Cultural Heritage Report:
Existing Conditions and Preliminary Impact Assessment

New Pelham Elevated Tank
Municipal Class Environmental Assessment

Town of Pelham
Regional Municipality of Niagara, Ontario

Final Report

Prepared for:

Regional Municipality of Niagara

3501 Schmon Parkway

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Archaeological Services Inc. File: 22CH-034

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Executive Summary

Archaeological Services Inc. was contracted by the Regional Municipality of Niagara to conduct a Cultural Heritage Report as part of the New Pelham Elevated Tank Municipal Class Environmental Assessment. The Environmental Assessment involves a new elevated storage tank at 220 Tice Road, south of the existing golf driving range and a new trunk main connecting the new elevated tank to the existing Shoalts Drive reservoir, in the Town of Pelham. The project study area consists of the location of the new elevated storage tank at 220 Tice Road; portions of the rights-of-way of Lookout Street, Highway 20 West, Haist Street, Bigelow Crescent, and Shoalts Drive; and the existing reservoir location at 5 Shoalts Drive. The study area is generally bounded by a mixture of residential and commercial properties.

The purpose of this report is to present an inventory of known and potential built heritage resources and cultural heritage landscapes, identify existing conditions of the project study area, provide a preliminary impact assessment, and propose appropriate mitigation measures.

The results of background historical research and a review of secondary source material, including historical mapping, indicate a study area with a rural and agricultural land use history dating back to the early nineteenth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed that there are three previously identified built heritage resources within the New Pelham Elevated Tank Municipal Class Environmental Assessment study area. An additional eight known or potential built heritage resources and one potential cultural heritage landscape were identified during the fieldwork.

Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid negative impacts to identified built heritage resources and cultural heritage landscapes. Avoidance measures may

include, but are not limited to: erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified cultural heritage resources, etc.

2. Indirect impacts due to vibration during construction activities may impact B.H.R. 1 – B.H.R. 11 and C.H.L. 1 as a result of their location in close proximity to the proposed work. To ensure the structures on the properties at 1584 Lookout Street (B.H.R. 1), 1574 Lookout Street (B.H.R. 2), 202 Highway 20 West (B.H.R. 3), 77 Highway 20 West (B.H.R. 4), 75 Highway 20 West (B.H.R. 5) 109-111 Canboro Road (B.H.R. 6), 108 Canboro Road (B.H.R. 7), 106 Canboro Road (B.H.R. 8), 1374 Haist Street (B.H.R. 9), 1344 Haist Street (B.H.R. 10), 1200 Haist Street (B.H.R. 11) and the Haist Streetscape between Highway 20 West and Canboro Road (C.H.L. 1) are not adversely impacted during construction, a baseline vibration assessment should be undertaken during detailed design. Should this advanced assessment conclude that any structures will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.

3. Indirect impacts to B.H.R. 1 and B.H.R. 2 may occur due to the location of the proposed elevated tank at the rear of the properties. This may result in indirect adverse visual impacts to potential heritage attributes. As such, it is recommended that a Cultural Heritage Evaluation Report be undertaken to determine if 1584 Lookout Street (B.H.R. 1) and 1574 Lookout Street (B.H.R. 2) have cultural heritage value or interest (C.H.V.I.). If either property is determined to have C.H.V.I., a Heritage Impact Assessment should be undertaken by a qualified person as early as possible during detailed design, and developed in consultation with, and submitted for review to, the Ministry of Heritage, Sport, Tourism and Culture Industries and interested parties including the municipal heritage planner and/or municipal heritage committee and Indigenous Nations, as appropriate.

4. Should future work require an expansion of the study area then a qualified heritage consultant should be contracted in order to confirm the impacts of the proposed work on potential heritage resources.

5. The report should be submitted to the Town of Pelham and the Ministry of Heritage, Sport, Tourism and Culture Industries for review and comment, and any other local heritage stakeholders that may have an interest in this project. The final report should be submitted to the Town of Pelham for their records.

Report Accessibility Features

This report has been formatted to meet the Information and Communications Standards under the *Accessibility for Ontarians with Disabilities Act*, 2005 (A.O.D.A.). Features of this report which enhance accessibility include: headings, font size and colour, alternative text provided for images, and the use of periods within acronyms. Given this is a technical report, there may be instances where additional accommodation is required in order for readers to access the report's information. If additional accommodation is required, please contact Annie Veilleux, Manager of the Cultural Heritage Division at Archaeological Services Inc., by email at aveilleux@asiheritage.ca or by phone 416-966-1069 ext. 255.

Project Personnel

- **Senior Project Manager**: Lindsay Graves, M.A., C.A.H.P., Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division
- **Project Coordinator:** Catherine Kitchen, B.A., Archaeologist, Laboratory Coordinator - Operations Division
- **Project Manager**: Laura Wickett, B.A. (Hon), Dipl. Heritage Conservation, Cultural Heritage Analyst, Project Manager - Cultural Heritage Division
- **Field Review**: Kirstyn Allam, B.A. (Hon), Advanced Dipl. Applied Museum Studies, Cultural Heritage Technician, Technical Writer and Researcher - Cultural Heritage Division
- Lindsay Parsons, M.M.St., M.P.L., Cultural Heritage Technician, Technical Writer and Researcher – Cultural Heritage Division
- **Report Production**: Kirstyn Allam, Lindsay Parsons, Laura Wickett
- **Graphics Production**: Jonas Fernandez, M.S.c., Manager, Geomatics - Operations Division
- **Report Reviewer**: Lindsay Graves

Qualified Persons Involved in the Project

Lindsay Graves, M.A., C.A.H.P.
Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division

The Senior Project Manager for this Cultural Heritage Report is **Lindsay Graves** (M.A., Heritage Conservation), Senior Cultural Heritage Specialist and the Environmental Assessment Coordinator for the Cultural Heritage Division. She was responsible for: overall project scoping and approach; confirmation of technical findings and study recommendations; application of relevant standards, guidelines and regulations; and implementation of quality control procedures. Lindsay is academically trained in the fields of heritage conservation, cultural anthropology, archaeology, and collections management and has over 15 years of experience in the field of cultural heritage resource management. This work has focused on the assessment, evaluation, and protection of above ground cultural heritage resources. Lindsay has extensive experience undertaking archival research, heritage survey work, heritage evaluation and heritage impact assessment. She has also contributed to cultural heritage landscape studies and heritage conservation plans, led heritage commemoration and interpretive programs, and worked collaboratively with multidisciplinary teams to sensitively plan interventions at historic sites/places. In addition, she is a leader in the completion of heritage studies required to fulfill Class Environmental Assessment processes and has served as Project Manager for over 100 heritage assessments during her time at A.S.I. Lindsay is a member of the Canadian Association of Heritage Professionals.

Laura Wickett, B.A. (Hon.), Dipl. Heritage Conservation
Cultural Heritage Analyst, Project Manager - Cultural Heritage Division

The Project Manager for this Cultural Heritage Report is **Laura Wickett** (B.A. (Hon.), Diploma Heritage Conservation), who is a Cultural Heritage Analyst and Project Manager within the Cultural Heritage Division. She was responsible for day-to-day management activities, including scoping and conducting research

activities and drafting of study findings and recommendations. Trained in the theoretical and technical aspects of heritage conservation, Laura has five years' experience working in the field of cultural heritage resource management. She began working in A.S.I.'s Cultural Heritage Division as a Cultural Heritage Technician in 2017, providing support for a range of cultural heritage assessment reports, including Cultural Heritage Resource Assessments, Cultural Heritage Evaluation Reports, Heritage Impact Assessments, and Secondary Plan assessments. She has also contributed to Heritage Conservation District studies, Cultural Heritage Landscape inventories and Heritage Register reviews.

Kirstyn Allam, B.A. (Hon), Advanced Dipl. in Applied Museum Studies
Cultural Heritage Technician, Technical Writer and Researcher - Cultural Heritage Division

One of the Cultural Heritage Technicians for this project is **Kirstyn Allam** (B.A. (Hon.), Advanced Diploma in Applied Museum Studies), who is a Cultural Heritage Technician and Technical Writer and Researcher within the Cultural Heritage Division. She was responsible for preparing and contributing to research and technical reporting. Kirstyn Allam's education and experience in cultural heritage, historical research, archaeology, and collections management has provided her with a deep knowledge and strong understanding of the issues facing the cultural heritage industry and best practices in the field. Kirstyn has experience in heritage conservation principles and practices in cultural resource management, including three years' experience as a member of the Heritage Whitby Advisory Committee. Kirstyn also has experience being involved with Stage 1-4 archaeological excavations in the Province of Ontario. Kirstyn is an intern member of C.A.H.P.

Lindsay Parsons, M.P.L., M.M.St.
Cultural Heritage Technician, Technical Writer and Researcher - Cultural Heritage Division

The Cultural Heritage Technician for this project is **Lindsay Parsons** (M.P.L., M.M.St.), who is a Cultural Heritage Technician and Technical Writer and Researcher within the Cultural Heritage Division. She was responsible for

preparing and contributing to research and technical reporting. Lindsay's work as a cultural heritage professional has focused on historical and archival research, interpreting the built environment, and cultural heritage landscape studies. Lindsay holds a M.P.L. from Toronto Metropolitan University, where she focused her studies on understanding the values that guide heritage conservation practices and how these values influence what and whose heritage is conserved. Lindsay also graduated with an M.M.St., where she focused her studies on collections management, as well as interpretation and story-telling with a particular focus on the built environment. Lindsay's experience in and understanding of both the museum and planning worlds has given her a holistic understanding of cultural heritage resources, the many challenges they face in ever-evolving environments, and best practices in their conservation and interpretation.

Glossary

Built Heritage Resource (B.H.R.)
Definition: "…a building, structure, monument, installation or any manufactured remnant that contributes to a property's cultural heritage value or interest as identified by a community, including an Indigenous community. built heritage resources are located on property that may be designated under Parts IV or V of the *Ontario Heritage Act*, or that may be included on local, provincial, federal and/or international registers" (Government of Ontario, 2020, p. 41).

Cultural Heritage Landscape (C.H.L.)
Definition: "…a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the *Ontario Heritage Act*, or have been included on federal and/or international registers, and/or protected through official plan, zoning by-law, or other land use planning mechanisms" (Government of Ontario, 2020, p. 42).

Cultural Heritage Resource
Definition: Includes above-ground resources such as built heritage resources and cultural heritage landscapes, and built or natural features below-ground including archaeological resources (Government of Ontario, 2020).

Known Cultural Heritage Resource
Definition: A known cultural heritage resource is a property that has recognized cultural heritage value or interest. This can include a property listed on a Municipal Heritage Register, designated under Part IV or V of the *Ontario Heritage Act*, or protected by a heritage agreement, covenant or easement, protected by the *Heritage Railway Stations Protection Act or the Heritage Lighthouse*

Protection Act, identified as a Federal Heritage Building, or located within a U.N.E.S.C.O. World Heritage Site (Ministry of Tourism, Culture and Sport, 2016).

Impact
Definition: Includes negative and positive, direct and indirect effects to an identified cultural heritage resource. Direct impacts include destruction of any, or part of any, significant heritage attributes or features and/or unsympathetic or incompatible alterations to an identified resource. Indirect impacts include, but are not limited to, creation of shadows, isolation of heritage attributes, direct or indirect obstruction of significant views, change in land use, land disturbances (Ministry of Tourism and Culture, 2006). Indirect impacts also include potential vibration impacts (See Section 2.5 for complete definition and discussion of potential impacts).

Mitigation
Definition: Mitigation is the process of lessening or negating anticipated adverse impacts to cultural heritage resources and may include, but are not limited to, such actions as avoidance, monitoring, protection, relocation, remedial landscaping, and documentation of the cultural heritage landscape and/or built heritage resource if to be demolished or relocated (M. H. S. T. C. I., 2006).

Potential Cultural Heritage Resource
Definition: A potential cultural heritage resource is a property that has the potential for cultural heritage value or interest. This can include properties/project area that contain a parcel of land that is the subject of a commemorative or interpretive plaque, is adjacent to a known burial site and/or cemetery, is in a Canadian Heritage River Watershed, or contains buildings or structures that are 40 or more years old (Ministry of Tourism, Culture and Sport, 2016).

Significant
Definition: With regard to cultural heritage and archaeology resources, significant means “resources that have been determined to have cultural heritage value or interest. Processes and criteria for determining cultural heritage value or interest

are established by the Province under the authority of the *Ontario Heritage Act.* While some significant resources may already be identified and inventoried by official sources, the significance of others can only be determined after evaluation" (Government of Ontario, 2020, p. 51).

Vibration Zone of Influence

Definition: Area within a 50 metre buffer of construction-related activities in which there is potential to affect an identified cultural heritage resource. A 50 metre buffer is applied in the absence of a project-specific defined vibration zone of influence based on existing secondary source literature and direction provided from the Ministry of Heritage, Sport, Tourism and Culture Industries (Carman et al., 2012; Crispino & D'Apuzzo, 2001; P. Ellis, 1987; Rainer, 1982; Wiss, 1981). This buffer accommodates the additional threat from collisions with heavy machinery or subsidence (Randl, 2001).

Table of Contents

List of Tables

List of Figures

List of Plates

1.0 Introduction

Archaeological Services Inc. was contracted by the Regional Municipality of Niagara to conduct a Cultural Heritage Report as part of the New Pelham Elevated Tank Municipal Class Environmental Assessment. The purpose of this report is to present an inventory of known and potential built heritage resources and cultural heritage landscapes, identify existing conditions of the project study area, provide a preliminary impact assessment, and propose appropriate mitigation measures.

1.1 Project Overview

The New Pelham Elevated Tank Municipal Class Environmental Assessment involves the construction of a new elevated water storage tank at 220 Tice Road, south of the existing golf driving range and the construction of a new trunk main connecting the new elevated tank to the existing Shoalts Drive reservoir, in the Town of Pelham. The project study area consists of the location of the new elevated storage tank at 220 Tice Road; portions of the rights-of-way of Lookout Street, Highway 20 West, Haist Street, Bigelow Crescent, and Shoalts Drive; and the existing reservoir location at 5 Shoalts Drive. The study area is generally bounded by a mixture of residential and commercial properties.

1.2 Description of Study Area

This Cultural Heritage Report will focus on the project study area with an additional 50 metre buffer (Figure 1). This project study area has been defined as inclusive of those lands that may contain built heritage resources or cultural heritage landscapes that may be subject to direct or indirect impacts as a result of the proposed undertaking. Properties within the study area are located in the Town of Pelham.

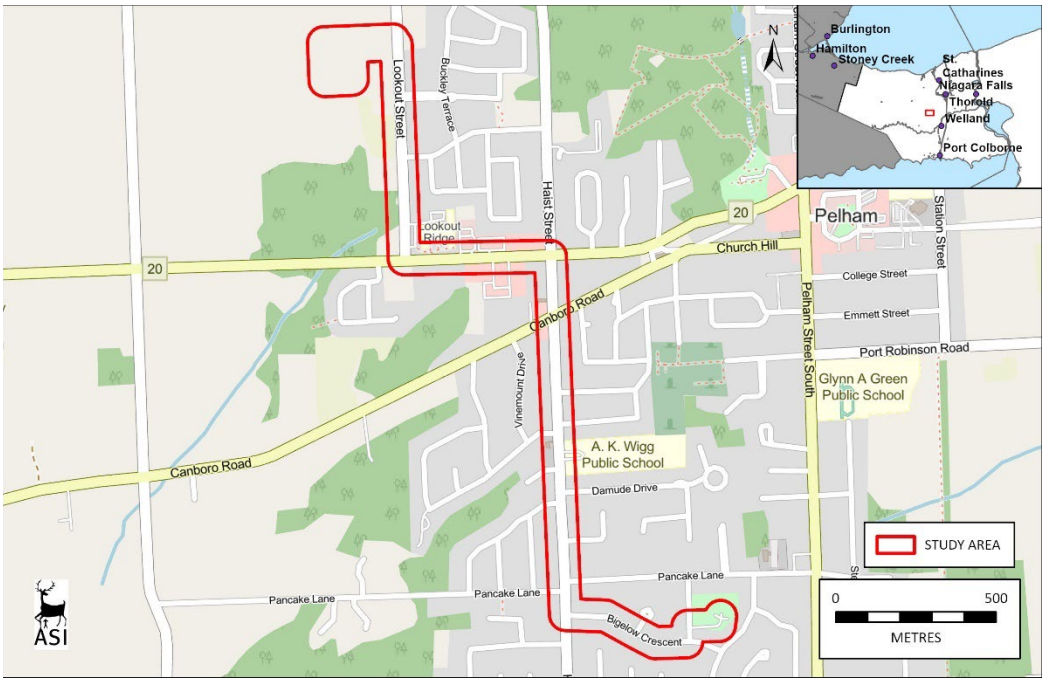

Figure 1: Location of the study area (Base Map: ©OpenStreetMap and contributors, Creative Commons-Share Alike License (C.C.-By-S.A.))

2.0 Methodology

The following sections provide a summary of regulatory requirements and municipal and regional heritage policies that guide this cultural heritage assessment. In addition, an overview of the process undertaken to identify known and potential built heritage resources and cultural heritage landscapes is provided, along with a description of how the preliminary impact assessment will be undertaken.

2.1 Regulatory Requirements

The *Ontario Heritage Act* (O.H.A.) (Ontario Heritage Act, R.S.O. c. O.18, 1990 [as Amended in 2021], 1990) is the primary piece of legislation that determines policies, priorities and programs for the conservation of Ontario's heritage. There are many other provincial acts, regulations and policies governing land use

planning and resource development that support heritage conservation, including:

- The *Planning Act* (Planning Act, R.S.O. 1990, c. P.13, 1990), which states that "conservation of features of significant architectural, cultural, historical, archaeological or scientific interest" (cultural heritage resources) is a "matter of provincial interest". The *Provincial Policy Statement* (Government of Ontario, 2020), issued under the *Planning Act*, links heritage conservation to long-term economic prosperity and requires municipalities and the Crown to conserve significant cultural heritage resources.
- The *Environmental Assessment Act* (Environmental Assessment Act, R.S.O., 1990), which defines "environment" to include cultural conditions that influence the life of humans or a community. Cultural heritage resources, which includes archaeological resources, built heritage resources and cultural heritage landscapes, are important components of those cultural conditions.

The Ministry of Heritage, Sport, Tourism and Culture Industries (hereafter "The Ministry") is charged under Section 2.0 of the O.H.A. with the responsibility to determine policies, priorities, and programs for the conservation, protection, and preservation of the heritage of Ontario. The Ministry of Tourism, Culture and Sport (now administered by the Ministry) published *Standards and Guidelines for Conservation of Provincial Heritage Properties* (Ministry of Tourism, Culture and Sport, 2010) (hereinafter "*Standards and Guidelines*"). These *Standards and Guidelines* apply to properties the Government of Ontario owns or controls that have "cultural heritage value or interest" (C.H.V.I.). The *Standards and Guidelines* provide a series of guidelines that apply to provincial heritage properties in the areas of identification and evaluation; protection; maintenance; use; and disposal. For the purpose of this report, the *Standards and Guidelines* provide points of reference to aid in determining potential heritage significance in identification of built heritage resources and cultural heritage landscapes. While not directly applicable for use in properties not under provincial ownership, the *Standards*

and Guidelines are regarded as best practice for guiding heritage assessments and ensure that additional identification and mitigation measures are considered.

Similarly, the *Ontario Heritage Tool Kit* (Ministry of Culture, 2006) provides a guide to evaluate heritage properties. To conserve a built heritage resource or cultural heritage landscape, the *Ontario Heritage Tool Kit* states that a municipality or approval authority may require a heritage impact assessment and/or a conservation plan to guide the approval, modification, or denial of a proposed development.

2.2 Municipal/Regional Heritage Policies

The study area is located within the Town of Pelham, in the Regional Municipality of Niagara. Policies relating to cultural heritage resources were reviewed from the following sources:

- Town of Pelham *Official Plan* (2014)
- Town of Pelham *Heritage Master Plan* (Town of Pelham, 2013)
- Niagara Region *Official Plan* (Regional Municipality of Niagara, 2014)

2.3 Identification of Built Heritage Resources and Cultural Heritage Landscapes

This Cultural Heritage Report follows guidelines presented in the *Ontario Heritage Tool Kit* (Ministry of Culture, 2006) and *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (Ministry of Tourism, Culture and Sport, 2016). The objective of this report is to present an inventory of known and potential built heritage resources and cultural heritage landscapes, and to provide a preliminary understanding of known and potential built heritage resources and cultural heritage landscapes located within areas anticipated to be directly or indirectly impacted by the proposed project.

In the course of the cultural heritage assessment process, all potentially affected built heritage resources and cultural heritage landscapes are subject to identification and inventory. Generally, when conducting an identification of built heritage resources and cultural heritage landscapes within a study area, three stages of research and data collection are undertaken to appropriately establish the potential for and existence of built heritage resources and cultural heritage landscapes in a geographic area: background research and desktop data collection; field review; and identification.

Background historical research, which includes consultation of primary and secondary source research and historical mapping, is undertaken to identify early settlement patterns and broad agents or themes of change in a study area. This stage in the data collection process enables the researcher to determine the presence of sensitive heritage areas that correspond to nineteenth- and twentieth-century settlement and development patterns. To augment data collected during this stage of the research process, federal, provincial, and municipal databases and/or agencies are consulted to obtain information about specific properties that have been previously identified and/or designated as having cultural heritage value. Typically, resources identified during these stages of the research process are reflective of particular architectural styles or construction methods, associated with an important person, place, or event, and contribute to the contextual facets of a particular place, neighbourhood, or intersection.

A field review is then undertaken to confirm the location and condition of previously identified built heritage resources and cultural heritage landscapes. The field review is also used to identify potential built heritage resources and cultural heritage landscapes that have not been previously identified on federal, provincial, or municipal databases or through other appropriate agency data sources.

During the cultural heritage assessment process, a property is identified as a potential built heritage resources or cultural heritage landscape based on

research, the Ministry screening tool, and professional expertise and best practice. In addition, use of a 40-year-old benchmark is a guiding principle when conducting a preliminary identification of built heritage resources and cultural heritage landscapes. While identification of a resource that is 40 years old or older does not confer outright heritage significance, this benchmark provides a means to collect information about resources that may retain heritage value. Similarly, if a resource is slightly younger than 40 years old, this does not preclude the resource from having cultural heritage value or interest.

2.4 Background Information Review

To make an identification of previously identified known or potential built heritage resources and cultural heritage landscapes within the study area, the following sections present the resources that were consulted as part of this Cultural Heritage Report.

2.4.1 Review of Existing Heritage Inventories

A number of resources were consulted in order to identify previously identified built heritage resources and cultural heritage landscapes within the study area. These resources, reviewed on 10 May 2022, include:

- The *Pelham Municipal Heritage Inventory* (Town of Pelham, n.d.);
- The *Ontario Heritage Act Register* (Ontario Heritage Trust, n.d.b);
- The *Places of Worship Inventory* (Ontario Heritage Trust, n.d.c);
- The inventory of Ontario Heritage Trust easements (Ontario Heritage Trust, n.d.a);
- The Ontario Heritage Trust's *An Inventory of Provincial Plaques Across Ontario*: a PDF of Ontario Heritage Trust Plaques and their locations (Ontario Heritage Trust, 2018);
- Inventory of known cemeteries/burial sites in the Ontario Genealogical Society's online databases (Ontario Genealogical Society, n.d.);
- Canada's Historic Places website: available online, the searchable register provides information on historic places recognized for their

heritage value at the local, provincial, territorial, and national levels (Parks Canada, n.d.a);

- Directory of Federal Heritage Designations: a searchable on-line database that identifies National Historic Sites, National Historic Events, National Historic People, Heritage Railway Stations, Federal Heritage Buildings, and Heritage Lighthouses (Parks Canada, n.d.b);
- Canadian Heritage River System: a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage (Canadian Heritage Rivers Board and Technical Planning Committee, n.d.); and,
- United Nations Educational, Scientific and Cultural Organization (U.N.E.S.C.O.) World Heritage Sites (U.N.E.S.C.O. World Heritage Centre, n.d.).

2.4.2 Review of Previous Heritage Reporting

Additional cultural heritage studies undertaken within parts of the study area were also reviewed. These include:

- *Cultural Heritage Assessment Report: Built Heritage Resources and Cultural Heritage Landscapes Impact Assessment Report Regional Road 20 between Haist Street and Lookout Street, Town of Pelham, Regional Municipality of Niagara, Ontario* (A.S.I., 2012)

2.4.3 Stakeholder Data Collection

The following individuals, groups, and/or organizations were contacted to gather information on known and potential built heritage resources and cultural heritage landscapes, active and inactive cemeteries, and areas of identified Indigenous interest within the study area:

- Shannon Larocque, Senior Planner, Town of Pelham (email communication 13 and 16 May 2022). Email correspondence confirmed that two properties included on the Heritage Register have been

demolished, two properties that were listed are not considered to be historical, there are no boundaries identified for the Canboro Road Corridor, and staff provided the addresses of some potential properties for consideration. Staff were also able to provide listing information pertaining to four properties.

- The Ministry (email communication 13 and 16 May 2022). Email correspondence confirmed that there are no additional previously identified heritage resources or concerns regarding the study area.
- The Ontario Heritage Trust (email communication 13 May 2022). Email request to confirm that there are no conservation easements or Trust-owned properties within the study area was submitted. A response was still outstanding at the time of report finalization.
- At project start-up in late March 2022, and via email on April 19, 2022, A.S.I. made a request to the proponent that any engagement with Indigenous communities undertaken as part of this project include a discussion about known or potential built heritage resources or cultural heritage landscapes that are of interest to the respective communities. No feedback was received by the time of report submission.

2.5 Preliminary Impact Assessment Methodology

To assess the potential impacts of the undertaking, identified built heritage resources and cultural heritage landscapes are considered against a range of possible negative impacts, based on the *Ontario Heritage Tool Kit InfoSheet #5: Heritage Impact Assessments and Conservation Plans* (Ministry of Tourism and Culture, 2006). These include:

Direct impacts:

- Destruction of any, or part of any, significant heritage attributes or features; and
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance.

Indirect impacts:

- Shadows created that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings, such as a garden;
- Isolation of a heritage attribute from its surrounding environment, context or a significant relationship;
- Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features;
- A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces; and
- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource.

Indirect impacts from construction-related vibration have the potential to negatively affect built heritage resources and cultural heritage landscapes depending on the type of construction methods and machinery selected for the project and proximity and composition of the identified resources. Potential vibration impacts are defined as having potential to affect an identified built heritage resources and cultural heritage landscapes where work is taking place within 50 metre of features on the property. A 50 metre buffer is applied in the absence of a project-specific defined vibration zone of influence based on existing secondary source literature and direction provided from the M.H.S.T.C.I. (Carman et al., 2012; Crispino & D'Apuzzo, 2001; P. Ellis, 1987; Rainer, 1982; Wiss, 1981). This buffer accommodates any additional or potential threat from collisions with heavy machinery or subsidence (Randl, 2001).

Several additional factors are also considered when evaluating potential impacts on identified built heritage resources and cultural heritage landscapes. These are outlined in a document set out by the Ministry of Culture and Communications (now Ministry of Heritage, Sport, Tourism and Culture Industries) and the Ministry of the Environment entitled *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (1992). While this document

has largely been superseded in some respects by more current policies and legislation, the guidance provided that continues to be of relevance to this specific project includes the following definitions:

- Magnitude: the amount of physical alteration or destruction which can be expected;
- Severity: the irreversibility or reversibility of an impact;
- Duration: the length of time an adverse impact persists;
- Frequency: the number of times an impact can be expected;
- Range: the spatial distribution, widespread or site specific, of an adverse impact; and
- Diversity: the number of different kinds of activities to affect a heritage resource.

The proposed undertaking should endeavor to avoid adversely affecting known and potential built heritage resources and cultural heritage landscapes and interventions should be managed in such a way that identified significant cultural heritage resources are conserved. When the nature of the undertaking is such that adverse impacts are unavoidable, it may be necessary to implement alternative approaches or mitigation strategies that alleviate the negative effects on identified built heritage resources and cultural heritage landscapes. Mitigation is the process of lessening or negating anticipated adverse impacts to cultural heritage resources and may include, but are not limited to, such actions as avoidance, monitoring, protection, relocation, remedial landscaping, and documentation of the built heritage resource or cultural heritage landscape if to be demolished or relocated.

Various works associated with infrastructure improvements have the potential to affect built heritage resources and cultural heritage landscapes in a variety of ways, and as such, appropriate mitigation measures for the undertaking need to be considered.

3.0 Summary of Historical Development Within the Study Area

This section provides a brief summary of historical research. A review of available primary and secondary source material was undertaken to produce a contextual overview of the study area, including a general description of physiography, Indigenous land use, and Euro-Canadian settlement.

3.1 Physiography

The study area is located within the Haldimand Clay Plain physiographic region (Chapman & Putnam, 1984). This region is among the largest of the 53 defined physiographic regions in southern Ontario, comprising approximately 3,500 square kilometres (MacDonald, 1980). Generally, this region is flat and poorly drained, although it includes several distinctive landforms including dunes, cobble, clay, and sand beaches, limestone pavements, and back-shore wetland basins (MacDonald, 1980). Influencing the development of the area is the Niagara Escarpment within the Niagara Peninsula. Located along the plain below the Niagara Escarpment is the "fruit belt" which is an area of heavily developed horticultural land. In particular, in the area around Fonthill, the soils are lighter and create a "horticultural island" and many of the crops within the Niagara fruit belt are grown here(Chapman & Putnam, 1984, p. 159).

3.2 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years ago, or 11,000 Before the Common Era (B.C.E.) (Ferris, 2013).[1] During the Paleo period (c. 11,000 B.C.E. to

[1] While many types of information can inform the precontact settlement of Ontario, such as oral traditions and histories, this summary provides information drawn from archaeological research conducted in southern Ontario over the last century.

9,000 B.C.E.), groups tended to be small, nomadic, and non-stratified. The population relied on hunting, fishing, and gathering for sustenance, though their lives went far beyond subsistence strategies to include cultural practices including but not limited to art and astronomy. Fluted points, beaked scrapers, and gravers are among the most important artifacts to have been found at various sites throughout southern Ontario, and particularly along the shorelines of former glacial lakes. Given the low regional population levels at this time, evidence concerning Paleo-Indian period groups is very limited (C. J. Ellis & Deller, 1990).

Moving into the Archaic period (c. 9,000 B.C.E. to 1,000 B.C.E.), many of the same roles and responsibilities continued as they had for millennia, with groups generally remaining small, nomadic, and non-hierarchical. The seasons dictated the size of groups (with a general tendency to congregate in the spring/summer and disperse in the fall/winter), as well as their various sustenance activities, including fishing, foraging, trapping, and food storage and preparation. There were extensive trade networks which involved the exchange of both raw materials and finished objects such as polished or ground stone tools, beads, and notched or stemmed projectile points. Furthermore, mortuary ceremonialism was evident, meaning that there were burial practices and traditions associated with a group member's death (C. J. Ellis et al., 2009; C. J. Ellis & Deller, 1990).

The Woodland period (c. 1,000 B.C.E. to 1650 C.E.) saw several trends and aspects of life remain consistent with previous generations. Among the more notable changes, however, was the introduction of pottery, the establishment of larger occupations and territorial settlements, incipient horticulture, more stratified societies, and more elaborate burials. Later in this period, settlement patterns, foods, and the socio-political system continued to change. A major shift to agriculture occurred in some regions, and the ability to grow vegetables and legumes such as corn, beans, and squash ensured long-term settlement occupation and less dependence upon hunting and fishing. This development contributed to population growth as well as the emergence of permanent villages and special purpose sites supporting those villages. Furthermore, the socio-political system shifted from one which was strongly kinship based to one that

involved tribal differentiation as well as political alliances across and between regions (Birch et al., 2021; Dodd et al., 1990; C. J. Ellis & Deller, 1990; Williamson, 1990).

The arrival of European trade goods in the sixteenth century, Europeans themselves in the seventeenth century, and increasing settlement efforts in the eighteenth century all significantly impacted traditional ways of life in Southern Ontario. Over time, war and disease contributed to death, dispersion, and displacement of many Indigenous peoples across the region. The Euro-Canadian population grew in both numbers and power through the eighteenth and nineteenth centuries and treaties between colonial administrators and First Nations representatives began to be negotiated.

The study area is within Treaty 3, the Between the Lakes Purchase. Following the 1764 Niagara Peace Treaty and the follow-up treaties with Pontiac, the English colonial government considered the Mississaugas to be their allies since they had accepted the Covenant Chain. The English administrators followed the terms of the Royal Proclamation and insured that no settlements were made in the hunting grounds that had been reserved for their use (Johnston, 1964; Lytwyn, 2005). In 1784, under the terms of the Between the Lakes Purchase signed by Sir Frederick Haldimand and the Mississaugas, the Crown acquired over one million acres of land in-part spanning westward from near modern day Niagara-on-the-Lake along the south shore of Lake Ontario to modern day Burlington (Aboriginal Affairs and Northern Development Canada, 2016).

3.3 Historical Euro-Canadian Township Survey and Settlement

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the

hinterlands. Early transportation routes followed existing Indigenous trails that typically followed the highlands adjacent to various creeks and rivers (ASI 2006). Early European settlements occupied similar locations as Indigenous settlements as they were generally accessible by trail or water routes and would have been in locations with good soil and suitable topography to ensure adequate drainage.

Historically, the study area is located in the former Township of Pelham, within the County Welland in part of Lot 4, Concession 7; Lot 3, Concession 7 to 9; Lot 2, Concession 7 to 9; Lot 1, Concession 9.

3.3.1 Township of Pelham

The early settlers in Niagara were primarily American born Loyalists, from the Mohawk Valley of New York State and from Pennsylvania. During the mid-1790s and early 1800s, the Upper Canadian government offered grants of land to prospective settlers in an effort to increase the population of the province, and to bring more land under cultivation. During that period a number of Quaker settlers arrived in Niagara and took up their lands in Pelham Township (A.H. Colquhoun, 1916; Col. E. A. Cruikshank, 1914). The township had a population of 887 residents by 1817 (Mika & Mika, 1983). Settlement accelerated when the Great Western Railway line connected the township to Hamilton in the northwest and Queenston in the southeast. By 1886 the township had two woolen mills, three sawmills, one flour mill, a cheese factory, four wagon factories, five post offices, seven churches, ten public schools, four limestone quarries, and one nursery (Mika & Mika, 1983, p. 184).

The principal settlement centres in Pelham Township include Fonthill, Ridgeville, Fenwick, and North Pelham. The Welland River forms the southern boundary of the Township, with modern-day Highway 20 forming the northern limit. The Township of Pelham became the Town of Pelham in 1970, and Harold Black became the town's first mayor.

3.3.2 Fonthill

Fonthill is situated near the boundary of the former Pelham and Thorold townships in Welland County, originally named Osborne's Corners when first settled in 1842, before being renamed Temperanceville and, finally, Fonthill (Mika & Mika, 1981). Fonthill was originally settled by colonizers from England and later by United Empire Loyalists from Nova Scotia. A plan of subdivision for the village was laid out in early 1852 by the surveyor C.K. Fell. It showed 23 building lots bounded by Pelham, West Canborough and Church Streets. The Fonthill Nurseries, established in 1837 by Samuel Taylor, were vital to the economic success of the region, and the high quality of the surrounding farmland brought nationwide-renown for the nurseries (Mika & Mika, 1981). The mid-nineteenth century also saw the establishment of a post office (1841), a Baptist Church (1846), a Methodist Church (1850), The Fonthill Herald (first edition published in 1854), and the Fonthill Grammar School (1856) (Duff, 1934; Mika & Mika, 1981). In 1865, the land in the southwest corner of Lot 3, Concession 9 was set aside by Samuel Rice to establish a school and teacher's residence for the community of Pelham Corners, which was centered around the intersection of Haist Street and Welland Road, to the west of the study area (Rice, 1983). In 1922, Fonthill became a separate municipality, joining the tri-hamlets of Pelham Corners and Ridgeville, and in 1970 Fonthill amalgamated with nearby historical communities Ridgeville, Effingham, Fenwick, and North Pelham to form the Town of Pelham (Town of Pelham, 2013).

3.4 Review of Historical Mapping

The 1862 *Map of the County of Welland* (Tremaine & Tremaine, 1862), and the 1876 *Illustrated Atlas of the County of Welland* (Page, 1876) were examined to determine the presence of historical features within the study area during the nineteenth century (Figure 2 and Figure 3). Historically, the study area is located on Lot 4, Concession 7; Lot 3, Concession 7 to 9; Lot 2, Concession 7 to 9; Lot 1, Concession 9 in the Township of Pelham, within the County of Welland.

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases. For instance, they were often financed by subscription limiting the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases. The use of historical map sources to reconstruct or predict the location of former features within the modern landscape generally begins by using common reference points between the various sources. The historical maps are geo-referenced to provide the most accurate determination of the location of any property on a modern map. The results of this exercise can often be imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including differences of scale and resolution, and distortions introduced by reproduction of the sources.

Nineteenth-century mapping shows the study area within a rural agricultural setting located west of the village of Fonthill and east of the village of Ridgeville (Figure 2 and Figure 3). The 1862 map (Figure 2) depicts present-day Haist Street, Lookout Street, Highway 20 West, Canboro Road, and Pancake Lane following their current alignment, indicating that these are historically surveyed roads. Lookout Street is depicted with dotted lines, indicating ”road allowances not opened”. All other roads in the study area are noted as ”common roads”. No structures or features are depicted within the study area on the 1862 map. Later nineteenth-century mapping (Figure 3) shows residences and orchards located within the study area mainly around the intersection of present-day Haist Street and Highway 20 West. A church is located adjacent to the study area.

In addition to nineteenth-century mapping, historical topographic mapping and aerial photographs from the twentieth century were examined. This report presents maps and aerial photographs from 1915, 1938, 1954, 1973, and 1994 (Figure 4 to Figure 8).

The study area continues to express rural or agricultural land use into the twentieth century. The 1915 and 1938 topographic maps (Figure 4 and Figure 5) both show the network of roadways as relatively unchanged. Highway 20 West is

illustrated as a paved wide main highway. Canboro Road, which intersects the study area, is illustrated as paved narrow secondary highway. All other roads in the study area are illustrated as “other roads”. Wooden structures (as indicated by the black squares on the 1915 mapping) and stone/brick houses (as indicated by the red squares on the 1915 mapping) are illustrated mainly clustered at the intersection of Haist Street and Highway 20 West in the 1915 map. The 1915 map depicts telephone or telegraph lines along Haist Street and Canboro Road. The 1938 map (Figure 5) depicts more structures along Haist Street to the south of Highway 20 West. A small creek is shown ending at the intersection of Haist Street and Highway 20 West. The majority of the study area is bounded by agricultural lands and wooden areas.

The 1954 aerial photograph (Figure 6) depicts the continued agricultural uses of the land surrounding the study area. The topographic mapping from 1973 (Figure 7) illustrates an increase in residential development along the south and east of Haist Street (as indicated by red shading), along with a number of new roads illustrated in these areas. A school is depicted along the east side of Haist Street, and a church is illustrated across the street on the west side of Haist Street. A cemetery is illustrated adjacent to the study area, east of Haist Street. The majority of the area to the west of Haist Street and along Highway 20 West and Lookout Street remain wooded and agricultural. The 1994 topographic map shows that the residential development of the study area continues to expand through the late twentieth century as red shading expands heavily to the south of Pancake Lane along Haist Street and slightly to the western side of Haist Street (Figure 8). Bigelow Crescent and Shoalts Drive are not depicted until the 1994 topographic map and are located within a new residential subdivision. A small area along Shoalts Drive is illustrated as being agricultural. The north end of the study area along Lookout Street and Highway 20 West remain open and agricultural land with scattered structures running along them. The small creek ending at Haist Street and Highway 20 West illustrated in earlier mapping is no longer shown.

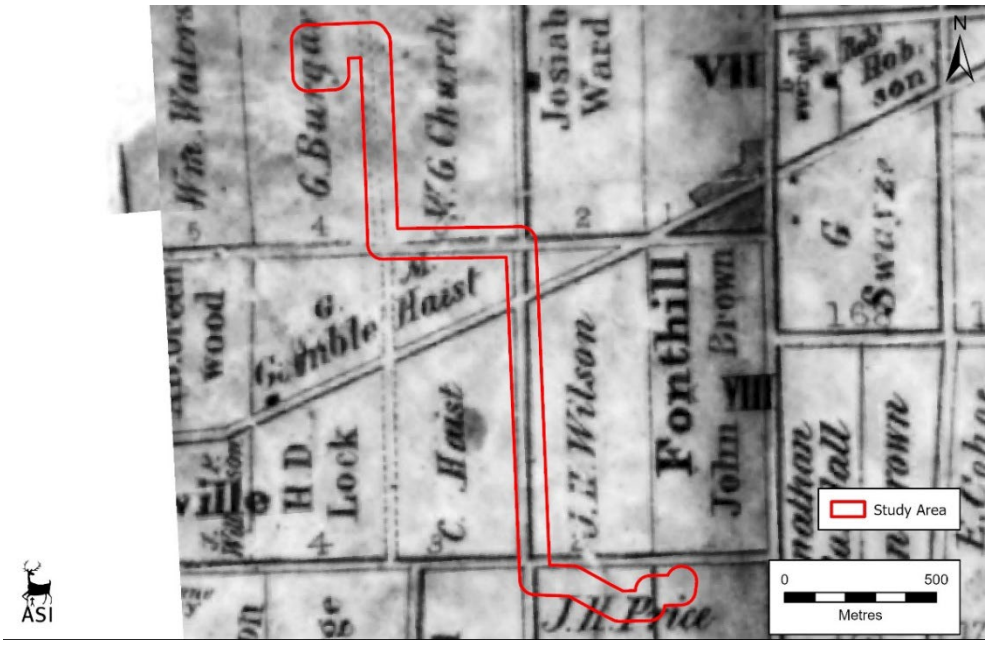

Figure 2: The study area overlaid on the 1862 *Map of the County of Welland* (Tremaine & Tremaine, 1862).

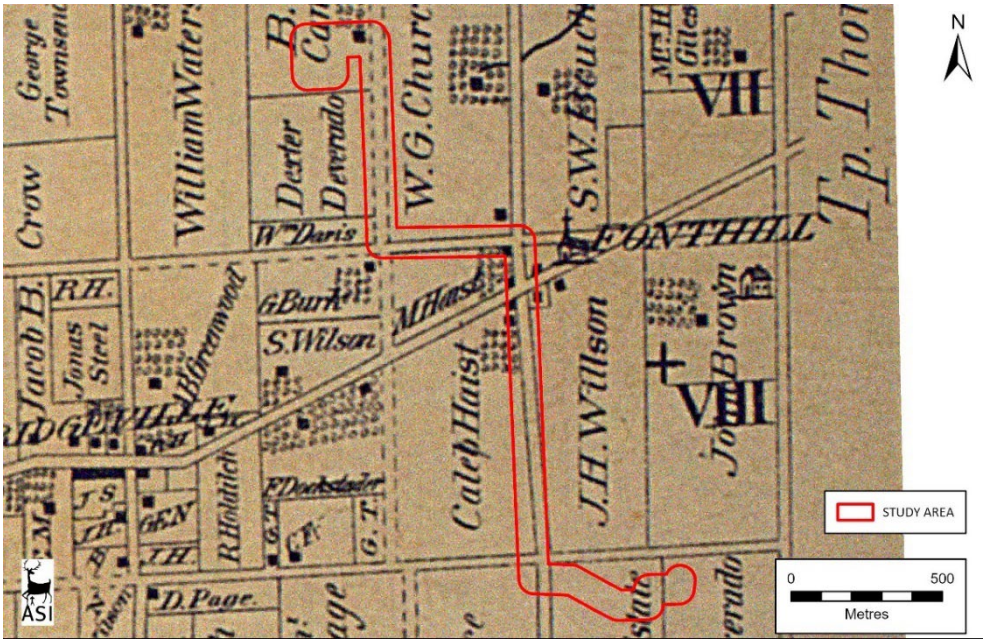

Figure 3: The study area overlaid on the 1876 *Illustrated Atlas of the County of Welland* (Page, 1876)

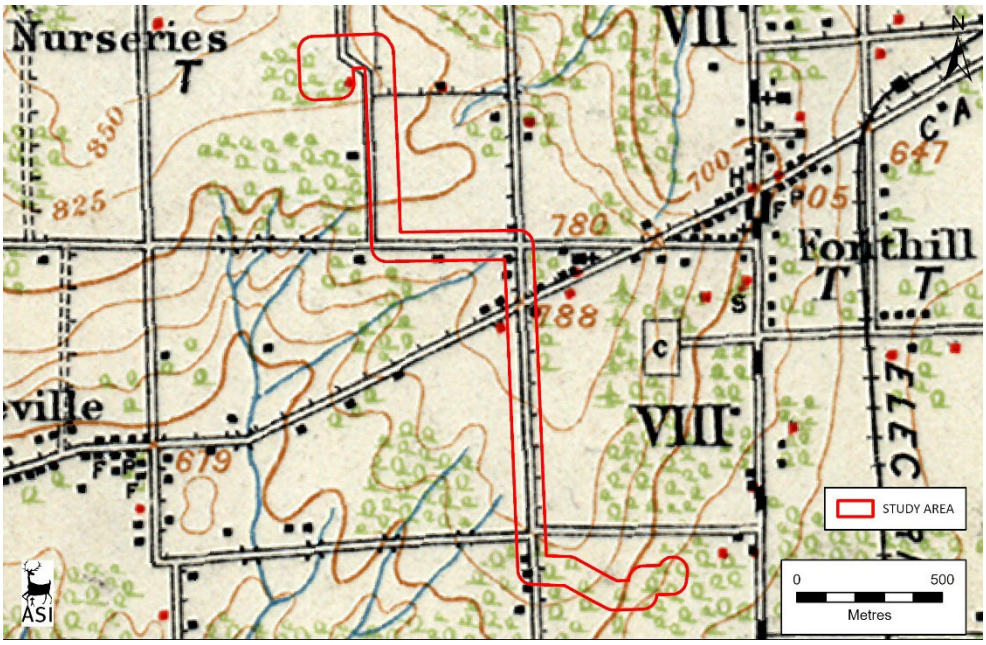

Figure 4: The study area overlaid on the 1915 topographic map of Niagara. Base Map: (Department of Militia and Defence, 1915).

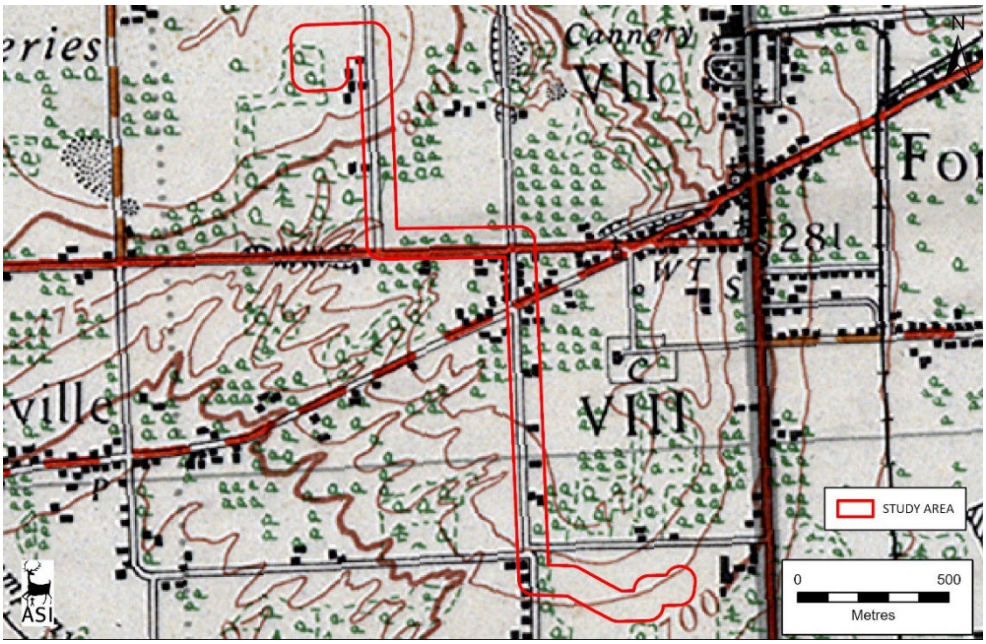

Figure 5: The study area overlaid on the 1938 topographic map of Niagara. Base Map: (Department of National Defence, 1938)

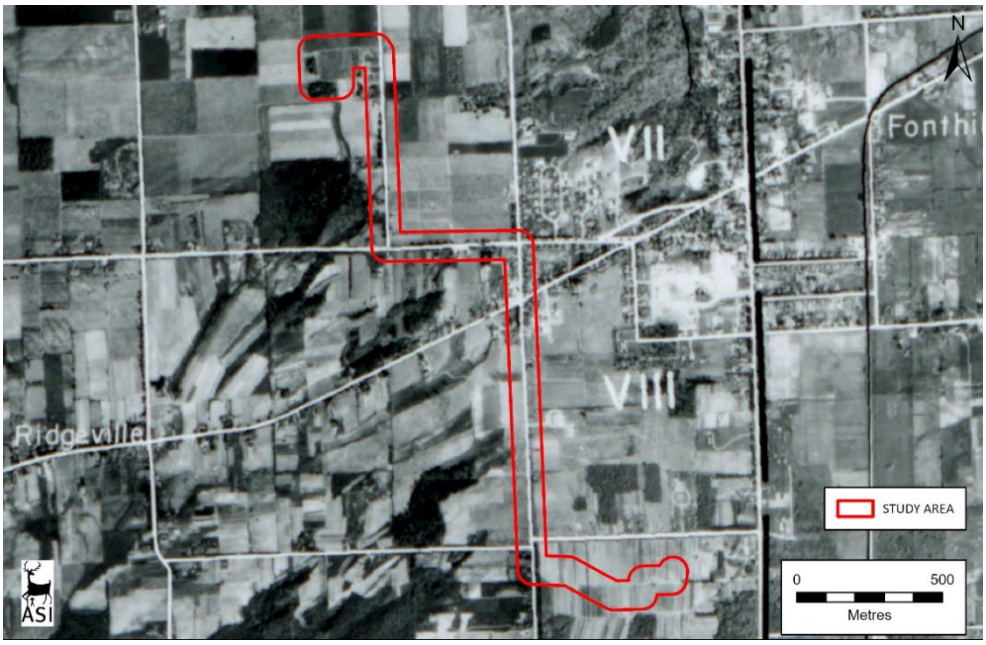

Figure 6: The study area overlaid on the 1954 aerial photography of Pelham. Base Plate: (Hunting Survey Corporation Limited, 1954)

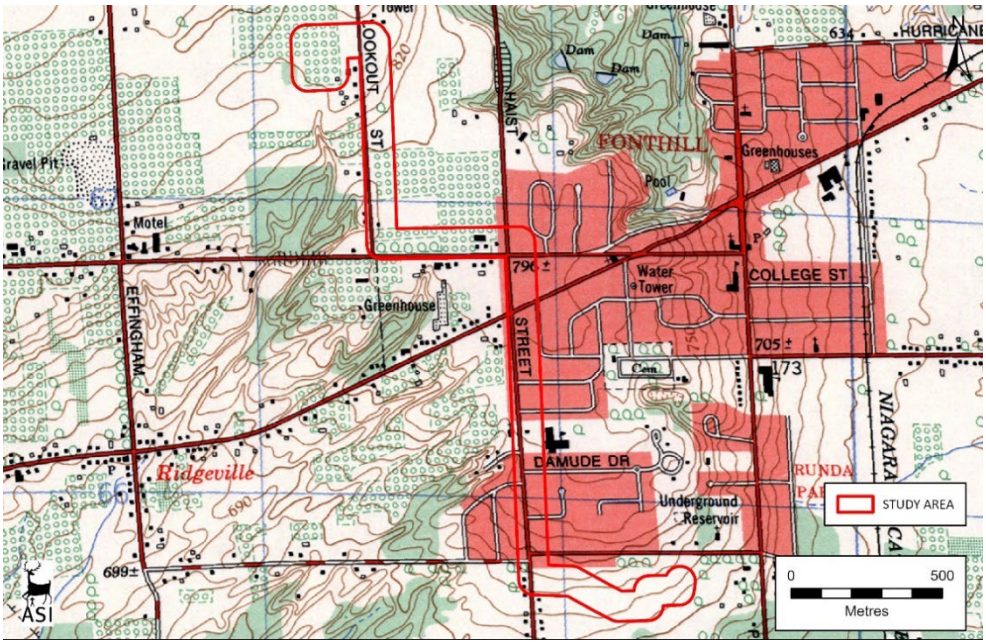

Figure 7: The study area overlaid on the 1973 topographic map of Fonthill. Base Map: (Department of Energy, Mines and Resources, 1973).

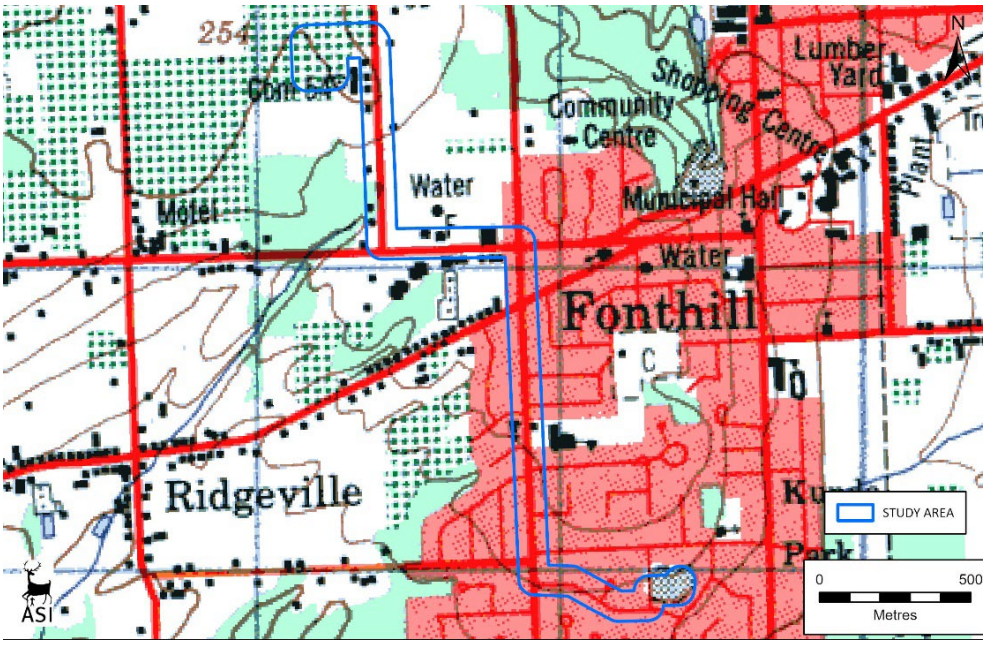

Figure 8: The study area overlaid on the 1994 topographic map of Niagara. Base Map: (Department of Natural Resources, 1996)

4.0 Existing Conditions

A field review of the study area was undertaken by Kirstyn Allam and Lindsay Parsons of Archaeological Services Inc., on 18 May 2022 to document the existing conditions of the study area from existing rights-of-way. The existing conditions of the study area are described below and captured in Plate 1 to Plate 15.

4.1 Description of Field Review

The study area is in the Township of Pelham and focuses on portions of Lookout Street, Highway 20 West, Haist Street, Bigelow Crescent, and Shoalts Drive. The portion of the study area along Highway 20 West is a mixture of commercial and residential properties, while the portion of the study area along Lookout Street, Haist Street, Bigelow Crescent, and Shoalts Drive is primarily residential.

The northern portion of the study area begins on Lookout Street north of Marlene Stewart Drive. Lookout Street is oriented in a general north-south alignment. Lookout Street is a paved divided roadway and features one lane of north-bound

and one lane of south-bound vehicular traffic (Plate 1). Concrete curbs line the west side of the roadway, while concrete curbs and a sidewalk line the east side. The street has a gradual elevation increase from the southern intersection at Lookout Street and Highway 20 West and begins to flatten north of Marlene Stewart Drive. The most northern area of the study area consists of a fenced-off golf course with driving range on the west side of the street and new residential development underway on the east side of the street. The proposed location of the new elevated storage tank is to the south of the driving range and sits behind residential properties that line the west side of Lookout Street. The site is currently an agricultural field (Plate 2). A new subdivision with large residential properties lines the east side of the street and has entry intersections at Lookout Street/Marlene Stewart Drive (Plate 3) and Lookout Street/Brewerton Road. Older residential properties are dotted along the west side of the street (Plate 4) with a large field and wooded area dividing some of the properties.

The study area extends east along Highway 20 West from the intersection of Lookout Street/Highway 20 West (Plate 5) to slightly east of the intersection of Haist Street/Highway 20 West. Highway 20 West is oriented in an east-west alignment. Highway 20 West is a paved divided roadway and features one lane of east-bound and one lane of west-bound vehicular traffic as well as a centre turn lane. Concrete curbs and sidewalks line both sides of the street. At the northeast corner of Lookout Street/Highway 20 West is a three-storey retirement residence (Plate 6) and across the street on the south side are two five-storey condominiums. Directly to the east of the retirement residence on the north side of the street is a municipal fire station with a visible water tower behind it. Highway 20 West is primarily lined with low-rise commercial properties (Plate 7). The properties on the north side of the street are setback further from the road with parking lots in front. The properties on the south side of the street are generally closer to the street with narrower parking lots or parking lots behind the properties. The next large intersection moving east along Highway 20 West is Haist Street and Highway 20 West (Plate 8). This intersection includes a gas station on the northwest corner, residential-turned-commercial properties on the

northeast corner, residential properties on the southeast corner, and a vacant lot on the southwest corner.

The study area extends south on Haist Street between the intersections of Highway 20 West/Haist Street and Bigelow Crescent/Haist Street. Haist Street is lined on both sides with primarily residential properties (Plate 9). There are commercial properties at the northwest and southwest intersection of Haist Street/Canboro Road (Plate 10). The northern portion of Haist Street contains older properties, while the southern portion is made up of primarily mid-to-late 20th century subdivisions. Concrete curbs and sidewalks line both sides of the street. Also located along Haist Street is a masonic temple, Kirk-on-the-Hill Presbyterian Church, and A.K. Wigg Public School. Mature trees are clustered along Haist Street. Several residential streets intersect with Haist Street in controlled intersections and there are streetlights located on Haist Street in front of the public school (Plate 11).

The southern portion of the study area extends from Haist Street onto Bigelow Crescent to Shoalts Drive. Bigelow Cresent is a paved undivided roadway that supports west-bound and east-bound vehicular traffic. There are no concrete curbs or sidewalks and properties' lawns come directly to the road (Plate 12). This portion of the study area is residential and consists of single-family homes. Mature trees line the street (Plate 13).

The study area includes a small portion of Shoalts Drive. Shoalts Drive is a paved undivided roadway that supports north-bound and south-bound vehicular traffic (Plate 14). There is a sidewalk on the east side of the street. The west side of the street is lined with single-family homes. The entire east side of the street is the Shoalts Drive Reservoir which has a metal fence around its entire perimeter (Plate 15).

Plate 1: Lookout Street, looking south toward Highway 20 West (A.S.I., 2022)

Plate 2: Driving range north of proposed site for new elevated water tower, looking west (A.S.I., 2022).

Plate 3: Intersection of Lookout Street and Marlene Stewart Drive, looking northeast (A.S.I., 2022).

Plate 4: Residential properties along the west side of Lookout Street, looking northwest (A.S.I., 2022).

Plate 5: Intersection of Highway 20 West and Lookout Street, looking south (A.S.I., 2022).

Plate 6: Intersection of Highway 20 West and Lookout Street with the retirement residence on the north side of Highway 20 West, looking east (A.S.I., 2022).

Plate 7: Commercial properties along Highway 20 West, looking east (A.S.I., 2022).

Plate 8: Intersection of Highway 20 West and Haist Street, looking west (A.S.I., 2022).

Plate 9: Residential properties along Haist Street, looking south of Canboro Road (A.S.I., 2022).

Plate 10: Commercial building on the southwest corner of the intersection of Haist Street and Canboro Road, looking west (A.S.I., 2022).

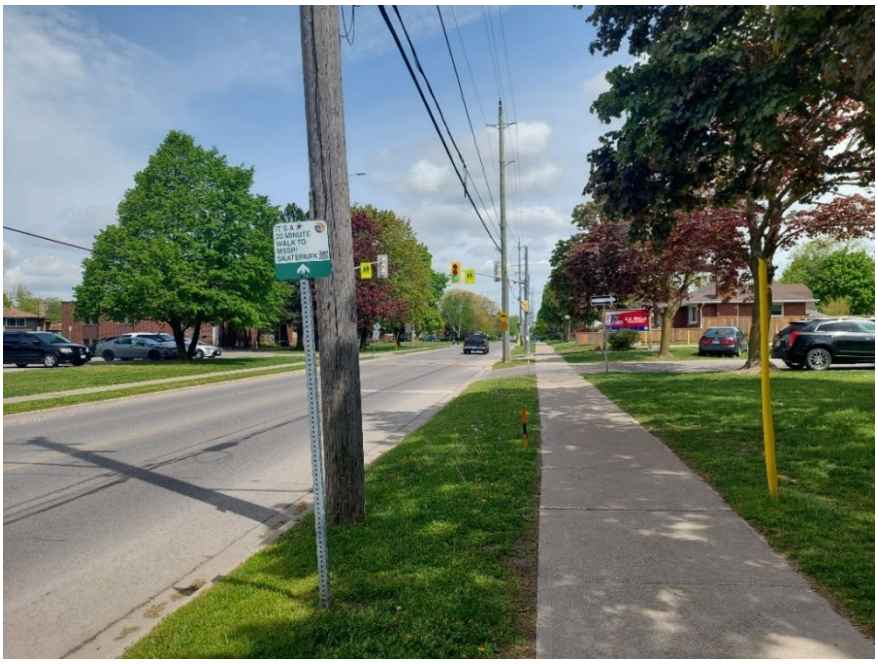

Plate 11: Traffic lights in front of A.K. Wigg Public School on Haist Street, looking north (A.S.I., 2022).

Plate 12: Bigelow Crescent, looking west towards Haist Street (A.S.I., 2022).

Plate 13: Residential properties and mature trees along Bigelow Crescent, looking east (A.S.I., 2022).

Plate 14: Residential properties along Shoalts Drive, looking south (A.S.I., 2022).

Plate 15: Entrance to Shoalts Drive Reservoir from Shoalts Drive, looking east (A.S.I., 2022).

4.2 Identification of Known and Potential Built Heritage Resources and Cultural Heritage Landscapes

Based on the results of the background research and field review, three known built heritage resources (B.H.R.s), eight potential B.H.R.s, and one potential cultural heritage landscape (C.H.L.) were identified within the study area. The known B.H.R.s are properties listed on the municipal heritage register. One of the potential B.H.R.s is listed on the Ontario Heritage Trust (O.H.T.) Places of Worship Inventory. A detailed inventory of known and potential B.H.R.s and C.H.L.s within the study area is presented below in Table 1. See Figure 9 - Figure 12 for mapping showing the location of identified B.H.R.s and C.H.L.s.

Table 1: Inventory of Known and Potential Built Heritage Resources and Cultural Heritage Landscapes within the Study Area

Feature I.D.	Type of Resource	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
B.H.R. 1	Residence	1584 Lookout Street	Potential B.H.R. – Identified during field review/desktop research	The property is located on the west side of Lookout Street. The two-and-a-half storey house is clad in siding and has a rectangular footprint. The house features a hipped roof and a hipped dormer along the front (east) façade. The front façade has symmetrical fenestration and a covered porch. There is a covered side entrance on the south façade. Potential heritage attributes include the two-and-a-half storey house, its height and massing, hipped roof and dormer, and covered porch. The 1915 topographical map (Figure 4) shows a single building in the vicinity of the extant house, with several additional buildings appearing in the 1938 topographical map (Figure 5). Based on historical mapping and the building's vernacular architecture, the house was likely built in the early-to-mid twentieth century.	 Plate 16: East elevation of house at 1584 Lookout Street, looking west.

Feature I.D.	Type of Resource	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
B.H.R. 2	Residence	1574 Lookout Street	Known B.H.R.- Listed on Municipal Heritage Register	The property is located on the west side of Lookout Street. The known heritage attributes include a two-storey residence that was constructed in 1894 by Jacob Haist (Township of Pelham, 2013). The building's architecture has Italianate influences. The house is clad in red brick and features a cross-gable roof. The east façade of the house features a projecting bay with a cross-gable protruding dormer with a center window. The windows range in size and are tall, round-headed windows with brick arches and stone sills. The first storey windows also have decorative transoms. The eaves of the house are accented by ornate cornice brackets with drops. The north façade of the house features the front entrance with a covered porch that has decorative bargeboard along the roofline. The 1915 topographical map (Figure 4) depicts the house.	 Plate 17: East elevation of house at 1474 Lookout Street, facing west.
B.H.R. 3	Wall	202 Highway 20 West	Known B.H.R.- Listed on Municipal Heritage Register	The property is located on the south side of the intersection of Highway 20 West and Lookout Steet. The wall was built in 1942 as part of a two-and-a-half storey stone residence constructed by Reg Timmins (Township of Pelham, n.d.-a). The property is known as Timmsdale. The house was demolished in 2017 and the wall is all that remains of the property. The known heritage attributes are the alignment of the wall along the front of the property and its construction of stone bricks similar to those found on the house. The wall features ornamental wrought iron detailing along the top portion. There are two stone pillars at the entrance of the driveway that once held a wrought iron entrance gate. The pillar on the east side of the entrance is engraved with "Timmsdale" and the pillar on the west side is engraved with "1942". The 1954 aerial photograph (Figure 6) depicts the property.	 Plate 18: North elevation of wall at 202 Highway 20 West, facing south.

Feature I.D.	Type of Resource	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
B.H.R. 4	Residence	77 Highway 20 West	Potential B.H.R. – Identified during field review/desktop research	The property is located at the northeast corner of Highway 20 West and Haist Street. The one-and-a-half storey building is clad in red brick with stucco and half-timbering on a portion of the complex intersecting roof. The building features two front-facing gables framing the front entrance, with an arched doorway with a stone door surround. To the west of the doorway is a rectangular stained-glass window also with a stone surround. The building features casement windows with stone sills and an internal brick chimney. Potential heritage attributes include its Arts and Crafts architecture, height and massing, the complex roof, the arched front door with stone surround, and the casement windows. Maps dated to 1994 and earlier do not depict any buildings within the vicinity of the extant building. Based on the building's Arts and Crafts architecture, the house was likely built in the early twentieth century.	 Plate 19: South elevation of building at 77 Highway 20 West, facing north.
B.H.R. 5	Residence	75 Highway 20 West	Potential B.H.R. – Identified during field review/desktop research	The property is located on the north side of Highway 20 West, near the intersection of Highway 20 West and Haist Street. The one-and-a-half storey building is clad in siding and features a hipped roof with a gable dormer in the centre of the front façade. The building features modern windows including a bay window. Potential heritage attributes of the building include its height and massing, internal brick chimney and the gable roof with dormer. Maps dating to 1994 and earlier do not depict any buildings within the vicinity of the extant building. Based on its vernacular architecture, the house was likely built in the early-to-mid twentieth century.	 Plate 20: South elevation of building at 75 Highway 20 West, facing north.

Feature I.D.	Type of Resource	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
B.H.R. 6	Residence	109-111 Canboro Road	Potential B.H.R. – Identified during field review/desktop research	The property is located at the northeast corner of the intersection of Canboro Road and Haist Street. The one-and-a-half storey house features a gambrel roof with a central gambrel dormer that is clad in siding. The house is clad in what appears to be stone. However, due to the stone's regularity in size and lack of visible mortar, it may be a type of faux cladding. The house is evenly divided into two units with separate covered front entrances. The house features two replacement narrow, rectangular windows in the front dormer, and two replacement rectangular windows on either side of the lower front façade. The windows are encased with wood trim. Potential heritage attributes of the house include the height and massing and gambrel roof with dormer. The 1879 Illustrated Atlas map (Figure 3) depicts a building in the vicinity of the extant house, with more development depicted in the 1915 and 1934 topographical maps (Figure 4 and Figure 5). Based on historical mapping and the building's vernacular architecture, the house was likely built in the late-nineteenth to early-twentieth century.	 Plate 21: South elevation of house at 109-111 Canboro Road, facing north.

Feature I.D.	Type of Resource	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
B.H.R. 7	Residence	108 Canboro Road	Potential B.H.R. – Identified during field review/desktop research	This property is located at the southeast corner of the intersection of Canboro Road and Haist Street. The two-storey house is clad in brick on the lower level. The house features a cross-gable roof with a large front-facing gable with decorative half-timbering above the front entrance on the north facade. A rectangular dormer is also located on the north façade. The house features casement windows with stone sills and a front door has a decorative stone surround. The house features a brick external chimney on the east façade. Potential heritage attributes of the house include its height and massing, the cross-gable roof with dormer, Arts and Crafts architecture, brick chimney, casement windows and stone door surround. The 1879 Illustrated Atlas (Figure 3) depicts a structure in the vicinity of the extant structure, with more development depicted in the 1915 and 1934 topographical maps (Figure 4 and Figure 5). Based on historical mapping and the building's Arts and Crafts architecture, the house was likely built in the early twentieth century.	 Plate 22: North elevation of house at 108 Canboro Road, facing south.

Feature I.D.	Type of Resource	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
B.H.R. 8	Residence	106 Canboro Road	Potential B.H.R. – Identified during field review/desktop research	The property is located on the south side of Canboro Road, near the intersection of Canboro Road and Haist Street. The one-and-a-half storey house is clad in siding and features a side gable roof with a central dormer on the front façade. The house features narrow, rectangular windows encased in wood and clustered in groups of three or four. The house features a covered veranda. The entrance is off-centre. Potential heritage attributes include its size and massing, side gable roof with dormer, and covered veranda. The 1954 aerial photograph (Figure 6) depicts a residence in the vicinity of the extant house. Based on historical mapping and the building's vernacular architecture, the house was likely built in the early-to-mid twentieth century.	 Plate 23: North elevation of house at 106 Canboro Road, facing south.

Feature I.D.	Type of Resource	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
B.H.R. 9	Residence	1374 Haist Street	Known B.H.R.- Listed on Municipal Heritage Register	The property is located on the west side of Haist Street, just south of Canboro Road. The known heritage attributes include a two-storey residence that was constructed in 1870 by Christian Haist (Town of Pelham, n.d.-b). The house is an example of vernacular Gothic Revival farmhouse architecture. The house is clad in red brick and features a cross-gabled roof and an off-centre enclosed, raised porch with turned spindle porch columns. The windows feature flat, rectangular openings that are accentuated with flat brick arches and plain stone lug sills. There is ornate bargeboard along the gable on the front of the house. The 1879 Historical Atlas (Figure 3) depicts the property with an orchard directly to the south of it.	 Plate 24: East elevation of house at 1374 Haist Street, facing west.

Feature I.D.	Type of Resource	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
B.H.R. 10	Church	1344 Haist Street	Potential B.H.R. - Listed in the Ontario Heritage Trust (O.H.T) Places of Worship Inventory	Kirk-on-the-Hill Presbyterian Church on Haist Street is included on the Ontario Heritage Trust's Places of Worship Inventory. The church was built in 1963. Potential heritage attributes of the church include its irregular, asymmetrical massing, Modernist architecture, and brick veneer. The 1973 topographic map (Figure 7) depicts the church.	 Plate 25: Northeast elevation of church at 1344 Haist Street, facing southwest.
B.H.R. 11	Residence	1200 Haist Street	Potential B.H.R. – Identified during field review/desktop research	The property is located at the southwest corner of the intersection of Haist Street and Pancake Lane. The one-and-a-half storey house is clad in wood siding. The house features a gable roof and narrow, rectangular windows. The front entrance of the house is on the north façade. A two-storey addition appears to have been added to the west end of the house. Potential heritage attributes of the house include its height and massing and gable roof. The 1915 topographical map (Figure 4) depicts a structure in the vicinity of the extant house. Based on historical mapping and the vernacular architecture of the house, it was likely built in the late-nineteenth or early-twentieth century.	 Plate 26: Northeast elevation of house at 1200 Haist Street, facing southwest.

Feature I.D.	Type of Resource	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
C.H.L. 1	Residential Streetscape	Haist Street between Highway 20 West and Canboro Road	Potential C.H.L. – Identified during field review/desktop research	The streetscape is located along Haist Street between Highway 20 West and Canboro Road. The streetscape includes a collection of buildings that range in architectural styles and is representative of historical residential settlement patterns. A masonic temple built in the mid-twentieth century is the only non-residential building included in the streetscape. Historical mapping indicates that settlement along this portion of Haist Street began in the late nineteenth century, with the rest of the residential street filling in during the 1930s and 1940s. The streetscape features mature trees that line the street and fairly uniform setbacks of the houses. Potential heritage attributes of the streetscape include a variety of architectural styles, mature trees, and historical residential development patterns. The 1938 topographical map (Figure 5) depicts several buildings in the extant streetscape.	 Plate 27: East elevation of Haist Streetscape, facing southwest.

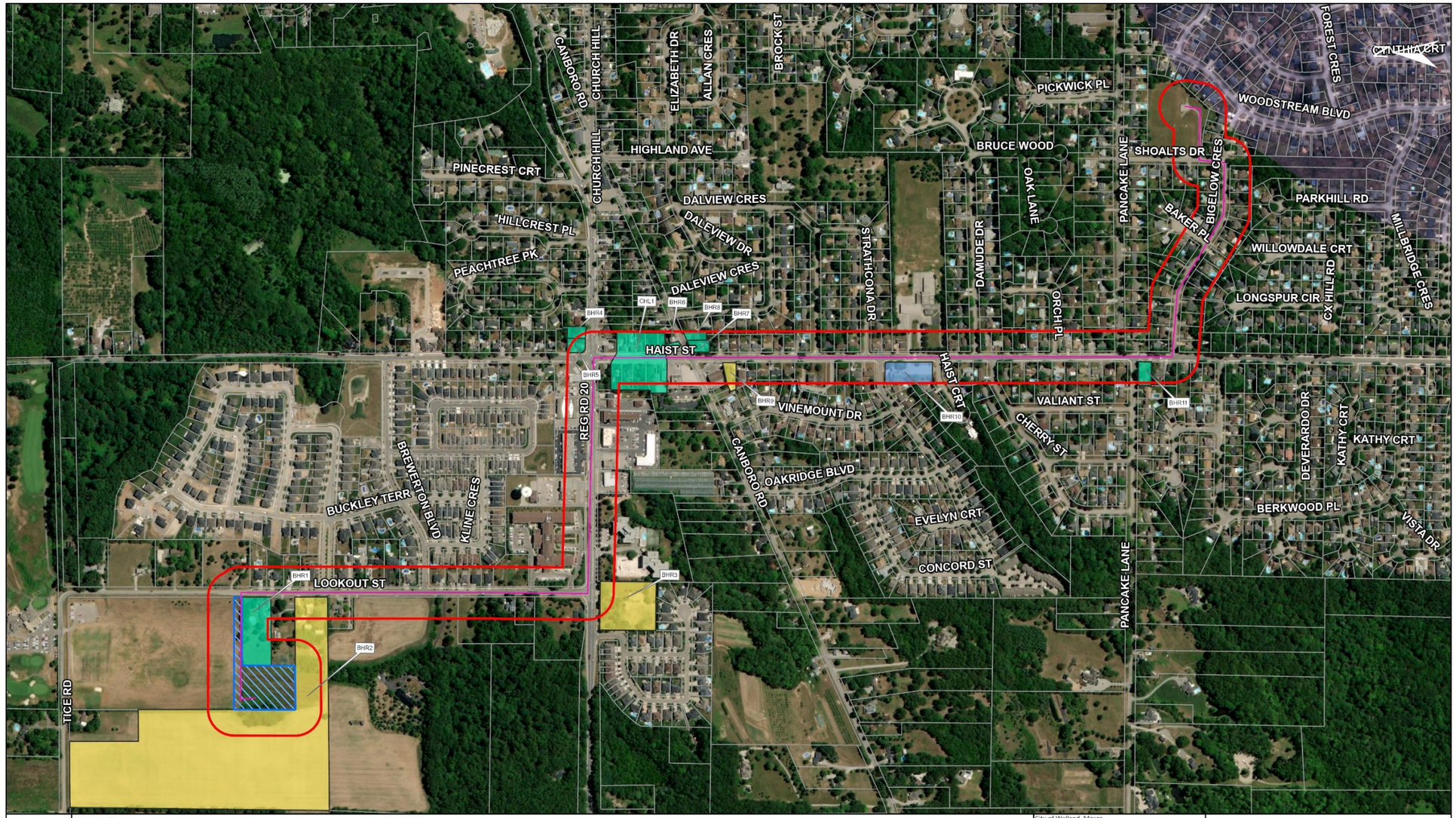

Figure 9: Location of Identified Built Heritage Resources (B.H.R.) and Cultural Heritage Landscape (C.H.L.) in the Study Area (Overview Sheet)

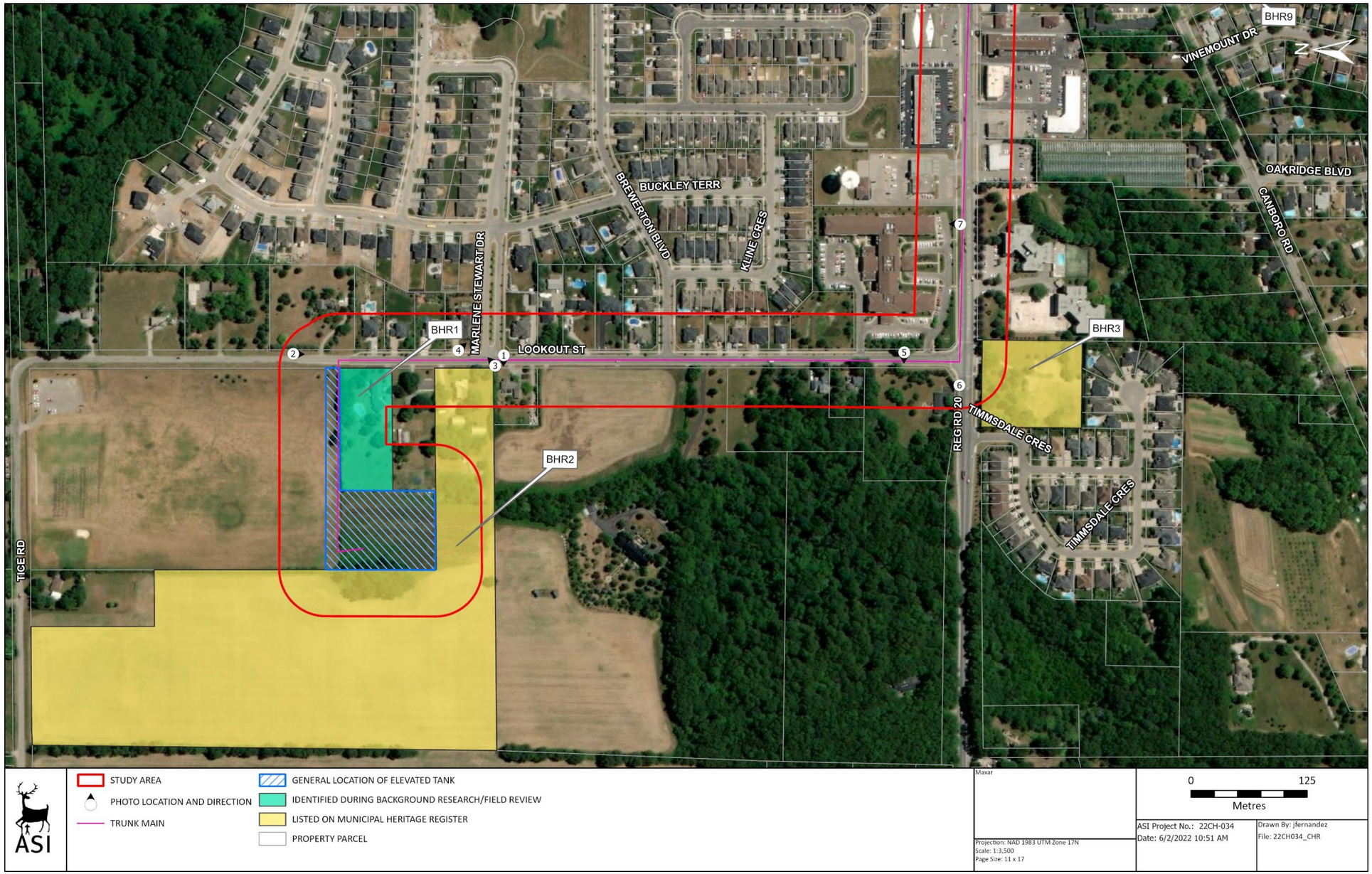

Figure 10: Location of Identified Built Heritage Resources (B.H.R.) and Cultural Heritage Landscape (C.H.L.) in the Study Area (Sheet 1)

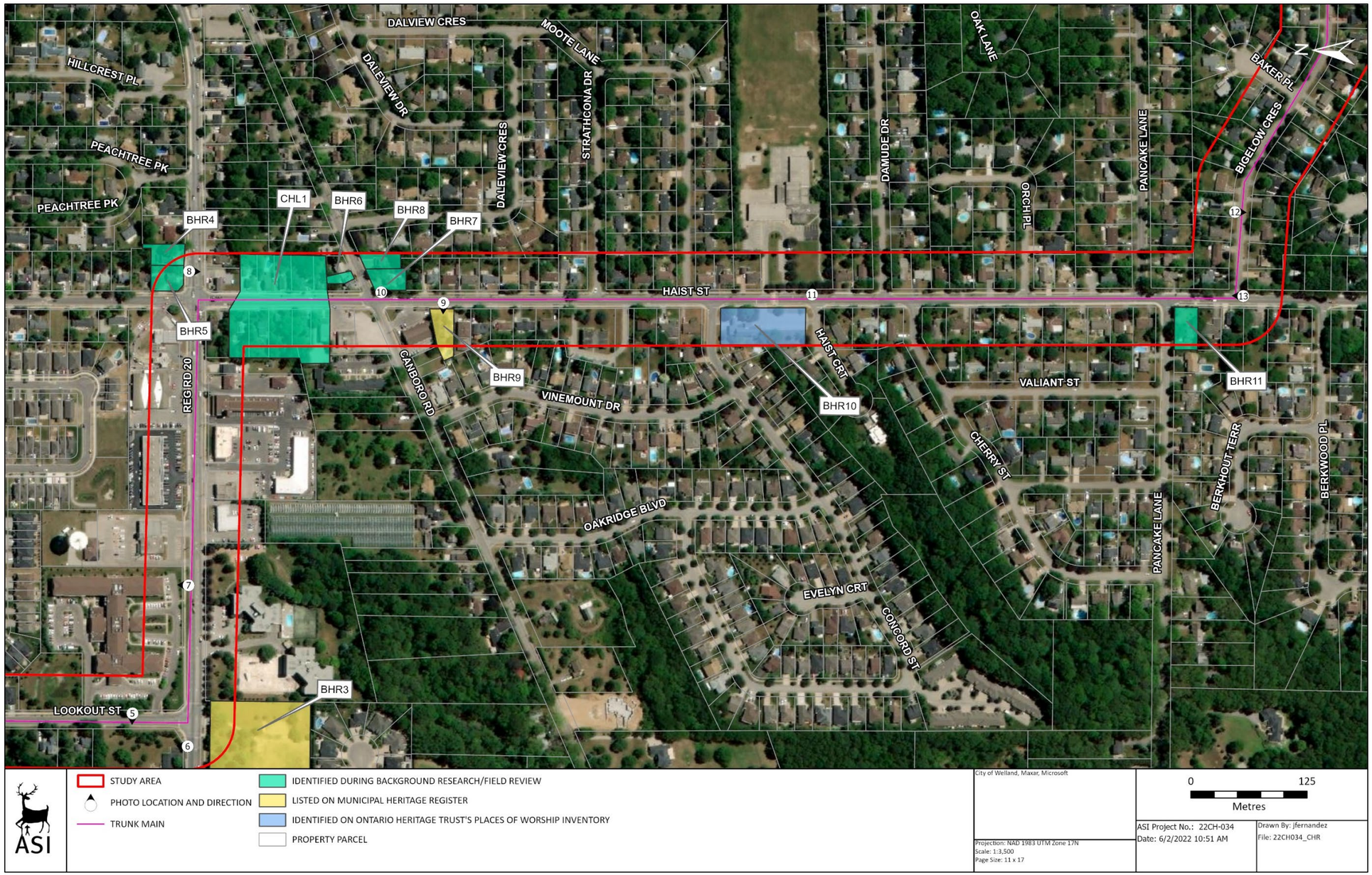

Figure 11: Location of Identified Built Heritage Resources (B.H.R.) and Cultural Heritage Landscape (C.H.L.) in the Study Area (Sheet 2)

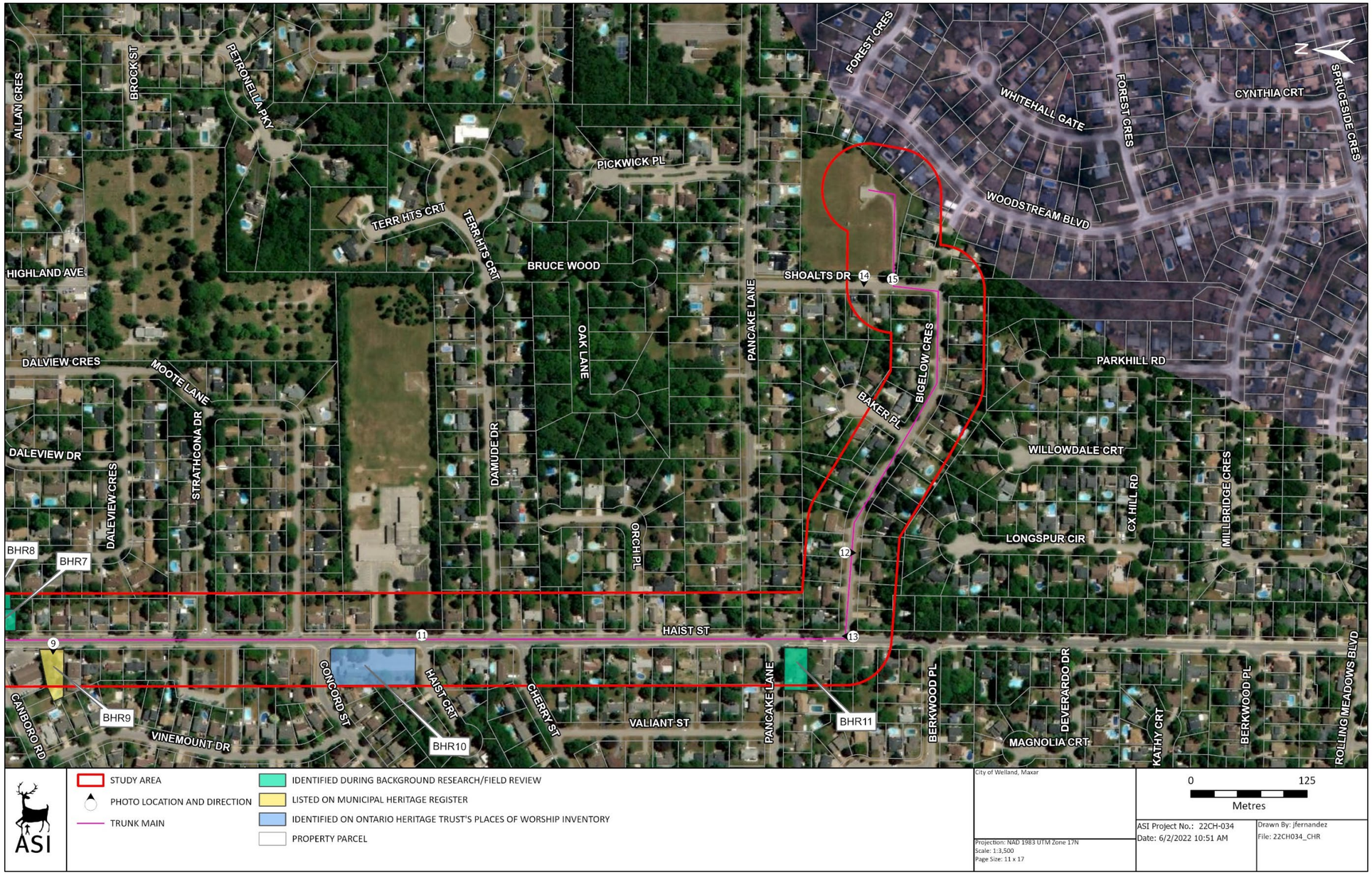

Figure 12: Location of Identified Built Heritage Resources (B.H.R.) and Cultural Heritage Landscape (C.H.L.) in the Study Area (Sheet 3)

5.0 Preliminary Impact Assessment

The following sections provide more detailed information regarding the proposed project undertaking and analysis of the potential impacts on the identified built heritage resources (B.H.R.) and cultural heritage landscape (C.H.L.).

5.1 Description of Proposed Undertaking

The proposed undertaking for the New Pelham Elevated Tank Municipal Class Environmental Assessment study area involves the construction of a new elevated storage tank at 220 Tice Road, south of the existing golf driving range and construction of a new trunk main connecting the new elevated tank to the existing Shoalts Drive reservoir, in the Town of Pelham. The trunk main is proposed to run from the new elevated tank, within the existing right-of-way south along Lookout Street, east along Highway 20 West, south along Haist Street, east along Bigelow Crescent and north along Shoalts Drive to the existing reservoir. Details regarding the height, design and specific footprint of the elevated tank were not available at the time of report submission. The project study area consists of the location of the new elevated storage tank at 220 Tice Road; portions of the rights-of-way of Lookout Street, Highway 20 West, Haist Street, Bigelow Crescent, and Shoalts Drive; and the existing reservoir location at 5 Shoalts Drive.

5.2 Analysis of Potential Impacts

Table 2 outlines the potential impacts on the identified built heritage resources (B.H.R.s) and cultural heritage landscape (C.H.L.) within the study area.

Table 2: Preliminary Impact Assessment and Recommended Mitigation Measures

Feature I.D.	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
B.H.R. 1	1584 Lookout Street	The proposed elevated tank will be located to the rear of this property, at a sufficient distance that no direct impacts to identified potential heritage attributes are anticipated. There is the potential that the elevated tank will be visible behind 1584 Lookout Street from the public right-of-way. This presents the potential for indirect adverse visual impacts through alterations to the character and setting of the built heritage resource. . In addition, indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work.	To address the potential for indirect adverse visual impacts to this property, a Cultural Heritage Evaluation Report should be undertaken to determine if this potential B.H.R. has cultural heritage value or interest (C.H.V.I.). If the property is determined to have C.H.V.I., a Heritage Impact Assessment should be undertaken by a qualified person as early as possible during detailed design, and developed in consultation with, and submitted for review to, the Ministry and interested parties including the municipal heritage planner and/or municipal heritage committee and Indigenous Nations, as appropriate. To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.
B.H.R. 2	1574 Lookout Street	The proposed elevated tank will be located to the rear of this property, at a sufficient distance that no direct impacts to identified heritage attributes are anticipated. There is the potential that the elevated tank will be visible behind 1574 Lookout Street from the public right-of-way. This presents the potential for indirect adverse visual impacts through alterations to the character and setting of the built heritage resource. In addition, indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work.	To address the potential for indirect adverse visual impacts to this property, a Cultural Heritage Evaluation Report should be undertaken to confirm if this known B.H.R., which is listed on the Municipal Heritage Register, has C.H.V.I. If the property is determined to have C.H.V.I., a Heritage Impact Assessment should be undertaken by a qualified person as early as possible during detailed design, and developed in consultation with, and submitted for review to, the Ministry and interested parties including the municipal heritage planner and/or municipal heritage committee and Indigenous Nations, as appropriate. To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.

Feature I.D.	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
B.H.R. 3	202 Highway 20 West	It is understood that the limits of the proposed work will be confined to the existing Highway 20 West right-of-way. No direct adverse impacts to identified potential heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.
B.H.R. 4	77 Highway 20 West	It is understood that the limits of the proposed work will be confined to the existing Highway 20 West right-of-way. No direct adverse impacts to identified potential heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.
B.H.R. 5	75 Highway 20 West	It is understood that the limits of the proposed work will be confined to the existing Highway 20 West right-of-way. No direct adverse impacts to identified potential heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.

Feature I.D.	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
B.H.R. 6	109-111 Canboro Road	It is understood that the limits of the proposed work will be confined to the existing Canboro Road right-of-way. No direct adverse impacts to identified potential heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.
B.H.R. 7	108 Canboro Road	It is understood that the limits of the proposed work will be confined to the existing Canboro Road right-of-way. No direct adverse impacts to identified potential heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.
B.H.R. 8	106 Canboro Road	It is understood that the limits of the proposed work will be confined to the existing Canboro Road right-of-way. No direct adverse impacts to identified potential heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.

Feature I.D.	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
B.H.R. 9	1374 Haist Street	It is understood that the limits of the proposed work will be confined to the existing Haist Street right-of-way. No direct adverse impacts to identified heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.
B.H.R. 10	1344 Haist Street	It is understood that the limits of the proposed work will be confined to the existing Haist Street right-of-way. No direct adverse impacts to identified potential heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.
B.H.R. 11	1200 Haist Street	It is understood that the limits of the proposed work will be confined to the existing Haist Street right-of-way. No direct adverse impacts to identified potential heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.

Feature I.D.	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
C.H.L. 1	Haist Streetscape between Highway 20 West and Canboro Road	It is understood that the limits of the proposed work will be confined to the existing Haist Street right-of-way. No direct adverse impacts to identified potential heritage attributes are anticipated. Indirect adverse impacts due to construction related vibration are possible as structures within this streetscape within 50 metres from the proposed work. No additional indirect impacts were identified.	To address the potential for indirect impacts due to construction-related vibration, undertake a baseline vibration assessment during detailed design to determine potential vibration impacts.

Indirect impacts to B.H.R. 1 and B.H.R. 2 may occur due to the location of the proposed elevated tank at the rear of the properties. This may result in **indirect adverse visual impacts** to potential heritage attributes. As such, it is recommended that a Cultural Heritage Evaluation Report be undertaken to determine if 1584 Lookout Street (B.H.R. 1) and 1574 Lookout Street (B.H.R. 2) have cultural heritage value or interest (C.H.V.I.). If either property is determined to have C.H.V.I., a Heritage Impact Assessment should be undertaken by a qualified person as early as possible during detailed design, and developed in consultation with, and submitted for review to, the Ministry and interested parties including the municipal heritage planner and/or municipal heritage committee and Indigenous Nations, as appropriate.

Indirect impacts due to vibration during construction activities may impact B.H.R. 1 – B.H.R. 11 and C.H.L. 1 as a result of their location in close proximity to the proposed work. To ensure the structures on the properties at 1584 Lookout Street (B.H.R. 1), 1574 Lookout Street (B.H.R. 2), 202 Highway 20 West (B.H.R. 3), 77 Highway 20 West (B.H.R. 4), 75 Highway 20 West (B.H.R. 5) 109-111 Canboro Road (B.H.R. 6), 108 Canboro Road (B.H.R. 7), 106 Canboro Road (B.H.R. 8), 1374 Haist Street (B.H.R. 9), 1344 Haist Street (B.H.R. 10), 1200 Haist Street (B.H.R. 11) and the Haist Streetscape between Highway 20 West and Canboro Road (C.H.L. 1) are not adversely impacted during construction, a baseline vibration assessment should be undertaken during detailed design. Should this advanced assessment conclude that any structures will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Where feasible, the proposed work should be designed to avoid direct and indirect adverse impacts to all of the identified B.H.R.s and the C.H.L. To ensure these properties are not adversely impacted, construction and staging for the proposed elevated tank and trunk main should be suitably planned to avoid all impacts to these properties. Suitable mitigation measures could include the

establishment of no-go zones with fencing and issuing instructions to construction crews to avoid the B.H.R.s and C.H.L.

6.0 Results and Mitigation Recommendations

The results of background historical research and a review of secondary source material, including historical mapping, indicate a study area with a rural and agricultural land use history dating back to the early nineteenth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed that there are three previously identified built heritage resources within the New Pelham Elevated Tank Municipal Class Environmental Assessment study area. An additional eight built heritage resources and one cultural heritage landscape were identified during the fieldwork.

6.1 Key Findings

- A total of eleven built heritage resources and one cultural heritage landscape were identified within the study area.
- Of the twelve identified built heritage resources and cultural heritage landscapes, three are listed on the municipal heritage register (B.H.R. 2, B.H.R. 3., and B.H.R. 9), eight were identified during the field review (B.H.R. 1, B.H.R. 4 – B.H.R. 8, B.H.R 11, and C.H.L. 1), and one is listed on the Ontario Heritage Trust (O.H.T.) Places of Worship Inventory (B.H.R. 10).
- Identified cultural heritage resources are historically, architecturally, and contextually associated with land use patterns in the Town of Pelham.

6.2 Results of Preliminary Impact Assessment

- No direct adverse impacts to the identified B.H.R.s and C.H.L. are anticipated as a result of the proposed work.
- The location of the proposed elevated tank is anticipated to result in potential indirect adverse visual impacts to 1584 Lookout Street (B.H.R. 1) and 1574 Lookout Street (B.H.R. 2).

- Potential vibration impacts as a result of the proposed alignment are anticipated to result in potential impacts to all identified B.H.R.s and the C.H.L.:
  - 1584 Lookout Street (B.H.R. 1)
  - 1574 Lookout Street (B.H.R. 2)
  - 202 Highway 20 West (B.H.R. 3)
  - 77 Highway 20 West (B.H.R. 4)
  - 75 Highway 20 West (B.H.R. 5)
  - 109-111 Canboro Road (B.H.R. 6)
  - 108 Canboro Road (B.H.R. 7)
  - 106 Canboro Road (B.H.R. 8)
  - 1374 Haist Street (B.H.R. 9)
  - 1344 Haist Street (B.H.R. 10)
  - 1200 Haist Street (B.H.R. 11)
  - Haist Streetscape between Highway 20 West and Canboro Road (C.H.L. 1)

6.3 Recommendations

Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid negative impacts to identified built heritage resources and cultural heritage landscapes. Avoidance measures may include, but are not limited to: erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified cultural heritage resources, etc.

2. Indirect impacts due to vibration during construction activities may impact B.H.R. 1 – B.H.R. 11 and C.H.L. 1 as a result of their location in close proximity to the proposed work. To ensure the structures on the properties at 1584 Lookout Street (B.H.R. 1), 1574 Lookout Street (B.H.R. 2), 202 Highway 20 West (B.H.R. 3), 77 Highway 20 West (B.H.R. 4), 75 Highway 20 West (B.H.R. 5) 109-111 Canboro Road (B.H.R. 6),

108 Canboro Road (B.H.R. 7), 106 Canboro Road (B.H.R. 8), 1374 Haist Street (B.H.R. 9), 1344 Haist Street (B.H.R. 10), 1200 Haist Street (B.H.R. 11) and the Haist Streetscape between Highway 20 West and Canboro Road (C.H.L. 1) are not adversely impacted during construction, a baseline vibration assessment should be undertaken during detailed design. Should this advance assessment conclude that the any structures will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.

3. Indirect impacts to B.H.R. 1 and B.H.R. 2 may occur due to the location of the proposed elevated tank at the rear of the properties. This may result in indirect adverse visual impacts to potential heritage attributes. As such, it is recommended that a Cultural Heritage Evaluation Report be undertaken to determine if 1584 Lookout Street (B.H.R. 1) and 1574 Lookout Street (B.H.R. 2) have cultural heritage value or interest (C.H.V.I.). If either property is determined to have C.H.V.I., a Heritage Impact Assessment should be undertaken by a qualified person as early as possible during detailed design, and developed in consultation with, and submitted for review to, the Ministry and interested parties including the municipal heritage planner and/or municipal heritage committee and Indigenous Nations, as appropriate.

4. Should future work require an expansion of the study area then a qualified heritage consultant should be contracted in order to confirm the impacts of the proposed work on potential heritage resources.

5. The report should be submitted to the Town of Pelham and the Ministry for review and comment, and any other local heritage stakeholders that may have an interest in this project. The final report should be submitted to the Town of Pelham for their records.

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