp.29-30).

1.3.1.4 The Middle Woodland Period (ca. 200 B.C. to A.D. 900)

During the Middle Woodland period, three primary cultural complexes developed in Southern Ontario. The Couture complex was located in the southwestern-most part of Ontario (Spence et al., 1990, p.143). The Point Peninsula complex was "distributed throughout south-central and eastern Southern Ontario, the southern margins of the Canadian Shield, the St. Lawrence River down river to Quebec City, most of southeastern Quebec, along the Richelieu River into Lake Champlain" (Spence et al., 1990, p.157; Wright, 1999, p.633). The Saugeen complex occupied "southwestern Southern Ontario from the Bruce Peninsula on Georgian Bay to the north shore of Lake Erie to the west of Toronto" (Wright, 1999, p.629; Wright, 1994, p.30).

The Saugeen and Point Peninsula cultures appear to have shared Southern Ontario but the borders between these three cultural complexes are not well defined, and many academics believe that the Niagara Escarpment formed a frontier between the Saugeen complex and the Point Peninsula complex (Spence et al., 1990, p.143; Wright, 1999, p.629; Ferris and Spence, 1995, p.98). Consequently, the dynamics of hunter-gatherer societies shifted territorial boundaries resulting in regional clusters throughout southwestern Southern Ontario that have been variously assigned to Saugeen, Point Peninsula, or independent complexes (Spence et al., 1990, p.148; Wright, 1999, p.649).

Middle Woodland pottery share a preference for stamped, scallop-edged or tooth-like decoration, but each cultural complex had distinct pottery forms (such as globular pots), finishes, and zones of decoration (Williamson, 2014, p.49; Ferris and Spence, 1995, p.97; Spence et al., 1990, p.143). Major changes in settlement-subsistence systems occurred during the Middle Woodland period, particularly the introduction of large 'house' structures and substantial middens associated with these structures (Spence et al., 1990, p.167; Ferris and Spence, 1995, p.99). The larger sites likely indicate a prolonged period of macroband settlement and a more consistent return to the same site, rather than an increase in band size (Spence et al., 1990,

p.168). Environmental constraints in different parts of Southern Ontario all produced a common implication of increased sedentism caused by the intensified exploitation of local resources (Ferris and Spence, 1995, p.100). Burial offerings became more ornate and encompassed many material mediums, including antler, whetstones, copper, and pan pipes (Ferris and Spence, 1995, p.99). Burial sites during this time were set away from occupation sites and remains were interred at time of death; secondary burials were not common (Ferris and Spence, 1995, p.101). Small numbers of burial mounds are present and both exotic and utilitarian items were left as grave goods (Williamson, 2013, p.51; Ferris and Spence, 1995, p.102).

1.3.1.5 The Late Woodland Period (ca. A.D. 900 to 1600)

At the onset of the Late Woodland Period, the transitional Princess Point complex arrived in Ontario. Sites attributed to the Princess Point complex exhibit few continuities from earlier developments. These sites appear to have arisen suddenly and suggest a well-developed state with no apparent predecessors. It is hypothesized that this complex migrated into Ontario, possibly from the southwest. The material culture includes 'Princess Point Ware' vessels that are collarless, with everted rims and semi-conical bases. Decorations include horizontal lines with an encircling row of circular exterior punctates. Smoking pipes and ground stone tools are rare. Triangular arrow points predominate the lithic assemblage, where some exhibit weakly notched bases. Subsistence patterns include the hunting of deer, bear, squirrels and fish with gathering of berries. Corn horticulture has been attributed to the Princess Point complex. Little is known about the settlement patterns, but it has been suggested that they followed a pattern of warm season macroband and cold season microband dispersal (Fox, 1990, pp.174-179).

During the Late Woodland Period (A.D. 900-1600), multiple sub-stages, and complexes have been assigned, which are divided spatially and chronologically (Fox, 1990; Williamson, 1990; Dodd et al., 1990; Warrick, 2000). Although several migration theories have been suggested explaining the Ontario Iroquoian origins, an "available date from Southern Ontario strongly suggests continuity (*in situ*) from the Middle-Late Woodland Transitional Princess Point complex and Late Woodland cultural groups" (Ferris and Spence, 1995, p.105; Smith, 1990, p.283).

1.3.1.6 The Early Ontario Iroquois Stage (ca. A.D. 900 to 1300)

Two primary cultural groups have been assigned to the Early Ontario Iroquois Period and were located in Southern Ontario. The Glen Meyer cultural group was located primarily in southwestern Ontario, whose territory "encompassed a portion of southwestern Ontario extending from Long Point on the north shore of Lake Erie to the southeastern shore of Lake Huron" (Williamson, 1990, p.304). The Pickering cultural group is "thought to be much larger encompassing all of the region north of Lake Ontario to Georgian Bay and Lake Nipissing" (Williamson, 1990, p.304). Regional clusters of these groups appear within riverine or lacustrine environments with a preference for sandy soils.

The material culture of Early Iroquois consisted of well-made and thin-walled clay vessels that were more globular in shape with rounded bottoms. These vessels were produced by modelling rather than coil-formed. Decorative stamping, incising, and punctuation along the exterior and interior rim region of the vessels were favoured. Material cultural remains also included crudely

made smoking pipes, gaming discs, triangular-shaped, concave projectile chert points, and worked bone and antlers. House structures gradually became larger, longer, and wider but variations depended on settlement type and season of occupation. Subsistence patterns indicate a quick adoption of a greater variety of harvest products. Burial practices during this period saw an evolution to the ossuary burials; however burial patterns are still not well understood (Williamson, 1990, pp.304-311).

1.3.1.7 The Middle Ontario Iroquois Stage (ca. A.D. 1300 to 1400)

The Middle Ontario Iroquois began "with the fusion of [Glen Meyer and Pickering] caused by the conquest and absorption of Glen Meyer by Pickering" (Dodd et al., 1990, p.321). This fusion resulted in two cultural horizons located throughout most of Southern Ontario and lasting approximately 100 years. Within these 100 years, two cultural groups were present and divided chronologically into two 50-year timespans: the Uren sub-stage (A.D. 1300-1350) and the Middleport sub-stage (A.D. 1350-1400). The chronology of this stage has been contested and reflects a probable overlap with earlier stages. It is theorized that the Uren sub-stage represents a fusion of Glen Meyer and Pickering branches of the Early Ontario Iroquois while the Middleport sub-stage gave rise to the Huron, Petun, Neutral groups of the Late Ontario Iroquois stage (Dodd et al., 1990, pp.321, 356).

Uren sites are distributed throughout much of southwestern and southcentral Ontario, and generally coincide with Early Ontario Iroquoian Stage sites. Middleport sites generally correlate with Uren sites, representing a continuation of local cultural sequences. The material culture of the Uren sub-stage includes rolled rim clay vessels with horizontal indentation on the exterior of the vessel; pipes that gradually improve in structure; gaming discs; and projectile points that favour triangular points. The material culture of Middleport sub-stage includes collared vessels decorated with oblique and horizontal indentation; a well-developed clay pipe complex that includes effigy pipes; and a marked increase in notched projectile points (Dodd et al., 1990, pp. 330-342).

Settlement patterns of the Uren sub-stage reflect a preference for sand plains and do not appear to have had defensive palisades surrounding clusters of small longhouses. Subsistence patterns indicate an increasing reliance on corn cultivation, suggesting villages were occupied in the winter and campsites were occupied during the spring to fall. Settlement patterns of the Middleport sub-stage reflect a preference for drumlinized till plains. Small villages are present where palisades first appear, and longhouses are larger than those found in the Uren sub-stage. Subsistence patterns reflect an increasing reliance on corn and beans with intensive exploitation of locally available land and water species. Burial patterns graduate to ossuaries by the Middleport sub-stage (Dodd et al., 1990, pp.342-356).

1.3.1.8 The Late Ontario Iroquois Stage (ca. A.D. 1400 to1600)

During the Late Ontario Iroquoian Stage, the Iroquoian-speaking linguistic and cultural groups developed. Prior to European Contact, neighbouring Iroquois-speaking communities united to form several confederacies known as the Huron (Huron-Wendat), Neutral (called Attiewandaron by the Wendat), Petun (Tionnontaté or Khionontateronon) in Ontario, and the Five Nations (later

Six Nations) of the Iroquois (Haudenosaunee) of upper New York State (Birch, 2010, p.31; Warrick, 2013, p.71). These groups are located primarily in south and central Ontario. Each group was distinct but shared a similar pattern of life already established by the 16th century (Trigger, 1994, p.42).

Prior to European contact, the geographic distribution of pre-contact Ontario Iroquoian sites describes two major groups east and west of the Niagara Escarpment: the ancestral Attiewandaron to the west, and the ancestral Huron-Wendat to the east. The western boundary of the Huron-Wendat territory is often contested, where a number of sites between the Niagara Escarpment and the Humber River were occupied by a mixed Attiewandaron-Wendat population. It has been theorized that the Credit River valley may have functioned as a boundary marker between ancestral Attiewandaron and ancestral Huron-Wendat peoples. Ancestral Huron-Wendat villages have been located as far east as the Trent River watershed, where "concentrations of sites occur in the areas of the Humber River valley, the Rouge and Duffin Creek valleys, the lower Trent valley, Lake Scugog, the upper Trent River and Simcoe County" (Ramsden, 1990, p.363). Ancestral Attiewandaron sites are found clustered around the western end of Lake Ontario and eastward across the Niagara Peninsula, "but are also distributed over a much larger area to the west" (Lennox and Fitzgerald, 1990, p.437). These sites "suggest a migration of peoples from the west into Historic Neutralia" or the Niagara Peninsula (Warrick, 2000, p.446; Warrick, 2008, p.15; Lennox and Fitzgerald, 1990, p.437).

Attiewandaron settlement patterns consist of a varying range of settlement types. Of those settlements which were occupied year-round, five acre sites are categorized as a town, one to five acre sites are villages, one acre sites are hamlets, and smaller settlements of one to two houses are referred to as agricultural cabin sites. Furthermore, small isolated fishing and hunting camps are also present. Village clusters are generally found on sandy loam soils of high agricultural capability and "are rarely found along the banks of major rivers or lakeshores, except for smaller, seasonal hunting and fishing camps. Instead, larger settlements tend to be located along smaller creeks, at headwater springs and around marshlands" (Lennox and Fitzgerald, 1990, p.440). Later villages are enclosed within some form of a palisade and longhouses are of varying configurations covered in bark (Lennox and Fitzgerald, 1990, pp.439-441).

The Attiewandaron subsistence patterns reflect a diet dependent on a combination of hunting, farming, fishing, and gathering as their territory provided a diverse and rich array of subsistence resources. The Attiewandaron lived in an area particularly rich in game and appear to have depended more upon hunting than the Huron-Wendat. The interior lands occupied by the Attiewandaron contained rapidly running streams, large rivers, and portage routes (Lennox and Fitzgerald, 1990, p.450; Trigger, 1994, p.43; Bricker, 1934, p.58).

1.3.2 Contact Period (ca. A.D. 1600 to 1650)

At the time of European Contact, the area "south of Lake Simcoe and along the north shore of Lake Ontario remained a no-man's land during this period, with no permanent settlements and traversed only by raiding parties from the north or from the south" (Robinson, 1965, p.11). The

Huron-Wendat villages were located north of Lake Simcoe, but their territorial hunting grounds stretched roughly between the Canadian Shield, Lake Ontario and the Niagara Escarpment (Warrick, 2008, p.12). The Attiewandaron villages were clustered in the Niagara Peninsula, but their territorial hunting grounds stretched from the "Niagara River on the east, Lake Erie on the south, Lake St. Clair on the west, and a hazy Huron-Wendat-Attiewandaron frontier on the north" (Hunt, 1940, p.50; White, 1978, p.407). The Credit River valley may have continued to form a frontier boundary between both groups homelands (Warrick, 2008, p.15). The Haudenosaunee were primarily located south of Lake Ontario but hunted in the lands north of Lake Ontario.

The Huron-Wendat and Haudenosaunee called those within the territory of the Niagara Peninsula the Attiewandaron Nation (also spelled Attiwondaronks and Atiquandaronk) (Brown, 2009, p.26). Samuel de Champlain first referred to the Attiewandaron as '*la Nation neutre*', for their apparent neutrality during the existing conflicts. The Attiewandaron territory along the north shore of Lake Erie was favourably located for easy trade with the Erie, Haudenosaunee, Tionnontaté, and Huron-Wendat (Warrick, 2008, p.80; Jury, 1974, p.4; White, 1978, p.410; Trigger, 1994, pp.43,47; Wright, 2004, p.1363).

There are limited records documenting European contact with the Attiewandaron. In 1626, Reverend Father Joseph de la Roche D'aillon, a Récollet (or Recollect) missionary, journeyed from the Huron-Wendat to the Attiewandaron under the pretense of trade, and spent months studying the Attiewandaron language in an attempt to instruct them in the principals of Christian religion (White, 1978, p.409; Gingras, 2000; Jury, 1974, p.3). However, the Huron-Wendat guarded their trade advantage and travelled from village to village, warning the Attiewandaron of "misfortune and ruin if they received the French in their midst" (Jury, 1974, p.20). This action caused the dismissal of Father D'aillon from the Attiewandaron and no direct trade relationship was ever formed between the French and Attiewandaron (White, 1978, p.407). In the winter of 1640-41, Jesuit Missionaries stayed in ten Attiewandaron villages and produced a map of the Attiewandaron territory, but it has not survived (Jury, 1974, p.4; White, 1978, p.407; Brown, 2009, p.27). Famine also affected the Attiewandaron. Famine had become so severe by 1639 that many Attiewandaron sold their children for corn and others fled to neighbouring tribes pale and disfigured (Jury, 1974, p.4; White, 1978, p.407; Brown, 2009, p.27).

By 1645, having grown dependent on European goods and with their territory no longer yielding enough animal pelts, the Haudenosaunee became increasingly aggressive towards the Huron-Wendat Confederacy (Trigger, 1994, p.53). Armed with Dutch guns and ammunition, the Haudenosaunee engaged in warfare with the Huron-Wendat Confederacy and brutally attacked and destroyed several Huron-Wendat villages throughout Southern Ontario (Trigger, 1994, p.53). After the massacres of 1649-50, the small groups that remained of the Huron-Wendat Confederacy became widely dispersed throughout the Great Lakes region, ultimately resettling in Quebec (Schmalz, 1991, p.17). Many Huron-Wendat groups sought refuge and protection within the Attiewandaron, until the Haudenosaunee attacked in the 1650s (Warrick, 2008, p.208; Trigger, 1994, p.56). Many were captured and incorporated into the Haudenosaunee, or sought refuge within other tribes (Trigger, 1994, 57; Lennox and Fitzgerald, 1990, p.410). The last mention of the Attiewandaron in French writing was in 1671 (Noble, 2012). After the massacres

of 1649-50, and "for the next forty years, the Haudenosaunee used present-day Ontario to secure furs with the Dutch, then with the English" (Smith, 2013, p.19; Schmalz, 1991, p.17; Coyne, 1895, p.20).

1.3.3 Post Contact Period (ca. A.D. 1650 – 1800)

Although their homeland was located south of the lower Great Lakes, the Haudenosaunee controlled most of Southern Ontario after the 1660s, occupying at "least half a dozen villages along the north shore of Lake Ontario and into the interior" (Schmalz, 1991, p.17; Williamson, 2013, p.60). The Haudenosaunee established "settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. Their settlements were on canoe-and-portage routes that linked Lake Ontario to Georgian Bay and the upper Great Lakes" (Williamson, 2013, p.60).

At this time, several Algonquin-speaking linguistic and cultural groups within the Anishinaabeg (or Anishinaabe) began to challenge the Haudenosaunee dominance in the region (Johnston, 2004, pp.9-10; Gibson, 2006, p.36). The Anishinaabeg were originally located primarily in Northern Ontario. Before contact with the Europeans, the Ojibwa territorial homeland was situated inland from the north shore of Lake Huron (MNCFN, ND, p.3). The English referred to those Algonquin-speaking linguistic and cultural groups that settled in the area bounded by Lakes Ontario, Erie, and Huron as Chippewas or Ojibwas (Smith, 2002, p.107). In 1640, the Jesuit fathers had recorded the name "*oumisagai*, or Mississaugas, as the name of an Algonquin group near the Mississagi River on the northwestern shore of Lake Huron. The French, and later English, applied this same designation to all Algonquian [-speaking groups] settling on the north shore of Lake Ontario" (Smith, 2002, p. 107; Smith, 2013, pp.19-20). "The term 'Mississauga' perplexed the Algonquins, or Ojibwas, on the north shore of Lake Ontario, who knew themselves as the Anishinaabeg" (Smith, 2013, p.20).

A major smallpox epidemic combined with the capture of New Netherland by the English, access to guns and powder became increasingly restricted for the Haudenosaunee. After a series of successful attacks against the Haudenosaunee by groups within the Anishinaabeg, the Haudenosaunee dominance in the region began to fail (Warrick, 2008, p.242; Schmalz, 1991, p.20). Prior to 1680, groups within the Anishinaabeg had begun to settle just north of the evacuated Huron-Wendat territory and with the English entering the fur-trading market, began to expand further into Southern Ontario (Gibson, 2006, p.36; Schmalz, 1991, p.18). By the 1690s, Haudenosaunee settlements along the northern shores of Lake Ontario were abandoned (Williamson, 2013, p.60). By 1701, after a series of successful battles throughout Ontario, the Haudenosaunee were defeated and expelled from Ontario (Gibson, 2006, p.37; Schmalz, 1991, p.27; Coyne, 1895, p.28). After these battles, the Anishinaabeg replaced the Haudenosaunee in Southern Ontario (Schmalz, 1991, p.29).

In 1701, representatives of several groups within the Anishinaabeg and the Haudenosaunee, collectively known as the First Nations, assembled in Montreal to participate in Great Peace negotiations, sponsored by the French (Johnston, 2004, p.10; Trigger, 2004, p.58). The Mississaugas were granted sole possession of the territory along and extending northward of

Lake Ontario and Lake Erie (Hathaway, 1930, p.433). Until the fall of New France, the fur trade continued in Ontario with both the Ojibwa, Mississauga, and various other groups within the Anishinaabeg trading with both the English and the French. The Mississaugas established one of their settlements near the site of Teiaiagon on the Humber River, at the base of the ancient Toronto Carrying Place Trail and a later settlement near the mouth of the Credit River (Benn, 2008, p.54). The Credit River, known to the Mississauga as the Missinnihe, translated to "trusting creek," became the favoured location of European traders who would trade with the Mississauga and provide them with 'credit' for the following year (Smith, 2013, p.21). The Mississauga who settled along the west shore of Lake Ontario became known as the Credit River Indians (Smith, 2013, p.21).

The Mississauga continued to trade with European traders at the mouths of the Humber, Credit and Niagara Rivers (Smith, 2013, p.22). Mississauga subsistence patterns include a primary focus on hunting, fishing and gathering with little emphasis on agriculture (McMillian and Yellowhorn, 2004, p. 110). Temporary and moveable house structures were utilized which were easy to construct and disassemble, allowing swift travel throughout their territory (McMillian and Yellowhorn, 2004, p.111). Consequently, little archaeological material was left behind.
The Seven Years War brought warfare between the French and British in North America. In 1763, the Royal Proclamation declared the Seven Years War over, giving the British control of New France. The British did not earn the respect of the Anishinaabeg, as the British did not honour fair trade nor the Anishinaabeg occupancy of the land as the French had. Consequently, the Pontiac Uprising, also known as the Beaver Wars, began that same year (Schmalz, 1991, p.70; Johnston, 2004, pp.13-14). This uprising involved both groups within the Haudenosaunee and groups within the Anishinaabeg. After numerous attacks on the British, the Pontiac Uprising was over by 1766 when a peace agreement was concluded with Sir William Johnson, the Superintendent of Indian Affairs (Schmalz, 1991, p.81). The fur-trade continued throughout Southern Ontario until the beginning of British colonization.

1.3.4 Euro-Canadian Settlement Period (A.D. 1800 to present)

After the American War of Independence, a large number of United Empire Loyalists and American immigrants began to move into Southern Ontario to avoid persecution. This put greater demand on the quantity of lands available for Euro-Canadian settlement within Upper Canada. On behalf of the British Crown, William Claus, Deputy Superintendent of Indian Affairs, entered into negotiations with the Mississauga in 1805, to surrender 35,000 acres of the Mississauga Tract at the head of Lake Ontario, known as the Head-of-the-Lake Purchase (Surtees, 1994, p.110; N.A., 1891, p.lv). This tract included lands "reaching from the Etobicoke Creek on the East for twenty-six miles westward to the outlet of Burlington Bay, these lands stretching back from the Lake shore line for from five to six miles to what we now know as the Second Concession North of Dundas (or Eglinton Avenue)" (Fix, 1967, p.13). The Mississauga obtained £1000 worth of goods and the right to retain their fishery sites at the mouths of the Credit River, Sixteen Mile Creek and Twelve Mile Creek (Surtees, 1994, p.110). This treaty included lands in the southern parts of the Township of Toronto in Peel County and Trafalgar and Nelson Townships in Halton County.

After the War of 1812, immigration from the Unites States came to a halt as the change in British policy discouraged Americans from taking residence in Canada and encouraged immigration from the British Isle (McDonald, 2011, p.71). To accommodate this influx of settlers, the remainder of the Mississauga Tract, which includes what is now Halton Region, was purchased by William Claus in 1818. The area belonged to the Credit River Mississauga who, despite efforts from the Indian Department officials to protect them, found themselves victim to encroachment on their lands and fisheries by Euro-Canadian settlers (Surtees, 1994, p.116). Ajetance, chief of the Credit River Mississauga, settled for goods in the value of £522.10 shilling annually per person in exchange for 648,000 acres of land (Surtees, 1994, p.117; N.A., 1891, p.lv). This second purchase, or Ajetance Purchase, surrendered those lands within what would encompass "the northern section of Trafalgar, and Nelson Townships, and all of Esquesing and Nassagaweya Townships" (McDonald, 2011, p.71).

The southern portion of the Township of Trafalgar, within Home District, was surveyed by Mr. Samuel L. Wilmot in 1807 and included two concessions north and four concessions south of Dundas Street (Halton Images, 2013). The 'new' survey of Halton utilized the 'double-front' survey technique, creating wider 200 acre lots between each concession (McDonald, 2011, p.71). "In the double-front system the common unit of concession, the half-lot, was almost square 100 acres in size… each half of a 200-acre lot fronted on different concession-line roads" (Harris and Warkentin, 2000, p.123). Settlement began in 1819. Settlers were predominately from the British Isle and focused on agriculture as their primary means of subsistence after the land was cleared of timber resources. Wheat was the principal agricultural crop grown in the Township of Trafalgar (Unterman McPhail Associates, 2010, p.9). Some parts produced excellent quality building stone (Walker & Miles, 1877, p.55). However, the Fourteen Mile Creek and Sixteen Mile Creek and their tributaries proved to be a more successful source of wealth for settlers through the construction of multiple mills along the entire length of the creeks (Walker & Miles, 1877, p.59).

The community of Milton, located at the north end of the study corridor, was first settled by Jasper Martin in 1821. Within four years, Martin had constructed a grist mill and a saw mill along the Sixteen Mile Creek. These mills attracted residents who then constructed shops nearby, resulting in the creation of a small hamlet initially known as Martin's Mills. By 1837, the population of Martin's Mills numbered 100 individuals and at this time, the village was renamed Milton, after John Milton, the famous English poet. By 1851, a steam grist mill was in construction. In 1853, when the United Counties of Halton and Wentworth were divided, Milton became the county town of the County of Halton due to its central location. Milton was incorporated as a town in 1857. Population growth was limited until 1877, when the Hamilton and Northwestern Railway built a line through Milton. Two years later, the Credit Valley Railway opened in Milton. Milton grew throughout the remainder of the 19th century, where many schools, churches, a court house, town hall, a jailhouse, and several public buildings were erected throughout the town. Large manufacturers were also located in Milton, including an iron foundry established by Mr. Joseph Brothers in 1855, as well as several large lumber yards (McDonald, 2011, p.186; Walker & Miles, 1877, pp.56-57; Smith, 1851, p.261).

1.3.5 Past Land Use

To further assess the study corridor's potential for the recovery of historic pre-1900 remains, several documents were reviewed in order to gain an understanding of the land use history.

A review of the 1858 *Tremaine's Map of the County of Halton* and the 1877 *Illustrated Historical Atlas of the County of Halton* (***see Maps 5-6***) revealed that the study corridor fell within the property limits of several property owners and through an original road allowance established during the survey of Township of Trafalgar (North) (***see Table 1***).

Table 1: Historical Structures within the Study Corridor

Con.	Lot	Occupant/Owner	Structure(s)
1858 Tremaine's Map of the County of Halton			
2	10, east half	Robert Willmott	No structure(s)
2	11, east half	Thomas Bower	No structure(s)
2	12, east part	John Colling	No structure(s)
2	13, south half	Hugh Foster	No structure(s)
1877 Illustrated Historical Atlas of the County of Halton			
2	10, east half	Robert Willmott	No structure(s)
2	11, east half	Thomas Bowes	No structure(s)
2	12, east part	John Colling	No structure(s)
2	13, south half	Town of Milton	Town of Milton

No historic homesteads were depicted within the study corridor in the 1858 Tremaine's Map, while the developed area of the Town of Milton was depicted within 300 metres of the study corridor. The 1877 Illustrated Atlas depicts the developed area of the Town of Milton within the study corridor, as well as two additional historic homesteads within 300 metres of the study corridor. The Sixteen Mile Creek was depicted through the study corridor.

Additionally, the study corridor is traverses present-day Derry Road, which was originally laid out during the survey of Township of Trafalgar (North). In Southern Ontario, the *2011 S&G* considers areas of early Euro-Canadian settlements (e.g., pioneer homesteads, isolated cabins, farmstead complexes, early wharf or dock complexes, pioneer churches, and early cemeteries), early historic transportation routes (e.g., trails, passes, roads, railways, portage routes), and properties that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations, to be of elevated archaeological potential (per *Section 1.3.1* of the *2011 S&G*). Therefore, based on the close proximity of both historic Euro-Canadian settlements and a historic transportation route, there is elevated potential for the location of historic Euro-Canadian archaeological resources (pre-1900) within portions of the study corridor which lie within 300 metres and 100 metres, respectively, of these features.

1.3.6 Present Land Use

The study corridor has several present land uses, which can be classified as: Low Density Residential Zone, Medium Density Residential Zone II, Secondary Mixed Use Commercial Zone, Minor Institutional Zone, Major Institutional Zone, Open Space Zone, and Natural Heritage System Zone (Town of Milton, 2016).

1.4 Archaeological Context

1.4.1 Designated and Listed Cultural Heritage Resources

According to *Section 1.3.1* of the *2011 S&G*, property listed on a municipal register or designated under the *Ontario Heritage* Act or that is a federal, provincial, or municipal historic landmark or site, are considered to have elevated potential.

To determine if any designated or listed heritage resources are located within or in close proximity to (within 300 metres of) the study corridor, the Heritage Planner at the Planning and Development Department for the Town of Milton was contacted and confirmed the presence of several designated and listed heritage properties within and in close proximity to (within 300 metres of) the study corridor (***see Tables 2-3***) (Templeton, 2016a).

Table 2: Heritage Resources within the Study Corridor

Address	Heritage Status
162 Commercial Street	Listed
174 Commercial Street	Listed
286 Sydney Street	Listed

Table 3: Heritage Resources within 300 metres of the Study Corridor

Address	Heritage Status
114 Ashbrook Court	Listed
98 Charles Street	Listed
108 Charles Street	Listed
130 Charles Street	Listed
75 Commercial Street	Listed
87 Commercial Street	Listed
95 Commercial Street	Listed
99 Commercial Street	Listed
107 Commercial Street	Listed
117 Commercial Street	Listed
134 Commercial Street	Listed
141 Commercial Street	Listed
146 Commercial Street	Listed
152 Commercial Street	Listed
235 Garnet Street	Listed
240 Garnet Street	Listed
117 Lydia Street	Listed
123 Lydia Street	Listed
130 Lydia Street	Listed
188 Lydia Street	Listed

Address	Heritage Status
296 Oak Street	Listed
332 Oak Street	Listed
337 Oak Street	Listed
340 Oak Street	Listed
351 Oak Street	Listed
360 Oak Street	Listed
240 Sydney Street	Listed
246 Sydney Street	Listed
103 Thomas Street	Listed
115 Thomas Street	Listed
121 Thomas Street	Listed
123 Thomas Street	Listed
129 Thomas Street	Listed
137 Thomas Street	Listed
147 Thomas Street	Listed
155 Thomas Street	Listed
157 Thomas Street	Listed
165 Thomas Street	Listed
167 Thomas Street	Listed
173 Thomas Street	Listed

Therefore, based on presence of heritage resources within and in close proximity to the study corridor, there is elevated archaeological potential within portions of the study corridor which fall within 300 metres of these features.

1.4.2 Heritage Conservation Districts

A Heritage Conservation District (HCD) includes areas that have been protected under Part V of the *Ontario Heritage Act*. An HCD can be found in both urban and rural environments and may include residential, commercial, and industrial areas, rural landscapes or entire villages or hamlets with features or land patterns that contribute to a cohesive sense of time or place and contribute to an understanding and appreciation of the cultural identity of a local community, region, province, or nation. An HCD may comprise an area with a group or complex of buildings, or large area with many buildings and properties and often extends beyond its built heritage, structures, streets, landscape and other physical and spatial elements, to include important vistas and views between and towards buildings and spaces within the district (MTCS, 2006, p.5). An HCD area contains valuable cultural heritage and must be taken into consideration during municipal planning to ensure that they are conserved.

To determine if the study corridor is located within or in close proximity to (within 300 metres of) an HCD, the Heritage Planner at the Planning and Development Department for the Town of Milton was contacted (Templeton, 2016b; Templeton, 2016e). No response was granted by report completion.

1.4.3 Commemorative Plaques or Monuments

According to *Section 1.3.1* of the *2011 S&G,* commemorative markers of Aboriginal and Euro-Canadian settlements, which may include their history, local, provincial, or federal monuments, cairns or plaques, or heritage parks, are considered to have elevated archaeological potential. To determine if any historical plaques are present, the Ontario Historical Plaques inventory, which contains a catalogue of federal Historic Sites and Monuments Board of Canada plaques, the provincial Ontario Heritage Trust plaques, plaques identified by various historical societies, and other published plaques located in Ontario, was reviewed (Ontario Historical Plaques, 2016). This review confirmed the absence of commemorative plaques within or in close proximity to (within 300 metres) the study corridor. Therefore, this feature does not further elevate archaeological potential within the study corridor.

1.4.4 Registered Archaeological Sites

In order provide a summary of registered or known archaeological sites within a minimum one-kilometre distance from the study corridor limits, as per *Section 1.1, Standard 1* and *Section 7.5.8, Standard 1* of the *2011 S&G*, the *Ontario Archaeological Sites Database* (OASD) maintained by the *MTCS* was consulted (MTCS, 2016). Every archaeological site is registered according to the Borden System, which is a numbering system used throughout Canada to track archaeological sites and their artifacts.

According to the MTCS (2016), 21 archaeological sites have been registered within one-kilometre of the study corridor (***see Table 4***). One sites (AjGx-6) is within 300 metres of the study corridor.

Table 4: Registered Archaeological Sites within One Kilometre of the Study Corridor

Borden #	Name	Cultural Affiliation	Type
Registered archaeological sites within 300 metres			

Borden #	Name	Cultural Affiliation	Type
AjGx-6	Wilmott	-	-
Registered archaeological sites within one-kilometre			
AiGx-62	Ruhl	Woodland	Unknown
AiGx-248	North Derry #1	Pre-contact	Findspot
AiGx-260	-	Middle Archaic; Middle Woodland	Findspot
AiGx-261	-	Pre-contact	Other-camp/campsite
AiGx-262	-	Pre-contact; Post-contact	Other-camp/campsite
AiGx-263	-	Pre-contact	Other-camp/campsite
AiGx-368	-	Pre-contact/Late Woodland	Hunting
AjGx-55	-	-	-
AjGx-56	-	Post-contact	Unknown
AjGx-57	Thomas Robson	-	-
AjGx-136	Paira	Archaic; Post-contact	Scatter; Homestead
AjGx-144	-	-	-
AjGx-152	Fitzsimmons	Post-contact	Homestead
AjGx-153	Flying Snake	Pre-contact	Scatter
AjGx-163	-	Post-contact	Midden
AjGx-177	Ruhl Site	Other	Other-camp/campsite
AjGx-178	-	Post-contact	House
AjGx-208	Rose Hill Farm	Post-contact	Homestead
AjGx-209	-	Middle Archaic	Hunting
AjGx-223	Harrison	Post-contact	Homestead

"-" denotes no details provide in the OASD

The *2011 S&G* considers lands previously registered archaeological sites to be of elevated archaeological potential. Therefore, given that two registered archaeological sites were identified within 300 metres of the study corridor, there is elevated archaeological potential within portions of the study corridor which fall within 300 metres of these sites.

Having noted the presence of these sites in relation to the study corridor, it is useful to place them in the proper context by reviewing the cultural history of occupation in Southern Ontario provided in **Table 5**. This data provides an understanding of the potential cultural activity that may have occurred within the study corridor (Ferris, 2013, p.13).

Table 5: History of Occupation in Southern Ontario

Period	Archaeological Culture	Date Range	Attributes
PALEO-INDIAN			
Early	Gainey, Barnes, Crowfield	>11000-8500 BC	Big game hunters. Fluted projectile points
Late	Holcombe, Hi-Lo, Lanceolate	8500-7500 BC	Small nomadic hunter-gatherer bands. Lanceolate projectile points
ARCHAIC			
Early	Side-notched, corner notched, bifurcate-base	7800-6000 BC	Small nomadic hunter-gatherer bands; first notched and stemmed points, and ground stone celts.
Middle	Otter Creek, Brewerton	6000-2000 BC	Transition to territorial settlements

Period	Archaeological Culture	Date Range	Attributes
Late	Narrow, Broad and Small Points Normanskill, Lamoka, Genesee, Adder Orchard etc.	2500-500 BC	More numerous territorial hunter-gatherer bands; increasing use of exotic materials and artistic items for grave offerings; regional trade networks
WOODLAND			
Early	Meadowood, Middlesex	800BC-0BC	Introduction of pottery, burial ceremonialism; panregional trade networks
Middle	Point Peninsula, Saugeen, Jack's Reef Corner Notched	200 BC-AD 900	Cultural and ideological influences from Ohio Valley complex societies; incipient horticulture
Late	Algonquian, Iroquoian, Western Basin	AD 900-1250	Transition to village life and agriculture
	Algonquian, Iroquoian, Western Basin	AD 1250-1400	Establishment of large palisaded villages
	Algonquian, Iroquoian	AD 1400-1600	Tribal differentiation and warfare
HISTORIC			
Early	Huron, Neutral, Petun, Odawa, Ojibwa, Five Nations Iroquois	AD 1600 – 1650	Tribal displacements
Late	Six Nations Iroquois, Ojibwa, Mississauga	AD 1650 – 1800s	Migrations and resettlement
	Euro-Canadian	AD 1780 - present	European immigrant settlements

1.4.5 Previous Archaeological Assessments

In order to further establish the archaeological context of the study corridor, a review of previous archaeological fieldwork carried out within the limits of, or immediately adjacent (i.e., within 50 metres) to the study corridor, as documented by all available reports was undertaken. Four reports were identified (***see Table 6***):

Table 6: Previous Archaeological Fieldwork

Company	Stage of Work	Relation to Current Study corridor	Description & Recommendation
AMEC Americas Limited, 2009	Stage 1-2AA	Within 50 metres	No archaeological resources were discovered. No further archaeological work recommended.
Archeoworks Inc., 2005	Stage 1-2AA	Within 50 metres	One historic, Euro-Canadian site (H1) was discovered and did not have further cultural heritage value; no further AA was recommended for the site. The remainder of the study corridor was considered free from archaeological concern.
Timmins Martelle Heritage Consultants Inc., 2007	Stage 1-2AA	Possibly within 50 metres of study corridor	A copy of this report has not been obtained from the consultant firm by report completion (Templeton, 2016c)

Company	Stage of Work	Relation to Current Study corridor	Description & Recommendation
D.R. Poulton & Associates Inc., 2012	Stage 1AA	Possibly within 50 metres of study corridor	A copy of this report has not been obtained from the MTCS by report completion (Templeton, 2016d)

1.4.6 Physical Features

An investigation of the study corridor's physical features was conducted to aid in the development of an argument for archaeological potential based on the environmental conditions of the study corridor. Environmental factors such as close proximity to water, soil type, and nature of the terrain, for example, can be used as predictors to determine where human occupation may have occurred in the past.

The study corridor is located within the Peel Plain physiographic region of Southern Ontario. The Peel Plain is described as a level-to-undulating region of clay soils, with a gradual and fairly uniform slope toward Lake Ontario, with till containing large amounts of shale and limestone underlying clay that is generally heavy in texture, this clay having been presumably brought by meltwater from the predominantly limestone regions to the north and east. Some well-drained soils are found within the Peel Plain, but the most dominant soil is Peel clay, an imperfectly drained, dark brown, stone-free clay often underlain by dull brownish grey, calcareous clay till or stone-free clay. With the underlying shale not being able to retain water well, compounded by the almost complete deforestation of the region that results in a high degree of evaporation, the Peel Plain has somewhat of a water supply problem. Practically all utilized for agriculture until 1940, the land within much of the region has been urbanized, now occupying two-thirds of the Peel Plain and taking more than 50,000 hectares of good farmland out of production (Chapman & Putnam, 1984, pp. 174-176).

The native soil type within the study corridor is Chinguacousy clay loam, which is a Grey-Brown Luvisol characterized as clay loam till. It has imperfect drainage and is moderately stony (Ontario Agricultural College, 1971).

In terms of archaeological potential, potable water is a highly important resource necessary for any extended human occupation or settlement. As water sources have remained relatively stable in Southern Ontario since post-glacial times, proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location. A watershed is an area drained by a river and its tributaries. As surface water collects and joins a collective water body, it picks up nutrients, sediment and pollutants, which may altogether, affect ecological processes along the way. Hydrological features such as primary water sources (i.e. lakes, rivers, creeks, streams) and secondary water sources (i.e. intermittent streams and creeks, springs, marshes, swamps) would have helped supply plant and food resources to the surrounding area and are indicators of archaeological potential (per *Section 1.3.1* of the *2011 S&G*).

The Sixteen Mile Creek traverses all three alignments. Therefore, based on the presence of a watercourse within the study corridor, there is elevated potential for the location of archaeological resources within portions of the study corridor which lie within 300 metres of this feature.

1.4.7 Current Land Conditions

The study corridor is situated within an urban landscape within the Town of Milton. The study corridor encompasses several commercial businesses, residential homes, green spaces and the Sixteen Mile Creek. The topography within the study corridor is generally level with some sloping areas associated with the Sixteen Mile Creek. The study corridor lies at an elevation of approximately 192 metres above sea level.

1.4.8 Date of Field Review

A property inspection of the study corridor was undertaken on July 21st, 2016, to systematically review the archaeological potential of the entire study corridor.

1.5 Confirmation of Archaeological Potential

Based on the information gathered from the background research documented in the preceding sections, elevated archaeological potential has been established within the study corridor boundary. Features contributing to archaeological potential are summarized in **Appendix B**.

2.0 PROPERTY INSPECTION

This property inspection was conducted in compliance with the standards set forth in *Section 1.2* of the *2011 S&G*. The weather and ground conditions were conducive to identifying features and assessing the land's archaeological potential.

The inspection was carried out systematically every 50 metres, reviewing the entire extent of the study corridor to identify the presence or absence of archaeological potential. Photographic images of the study corridor are presented within **Appendix C**. Location and orientation information associated with all photographs taken in the field is provided within **Maps 10-15**.

2.1 Confirmation of Previously Identified Features of Archaeological Potential

Background research identified historical roadways and a primary hydrological resource as having archaeological potential. Present-day Derry Road was found to be intact and situated as depicted on historic and current mapping. Additionally, the Sixteen Mile Creek was also identified within the study corridor.

2.2 Identification and Documentation of Additional Features of Archaeological Potential

During the property survey, no additional features of archaeological potential were identified.

2.3 Identification and Documentation of Features that will affect Assessment Strategies

During the property survey, features were identified that would affect assessment strategies if a Stage 2 AA were required, including: steep slope, the Sixteen Mile Creek, roadside ditches and utilities, paved roads/sidewalks/driveways, a culvert, extensive landscaping, and grading.

2.4 Identification and Documentation of Structures and Built Features that will affect Assessment Strategies

During the property survey, no built features were identified which would affect assessment strategies if a Stage 2 AA were required.

The detailed results of this property inspection are described in **Section 3.0**. An inventory of the documented record generated in the field can be found within **Appendix D**.

3.0 ANALYSIS AND CONCLUSIONS

In combination with data gathered from background research (***see Sections 1.3 and 1.4***) and an inspection of satellite imagery and aerial photography, an evaluation of archaeological potential was performed.

3.1 Historical Imagery

Data gathered from background research (***see Sections 1.3 and 1.4***) was used to perform an assessment of archaeological potential. Additionally, a detailed review of aerial photographs (***see Map 7***), and satellite imagery (***see Maps 8-9***) was undertaken.

The 1954 aerial photograph shows that the study corridor consisted primarily of ploughed agricultural fields, wood lot, and roadways (***see Map 7***). By 2005, the study corridor was largely developed, with the alignment mostly following several roadways and falling within the road right-of-way (ROW) (***see Map 8***). The study corridor has remained relatively unchanged since this time (***see Map 9***).

3.2 Identified Deep and Extensive Disturbances

The study corridor was evaluated for extensive disturbances that have removed archaeological potential. Disturbances may include but are not limited to: grading below topsoil, quarrying, building footprints, or sewage and infrastructure development. *Section 1.3.2* of the *2011 S&G* considers infrastructure development among those "features indicating that archaeological potential has been removed."

Disturbances were noted consisting of paved roads/sidewalks/driveways, roadside ditches, utilities, a culvert, extensive landscaping, and grading, which correspond to the development/construction activities seen in historical aerial imaging (***see Maps 10-15; Appendix C - Images 1-3***). Additionally, mapping provided by the proponent reveals that the Brian Best Park was formerly a landfill (***see Map 2***). The construction of these features would have resulted in severe damage to the integrity of any archaeological resources which may have been present within their footprints. Based on the field inspection, historical aerial photographs, and satellite imagery, it is apparent that these portions of the study corridor have undergone deep and extensive disturbances that have removed their archaeological potential, as per *Section 1.3.2* of the *2011 S&G*.

3.3 Physiographic Features of No or Low Archaeological Potential

The study corridor was also evaluated for physical features of no or low archaeological potential. These usually include but are not limited to: permanently wet areas, exposed bedrock, and steep slopes (greater than 20^{o}) except in locations likely to contain pictographs or petroglyphs, as per

Section 2.1, Standard 2.a. of the 2011 *S&G.* Areas of steep slope and permanently wet areas associated with the watercourse bisecting the study corridor, were identified as physical features of no or low archaeological potential (***see Maps 10-15; Image 1***). Stage 2 AA is not required due to their no or low archaeological potential classification, as per *Section 2.1, Standard 2.a*.

3.4 Identified Areas of Archaeological Potential

Portions of the study corridor that exhibit neither extensively disturbed conditions, nor contain physical features of no or low archaeological potential are considered to have archaeological potential. These areas that retain archaeological potential consist of manicured grass margins (***see Maps 10-15; Image 4***). Given the established potential to recover archaeological resources within these identified areas, a Stage 2 AA will be required.

4.0 RECOMMENDATIONS

Owing to the findings detailed in preceding sections, the following recommendations are presented:

1. As per *Section 1.3.2* of the *2011 S&G,* portions of the study corridor exhibit disturbed conditions where archaeological potential has been removed. These disturbed areas are recommended to be exempt from further Stage 2 AA.

2. As per *Section 2.1, Standard 2.a* of the *2011 S&G,* lands evaluated as having no or low potential are recommended to be exempt from further Stage 2 AA.

3. All identified areas which contain archaeological potential, must be subjected to a Stage 2 AA. Given the urban location and narrow width of each alignment, the manicured grass areas and woodlots must be subjected to a shovel test pit archaeological survey in accordance with *Section 2.1.2* of the *2011 S&G*.

4. Should construction activities associated with this development project extend beyond the assessed limits of the study corridor, further archaeological investigation will be required to assess the archaeological potential of these lands.

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

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

1. This report is submitted to the *MTCS* 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 *MTCS*, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

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

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

4. The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 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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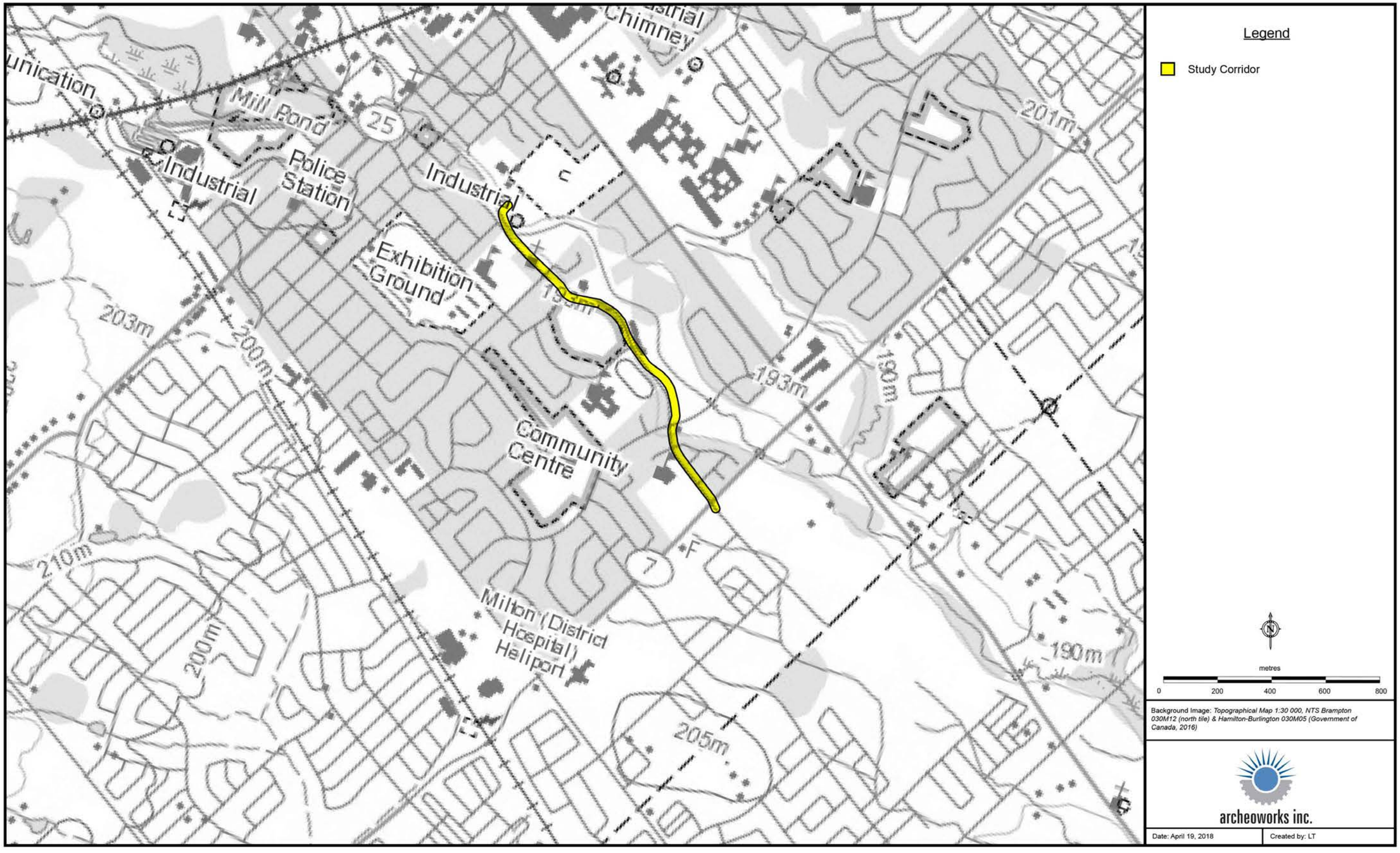
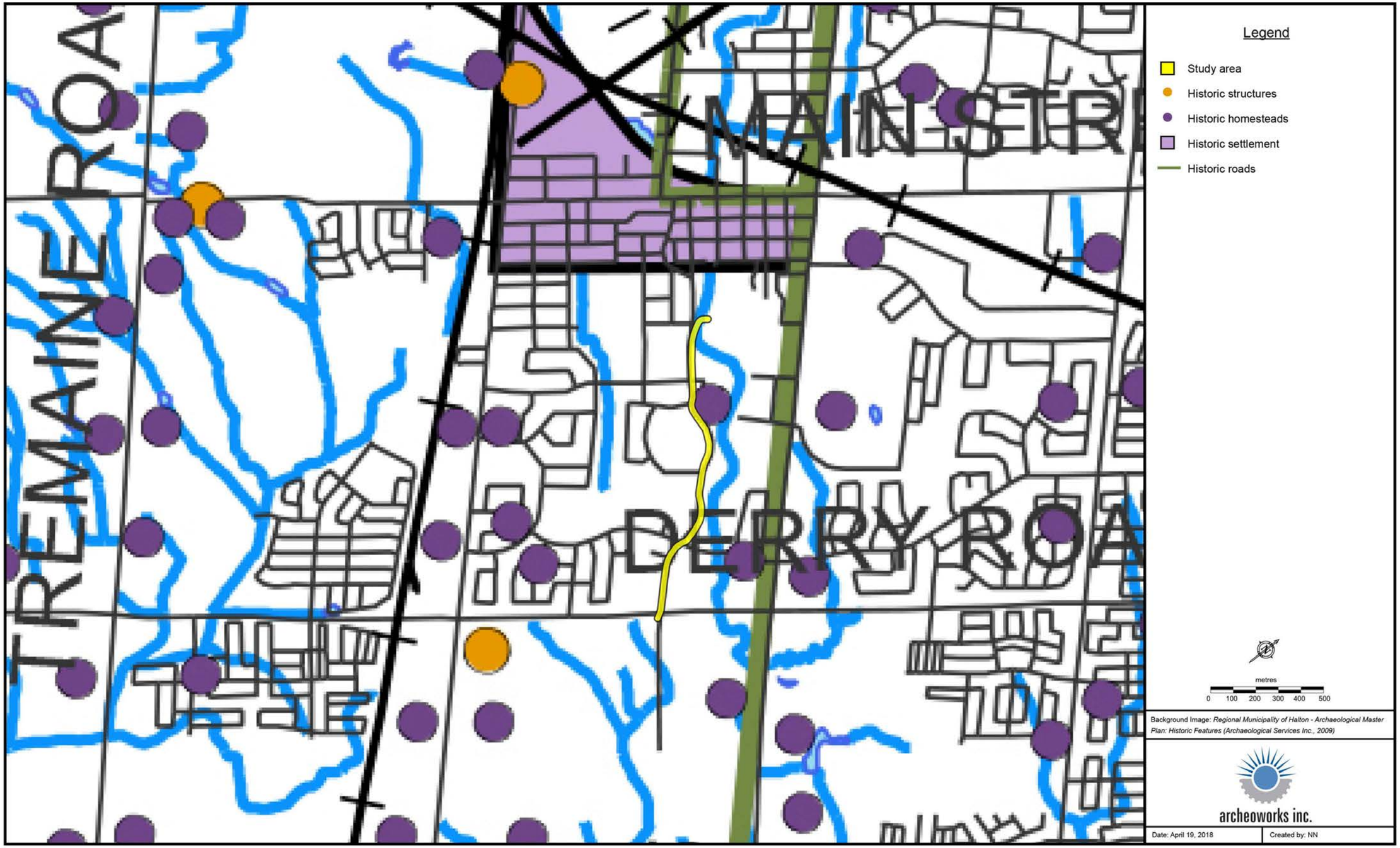
APPENDICES

APPENDIX A: MAPS

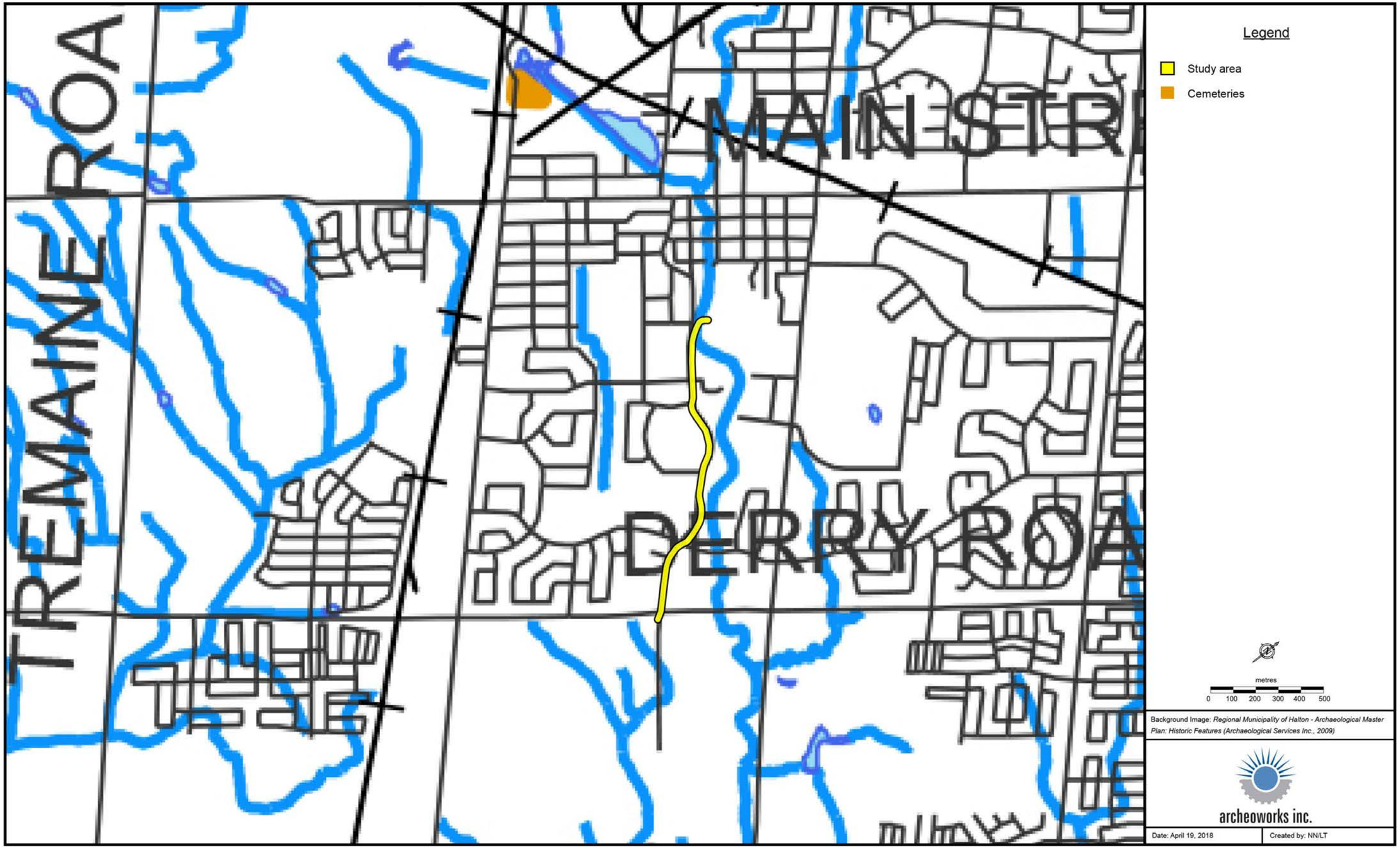


Map 1: Topographical map 1:30000, NTS Brampton 030M12 (*north tile*) & Hamilton-Burlington 030M05 (*south tile*) (Government of Canada, 2013) identifying the Stage 1 AA study corridor.

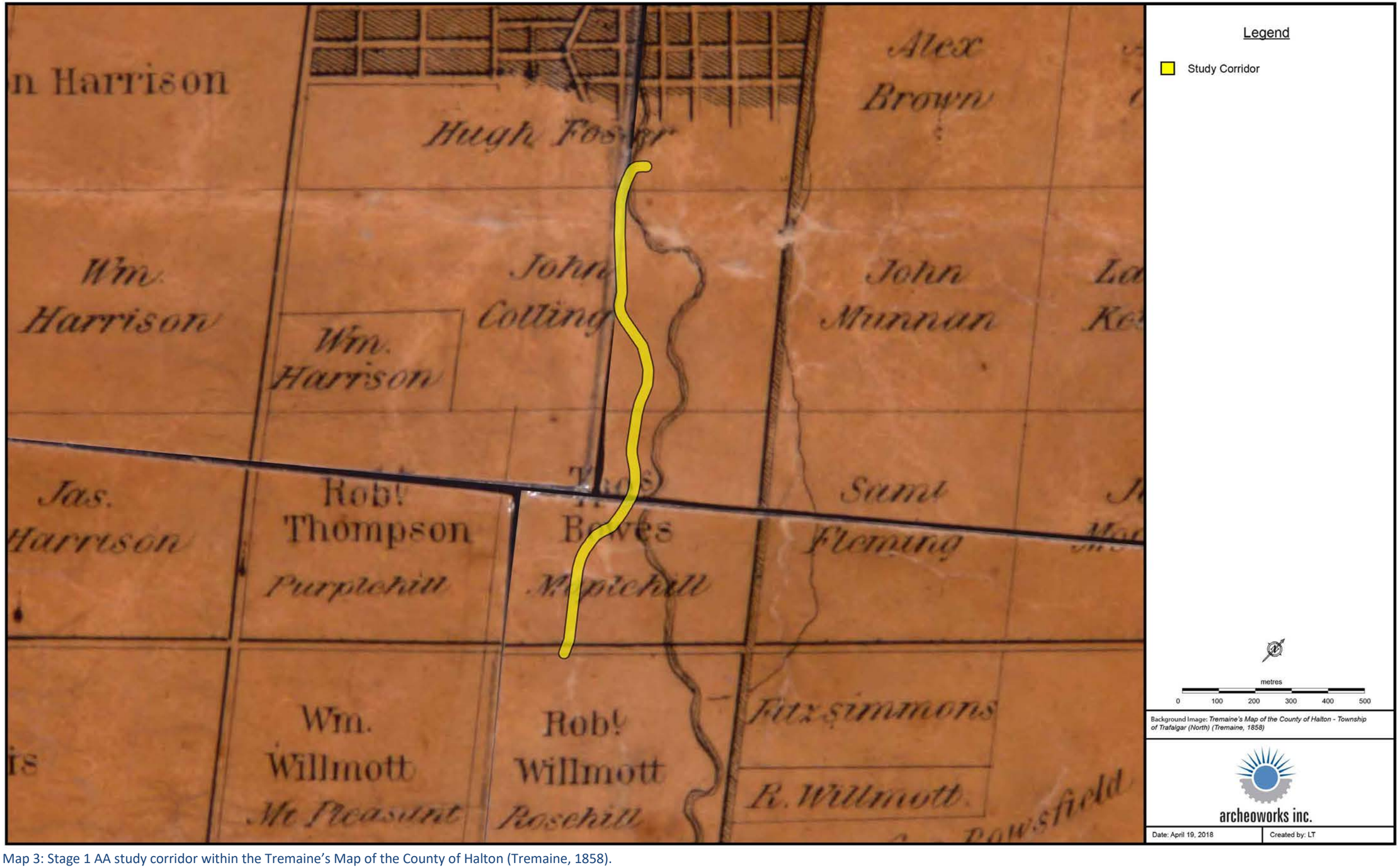
Map 2: Identifying the preferred forcemain alignment (image courtesy of *CIMA*).



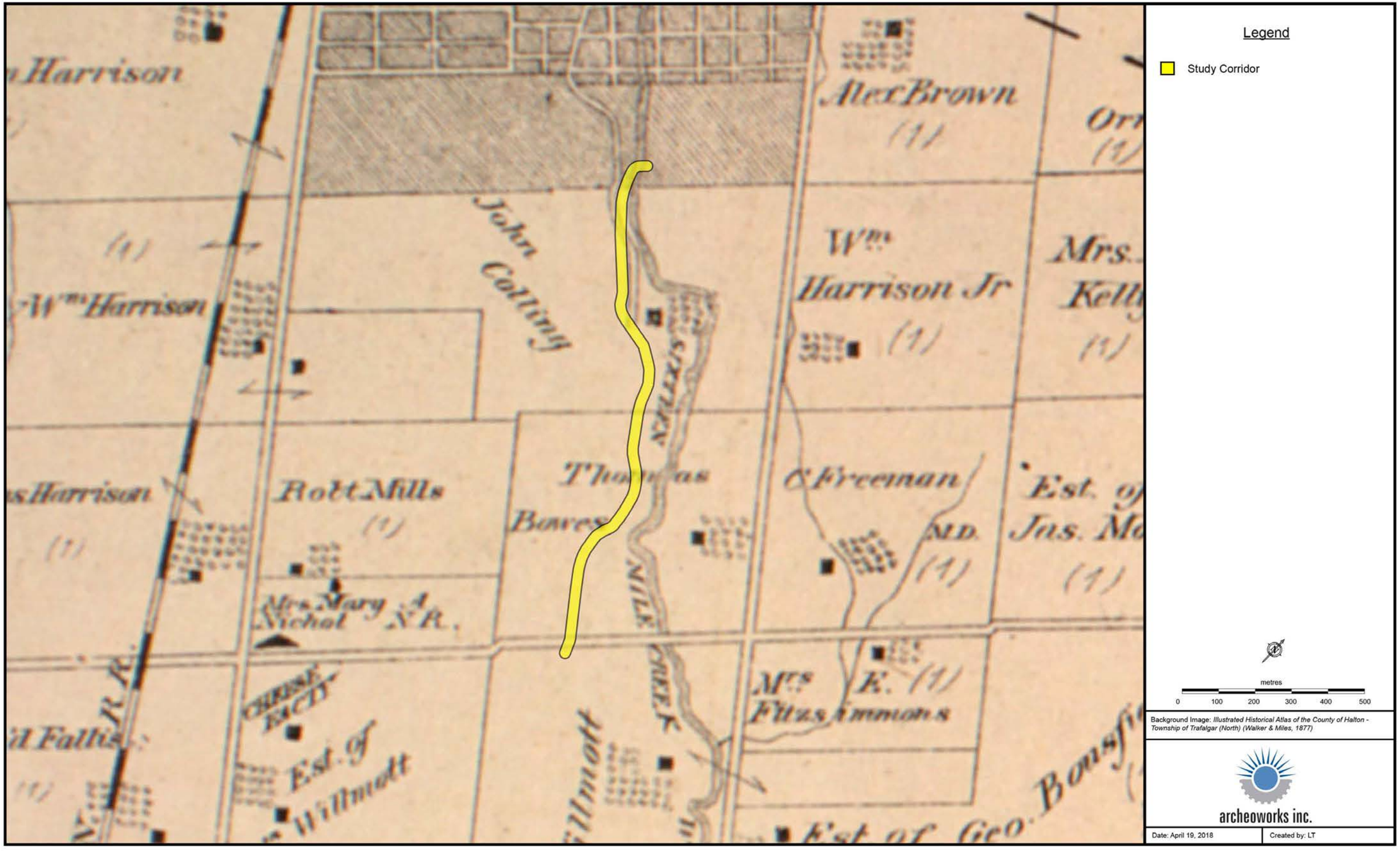
Map 3: Illustrating the study corridor on the Archaeological Master Plan - Historic Features.



Map 4: Illustrating the study corridor on the Archaeological Master Plan - Cemeteries.

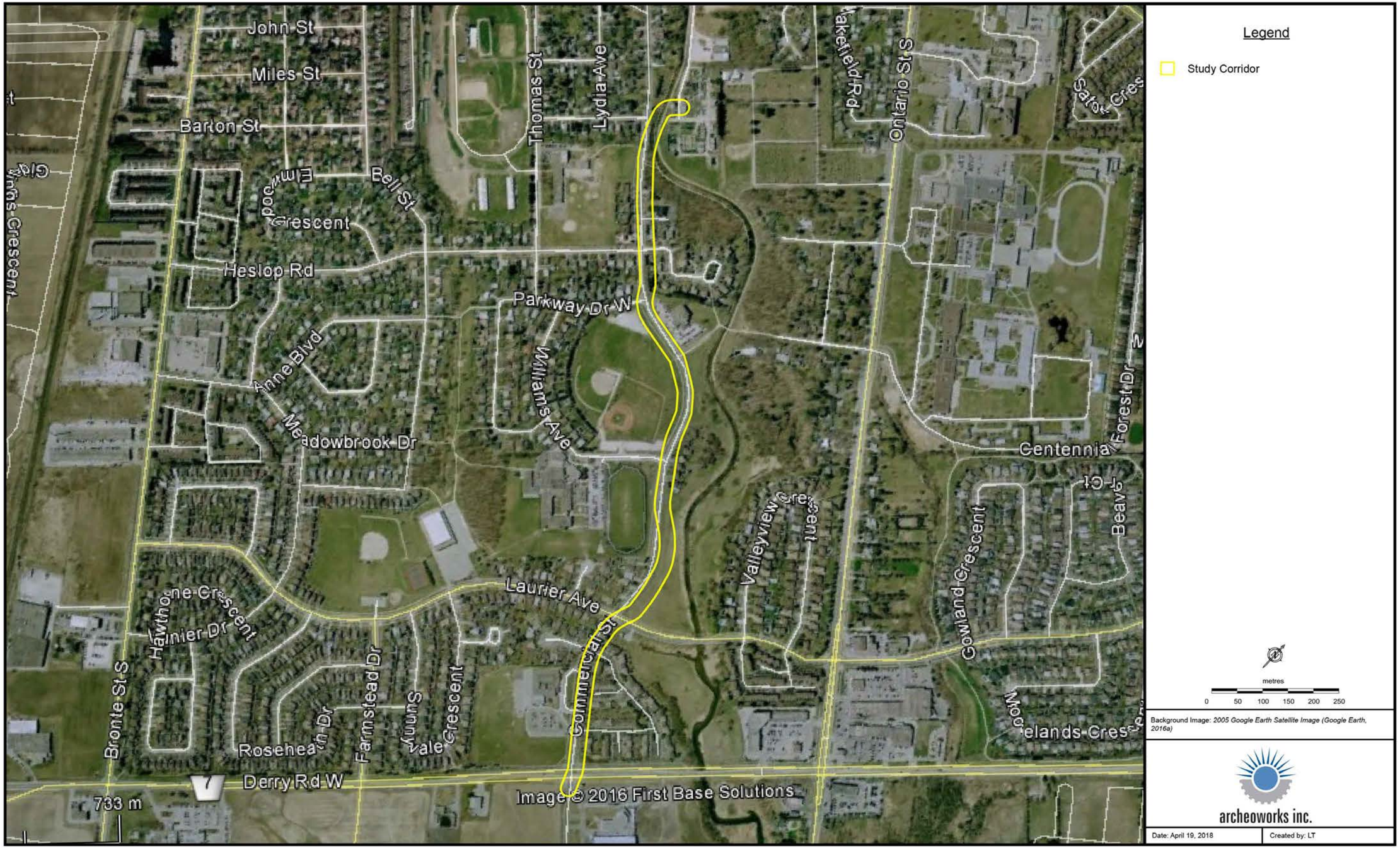


Map 3: Stage 1 AA study corridor within the Tremaine's Map of the County of Halton (Tremaine, 1858).

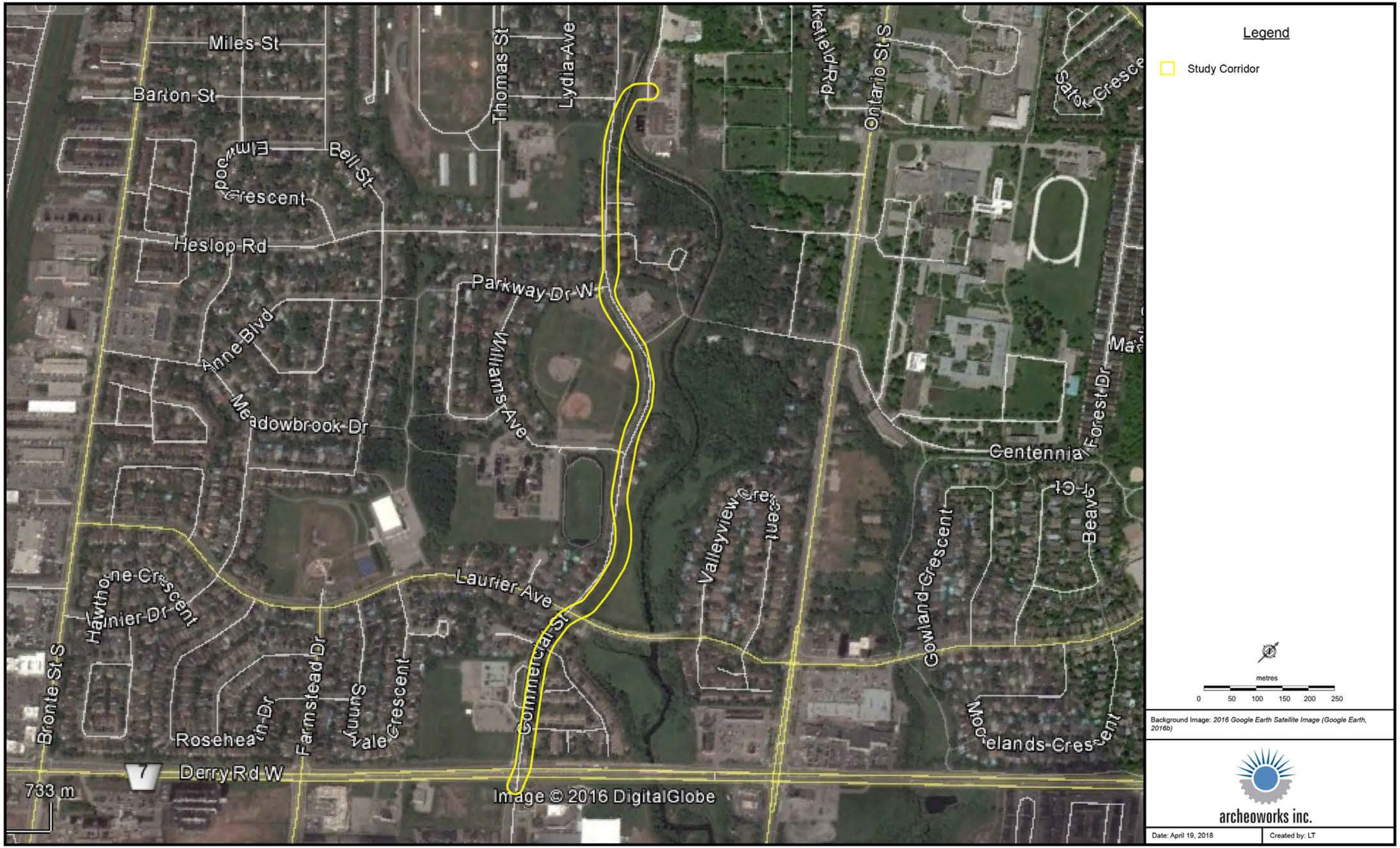


Map 4: Stage 1 AA study corridor within the Illustrated Historical Atlas of the County of Halton (Walker and Miles, 1877).

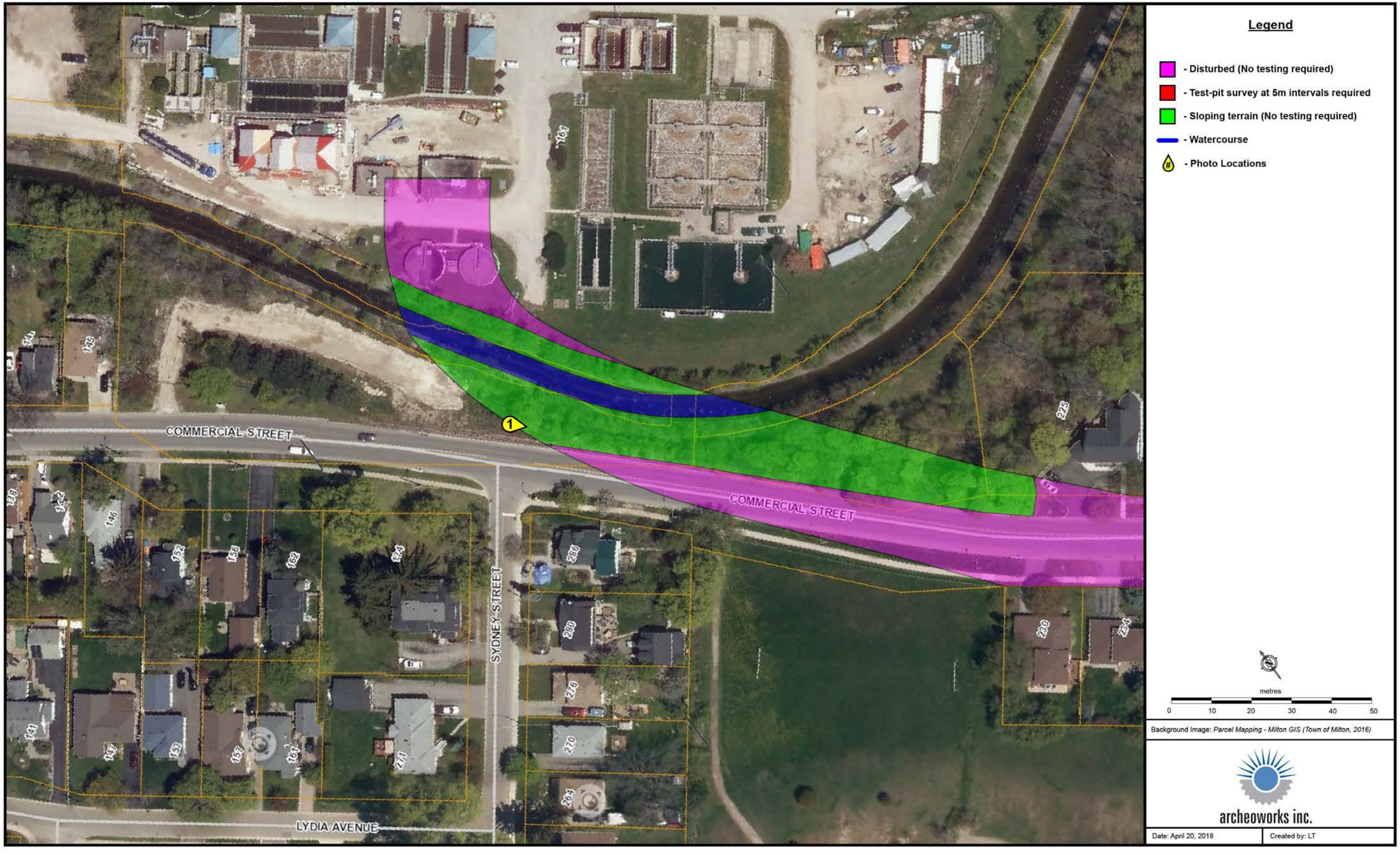
Map 5: Stage 1 AA study corridor within a 1954 aerial photograph (Hunting Survey Corporation Ltd., 1954).



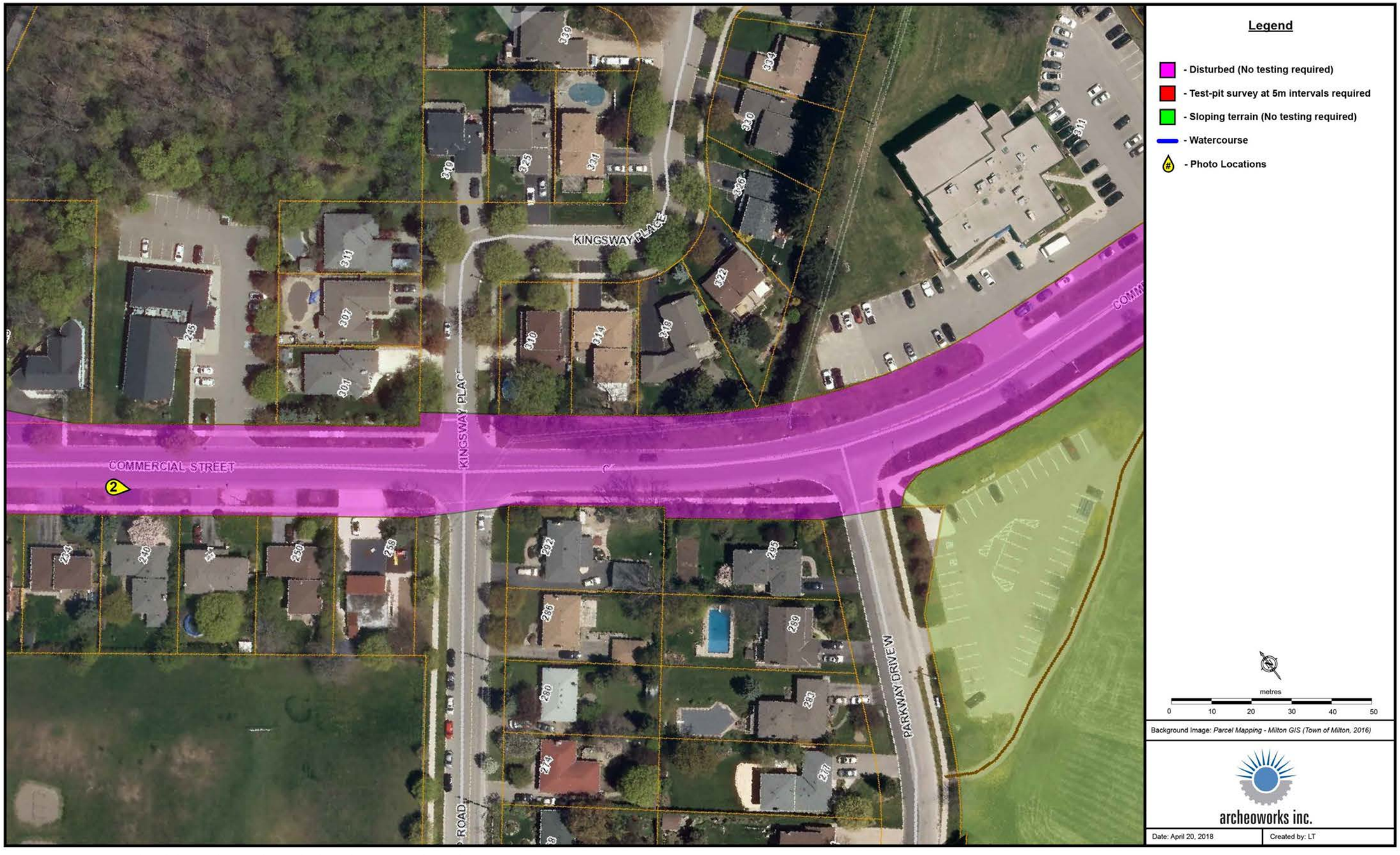
Map 6: Stage 1 AA study corridor within a 2005 satellite image (Google Earth, 2016a).



Map 7: Stage 1 AA study corridor within a 2016 satellite image (Google Earth, 2016b).

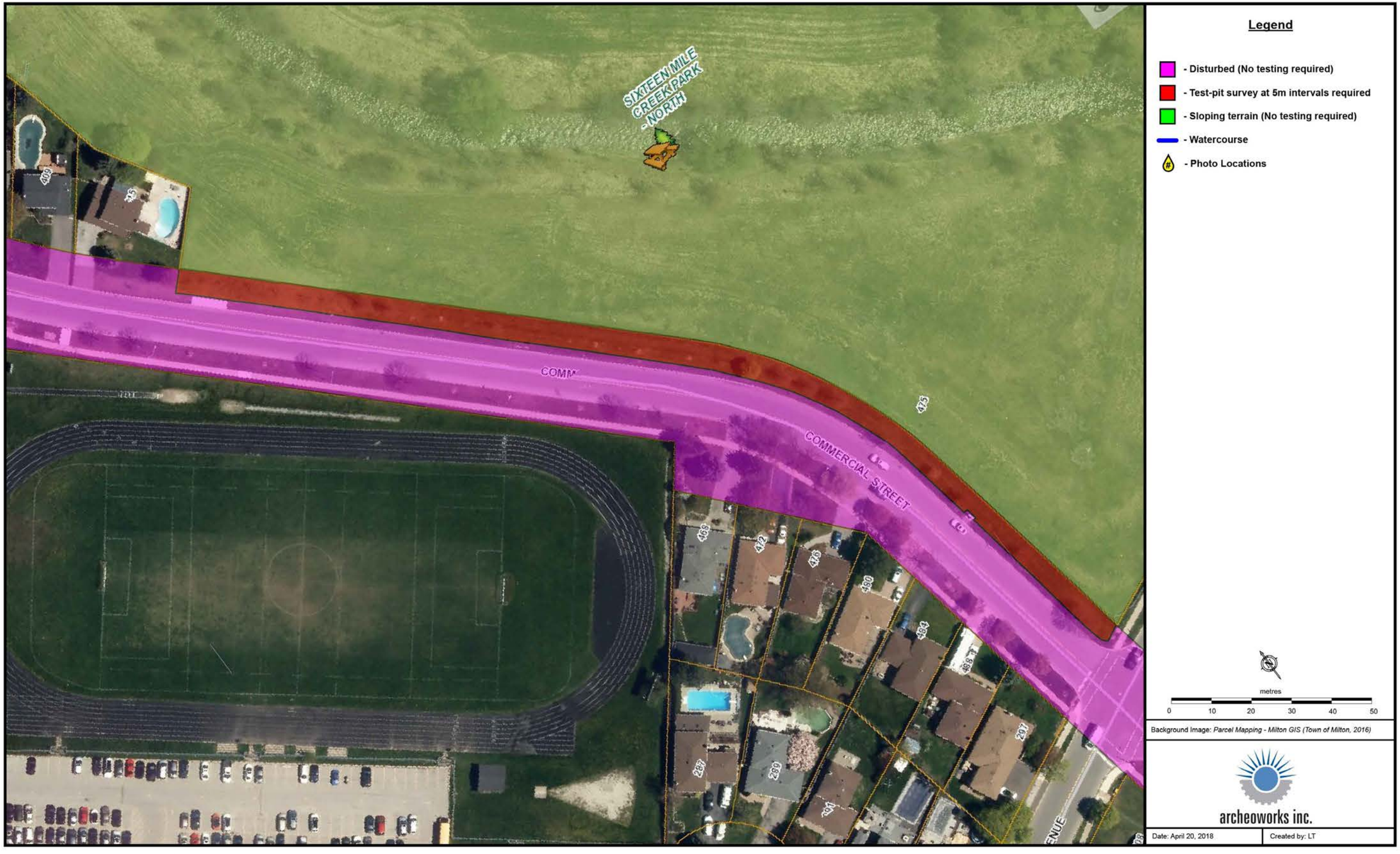


Map 8: Stage 1 AA results of the study corridor with photo locations indicated.

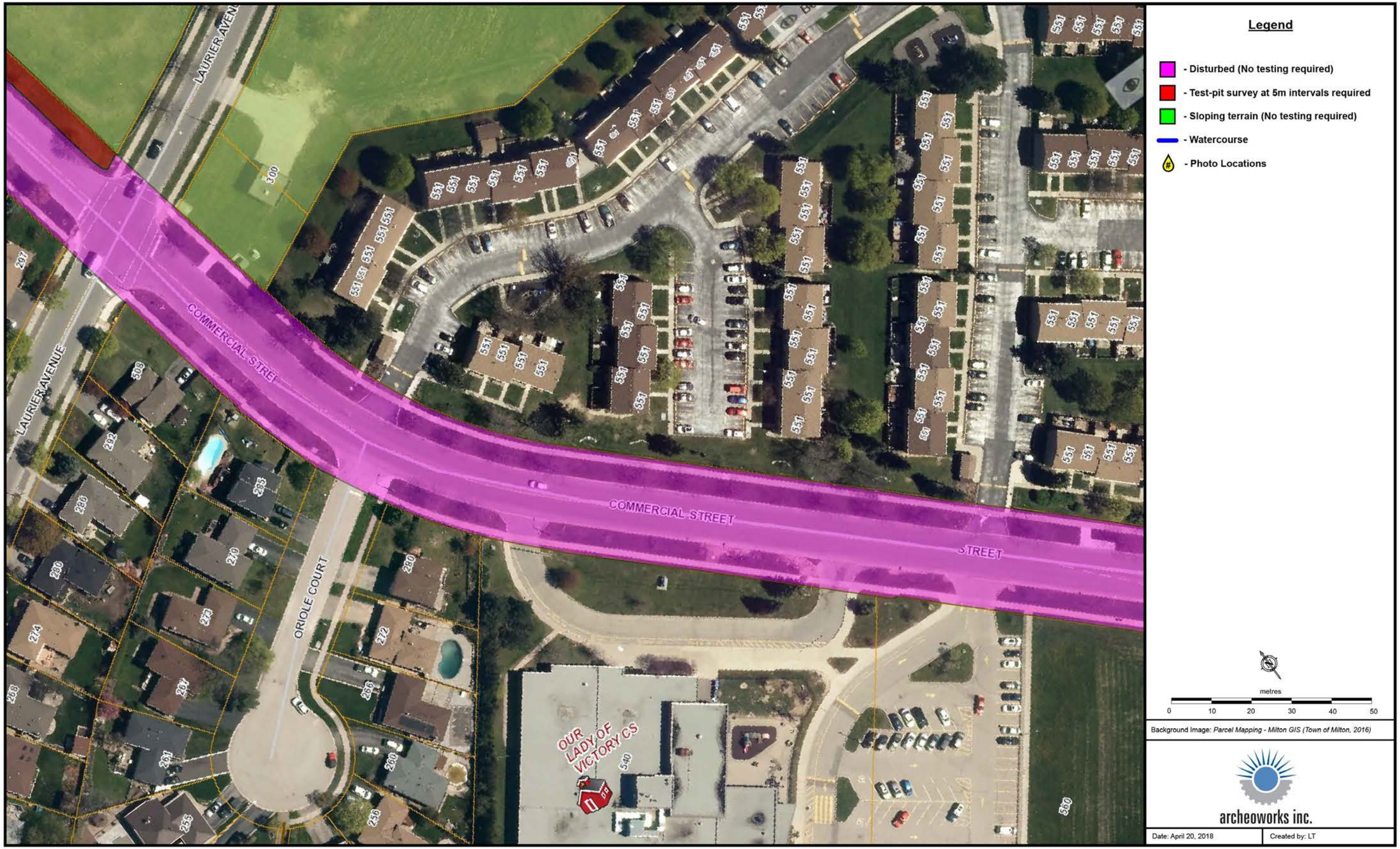


Map 9: Stage 1 AA results of the study corridor with photo locations indicated.

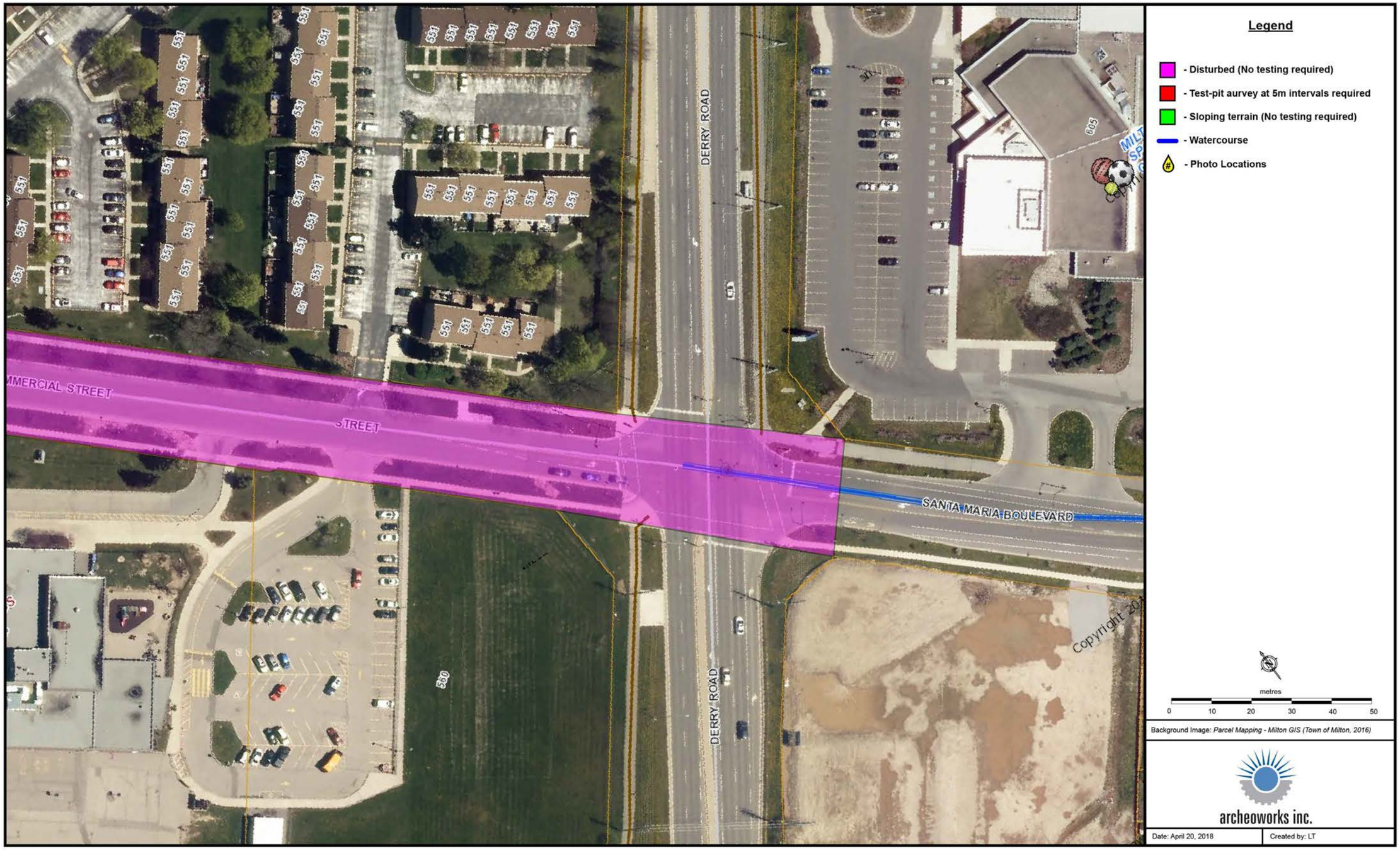
Map 10: Stage 1 AA results of the study corridor with photo locations indicated.



Map 11: Stage 1 AA results of the study corridor with photo locations indicated.



Map 12: Stage 1 AA results of the study corridor with photo locations indicated.



Map 13: Stage 1 AA results of the study corridor with photo locations indicated.

APPENDIX B: SUMMARY OF BACKGROUND RESEARCH

Feature of Archaeological Potential		Yes	No	Unknown	Comment
1	Known archaeological sites within 300 m?	X			If Yes, potential confirmed
Physical Features		**Yes**	**No**	**Unknown**	**Comment**
2	Is there water on or near the property?	X			If Yes, potential confirmed
2a	Presence of primary water source within 300 metres of the study corridor (lakes, rivers, streams, creeks)		X		If Yes, potential confirmed
2b	Presence of secondary water source within 300 metres of the study corridor (intermittent creeks and streams, springs, marshes, swamps)		X		If Yes, potential confirmed
2c	Features indicating past presence of water source within 300 metres (former shorelines, relic water channels, beach ridges)		X		If Yes, potential confirmed
2d	Accessible or inaccessible shoreline (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh)		X		If Yes, potential confirmed
3	Elevated topography (knolls, drumlins, eskers, plateaus, etc.)	X			If Yes to two or more of 3-5 or 7-10, potential confirmed
4	Pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground		X		If Yes to two or more of 3-5 or 7-10, potential confirmed
5	Distinctive land formations (mounds, caverns, waterfalls, peninsulas, etc.)		X		If Yes to two or more of 3-5 or 7-10, potential confirmed
Cultural Features		**Yes**	**No**	**Unknown**	**Comment**
6	Is there a known burial site or cemetery that is registered with the Cemeteries Regulation Unit on or directly adjacent to the property?		X		If Yes, potential confirmed
7	Associated with food or scarce resource harvest areas (traditional fishing locations, food extraction areas, raw material outcrops, etc.)		X		If Yes to two or more of 3-5 or 7-10, potential confirmed
8	Indications of early Euro-Canadian settlement (monuments, cemeteries, structures, etc.) within 300 metres	X			If Yes to two or more of 3-5 or 7-10, potential confirmed
9	Associated with historic transportation route (historic road, trail, portage, rail corridor, etc.) within 100 metres of the property	X			If Yes to two or more of 3-5 or 7-10, potential confirmed
Property-specific Information		**Yes**	**No**	**Unknown**	**Comment**
10	Contains property designated under the Ontario Heritage Act		X		Three listed heritage properties
11	Local knowledge (aboriginal communities, heritage organizations, municipal heritage committees, etc.)		X		If Yes, potential confirmed
12	Recent ground disturbance, not including agricultural cultivation (post-1960, extensive and deep land alterations)	X – Parts of study corridor			If Yes, low archaeological potential is determined

APPENDIX C: IMAGES

Image 1: View of disturbances associated with the paved road, as well as steeply sloping area.

Image 2: View of disturbances associated with the paved road/sidewalks.

Image 3: View of disturbances associated with paved roadway/sidewalk/driveways, grading, and utilities.

Image 4: View of manicured grass retaining archaeological potential.

APPENDIX D: INVENTORY OF DOCUMENTARY AND MATERIAL RECORD

Project Information:				
Project Number:		145-MI1412-15		
Licensee:		Nimal Nithiyanantham (P390)		
MTCS PIF:		P390-0229-2016		
Document/ Material			**Location**	**Comments**
1.	Research/ Analysis/ Reporting Material	Digital files stored in: /2015/145-MI1412-15 - Milton WWTP	Archeoworks Inc., 16715-12 Yonge Street, Suite 1029, Newmarket, ON, Canada, L3X 1X4	Stored on Archeoworks network servers
2.	Digital Photographs	Digital Images: 66 digital photos	Archeoworks Inc., 16715-12 Yonge Street, Suite 1029, Newmarket, ON, Canada, L3X 1X4	Stored on Archeoworks network servers

Under Section 6 of Regulation 881 of the *Ontario Heritage Act*, *Archeoworks Inc*. will, "keep in safekeeping all objects of archaeological significance that are found under the authority of the licence and all field records that are made in the course of the work authorized by the licence, except where the objects and records are donated to Her Majesty the Queen in right of Ontario or are directed to be deposited in a public institution under subsection 66 (1) of the Act."

APPENDIX E: CHANGES SINCE PIF SUBMISSION

Study corridor has been revised following the initial Stage 1 AA PIF submission.