Regional Municipality of Halton

Addendum to the 2011 Sustainable Halton Water and Wastewater Master Plan: Relocation of the Planned Trafalgar Road (Regional Road 3) / Britannia Road (Regional Road 6) Wastewater Pump Station, Ward 3, Town of Milton (Project ID6571 and 7551)

July, 2019

Public Works
Infrastructure Planning and Policy

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Addendum to the 2011 Sustainable Halton Water and Wastewater Master Plan: Relocation of the Planned Trafalgar Road (Regional Road 3)/Britannia Road (Regional Road 6) Wastewater Pump Station, Ward 3, Town of Milton (Project ID6571 and 7551)

1 Introduction and Background

1.1 Background

In 2011 Halton Region completed the Sustainable Halton Water and Wastewater Master Plan (2011 Master Plan) Municipal Class Environmental Assessment Study (MCEA Study). The purpose of the 2011 Master Plan was to develop a Region-wide water and wastewater infrastructure strategy to service growth in Halton's urban areas to 2031, based on the approved 2011 Best Planning Estimates. One component of the preferred wastewater servicing strategy included the need for a new wastewater pump station (WWPS) near the intersection of Trafalgar Road and Britannia Road in Milton to service growth in north Halton (the Trafalgar Road/Britannia Road WWPS).

At the time of the 2011 Master Plan, the northeast corner of Trafalgar Road and Britannia Road was selected as the preferred location for the new WWPS. Since the 2011 Master Plan was completed, additional technical review has resulted in a new preferred location for the WWPS, west of the site initially selected. The new location is expected to provide improved operational efficiency compared to the location identified in the 2011 Master Plan.

Accordingly, the Region has prepared an Addendum to the 2011 Master Plan MCEA Study, describing the evaluation of the proposed change to the Trafalgar Road/Britannia Road WWPS in accordance with the Municipal Engineers Association (MEA) MCEA process (October 2000, as amended in 2007, 2011 and 2015).

1.2 MCEA Study Addendum - Report Outline

This MCEA Study Addendum Report contains the following sections:

Section 1 – Introduction and Background
Section 2 – MCEA Process
Section 3 – MCEA Study Addendum Basis
Section 4 – Description of Alternatives
Section 5 – Existing Conditions Assessed Through the MCEA Process
Section 6 – Updated Evaluation of Alternatives
Section 7 – Recommended Preferred Alternative
Section 8 – Stakeholder Consultation
Section 9 – Implementation
Section 10 – Conclusions and Recommendations

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2 MCEA Process

2.1 Overview

As the proponent for municipal public works projects, all municipalities in Ontario are subject to the provisions of the Environmental Assessment (EA) Act. The MEA document entitled "Municipal Class Environmental Assessment, October 2000, as amended in 2007, 2011 & 2015" provides municipalities with a streamlined process approved under the EA Act to plan and undertake municipal projects.

2.2 MCEA Process – Project Schedules

The various types of municipal projects are categorized in schedules, as shown below:

Schedule "A" projects are limited in scale, have a minimal adverse environmental impact and generally includes normal or emergency operational and maintenance activities. These projects are pre-approved and may proceed to implementation without following the full MCEA process.

Schedule "A+" projects are limited in scale and have a minimal adverse environmental impact. These projects, like Schedule A are pre-approved, however the public is to be advised prior to project implementation.

Schedule "B" projects have the potential for some adverse environmental impact. The proponent is required to undertake a screening process, involving mandatory contact with directly affected public and relevant review agencies, to ensure they are aware of the project and their concerns are addressed. If there are no outstanding concerns, then the proponent may proceed to implementation.

Schedule "C" projects have the potential for significant environmental impacts and must proceed under the full planning and documentation procedures specified by the MCEA process. Schedule "C" projects require that an Environmental Study Report be prepared and filed for review by the public and review agencies.

The Trafalgar Road/Britannia Road WWPS project was undertaken as a Schedule B project in the 2011 Master Plan.

2.3 Five Phase MCEA Process

The full MCEA process involves five phases as outlined in Figure 1. However, as this project is following a Schedule B process, **only Phases 1, 2 and 5 are required**. Phases 3 and 4 are only required for Schedule C projects.

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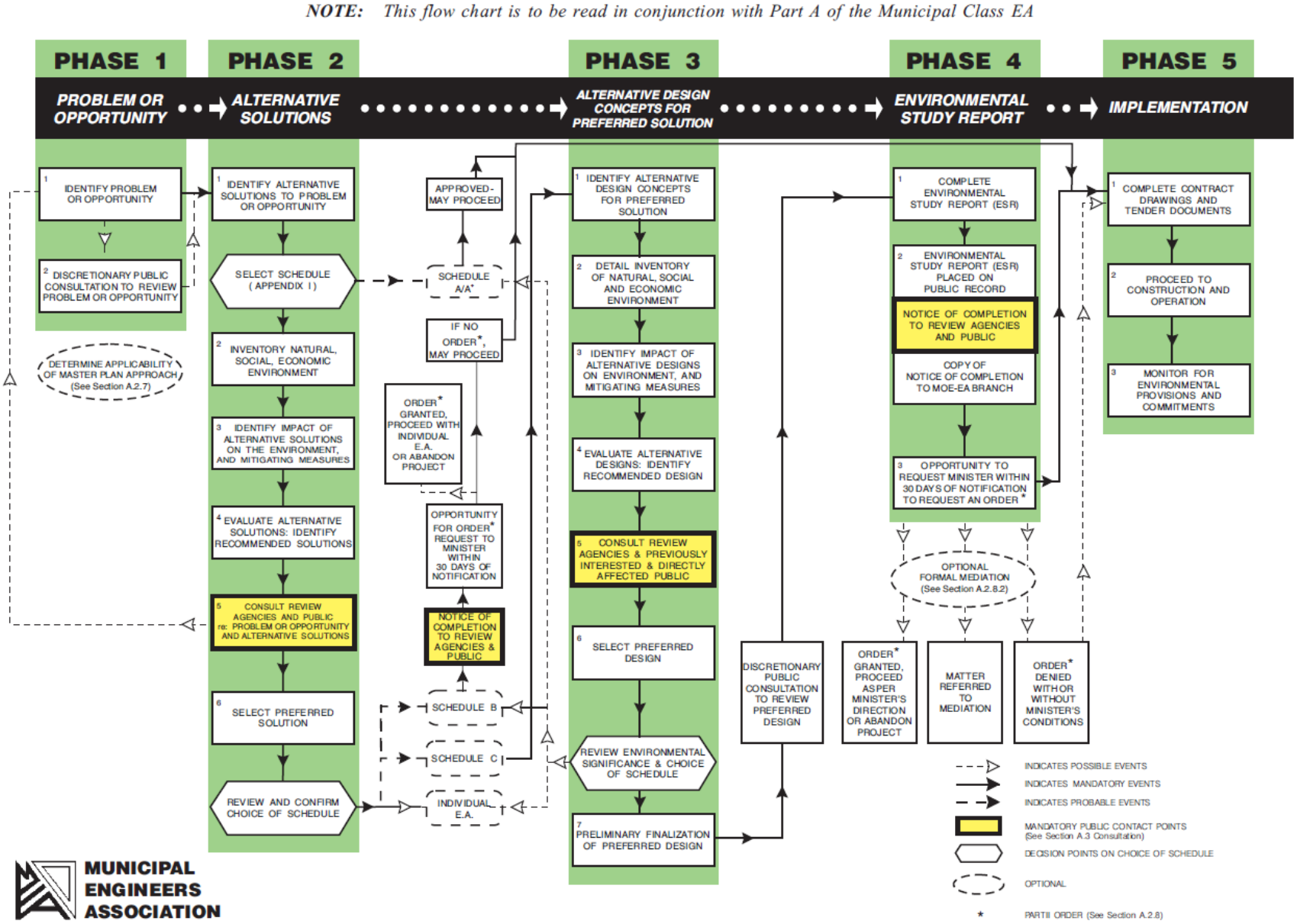

Figure 1: MCEA Process

2.4 MCEA Addendum Process

The MCEA process allows for modifications to a Schedule B Project File Report (PFR) in cases where it is no longer reasonable to implement the project in the manner that was originally intended. Significant modifications or changes that impact the environmental setting of the project are documented in an MCEA Study Addendum Report. The MCEA Study Addendum Report describes the circumstances of the change, any environmental implications and subsequent mitigation measures. The MCEA Study Addendum Report is subject to the same public record review period as all Schedule B PFRs. A Notice of Filing of Addendum is prepared and sent to all potentially affected members of the public, Indigenous Communities and review agencies. See Section 8 for more information on Stakeholder Consultation.

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3 MCEA Study Addendum Basis

3.1 Rationale for the MCEA Study Addendum

The 2011 Master Plan outlines the Regional water and wastewater infrastructure strategy to service growth in Halton's urban areas to 2031. The Trafalgar Road/Britannia Road WWPS is one component of the preferred wastewater servicing strategy and is required to support planned population growth in north Halton. At the time of the 2011 Master Plan, three possible locations for the Trafalgar Road/Britannia Road WWPS were identified and evaluated, as shown in Figure 2.

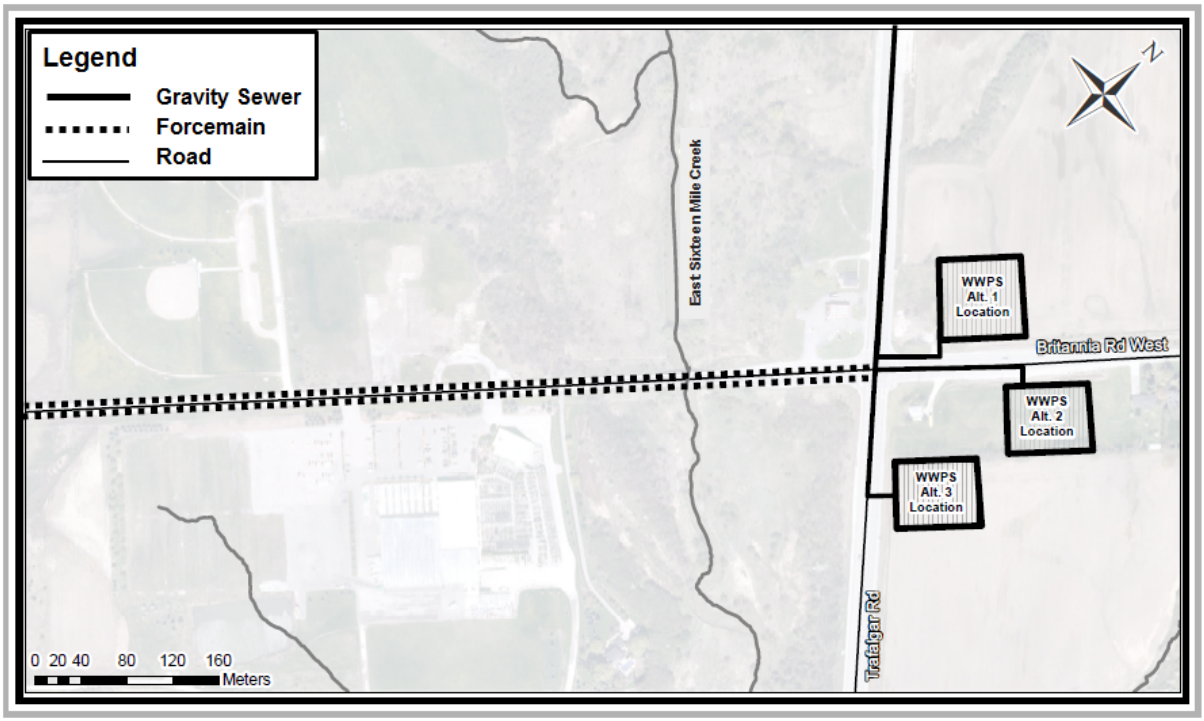

Figure 2: Trafalgar Road/Britannia Road WWPS Alternative Locations – 2011 Master Plan

The preferred location selected at the time of the 2011 Master Plan was northeast of the Trafalgar Road/Britannia Road intersection (i.e., Alternative 1). Key components of the WWPS at this location (as shown in Figure 3) include a gravity trunk sewer discharging to the WWPS at Trafalgar Road/Britannia Road, twinned forcemains conveying wastewater westward under East Sixteen Mile Creek and an emergency overflow to East Sixteen Mile Creek.

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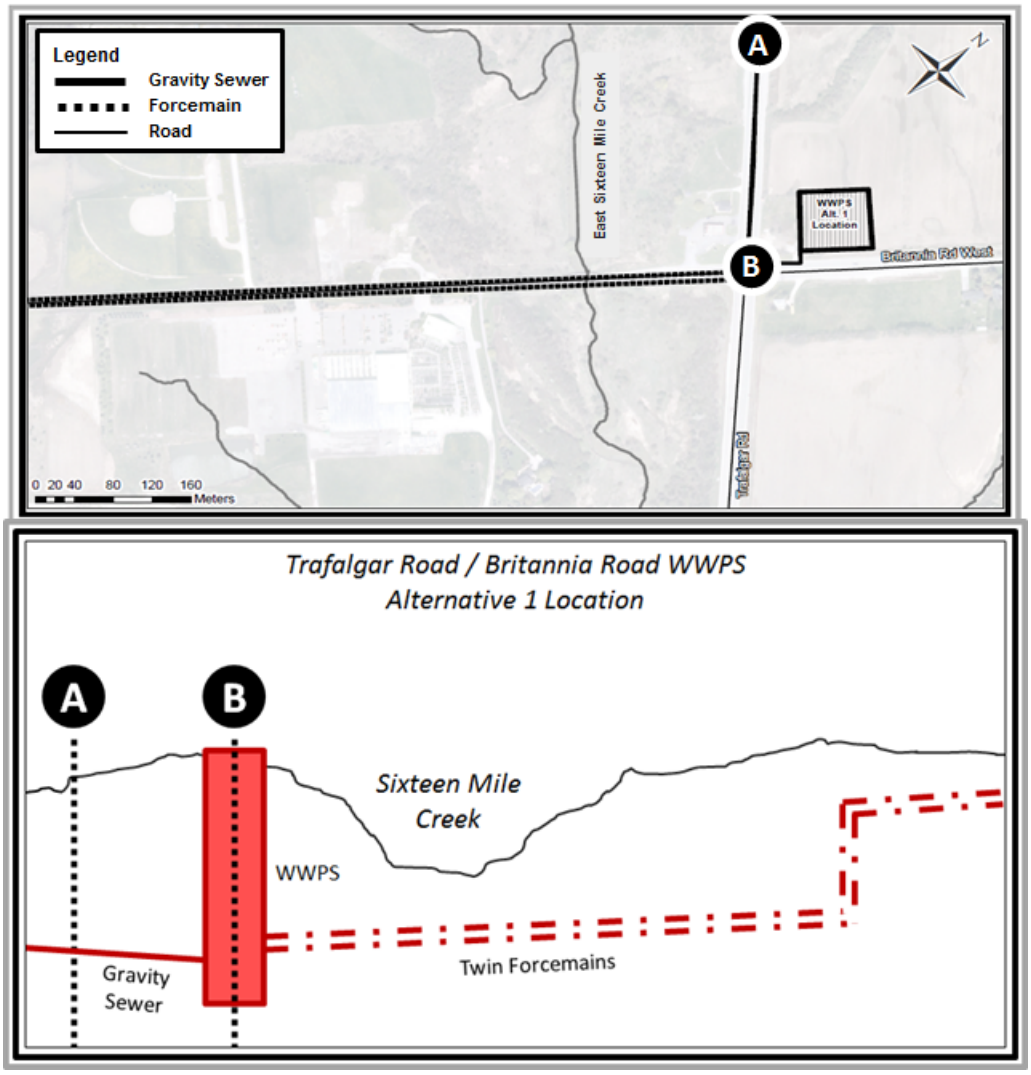

Figure 3: 2011 Master Plan Alt. 1 – Trafalgar Road/Britannia Road WWPS Components

During technical investigations for the WWPS it was found that the twin forcemains identified in the 2011 Master Plan to discharge the WWPS to the downstream gravity sewer presented technical challenges in terms of the system hydraulic efficiency, pump selection and future system operation and maintenance. A technical review was completed to investigate potential alternative WWPS locations that would optimize the system efficiency and mitigate potential operational issues. The outcome of the review was a new alternative location (i.e., Alternative 4), as illustrated in Figure 4, west of the site initially selected during the 2011 Master Plan.

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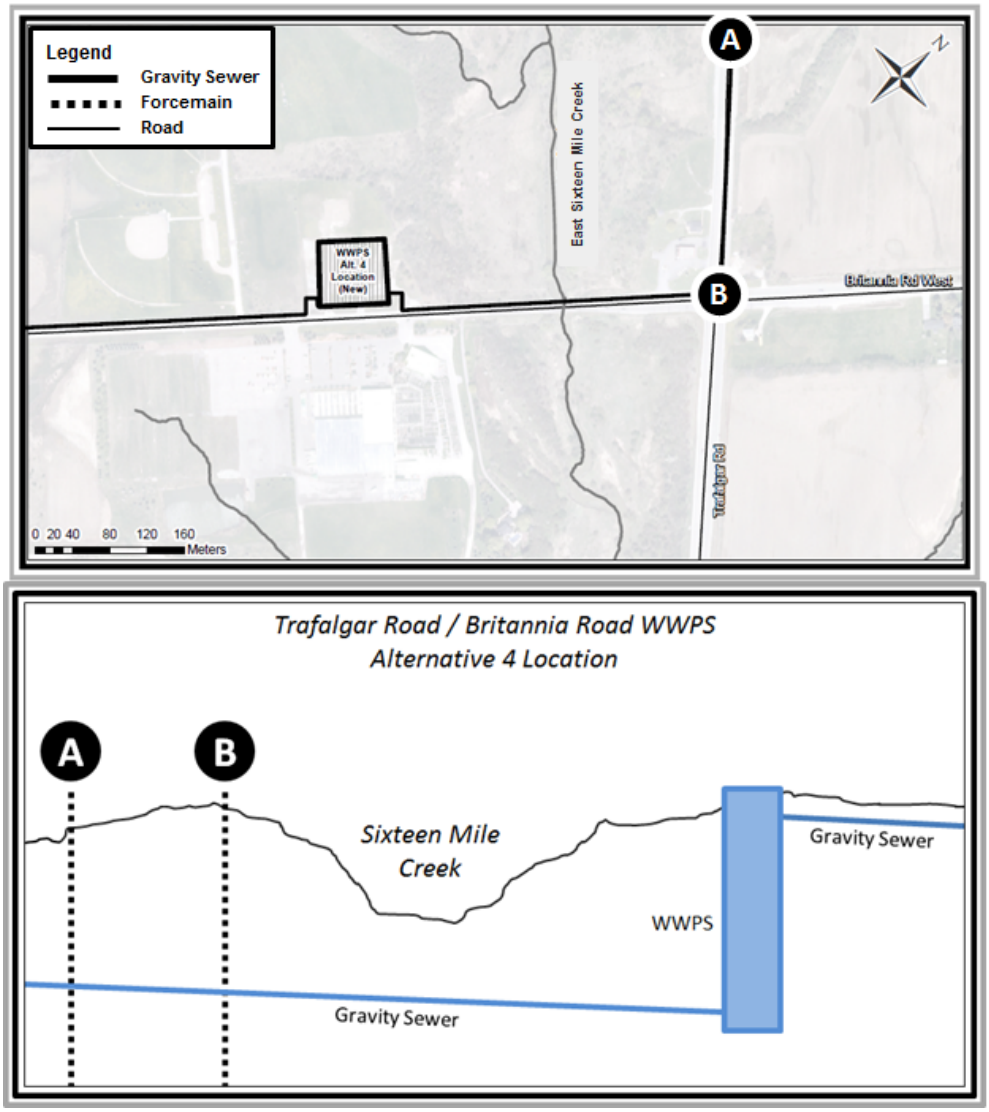

Figure 4: New Trafalgar Road/Britannia Road WWPS Location (Alt. 4)

At the time of the 2011 Master Plan, the Alternative 4 site was occupied by a school building (the former Percy W. Merry Public School) and was not considered as an opportunity in the 2011 Master Plan. However, the school was destroyed by a fire in 2016, all structures associated with the school have been removed, and the site has since remained vacant. This site would enable construction of a lift station, which is a form of WWPS that pumps sewage up to a single gravity discharge sewer, hence eliminating the need for twinned discharge forcemains and offering better hydraulic performance overall.

The MCEA process specifies that any significant modifications to the project which occurs after the filing and completion of a MCEA Study must be reviewed to ensure that the project and mitigating measures are still valid given the changing conditions of the project. Where changes are significant it also specifies that a MCEA Study Addendum Report, documenting the basis for the changes and the revised recommendations, be prepared (i.e., this report).

The MCEA Addendum process allows for the re-evaluation of the 2011 Master Plan preferred solution (i.e., Alternative 1) with consideration given to new information and updated technical review. The MCEA Study Addendum Report is prepared to present the revised analysis to the public, Indigenous Communities and review agencies.

This MCEA Study Addendum Report has been prepared in accordance with the MCEA process for an Addendum.

3.2 Problem/Opportunity Statement, Study Objectives, and Study Area Boundary

The 2011 Master Plan identified the need for a new WWPS near the intersection of Trafalgar Road and Britannia Road in the Town of Milton. The WWPS is required to service growth in north Halton.

The Problem/Opportunity for this MCEA Study Addendum is consistent with that of the 2011 Master Plan. The need for the Trafalgar Road/Britannia Road WWPS remains the same.

Specifically, the objectives of this MCEA Study Addendum are to:

- Identify and re-evaluate alternatives for the Trafalgar Road/Britannia Road WWPS site, and present a rationale for selecting a revised preferred site location;
- Identify and evaluate potential environmental impacts and any mitigation requirements; and,
- Document consultation with the public and review agencies.

Figure 5 shows the Addendum Study Area. This MCEA Study Addendum Report will compare only the preferred alternative from the 2011 Master Plan (i.e., Alternative 1) with the new site location (i.e., Alternative 4).

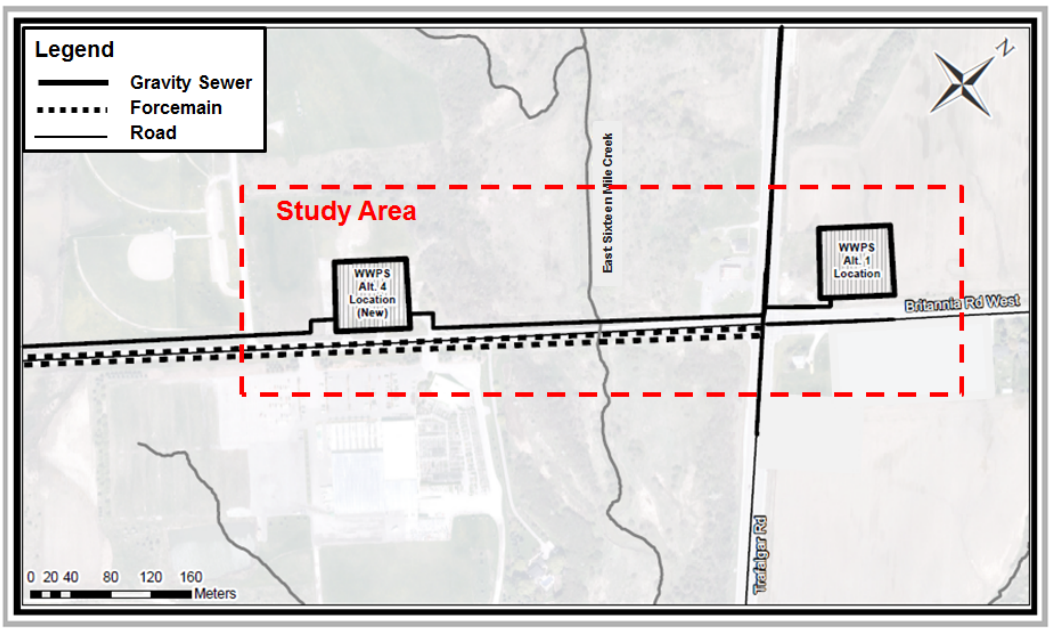

Figure 5: Addendum Study Area

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4 Description of Alternatives

The general design and footprint of the WWPS will be similar regardless of the site location selected. The pump station will include a wet well, dry well, pumps and a building used for piping, electrical, stand-by generator, controls and instrumentation.

4.1 Site Alternative 1

Site 1 is located on the northeast corner of Trafalgar Road and Britannia Road West. The 2011 Master Plan previously selected this alternative as the preliminary preferred site for the Trafalgar Road/Britannia Road WWPS.

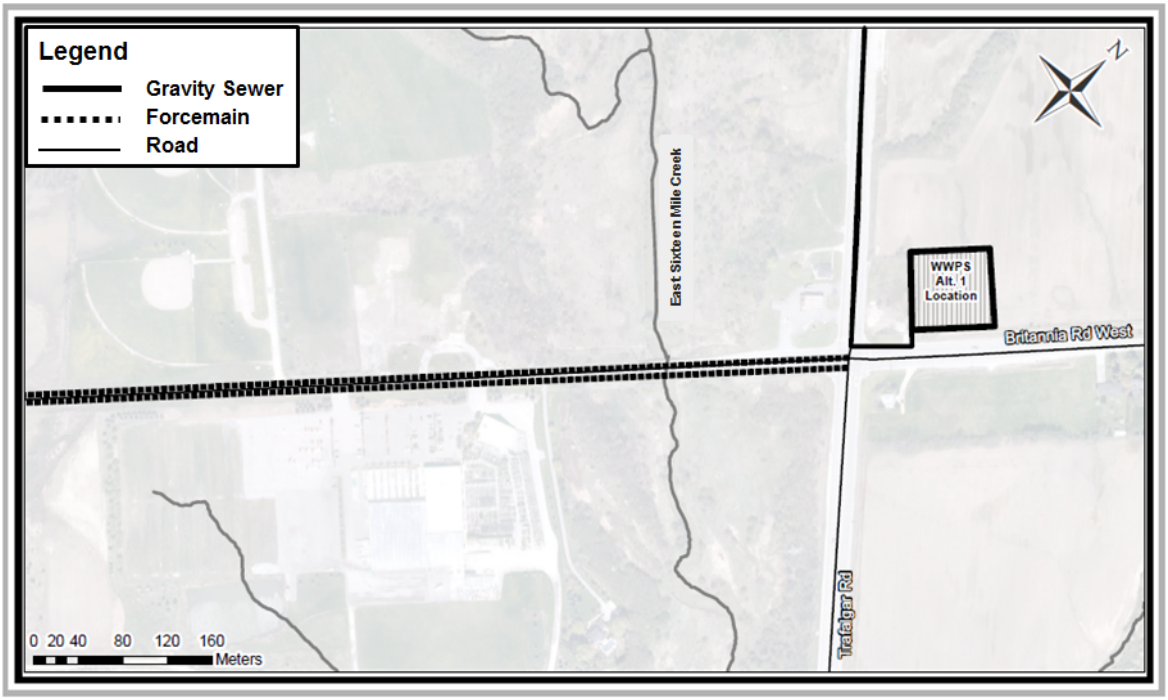

Figure 6: Map of Alternative 1

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Figure 7: Satellite Image of Alternative 1– Corner of Trafalgar Rd and Britannia Road West (looking northeast, Source: Google Maps, 2019)

4.2 Site Alternative 4 (New Location)

Site 4 is located on an abandoned school site north of Britannia Road and west of Trafalgar Road.

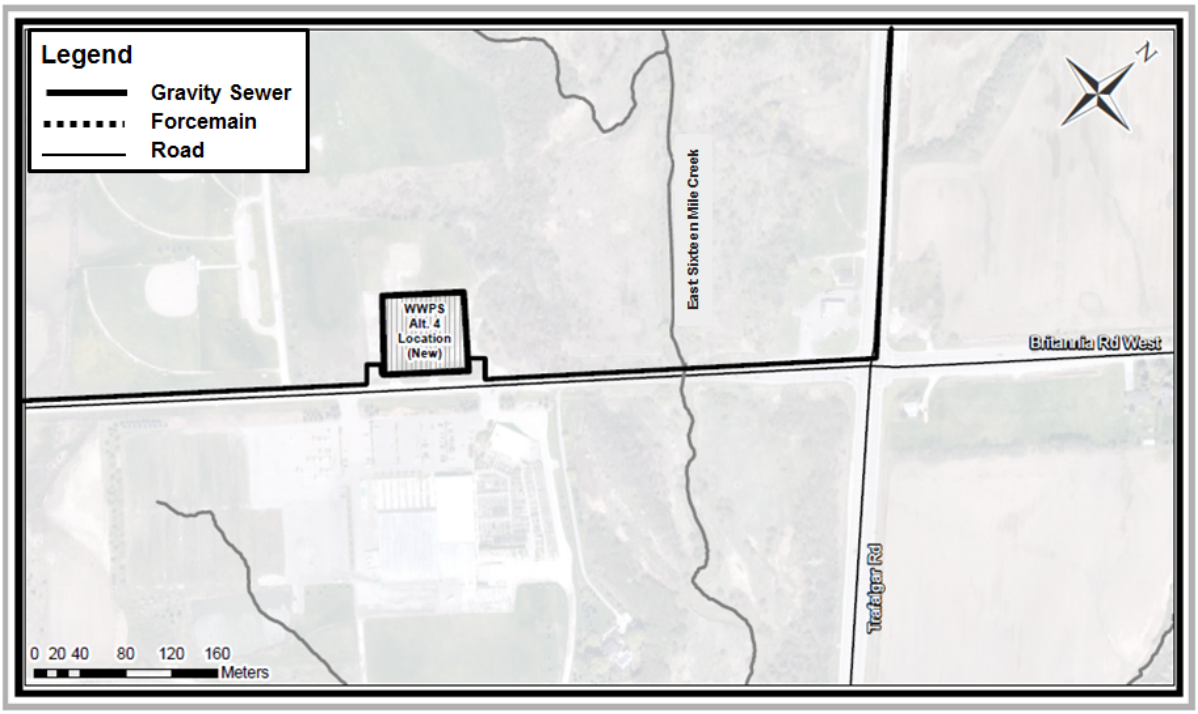

Figure 8: Map of Alternative 4

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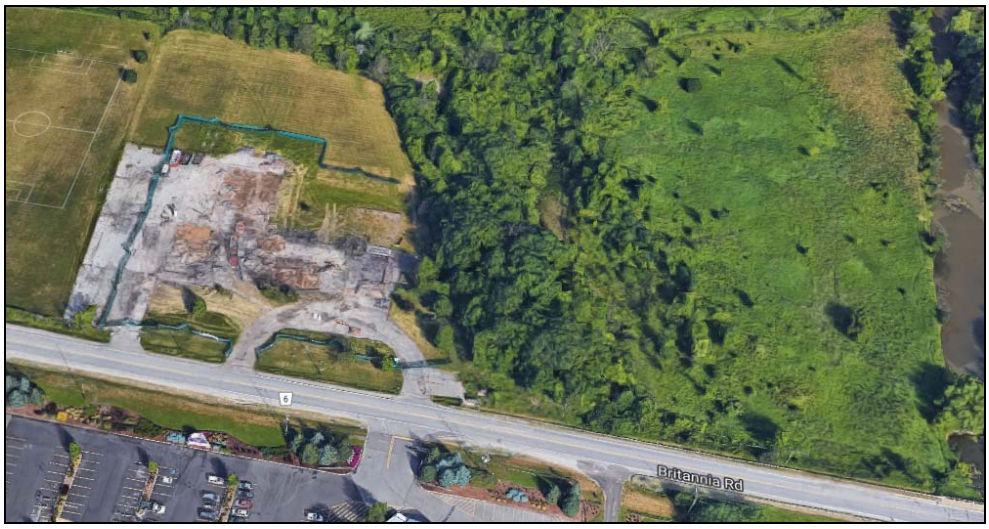

Figure 9: Satellite Image of Alternative 4– North Side of Britannia Road (looking north, Source: Google Maps, 2019)

4.3 Trafalgar Road/Britannia Road Emergency Overflow

Both Alternative 1 and Alternative 4 WWPS concepts include the provision for an emergency overflow to East Sixteen Mile Creek, in accordance with MECP Guidelines and the Region's current Water and Wastewater Facilities Design Manual. Use of the emergency overflow is the final line of defense against surcharging the wastewater collection system. There are many measures in place in the system to avoid the use of the emergency overflow pipe. These include back-up pumps, back-up power, portable pumps and emergency storage, as well as alarms and contingency plans that include trucking wastewater.

It is conceptualized that the emergency overflow will be located in the Britannia Road right-of-way for either option, to minimize impact. The precise routing of the emergency overflow pipe will be finalized during the detailed design stage of the project.

5 Existing Conditions Assessed Through the MCEA Process

As part of the MCEA process, the existing and future conditions of the Study Area are considered in detail, with respect to the following:

- Socio-Economic Environment
- Cultural and Archaeological Environment
- Natural Environment

Baseline information is documented in the 2011 Master Plan. Additional supporting information has been taken from:

- Natural Sciences Existing Conditions Report, *Matrix Solutions Inc*. (Appendix B)
- Stage 1 Archaeological Assessment: Part of Lot 6, Concession 7 Regional Municipality of Halton, Ontario, *ASI*. (Appendix C)

Note that the reports in Appendix B and Appendix C generally focus on the Alternative 4 Site Location, with the following exceptions:

- The Natural Sciences Existing Conditions Report evaluates an area extending out from the Alternative 4 Site Location in a 120m radius.
- An extended area was used to screen for Species At Risk (i.e., from 10 Side Road to south of Britannia Road in Milton).

The following sections consolidate the key highlights of the 2011 Master Plan information along with the outcome of more recent studies.

5.1 Socio-Economic Environment

The Study Area is located in the Town of Milton. It is predominantly rural in nature. Land use is a mix of agricultural, recreational and commercial with a few residences.

The Trafalgar Road corridor, including the Study Area, is within the Region of Halton's Urban Boundary and is part of the Urban Expansion Area land (per the Regional Official Plan, June 2018 consolidation).

5.2 Cultural and Archaeological Environment

The 2011 Master Plan included a high-level Region-wide archaeological assessment which documented (through mapping):

- Historic structures
- Historic homesteads
- Historic settlements
- Historic roads
- Watercourses and Water Bodies
- Cemeteries

From this high level mapping exercise, the Study Area is shown to be within or close-to historic homesteads, historic settlements, historic roads (i.e., Trafalgar Road and Britannia Road) and water bodies (i.e., Sixteen Mile Creek). The Study Area does not include cemeteries or historic structures.

5.3 Natural Environment

The main characteristics of the natural environment within the Study Area are shown in Figure 10. The area is traversed by East Sixteen Mile Creek, woodland communities and Regional Natural Heritage System.

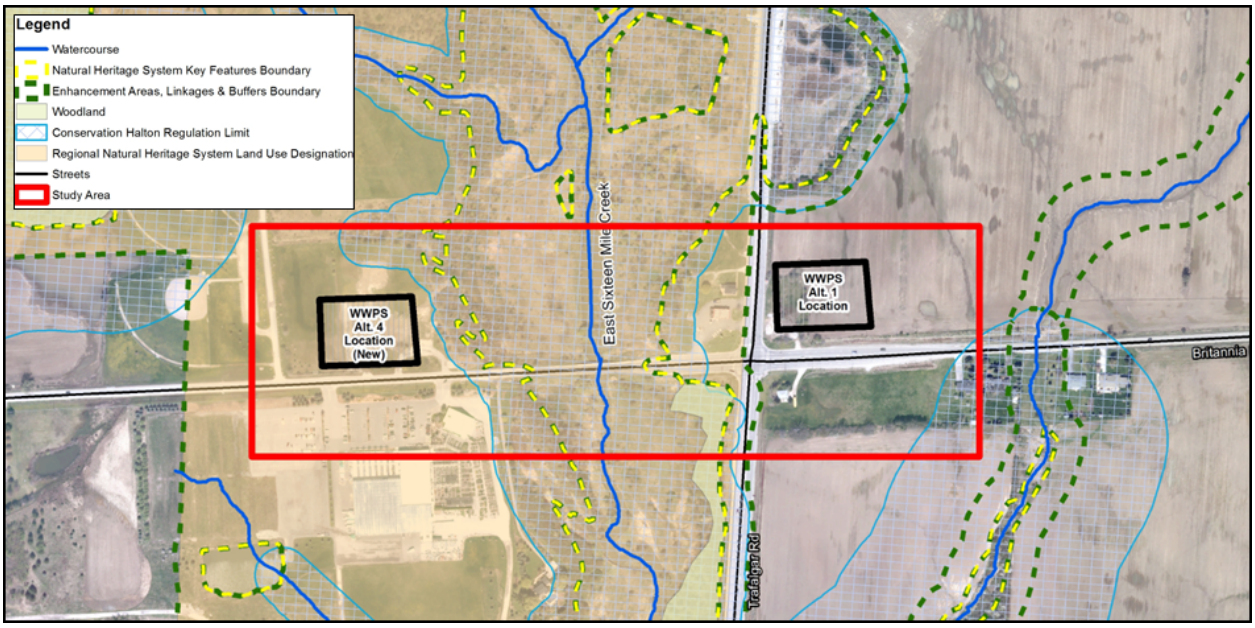

Figure 10: Study Area Natural Environment

Geology

The Study Area is within the Peel Plain physiogeographic region of Southern Ontario. The Peel Plain is an area of clay soil covering approximately 77,700 hectares across the central portions of Halton Region, Peel Region and York Region. Soils in the area consist of Chinguacousy clay loam.

Hydrogeology

Based on local surface topography and surface water flow in the nearby East Sixteen Mile Creek, groundwater within the Study Area is generally inferred to flow in a north to south direction.

Regional Natural Heritage System (NHS)

The Study Area is traversed by the Regional NHS (see Figure 10). Halton's Regional Official Plan establishes the Regional NHS (as shown on Map 1G of the 2009 Regional Official Plan – June 2018 Official Consolidation), consisting of the Regional NHS designation and the Province's Greenbelt NHS overlay. The NHS includes both Key Features (i.e., significant valleylands, significant woodlands, significant habitat of endangered or threatened species, significant wildlife habitat and significant fish habitat) as well as areas identified as enhancement areas, linkages and buffers which preserve connectivity along the NHS.

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The Regional Official Plan includes policies to protect and enhance the NHS (see Section 139.3.7 of the Regional Official Plan, June 2018 consolidation). Halton's NHS protection and enhancement policies apply to all development and site alteration, including public works, and typically trigger environmental study requirements. However, where development and site alteration activities create or maintain infrastructure authorized under an Environmental Assessment process (such as this MCEA Study Addendum), constraints associated with Halton's NHS policies are addressed through that process and additional environmental study requirements do not apply.

Per the Regional Official Plan policies, development within the NHS requires a minimum vegetation protection zone of 30m from wetlands, seepage areas, fish habitat, permanent and intermittent streams, lakes and significant woodlands, measured from the outside boundary of the Key Feature. This buffer zone must be maintained both during construction as well as for any permanent structures. It is used to mitigate impacts to woodlands and wildlife habitat as well as to preserve linkages and connectivity. The 30 m zone must be maintained in natural, self-sustaining vegetation.

Watersheds

The Study Area is located within the drainage area of the east branch of Sixteen Mile Creek (East Sixteen Mile Creek). The Sixteen Mile Creek watershed is composed of a west, middle and eastern branch, which converge below the Niagara Escarpment and flow south into Lake Ontario at Oakville. There are many small tributaries to the main branches of Sixteen Mile Creek.

Woodlands

As outlined in the Natural Sciences Existing Conditions Report (see Appendix B) there are several woodland communities in the Study Area, consisting predominantly of mature oak-dominated woodlands along with ash and elm-dominated communities. According to the Natural Sciences Existing Conditions Report, the woodlands meet the definition of 'significant woodland' per the Regional Official Plan.

Wetlands

There are no wetlands identified within the Study Area. The closest identified wetland is within a woodland community immediately to the west of the Study Area, north of Britannia Road.

Areas of Natural Scientific Interest (ANSI) and Environmentally Sensitive Areas (ESA)

There are no ANSIs or ESAs noted within or in close proximity to the Study Area.

Fish Habitat

The Natural Sciences Existing Conditions Report indicates that there is fish habitat within East Sixteen Mile Creek for sport fish and bait/forage fish. Additionally, it is likely that the Creek (in the vicinity of the Study Area) supports habitat for the Silver Shiner, which is classified as a Species at Risk (SAR).

Wildlife Habitat

There are five (5) main categories of wildlife habitat that were evaluated as part of the Natural Sciences Existing Conditions Report (see Appendix B):

- Seasonal Concentration Areas of Animals
- Rare Vegetation Communities

- Specialized Habitat for Wildlife
- Habitat for Species of Conservation Concern
- Animal Movement Corridors

Results of habitat screening indicate that the woodlands within the Study Area are potential significant habitats for the following:

- Bat Maternity Colonies
- Reptile Hibernaculum
- Amphibian Breeding Habitat
- Amphibian Movement Corridor

As well, there is potential habitat identified for the following Species of Conservation Concern (associated with the woodlands and/or East Sixteen Mile Creek):

- Eastern Wood-pewee (provincially and globally rare)
- Snapping Turtle (provincially and globally rare)

Species at Risk

A Species At Risk (SAR) assessment was completed as part of the Natural Sciences Existing Conditions Study to determine the potential for SAR in the vicinity of the Alternative 4 Site Location.

A total of nine (9) species and/or their habitats were identified as 'potential to occur' within the investigated area (which extended from 10 Side Road to south of Britannia Road in Milton). Of these nine (9) species, only the Silver Shiner (fish species) will potentially require further consultation with regulating authorities. All other species do not occur within the Alternative 4 Site Location.

In addition to the SAR assessment undertaken as part of the Natural Sciences Existing Conditions Study, Halton Region staff were informed by Conservation Halton that an American Eel was identified within the Study Area during the ecological restoration project on Sixteen Mile Creek at Drumquin Park (summer, 2018)[1]. The American Eel is classified as an endangered species in Ontario. American Eels have not been associated with this area historically and therefore were not flagged in the SAR assessment completed as part of the Natural Sciences Existing Conditions Study.

Vegetation

The vegetation found in the Study Area is a mixture of active agricultural, grassland, shrubs and thickets with interspersed woodland communities as described above. The previously disturbed area of the Percy W. Merry Public School supports minimal vegetation.

[1] Martel, Tawnia; Conservation Halton. Review Meeting with Halton Region 2019-05-27

6 Updated Evaluation of Alternatives

An evaluation of the two alternatives described in Section 4 has been completed for the MCEA Study Addendum using criteria adopted in the 2011 Master Plan:

- Environmental
- Technical
- Socio/Cultural
- Financial
- Legal/Jurisdictional

The goal of the evaluation was to compare the preferred alternative WWPS location from the 2011 Master Plan (Alternative 1) with the new alternative location (Alternative 4) using the five criteria listed above. Key differences are captured in the sections that follow. An evaluation table (see Table 1) was developed to provide a summary of the comparative alternative evaluation and to identify a recommended preferred alternative.

Environmental

The natural environment of Alternative 1 and Alternative 4 share many similarities. The geological and hydrogeological characteristics of both locations are the same. Both locations are adjacent to woodlands, wildlife habitat and Key Features of the Regional NHS. Both are in close proximity to East Sixteen Mile Creek, but are external to the flood plain and external to the Conservation Halton Regulated Limits. Both options include provision for an emergency overflow to East Sixteen Mile Creek and will need to be mindful of fish habitat within the Creek, specifically the Silver Shiner and the American Eel, both of which are identified as SAR. Both locations can adhere to the 7.5 m setback (minor valley system) and to the 15 m setback (major valley system) that is required by Conservation Halton for erosion protection (measured from the stable top of bank).

There are no wetlands, ANSIs or ESAs within the Study Area. Neither alternative is anticipated to have an impact on woodlands, wildlife habitat, wildlife passage, or linkage functions within the NHS.

Key differences related to the natural environment include:

- The Alternative 4 site is previously disturbed and supports minimal natural vegetation.
- The Alternative 4 site is located within the Regional NHS, but external to Key Features. Construction activities and all permanent structures will be subject to the 30 m setback as is required per the Regional Official Plan. Figure 11 has been prepared to identify the requirements associated with the Regional NHS as it relates to the Alternative 4 Site Location. It is assumed, per the Natural Sciences Existing Conditions Report (see Appendix B) that the woodlands adjacent to the Alternative 4 Site Location are ‘significant’ per the definition in the Regional Official Plan. As a result, the 30 m buffer begins at the edge of the woodland.

Technical

Per the discussion in Section 3.1, the Alternative 4 Site Location provides the ability to construct a single gravity sewer (as opposed to twin forcemains), which provides hydraulic, operational and maintenance advantages.

Socio/Cultural

As a result of the high level mapping done through the 2011 Master Plan, a Stage 1 Archaeological Assessment (Stage 1 AA) was recommended for the Alternative 1 Site Location, to be carried out during the pre-design stages of project implementation.

A Stage 1 AA has been completed as part of the technical assessment for the new proposed Trafalgar Road/Britannia Road WWPS site (i.e., Alternative 4). The Stage 1 AA for the Alternative 4 site location is included in Appendix C. The report concludes that the Alternative 4 Site Location is within the disturbed areas of the recently demolished school. This area does not retain archaeological potential and will not require a Stage 2 AA.

Financial

The Alternative 4 Site Location is expected to be lower in capital and operating costs when compared to the Alternative 1 Site Location, a result of the ability to eliminate the twin forcemains in favour of a single gravity sewer.

Legal/Jurisdictional

There is no difference between Alternative 1 and Alternative 4 Site Locations from a legal or jurisdictional perspective. Property acquisition is required for both locations.

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Figure 11: Alternative 4 Site Location NHS Setback Requirements

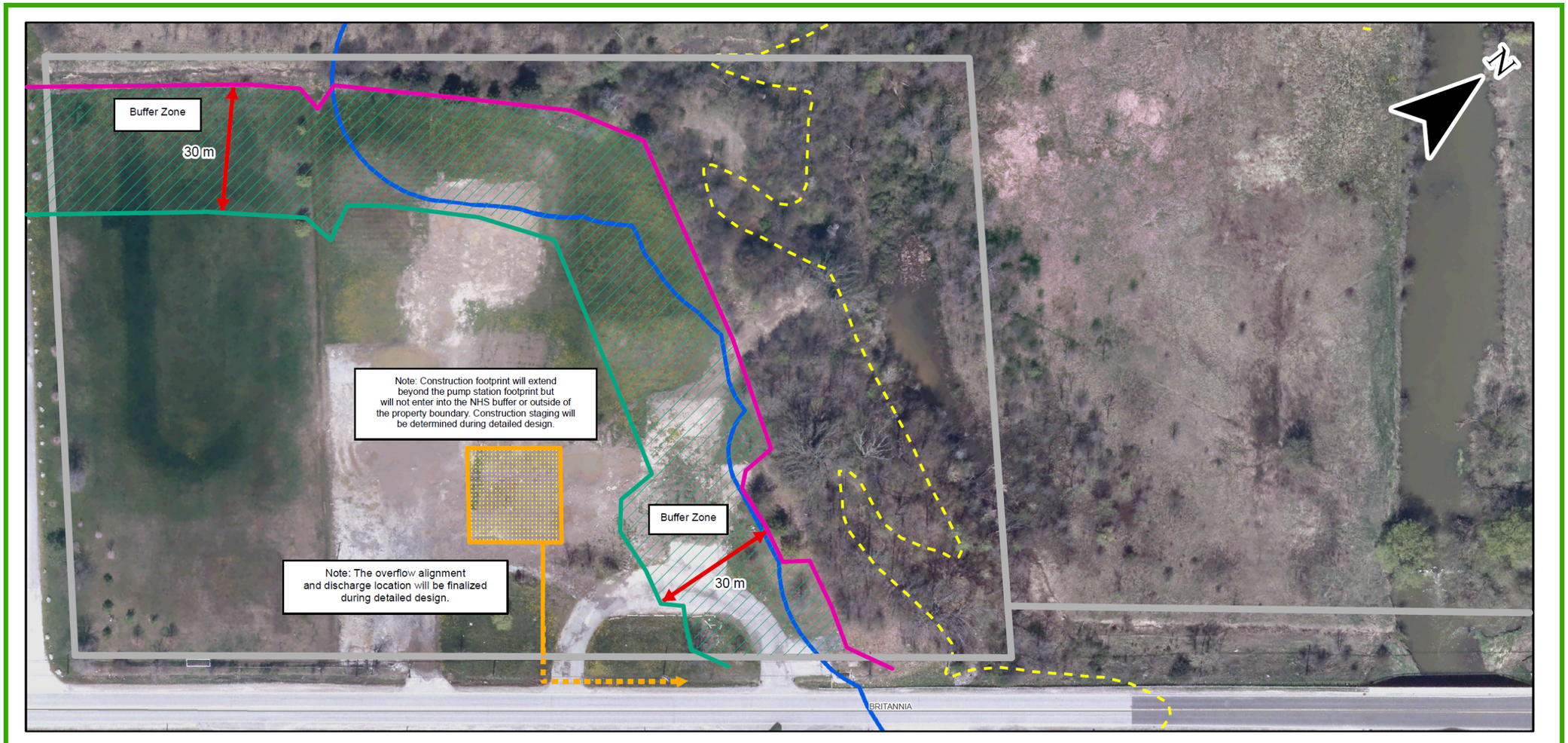

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Table 1: Updated Evaluation Matrix – Trafalgar Road/Britannia Road WWPS Location

Alternatives	Alternative 1	Alternative 4 (NEW)
Description	• WWPS site is located on the north side of Britannia Rd approximately 85 m east of Trafalgar Road.	• WWPS site is located north of Britannia Road, approximately 400 m west of Trafalgar Road.
Environmental	• Land is currently used for Agricultural purposes, with limited natural vegetation (crops only). • Site is located approximately 100 m east of the Conservation Halton Regulated Area. • Site is located outside of the Regional Natural Heritage System. • No watercourses on site. The nearest watercourse is located ~280m west of the site. • No ANSIs/ESAs on site.	• Land is previously disturbed with minimal natural vegetation. • Site is located approximately 30 m from the Conservation Halton Regulated Area. • Site is located within the Regional NHS but external to Key Features. The limits for both construction activities and for permanent structures will be designed to adhere to the required 30 m setback from the boundary of the adjacent woodland (as shown in Figure 11). • No watercourses on site. The nearest watercourse is located ~180m east of the site. • No ANSIs/ESAs on site.
Technical	• Deep twin forcemains will be required, resulting in constructability, operational, and maintenance challenges. • Good access to local power supply. • Good access to Britannia/Trafalgar Road.	• Site eliminates the need for twin forcemains, instead using a single gravity sewer to the WWPS. Preferred from constructability, operational, and maintenance perspectives. • Good access to local power supply. • Good access to Britannia/Trafalgar Road.
Socio / Cultural	• Minimal traffic disruptions/disturbance expected along Britannia/Trafalgar Road during construction. • Site has very few surrounding residences • A Stage 1 AA would be required to evaluate the archaeological potential of the Alternative 1 site.	• The Stage 1 Archaeological Assessment (Stage 1 AA) completed for the site indicates no archaeological potential and no need for a Stage 2 AA. • Minimal traffic impact to Trafalgar Road and Britannia Road anticipated during construction. • Site has very few surrounding local residences. A local business is located south of the site, on Britannia Road.
Financial	• Alternative 1 is expected to be higher in both capital and operating costs.	• Alternative 4 is expected to be lower in both capital and operating costs.
Legal / Jurisdictional	• Property acquisition is required.	• Property acquisition is required.
Overall Score	**Moderately Preferred**	**Most Preferred**

Most Preferred	The alternative satisfies the following key objectives: • **Environmental:** minimizes potential impacts to the natural environment. • **Technical:** provides the best technical solution (improved hydraulics, etc.). • **Socio/Cultural:** minimizes potential impacts to residents and cultural heritage. • **Financial:** minimizes capital, operating and life-cycle costs. • **Legal/Jurisdictional:** permits and land acquisitions can be easily obtained.
Moderately Preferred	The alternative satisfies the key objectives with some deviations.
Least Preferred	The alternative does not satisfy the key objectives.

7 Recommended Preferred Alternative

Based on the rationale presented in the Updated Evaluation Matrix in Table 1, Site Alternative 4, located north of Britannia Road and approximately 400 m west of Trafalgar Road, is the recommended preferred site for the new Trafalgar Road/Britannia Road WWPS.

The main advantages of Site Alternative 4 are as follows:

- Alternative 4 is located on a vacant site with no significant natural vegetation. There are no known existing utilities or structures to conflict with construction of the WWPS.
- Technical advantages include the ability to construct a single gravity sewer to the WWPS (as opposed to twin forcemains) which provides hydraulic, operational and maintenance advantages.
- The site is expected to have a lower overall impact to traffic during construction.
- The Stage 1 AA indicates no archaeological potential and no requirement for a Stage 2 AA.
- Alternative 4 is expected to be the lower cost option (both capital and operating) when compared to Alternative 1, given the requirement of a single gravity sewer along Britannia Road, as opposed to twin forcemains.

7.1 Preliminary Design Details of New Trafalgar Road/Britannia Road WWPS

The new WWPS will include a wet well, dry well and control building to house piping, electrical, a standby generator as well as controls and instrumentation required for automatic operation of the facility. Specific details will be confirmed through the detailed engineering design phase following the completion of the Addendum.

The main design features of the proposed WWPS include:

- Wet well, dry well, wastewater pumps.
- Standby emergency generator sized to provide 100% standby power during peak flows.
- Emergency overflow pipe.
- Control building to house generator, fuel tank, electrical systems, piping, instrumentation and odour control equipment.
- Access, parking area and landscaping.
- SCADA system for automatic control and monitoring of operations.

8 Stakeholder Consultation

This MCEA Study Addendum Report, describing and evaluating the proposed change to the preferred Trafalgar Road/Britannia Road WWPS location, has been prepared in accordance with the MCEA process. Per the MCEA process, the MCEA Study Addendum Report will be placed on public record and made available for review for a 45 day period beginning July 11, 2019. A Notice of Filing of Addendum will be published at the time of filing and will be mailed to all stakeholders (see Appendix D). Hard copies of the MCEA Study Addendum Report will be available for review during the 45 day period at the Regional Municipality of Halton Clerk's Office, the Town of Milton Clerk's Office and the Milton Public Library (Main Branch). An electronic copy of the MCEA Study Addendum Report will also be accessible through the Infrastructure Master Plans page on halton.ca.

The following sections summarize the public consultation activities for the MCEA Addendum process. The intent is to inform Indigenous Communities, the public and the review agencies of the study and to solicit their input.

Please note that, per the MCEA process, only the scope of work covered by the MCEA Study Addendum Report is open for review (i.e., location of the WWPS).

8.1 Indigenous Communities Consultation

Consultation with Indigenous Communities is guided by the Government of Ontario. To comply with these requirements, the Aboriginal and Treaty Rights Information System (ATRIS) is used to identify Indigenous Communities, including First Nations and Metis communities, located within the vicinity of the Study Area that may potentially be impacted by the project. The Ministry of Environment, Conservation and Parks (MECP) then provides guidance on the final list of groups which may potentially be interested in the study. For this MCEA Study Addendum, the list includes:

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River
- Haudenosaunee Confederacy Chiefs Council

The Notice of Filing of Addendum will be mailed to the above Indigenous Communities at the time of filing to solicit feedback.

The development of the 2011 Master Plan also included consultation with Indigenous Communities. Communication included mail-outs and public information centres.

8.2 Local Residents Consultation

To inform local residents a Notice of Filing of Addendum letter will be mailed to all properties within a 500 meter radius of the new preferred site. In addition, an advertisement notice will be posted in the local newspaper on the date of filing and again the following week (i.e., July 11, 2019 and July 18, 2019). The intent of the advertisement and letter is to inform the public of the Addendum process and proposed site relocation, as well as to provide access to the MCEA Study Addendum Report.

8.3 Review Agencies Consultation

A Notice of Filing of Addendum letter will be mailed to review agencies, for example: Conservation Halton, Town of Milton, Ministry of the Environment, Conservation and Parks (MECP) and the Ministry of Tourism, Culture and Sport. The intent of the letter is to inform each party of the MCEA Addendum process and proposed site relocation, as well as to provide access to the MCEA Study Addendum Report.

8.4 Addendum Review Period

All comments received within the 45 day review period (July/August, 2019) following the mailing and advertisement posting of the Notice of Filing of Addendum will be addressed in writing by a member of the project team and documented.

If comments or concerns regarding this project cannot be resolved through discussions with the Region, a person or party may request that the Minister of the Environment, Conservation and Parks order the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order), which addresses individual environmental assessments. The Ministry's Part II Order Request Form may be downloaded at www.forms.ssb.gov.on.ca.

9 Implementation

The construction of the Trafalgar Road/Britannia Road WWPS will support the wastewater servicing needs as outlined in the 2011 Master Plan.

Upon completion of the Addendum process, this project, classified as Schedule B, may proceed to Phase 5, Implementation. The detailed design of the WWPS will address the technical, social and environmental requirements, and will confirm the mitigation measures required.

9.1 Detailed Design Commitments

The following list provides a preliminary set of commitments to be undertaken during the detailed design phase of the project.

9.1.1 WWPS Design

- The WWPS layout and location will be designed to minimize the impact to trees. A Tree Preservation Plan will be prepared (by a certified Arborist), in accordance with the Region's Tree Canopy Replacement Policy during detailed design to assess the extent of impacts to trees resulting from the proposed construction and establish a plan for compensation of tree loss.
- The proposed emergency overflow will be constructed using methods so as to mitigate any potential impacts to the natural environment. The exact location of the emergency overflow and the construction method will be finalized during detailed design.
- Provision for noise and odour control systems as part of the WWPS design will be determined during detailed design.
- A geotechnical assessment of the Study Area will be completed during detailed design.

9.1.2 Environmental Protection

- Specific restoration areas will be identified during detailed design.
- An Erosion and Sediment Control Plan will be developed during detailed design and will conform to industry best management practices and recognized standard specifications.
- Conservation Halton will be consulted during detailed design with regard to potential works within or in close proximity to flood regulated areas and/or areas within the Conservation Halton Regulated Areas.
- Impacts to fish and fish habitat, subsequent mitigation measures and possible permit requirements will be identified during detailed design in consultation with agencies as required.

9.1.3 Permit Requirements

Permit requirements may include, but are not limited to:

- A permit will be required from Conservation Halton for any works within the Conservation Halton Regulated Areas.

- An MECP Permit to Take Water under the Ontario Water Resources Act (1990) will be required if Project construction requires taking more than 50,000 L in a day from a lake, stream, river or groundwater source.
- MECP approval (in the form of Environmental Compliance Approval (ECA) for WWPS operation) is required.
- A building permit and site alteration permit will be required from the Town of Milton prior to construction.
- Other permits as required, to be assessed and confirmed during detailed design.

9.2 Mitigation Measures During Construction

A detailed implementation plan will be prepared as part of construction planning that will define mitigation requirements such as grading, edge management, acceptable construction practises and building placement on site. Other mitigation measures include, but are not limited to, the following:

9.2.1 Construction Best Practices

- A Construction Emergency Response and Communications Plan will be developed and followed throughout the construction phase.
- As part of the Construction Emergency Response and Communications Plan a spill prevention and spill response plan will be developed. Staff will be trained on associated procedures. Any spills or depositions into watercourses shall be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan.
- Emergency spill kits will be maintained on site.
- Changes affecting existing land contours and natural drainage will be minimized.
- Wet weather restrictions shall be applied during site preparation and excavation.
- Any grading of lands adjacent to natural features should match existing grades at the identified buffer from the natural features.
- All Erosion and Sediment Control measures will be maintained until disturbed areas have been replanted and stabilized.
- The movement of heavy machinery will be avoided on areas with sensitive slopes.
- The movement of heavy machinery will be avoided near the Creek and its banks.
- Excess stormwater will be diverted away from aquatic habitat.
- Any sediment laden drainage will be intercepted as close to the source as possible.
- Construction activities will consider water quality and quantity. Pre-construction pathways and flows will be maintained or similar to existing conditions to minimize potential impacts to both terrestrial and aquatic resources.
- Construction monitoring will be provided on site by an independent environmental monitor to ensure that erosion and sediment controls are working effectively. If Erosion and Sediment Control measures are not functioning properly, no further work in the affected areas will occur until the sediment and/or erosion problem is resolved.
- Construction best management practices will be used to control dust and mud on-site and to prevent dust from transferring off-site.

9.2.2 Natural Heritage System Protection

- Construction activities will maintain the required setbacks to protect Key Features of the NHS, maintain buffers and preserve connectivity (as shown in Figure 11). These include:
  - To mitigate impacts and improve linkages and environmental connectivity a 30 m buffer zone will be provided between any construction activities and adjacent significant natural heritage features.
  - For construction machinery: Machinery will be appropriately maintained and confirmed free of fluid leaks. Maintenance areas, vehicle washing and refuelling stations where contaminants are handled will be at least 30 m away from natural features. Vehicle refuelling and maintenance should be done on spill collection pads.
  - Any stockpiled materials will be stored at least 30 m away from a water body to prevent deleterious substances from inadvertently discharging to the environment.
- Any spills affecting the soil will be controlled in accordance with Federal/ Provincial Regulations and Municipal Bylaws and through industry best management practices. Dispose of any chemical waste materials generated from construction activities through authorized and approved off-site vendors.
- A Soil Management Plan will be prepared for managing soil materials onsite (including excavation, location of stockpiles, reuse and offsite disposal).
- Appropriate fencing and/or construction hoarding will be used to demark the construction zone and to avoid accidental intrusion into natural features or damage candidate significant wildlife habitat.

9.2.3 Tree and Natural Vegetation Protection

- Plant species loss will be minimized to the extent possible, and compensatory planting plans established in areas where no clearing activities are proposed.
- A mitigation plan will be designed and implemented to compensate for the temporary removal of vegetation and provide enhancement of existing features.
- Any disturbed areas will be re-vegetated and restored immediately after construction to return to pre-construction condition. Restoration plans for naturally vegetated areas should include the use of native plant species in order to improve vegetation quality of the area.
- Appropriate protective fencing will be used to avoid accidental damage to trees.
- If tree removal is proposed, the Region's Tree Canopy Replacement Policy on Regional Owned Lands will be implemented with subsequent post-construction monitoring. Care must be taken if removing and disposing of Ash trees.
- Where impacts are limited to tree pruning, works will be completed under the supervision of an Arborist or Forester and tree health monitored post-construction.
- Damaged tree roots should be cut clean as soon as possible and exposed roots covered in approved topsoil. This work is to be carried out under the supervision of an Arborist or Forester.

9.2.4 Wildlife and Wildlife Habitat Protection

- No impact to wildlife or wildlife habitat is anticipated as part of this project.

9.2.5 Other Considerations

- The contractor will develop a Health and Safety Plan, following all regulatory requirements.
- The contractor will develop an Environmental Management Plan.
- Signage identifying pedestrian safe passage will be provided.
- The contractor will be required to develop and implement a Traffic Management Plan in coordination with the Region/Town of Milton. The Region will communicate potential traffic impacts due to construction to local residents and the Town of Milton in advance.
- All work shall be done in such a manner as to minimize disruption to residents and businesses in the vicinity of the construction site. Noise shall be controlled. Contract specifications shall ensure that all equipment and vehicles are compliant with noise standards for applicable equipment.

10 Conclusions and Recommendations

The 2011 Master Plan identified the need for a new WWPS in the Trafalgar Road/Britannia Road area in Milton to support growth. At the time of the 2011 Master Plan, the northeast corner of Trafalgar Road and Britannia Road was selected as the preferred location for the new WWPS in accordance with Schedule B of the MCEA process (October 2000, as amended in 2007, 2011 and 2015). Since the 2011 Master Plan was completed, additional technical review has resulted in a new preferred location for the WWPS, west of the site initially selected. The new location is expected to provide improved operational efficiency and be lower in capital and operating cost compared to the location identified in the 2011 Master Plan.

This MCEA Study Addendum Report contains all of the requirements of a Schedule B Addendum project file. This project file will be made available for public review. The Notice of Filing of Addendum will be issued July 11, 2019. The Notice will be prepared in accordance with the MCEA process and will identify the Preferred Alternative Location for the WWPS as Site Alternative 4, located north of Britannia Road and approximately 400 m west of Trafalgar Road.

July, 2019

Appendix A
2011 Master Plan:
Volume II – Project File, Project ID#6571

Sustainable Halton Capital Program

IPFS ID:6571

Project Description: 104 ML/d WWPS on Trafalgar Rd/ Britannia Rd (1200 L/s)

Project Documentation

1. Project Tracking Sheet Summary
2. Alternative Solutions on Map
3. Additional Technical Support (if applicable)
4. Additional Data - Site Descriptions, Profiles, etc. (if applicable)
5. Alternatives Evaluation Table
6. Preferred Solution on Map
7. Tracking Sheet

Public Works

DEVELOPMENT PROJECT TRACKING SHEET SUMMARY

Date Prepared/Updated:	29-Sep-11	Project Number:	Overview
Version Number:	1	IPFS:	6571
Prepared/Updated By:	AECOM		

Project Name/Description:

104 ML/d WWPS on Trafalgar Rd/ Britannia Rd (1200 L/s)

Project Need:

New wastewater pumping station is designed to pump upstream flow generated from Georgetown, Milton east & HH 401 growth corridor over the East Sixteen Mile Creek environmental feature. Initially, the flow will be conveyed to WWPS #5069/6427 via #6507 and #5067 as an interim servicing solution. Ultimately, the flows will be conveyed south via projects 6580, 6581 and 6582 and pumped west by the new Lower Base Line WWPS/WWFM #6584/6585 to the new RR25/Boyne trunk sewer.

Evaluation:

WWPS sites were screened on the basis of their technical, environmental, legal/jurisdictional, socio-cultural, and economic impacts. A gravity only solution was not considered feasible due to increased depths and creek crossing. The alternative pumping station sites considered in the evaluation were all relatively in close proximity to one another.

Special Consideration:

There were a few specific factors that played key roles in the screening process, such as:
- Environmental/Natural Heritage: Site #1 and #2 are within close proximity to the Conservation Halton Regulation Limit. Site Alternative #3 lies within the Conservation Halton Regulation Limit Area. Wastewater forcemain #6579 alignment crosses Conservation Halton Regulation Limit Area and East 16 Mile Creek.
- Cultural/Heritage: Existing land use is agricultural farming. No significant impacts anticipated.
- Transport: The site fronts an existing road right-of-way (Britannia Rd)
- Crossing: One Bridge/Creek Crossing for wastewater forcemain #6579

Selection of Preferred Servicing Alternative:

Three alternative station sites were evaluated as follows:
- Alternative 1 – Site located on the north side of Britannia Rd approximately 85 m east of Trafalgar Rd
- Alternative 2 – Site located on the south side of Britannia Rd approximately 105 m east of Trafalgar Rd
- Alternative 3 – Site located on the east side of Trafalgar Rd approximately 100 m east of Trafalgar Rd

Alternative 1 was selected as the preferred site for the Trafalgar Rd/Britannia Rd Wastewater Pumping Station. The site lies within the urban boundary expansion and outside of the Conservation Halton Regulation Limit. The site lies within a farm adjacent to an existing severed lot. Approximately 0.25ha will be required.

Site Requirements:

- Feasible and technically viable option in line with current planning
- Minimize impact on local population and the environment
- Minimize financial outlay
- The construction of 1200 L/s wastewater pumping station will require a footprint of approximately 50m x 50m or 0.25 ha
- Power availability

East Sixteen Mile Creek

Local residences

Alternative 1 (Preferred)

Alternative 2

Alternative 3

Local residences

6577

6571

6499

6578

Trafalgar Rd

Britannia Rd E

Legend

Preferred Wastewater Infrastructure

- Wastewater Pumping Station

Preferred Linear Alignments

- Preferred Forcemain Alignment
- Preferred Alignment
- Potential Emergency Overflow
- Site Alternatives

Environmental Features

- Greenbelt
- Greenland - A
- Greenland - B
- ANSI
- ESA
- Provincial Wetlands
- Regional Wetlands
- Escarpment Protected Area
- Escarpment Rural Area
- Escarpment Natural Area
- Conservation Halton - Regulation Limit
- Credit Valley Conservation - Regulation Limit
- Grand River Conservation Authority - Regulation Limit
- Parcel Fabric
- Lakes, Rivers and Creeks

Assumes pipe on road alignment

Halton REGION

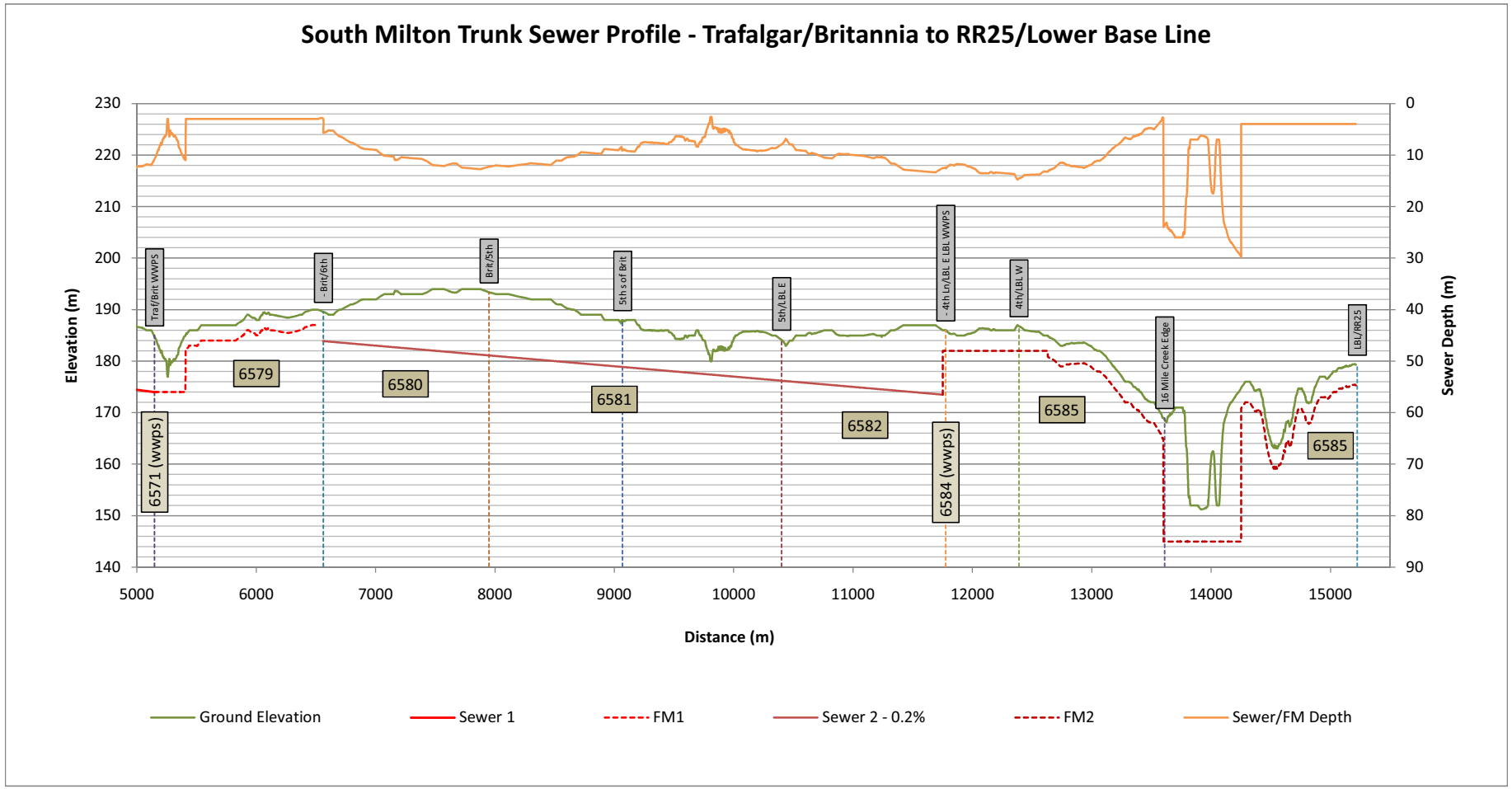
Sustainable Halton
Water and Wastewater Master Plan

Pump Station Site Analysis: Project No. 6571
104 MLD WWPS on Trafalgar Rd/Britannia Rd

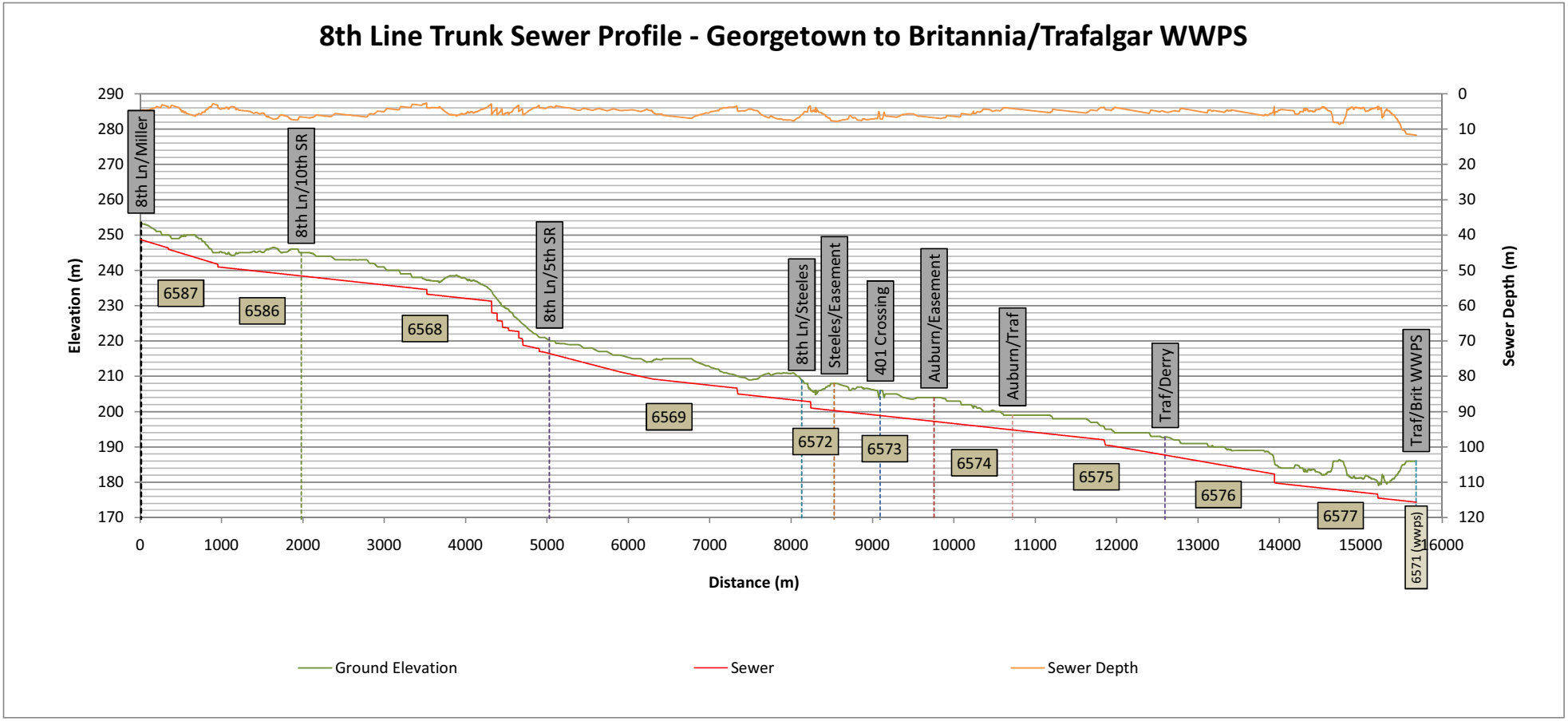
Reference: Regional Municipality of Halton, Sustainable Halton Water and Wastewater Master Plan, Volume 2 - Project File (October 2011)

AECOM

1:3,500
30 Sep 2011
File: 60114062-156-WW



Reference: Regional Municipality of Halton, Sustainable Halton Water and Wastewater Master Plan, Volume 2 - Project File (October 2011)



Reference: Regional Municipality of Halton, Sustainable Halton Water and Wastewater Master Plan,
Volume 2 - Project File (October 2011)

THE REGIONAL MUNICIPALITY OF HALTON

2031 ALTERNATIVE A POPULATION & EMPLOYMENT FLOW GENERATION

May 2011 BPEs

PROJECT NO: 60114062
LOCATION: Georgetown to East Milton

Average Day DWF: Res 275 L/cap/day; Ind 410 L/emp/day; Comm 260 L/emp/day; Inst 135 L/emp/day
Peak Extraneous Flow 0.286 L/s/ha
Manning's Roughness Coef. 0.013
$M = 1 + 14 / (4 + (P / 1000)^{0.5})$ where P = Population

Location	Branch	Traffic Zone	% of TZ (Pop & Jobs)	% of TZ (Area)	Total					Adjusted					Cumulative Adjusted					Average Day DWF	Total Equiv Pop	Peaking Factor (M)	Peak Ext. Flow	Peak DWF	Peak WWF
					Pop.	Employees			Area	Pop.	Employees			Area	Pop.	Employees			Area						
						Ind	Comm	Inst	(ha)		Ind	Comm	Inst	(ha)		Ind	Comm	Inst	(ha)	(L/s)			(L/s)	(L/s)	(L/s)
2031 Georgetown South Peel Off		561.00	100%	100%	2,298	146	136	-	91	2298	146	136	0	91	2,298	146	136	-	91	8.42	2,644	3.49	26.08	29.36	55.44
		562.01	100%	80%	3,316	6	34	-	77	3316	6	34	0	62	5,614	152	170	-	153	19.10	6,001	3.17	43.67	60.56	104.23
		562.02	100%	100%	19	-	-	141	6	19	0	0	141	6	5,633	152	170	141	159	19.38	6,090	3.16	45.49	61.34	106.83
		564.01	50%	10%	1,059	1	-	-	40	530	0	0	0	4	6,163	152	170	141	163	21.07	6,620	3.13	46.64	65.95	112.59
		564.03	100%	75%	4,075	4	89	95	153	4075	4	89	95	115	10,238	156	259	236	278	34.48	10,832	2.92	79.52	100.68	180.19
		563.01	100%	100%	195	-	-	-	8	195	0	0	0	8	10,433	156	259	236	286	35.10	11,027	2.91	81.78	102.22	184.00
		563.02	100%	100%	1,691	-	-	-	10	1691	0	0	0	10	12,124	156	259	236	296	40.48	12,718	2.85	84.70	115.38	200.08
		563.03	100%	100%	320	-	-	-	25	320	0	0	0	25	12,444	156	259	236	321	41.50	13,038	2.84	91.79	117.84	209.63
	#6570 & 6506 - Georgetown South WWPS	563.04	100%	100%	2,009	-	3	3	76	2009	0	3	3	76	14,454	156	262	239	396	47.91	15,052	2.78	113.39	133.03	246.42
	Flow from Main St WWPS														5,295	380	717	427	336	21.48	6,749	3.12	96.14	67.06	163.20
		558.03	100%	75%	2,374	1	94	40	42	2374	1	94	40	31	7,668	381	811	467	368	29.39	9,233	2.99	105.11	87.84	192.95
	#6587 - 8th Line Miller to Argyll	558.04	60%	60%	11,185	6	717	324	261	6711	4	430	194	157	14,380	385	1,241	662	524	52.36	16,452	2.74	149.94	143.36	293.30
		558.04	40%	40%	11,185	6	717	324	261	4474	2	287	130	105	18,854	387	1,528	791	629	67.68	21,264	2.63	179.83	177.71	357.55
	#6586 - 8th Line Argyll to 10th Sideroad	558.02	50%	50%	4,660	3	319	136	107	2330	2	160	68	53	21,184	389	1,688	859	682	75.69	23,781	2.58	195.07	195.07	390.14
		558.02	50%	50%	4,660	3	319	136	107	2330	2	160	68	53	23,514	390	1,847	927	735	83.70	26,297	2.53	210.31	212.07	422.39
	#6568 & 6569 - 8th Line 10th Sideroad to Steeles A	558.01	50%	25%	637	-	43	18	16	319	0	22	9	4	38,286	547	2,131	1,175	1,136	132.70	41,693	2.34	324.86	310.37	635.23
		555.03	100%	100%	62	1,933	498	67	124	62	1933	498	67	124	38,349	2,480	2,629	1,242	1,260	143.68	45,141	2.31	360.44	331.34	691.78
		554.02	100%	100%	-	857	189	29	44	0	857	189	29	44	38,349	3,337	2,818	1,271	1,305	148.36	46,611	2.29	373.17	340.19	713.36
		554.04	100%	100%	99	2,056	480	338	131	99	2056	480	338	131	38,447	5,393	3,298	1,609	1,436	160.40	50,395	2.26	410.75	362.73	773.47
		553.01	100%	100%	-	1,515	395	11	139	0	1515	395	11	139	38,447	6,908	3,693	1,620	1,575	168.80	53,033	2.24	450.43	378.25	828.68
		553.02	100%	100%	-	869	237	59	74	0	869	237	59	74	38,447	7,777	3,930	1,679	1,649	173.73	54,581	2.23	471.71	387.30	859.01
	#6572 - Steeles Ave	552.01	50%	50%	-	581	919	12	78	0	291	460	6	39	38,447	8,067	4,389	1,685	1,688	176.50	55,452	2.22	482.85	392.36	875.21
	#6573 - Trafalgar s of 401	436.03	50%	50%	-	1,498	-	-	114	0	749	0	0	57	38,447	8,816	4,389	1,685	1,746	180.05	56,568	2.22	499.22	398.84	898.06
	#6574 - Auburn Rd	436.03	50%	30%	-	1,498	-	-	114	0	749	0	0	34	38,447	9,565	4,389	1,685	1,780	183.60	57,685	2.21	509.04	405.29	914.33
	#6574 & 6575 - Trafalgar Trunk	436.04	100%	75%	-	785	-	-	85	0	785	0	0	64	38,447	10,350	4,389	1,685	1,843	187.33	58,856	2.20	527.21	412.03	939.24
		436.06	100%	50%	-	1,038	-	-	166	0	1038	0	0	83	38,447	11,388	4,389	1,685	1,926	192.26	60,403	2.19	550.91	420.90	971.81
	#6503 Trafalgar Sub-Trunk 1	436.05	50%	50%	-	1,445	-	-	93	0	723	0	0	46	-	723	-	-	46	3.43	1,077	3.78	13.27	12.96	26.23
	#6497 Trafalgar Sub-Trunk 1	436.05	50%	50%	-	1,445	-	-	93	0	723	0	0	46	-	1,445	-	-	93	6.86	2,154	3.56	26.55	24.41	50.96
2031 Peak WW Flow to Britannia/Trafalgar WWPS	#6576 - Trafalgar Trunk														38,447	12,833	4,389	1,685	2,019	199.11	62,557	2.18	577.46	433.18	1010.64
		435.05	50%	30%	9,848	33	1,259	454	401	4924	17	630	227	120	43,371	12,850	5,019	1,912	2,139	217.11	68,212	2.14	611.89	465.05	1076.95
		435.04	100%	10%	831	19	159	33	224	831	19	159	33	22	44,202	12,869	5,178	1,945	2,162	220.38	69,239	2.14	618.31	470.79	1089.10
	#6504 & 6498 - Trafalgar Sub-Trunk 2	435.05	40%	25%	9,848	33	1,259	454	401	3939	13	504	181	100	3,939	13	504	181	100	14.40	4,524	3.28	28.70	47.30	76.00
	#6577 - Trafalgar Trunk														48,141	12,882	5,681	2,127	2,262	234.78	73,763	2.11	647.01	495.88	1142.88
	Direct to WWPS	435.03	100%	60%	926	3	148	42	40	926	3	148	42	24	926	3	148	42	24						
	#6505 & 6499 - Trafalgar Sub-Trunk 4	435.05	10%	10%	9,848	33	1,259	454	401	985	3	126	45	40	985	3	126	45	40	3.60	1,131	3.76	11.48	13.55	25.03
	#6578 - Trafalgar Sub-Trunk 3	433.04	100%	90%	3,791	-	470	159	110	3791	0	470	159	99	3,791	-	470	159	99	13.73	4,313	3.30	28.43	45.36	73.79
	#6578 - Trafalgar Sub-Trunk 3	433.03	100%	90%	2,528	-	347	106	90	2528	0	347	106	81	6,319	-	817	265	181	22.98	7,221	3.09	51.66	71.10	122.76
	#6571 - Brit/Traf WWPS														56,371	12,888	6,772	2,479	2,507	264.83	83,206	2.07	717.04	547.39	1264.43

Project No. 6571 - Britannia Rd/Trafalgar Rd WWPS			
Alternatives No.	**Alternative 1**	**Alternative 2**	**Alternative 3**
Description	Pump Station site is located on the north side of Britannia Rd approximately 85 m east of Trafalgar Rd	Pump Station site is located on the south side of Britannia Road approximately 105 m east of Trafalgar Road.	Pump Station site is located on the east side of Trafalgar Rd, approximately 100 m south of Britannia Rd
Environmental	Land is currently comprised of (Prime) Agricultural Lands. Lands have no natural vegetation (crops only). Site is located approximately 100 m from the Conservation Halton Regulation Area No watercourses on site. No ANSIs/ESAs on site.	Land is currently comprised of (Prime) Agricultural Lands. Lands have no natural vegetation (crops only). Site is located approximately 50 m from the Conservation Halton Regulation Area No watercourses on site. No ANSIs/ESAs on site.	Land is currently comprised of (Prime) Agricultural Lands. Lands have no natural vegetation (crops only). Site is located within the Conservation Halton Regulation Area No watercourses on site. No ANSIs/ESAs on site.
Technical	Site is located immediately adjacent to the preferred alignment and the environmental crossing that it is designed to mitigate. Greenfield Construction. Moderate potential for conflict with utilities. Good access to local power supply Approximately equal forcemain length All sites have short emergency overflow distance to 16 Mile Creek Good access to Britannia/Trafalgar Road.	Site is located immediately adjacent to the preferred alignment and the environmental crossing that it is designed to mitigate. Greenfield Construction. Moderate potential for conflict with utilities. Good access to local power supply Approximately equal forcemain length All sites have short emergency overflow distance to 16 Mile Creek Good access to Britannia/Trafalgar Road.	Site is located immediately adjacent to the preferred alignment and the environmental crossing that it is designed to mitigate. Greenfield Construction. Moderate potential for conflict with utilities. Good access to local power supply Approximately equal forcemain length All sites have short emergency overflow distance to 16 Mile Creek Good access to Britannia/Trafalgar Road.
Socio / Cultural	Site is located on (Prime) Agricultural Lands. Minimal traffic disruptions / disturbance expected along /Britannia/Trafalgar Road during construction. Traffic will affect local residents Site has very few local residences to the east and west; there is low potential for visual issues for local residents. Moderate potential impact on nearby landowners, but construction will be confined to existing property limits and outside residential areas. Any noise disturbance will be limited by ensuring construction takes place during normal working hours. Any dust will be controlled through construction contract obligations. Located adjacent to existing severed lot	Site is located on (Prime) Agricultural Lands. Minimal traffic disruptions / disturbance expected along /Britannia/Trafalgar Road during construction. Traffic will affect local residents Site has very few local residences to the east and west; there is low potential for visual issues for local residents. Moderate potential impact on nearby landowners, but construction will be confined to existing property limits and outside residential areas. Any noise disturbance will be limited by ensuring construction takes place during normal working hours. Any dust will be controlled through construction contract obligations. Site will require severing of lot	Site is located in a wooded area. Minimal traffic disruptions / disturbance expected along /Britannia/Trafalgar Road during construction. Traffic will affect local residents Site has very few local residences to the east and west; there is low potential for visual issues for local residents. High potential impact on nearby landowners, as construction will be confined to existing property limits and outside residential areas. Any noise disturbance will be limited by ensuring construction takes place during normal working hours. Any dust will be controlled through construction contract obligations. Site will require severing of lot
Financial	Pump Station construction and depth same for all alternatives Potential need for an additional 100 m of forcemain and a second crossing (Trafalgar alignment to be confirmed). Greater cost for traffic control during construction at a busy intersection.	Pump Station construction and depth same for all alternatives Potential need for an additional 100 m of forcemain and a second crossing (Trafalgar alignment to be confirmed). Possibility of an additional road crossing (to be confirmed in detailed design stage).	Pump Station construction and depth same for all alternatives Reduces the need for the additional 100 m of forcemain and the second road crossing of Trafalgar Road (To be confirmed). Alternative should entail one less road crossing than alternatives 1 and 2, plus the extra 100 m main will not be required. Potential for further savings on tunnelling costs.
Legal / Jurisdictional	Property acquisition (approx 0.25 ha) is required Implementation risk due to limited property availability.	Property acquisition (approx 0.25 ha) is required Implementation risk due to limited property availability.	Property acquisition (approx 0.25 ha) is required Implementation risk due to limited property availability.
Overall Score	**High**	**Moderate**	**Moderate**

Public Works

DEVELOPMENT PROJECT TRACKING SHEET

Date Prepared/Updated:	29-Sep-11	Project Number:	N/A
Version Number:	2	IPFS:	6571
Prepared/Updated By:	AECOM		

Project Description:

104 ML/d WWPS on Trafalgar Rd/ Britannia Rd (1200 L/s)

Scope of Work:

New 104 ML/d (1200 L/s) WWPS on the north side of Britannia Rd, approximately 85m east of Trafalgar Rd. This project will pump flows from Georgetown, HH/401 Corridor and East Milton eastwards via WWFM project # 6579. The pump station is not within Conservation Halton Regulated Area. An emergency overflow is planned to run from the station to approximately 200 m west, discharging to 16 Mile Creek

Project Justification:

New wastewater pumping station is designed to pump upstream flow generated from Georgetown, Milton east & HH 401 growth corridor over the East Sixteen Mile Creek environmental feature. Initially, the flow will be conveyed to WWPS #5069/6427 via #6507 and #5067 as an interim servicing solution. Ultimately, the flows will be conveyed south via projects 6580, 6581 and 6582 and pumped west by the new Lower Base Line WWPS/WWFM #6584/6585 to the new RR25/Boyne trunk sewer.

Class EA Requirements (Special Studies Required, Schedule A, A+, B or C and Justification):

Schedule B

Triggers Affecting Project Need:

Projected population and employment growth in the south of Georgetown and Milton East

Project Timing:

In Service:	2020	Design:	2017
Class EA:	B	Construction:	2018

Public Works

DEVELOPMENT PROJECT TRACKING SHEET

Oversizing Justification

No oversizing or benefit to existing

Property Requirements:

Land acquisition required (approximately 0.25 ha)
Property cost included in cost estimate

Cost Estimate (2012 Dollars): Refer to Cost Estimate Spreadsheet Attachment

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MOE Permit to Take Water	X		Wet well construction
MOE Certificate of Approval - Water		X	
MOE Certificate of Approval - Sewage	X		Direct Submission
MOE Certificate of Approval - Air	X		Diesel Generator
Class Environmental Assessment		X	Covered in MP (2011)
Ministry of Natural Resources	X		Consultation re: Endagered Species Act
Department of Fisheries Approval		X	
Transport Canada/Navigable Waters		X	
Archaeological Stage 1,2,3,4	X		Phase 1
Marine Archaeological		X	
Site Plan	X		
Building Permit	X		
Conservation Permit	X		Req consultation with CH
Ministry of Transport - Encroachment Order		X	
Rail Crossing		X	
Gas Pipeline Crossing		X	
Other		X	

Public Works

DEVELOPMENT PROJECT TRACKING SHEET

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments:

Evaluation Matrix attached
Site Alternative Map attached
Alternative #1 Preferred

During the subsequent steps of project implementation, primarily during detailed design, the following requirements will be considered:

• Final refinement of infrastructure alignment and facility siting
• Final refinement of construction methodologies
• Completion of additional supporting investigations as required such as geotechnical, hydrogeotechnical and site specific environmental studies
• Review and mitigation of potential construction related impacts
• Completion of all approval requirements including but not limited to provincial approvals (MOE, MNR), local municipality approvals (site plans, building permits), and conservation authority approvals.

Circulation:	Manager		(date/initial)
	Project Manager		(date/initial)

To be completed by Infrastructure Planning Department

Component ID	_____	Staging	_____	(yr)	_____ ($)
		Staging	_____	(yr)	_____ ($)
		Staging	_____	(yr)	_____ ($)

July, 2019

Appendix B
Matrix Solutions Inc. Report
Natural Sciences Existing Conditions Report

Matrix Solutions Inc.
ENVIRONMENT & ENGINEERING

SOUTH GEORGETOWN WASTEWATER PUMPING STATION
NATURAL SCIENCES
EXISTING CONDITIONS REPORT

Report Prepared for:
HATCH CORPORATION

Prepared by:
MATRIX SOLUTIONS INC.

Version 3.0
July 2019
Mississauga, Ontario

Suite 200, 2500 Meadowpine Blvd.
Mississauga, ON, Canada L5N 6C4
T 905.877.9531 F 289.323.3785
www.matrix-solutions.com

SOUTH GEORGETOWN WASTEWATER PUMPING STATION

NATURAL SCIENCES

EXISTING CONDITIONS REPORT

Report prepared for Hatch Corporation, July 2019

Brydon M[ac]Veigh, B.Sc.
Aquatic Ecologist

reviewed by
Shaun Toner, B.Sc., P. Biol., PMP, CAN-CISEC
General Manager, Senior Environmental Scientist

LIST OF ACRONYMS

ANSI	Areas of Natural and Scientific Interest
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DBH	Diameter at breast height
DFO	Fisheries and Oceans Canada
ELC	Ecological Land Classification
ESA	Environmentally Sensitive Area
ESA (2007)	*Endangered Species Act*
LIO	Land Information Ontario
MNRF	Ministry of Natural Resources and Forestry
NHA	Natural Heritage Areas
NHIC	Natural Heritage Information Centre
NHRM	*Natural Heritage Reference Manual*
NHS	Natural Heritage System
OSAP	Ontario Stream Assessment Protocol
SAR	Species at Risk
SARA	*Species at Risk Act*
SARO	Species at Risk in Ontario
SoCC	Species of conservation concern
SWH	Significant wildlife habitat
WWPS	Wastewater Pumping Station

VERSION CONTROL

Version	Date	Issue Type	Filename	Description
V0.1	09-Nov-2018	Draft	24250-504x WWPS R 2018-11-09 draft V0.1.docx	Issued to client for review
V.02	16-Nov-2018	Draft Revised 1	24250-504x WWPS R 2018-11-16 draft V0.2.docx	Client comments addressed and re-issued for second review
V.03	28-Mar-2019	Draft Revised 2	24250-504x WWPS R 2019-03-28 draft V0.3.docx	CH comments addressed and re-issued
V1.0	24-Apr-2019	Final	24250-504x WWPS R 2019-04-24 final V1.0.docx	Issued to client
V2.0	25-Jun-2019	Final Revised 1	24250-504x WWPS R 2019-06-25 final V2.0.docx	Issued to client
V3.0	03-Jul-2019	Final Revised 2	24250-504x WWPS R 2019-07-03 final V3.0.docx	Halton Region comments addressed and re-issued

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APPENDICES

1 INTRODUCTION

Hatch Corporation (Hatch) is currently working with Halton Region (Halton) to prepare a Master Plan Addendum for the South Georgetown Servicing Wastewater Pumping Station (WWPS) located in Town of Milton, Regional Municipality of Halton (Figure 1). This project includes construction of the WWPS located near the intersection of Trafalgar Road and Britannia Road. The Master Plan Addendum is required for the change in the proposed location of the WWPS. The previous Master Plan assessed three different locations for the WWPS. Based on the availability of a new location, approximately 400 m west of Trafalgar Road on the north side of Britannia Road, additional natural heritage studies were required. The new proposed location is where a Halton Region District School Board school burnt down in 2016 and has since been vacated. The proposed new location offers better operational and hydraulic performance, potentially reduced environmental/social costs, and better construction staging options, given the size of the property.

In support of the Project, Matrix Solutions Inc. was retained by Hatch to complete natural sciences investigations for the Project. The Project includes identification of the new proposed WWPS construction impact area (Project Site) and assessment of the adjacent natural heritage features within 120 m of the proposed construction impact area (study area).

1.1 Study Objectives

This report has been prepared in support of the Master Plan Addendum and includes a description of existing conditions and potential environmental constraints associated with the Project. The Natural Heritage Assessment includes a desktop review of publicly available secondary source information, followed by in-season field inventories. Field inventories focused on the WWPS footprint and surrounding natural heritage features. The following tasks were undertaken as part of this report:

- Natural Heritage Assessment (Background Review and Field Inventories)
    - Ecological Land Classification (ELC)
    - Significant Wildlife Habitat (SWH) Assessment
    - Species at Risk[1] (SAR) Assessment
- Preliminary Arborist Assessment

[1] SAR are defined in this report as species listed as Threatened or Endangered and protected under the *Endangered Species Act, 2007.*

Easting (m)

597800 598000 598200 598400 598600 598800 599000

Northing (m)

4821400 4821200 4821000 4820800 4820600 4820400

Britannia Road

Trafalgar Road

Middle Sixteen Mile Creek

East Sixteen Mile Creek

6

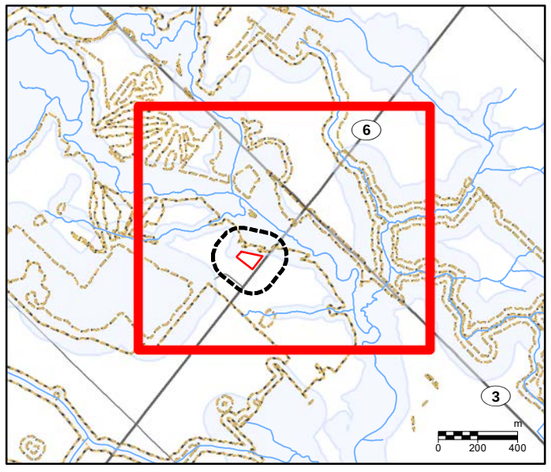
3

N

- Study
- Proposed WWPS
- Greenbelt Plan - Protected Countryside and NHS Area (Undifferentiated)
- Woodland
- Mapped Regulatory Limits (Conservation Halton)
- Watercourse
- Highway
- Road

Halton Official Plan

- Key Features of the Natural Heritage System
- Prime Agricultural Areas in Natural Heritage System Enhancements/Linkages/Buffers
- Enhancement Areas, Linkages and
- Regional Natural Heritage System Land Use Designation



1:5,000 metres

50 0 50 100

NAD 1983 UTM Zone 17N

Matrix Solutions Inc.
ENVIRONMENT & ENGINEERING

Hatch Corporation

Halton | South Georgetown Wastewater Pumping Station

Project Site and Study Area

Date:	Project:	Submitter:	Reviewer:
Jun 2019	24250	B. MacVeigh	A. Fausto

Figure 1

I:\Hatch\24250\FiguresAndTables\EA\2018\ReportWWPS_Report\Figure-1-Project_Site_and_Study_Area.mxd - Tabloid_L - 25-Jun-19, 01:05 PM - ehollinger - TID005

2 REGULATORY FRAMEWORK

This section identifies the anticipated permits, approvals, and exemptions that might apply to the Project. The following Acts and regulations applicable to the study area are summarized in Table 1.

TABLE 1 Summary of Key Environmental Acts and Regulations Applicable to the Project

Acts and Regulations	Summary of Contents
Federal Acts and Regulations	
Fisheries Act	Sets out provisions to protect fish and fish habitat, including prohibiting harm to fisheries and the deposition of deleterious substances into watercourses.
Migratory Birds Convention Act	Ensures the conservation of migratory bird populations by regulating potentially harmful human activities.
Species at Risk Act	Sets out provisions to help prevent the decline in wildlife populations due to human activity.
Provincial Acts and Regulations	
Provincial Policy Statement	Provides policy direction from the Provincial government relating to land use planning.
Greenbelt Plan	Provides permanent protection to natural heritage features by directing development planning within the 'Golden Horseshoe' area.
Conservation Authorities Act	Empowers Conservation Authorities to regulate activities that may have an impact on watercourses within their watershed jurisdiction.
Endangered Species Act, 2007	Provides for the conservation and protection of species in Ontario classified under the Act.
Municipal Acts and Regulations	
Halton Region Official Plan	Provides long-range community planning to guide development in the Regional Municipality of Halton.
Town of Milton Official Plan	Provides long-range community planning to guide development in the Town of Milton.

3 EXISTING CONDITIONS

3.1 Background Review

Matrix conducted a background review of publicly available secondary source information related to natural heritage features within the Project study area. The information sources reviewed are summarized below:

- **Ministry of Natural Resources and Forestry (MNRF) Aurora District** – A screening request was sent to the MNRF Aurora District on June 1, 2017 to determine the potential for SAR and other natural heritage features in the areas surrounding the proposed wastewater main and pumping station locations. The area where data were requested extends from 10 Side Road to south of Britannia Road in the Town of Milton, Regional Municipality of Halton The screening request was required to determine the likelihood of SAR and/or their habitat to occur within the Project study area or be impacted by the change in land use. A response was received from MNRF on June 26, 2017, which

indicated the potential for two (2) species of conservation concern (SoCC; discussed in Section 3.3.2.2) and nine (9) SAR (discussed in Section 3.3.2.5) within the Project study area.

- **Natural Heritage Areas Make a Map -** This web application provides information on provincial parks, conservation reserves, and natural heritage features (i.e., Areas of Natural and Scientific Interest [ANSIs], wetlands, woodlands, natural heritage systems related to provincial policy plan areas, such as the Niagara Escarpment, Oak Ridges Moraine, and Greenbelt Plans). The Natural Heritage Areas Make a Map also provides Natural Heritage Information Centre (NHIC) data, which is organized into 1 km^2 map squares and includes information on plant communities, wildlife concentration areas, natural areas, provincially tracked species, SoCC, and SAR. There are no map squares that overlap the Project. The results identified the study area fell within the Greenbelt Plan Natural Heritage System (NHS) designation. No watercourses were identified within the study area however, East Sixteen Mile Creek was noted approximately 180 m east of the Project Site.

- **Lands Information Ontario (LIO)** – LIO data is maintained by the MNRF and provides key provincial geospatial data for Ontario. Shapefiles obtained from the LIO open datasets were used to show the natural heritage features within the Project. Key datasets that were reviewed include policy plan areas, municipal land use designations, ANSIs, provincial parks and conservation areas, wetlands, woodlands, and watercourses (MNRF 2018). Based on the LIO datasets, the Project is within the Greenbelt Plan NHS designation and Protected Countryside boundary. There were no wetlands, woodlands or other natural heritage features identified from the datasets reviewed.

- **Conservation Halton** – Information related to natural heritage features was requested from Conservation Halton. Conservation Halton provided GIS data for ELC, regulated areas, and floodlines within the study area, as well as fish data records for East Sixteen Mile Creek.

- **Halton Region Official Plan** (2018) – The Halton Region Offical Plan was reviewed for policy plan areas, natural areas designations, and natural heritage features within the Project. Map 1 – Regional Structure identified the following within the Project: Regional NHS, Greenbelt NHS, and Greenbelt Plan Protected Countryside boundary. Map 1G - Key Features within Greenbelt and Regional Natural Heritage Systems of the Official Plan identified the following within the study area: Key Features, enhancement areas, linkages and buffers, and the Greenbelt NHS. These features are discussed further in Section 2.3.1.

- **Town of Milton Official Plan** (2008) – The Official Plan was reviewed for policy plan areas, natural areas designations, and natural heritage features within the Project. Schedule A – Land Use identified “Greenlands B” Area within the Project. “Greenlands A” Area was noted along East Sixteen Mile Creek, which is approximately 180 m from the Project Site. These features are discussed further in Section 3.3.1.

3.2 Field Inventories

The following sections summarize the field inventories completed for the Project. These field inventories along with the background review were used to assess existing conditions and natural heritage features within the study area.

3.2.1 Ecological Land Classification

Vegetation communities within the study area were primarily based on Conservation Halton ELC mapping. These communities were verified by Matrix during field inventories. ELC mapping was also completed by Matrix for the study area in the fall of 2018.

Vegetation communities were characterized following the first approximation of the ELC System for Southern Ontario (Lee et al. 1998). The second approximation of ELC (Lee 2008) was also used, but only when there was no code available for a specific community type in the first approximation. Vegetation was also documented to determine presence/absence of SoCC and SAR.

The study area is characterized as a cultural meadow dominated by grasses and herbs such as Wild Carrot (*Daucus carota*), Bull Thistle (*Cirsium vulgare*), New England Aster (*Symphyotrichum novae-angilae*), Panicled Aster (*Symphyotrichum lanceolatum*), Goldenrod species (*Solidago* spp), Red-seeded Dandelion (*Taraxacum officinale*), Black Medic (*Medicago lupulina*), White Sweet-clover (*Melilotus alba*), Alsike Clover (*Trifolium hybridum*), and Cow Vetch (*Vicia cracca*). All vegetation documented within these areas is considered common. A portion of manicured grass was noted toward the northern boundary. Photographs of the site are provided in Appendix A.

A total of ten (10) vegetation communities were recorded within the study area. The area immediately adjacent to the study area is dominated by Grey Dogwood (*Cornus racemosa*), buckthorn (*Rhamnus sp.*), and hawthorn (*Crataegus sp.*) thicket communities and a mature oak (*Quercus sp.*) dominated woodland along with ash (*Fraxinus sp.*) and elm (*Ulmus sp.*) dominated communities. A meadow community with restoration plantings was also noted toward the eastern boundary of the study area and adjacent to East Sixteen Mile Creek.

A summary of ELC communities is provided in Table 2 and shown on Figure 2. The vegetation communities within the study area will also be used to inform the type of wildlife habitats present (see Section 3.3.2.2).

TABLE 2 Ecological Land Classification within the Study Area

ELC Code	Name	Source
Meadow		
CUM	Cultural Meadow Community Series	Matrix (2018; Project), Conservation Halton (2016; Study Area)
MEFM1-1	Fresh-Moist Mixed Meadow Ecosite	Conservation Halton (2016)
MEMM4	Goldenrod Forb Meadow Type	Conservation Halton (2016)
Thicket		
THDM2-4	Gray Dogwood Deciduous Shrub Thicket Type	Conservation Halton (2016)
THDM2-6	Buckthorn Deciduous Shrub Thicket Type	Conservation Halton (2016)
THDM2-11	Hawthorn Deciduous Shrub Thicket Type	Conservation Halton (2016)
Woodland		
FOD	Deciduous Forest	Conservation Halton (2016)
FOD9-3	Fresh-Moist Bur Oak Deciduous Forest Type	Conservation Halton (2016)
WODM4-2	White Ash Deciduous Woodland Type	Conservation Halton (2016)
WODM5-2	Fresh - Moist Elm Deciduous Woodland Type	Conservation Halton (2016)

Easting (m)

598020 598080 598140 598200 598260 598320 598380

Northing (m)

4820880 4820820 4820760 4820700 4820640 4820580

WODM4
WODM4
WODM4-2
MEMM4
WODM5-2
THDM2-6
CGL-2
THDM2-11
MEFM1-1
FOD
FOD9-3
THDM2-4
CUM
CUM
CGL_2
East Sixteen Mile Creek
Britannia Road
6
N

- Study Area
- Proposed WWPS
- ELC (Conservation Halton, Matrix)
- Mapped Regulatory Limits | Conservation Halton
- Enhancement Areas, Linkages and Buffers
- Watercourse
- Highway
- Road
- Preliminary Tree Inventory

ELC Code	Name	Source
Meadow		
CUM	Cultural Meadow Community Series	Matrix (Project), Conservation Halton? (Study Area)
MEFM1-1	Fresh-Moist Mixed Meadow Ecosite	Conservation Halton?
MEMM4	Goldenrod Forb Meadow Type	Conservation Halton?
Thicket		
THDM2-4	Gray Dogwood Deciduous Shrub Thicket Type	Conservation Halton?
THDM2-6	Buckthorn Deciduous Shrub Thicket Type	Conservation Halton?
THDM2-11	Hawthorn Deciduous Shrub Thicket Type	Conservation Halton?
Woodland		
FOD	Deciduous Forest	Conservation Halton?
FOD9-3	Fresh-Moist Bur Oak Deciduous Forest Type	Conservation Halton?
WODM4-2	White Ash Deciduous Woodland Type	Conservation Halton?
WODM5-2	Fresh - Moist Elm Deciduous Woodland Type	Conservation Halton?
CGL_2	Recreation	Matrix (Project)

Index Map

East Sixteen Mile Creek
3
6
m
0 50 100

1:1,500 metres
10 0 10 20
NAD 1983 UTM Zone 17N

Matrix Solutions Inc.
ENVIRONMENT & ENGINEERING

Hatch Corporation
Halton | South Georgetown Wastewater Pumping Station

Natural Heritage - Terrestrial

Date:	Project:	Submitter:	Reviewer:
Jun 2019	24250	B. MacVeigh	A. Fausto

Figure 2

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3.2.2 Fish and Fish Habitat Assessment

There are no watercourses in or within the study area. The nearest watercourse, East Sixteen Mile Creek, is located approximately 180 m east of the Project Site. Since East Sixteen Mile Creek is outside of the study area, no formal assessment of fish and fish habitat was completed as part of this study.

3.2.3 Preliminary Arborist Review

This section includes a preliminary arborist review of trees inventoried within the Project Site. An arborist assessment report will be prepared as part of the detailed design.

All trees greater than 10 cm diameter at breast height [DBH] were recorded within the Project Site. Constraint trees were those identified as distinctive (e.g., greater than 40 cm DBH), heritage trees, memorial, and SAR. Data collected during the inventory included species, size (i.e., DBH) and location using a handheld Global Positioning System.

The trees recorded as part of the preliminary arborist review is presented in Table 3 and shown on Figure 2 (Natural Heritage – Terrestrial). Tree species and size will aid in any compensation requirements and constraints.

TABLE 3 Arborist Review Summary

Tree Identification Number	Species Common Name	Species Scientific Name	DBH (cm)
1	Sugar Maple	*Acer saccharum*	37
2	Sugar Maple	*Acer saccharum*	21
3	Sugar Maple	*Acer saccharum*	17
4	Sugar Maple	*Acer saccharum*	15
5	Sugar Maple	*Acer saccharum*	22
6	Sugar Maple	*Acer saccharum*	28
7	Sugar Maple	*Acer saccharum*	33
8	Sugar Maple	*Acer saccharum*	23
9	Sugar Maple	*Acer saccharum*	22

3.3 Natural Heritage Assessment

The Natural Heritage Assessment included verifying information collected from the background review and during the field inventories. The results are outlined in the following sections and shown on Figure 2 (Natural Heritage – Terrestrial).

3.3.1 Policy Plan and Natural Area Designations

Matrix completed a review of regional and municipal official plans to determine if the study area is within any policy plan and natural area designations. The results are summarized below:

- **Areas of Natural and Scientific Interest (ANSI)** – There are no ANSIs identified within the study area.

- **Valleylands** – There are no known valleylands within the Project Site, however a portion of the valleylands associated with East Sixteen Mile Creek fall within the study area.

- **Greenbelt NHS** - The study area is within the Greenbelt NHS designation and Greenbelt Plan Protected Countryside boundary, as shown on Figure 1.

- **Regional NHS** – The Halton Region has identified a Regional NHS which consists of the following components: Key Features (described below), enhancements to Key Features, linkages, buffers, and watercourses that are within a Conservation Authority Regulation Limit or that provide a linkage to a wetland or significant woodland, and non-significant wetlands. Regulated floodplains are also included in the Regional NHS. Map 1 – Regional Structure of the Halton Region Official Plan shows the Regional NHS designation within the Study Area. Map 1G - Key Features within Greenbelt and Regional NHS of the Halton Region Official Plan shows Key Features, enhancement areas, linkages, and buffers within the study area, as shown on Figure 1.

- **Key Features** - The Halton Region Official Plan identifies Key Features within the Greenbelt NHS and Regional NHS. Key Features include: significant habitat of endangered and threatened species, significant wetlands, significant coastal wetlands, significant woodlands, significant valleylands, SWH, significant ANSI, and fish habitat. The study area is within areas identified as Key Features, as shown on Figure 1.

- **Environmentally Sensitive Area (ESA)** – There are no ESAs within the study area based on the Halton Region Official Plan and Town of Milton Official Plan.

- **Greenlands A Area** – Schedule A – Land Use of the Town of Milton Official Plan was reviewed to determine if Greenlands A Area is within the Project. Greenlands A Areas are part of the Greenlands System and includes water and land areas that meet one or more of the following criteria: included in the regulatory flood plains (as mapped by the Conservation Authority), provincially significant wetland, significant valleylands, and significant portions of the habitat of endangered and threatened species. A portion of the study area appears to be within or in close proximity to the Greenlands A Area designation.

- **Greenlands B Area** –Schedule A – Land Use of the Town of Milton Official Plan was reviewed to determine if Greenlands B Area is within the Project. Greenlands B Areas are part of the Greenlands System and includes water and land areas that meet one or more of the following criteria: ESAs, public open space and buffer as identified in the Parkway Belt West Plan, regionally significant wetland, provincially and regionally significant ANSIs (life science and earth science), Carolinian sites, Halton agreement forests, significant woodlands, SWH, and fish habitat. The study area is not within the Greenlands B Area designation.

- **Floodplain and Regulatory Limits** – Conservation Halton's floodplain and regulatory limit mapping was reviewed to determine if these areas extend within the Project. The mapping shows a portion of the study area to the north and east of the Project Site are within the floodplain and regulatory limits, as shown on Figure 1.

3.3.2 Natural Heritage Features

The following sections discuss the natural heritage features present within the study area. As there were no provincially, regionally, locally significant, or unevaluated wetlands identified within the study area, this feature will not be discussed further.

3.3.2.1 Woodlands

There are two (2) woodland communities within the study area, as shown in Figure 2. There are no woodlands within the Project Site. The region and municipalities include criteria for evaluating the significance of woodlands. The Halton Region Official Plan identifies significant woodlands as:

"A woodland 0.5 ha or larger, determined through a Watershed Management Plan, a Subwatershed Study or a site-specific Environmental Study, to meet one or more of the following four criteria:

I. the woodland contains forest patches over 99 years old;

II. the patch size of the woodland is 2 hectares or larger if it is located in an Urban Area, 4 hectares or larger if located outside an Urban Area but below the escarpment brow, or 10 hectares or larger if located outside an Urban Area but above the escarpment brow;

III. the woodland has an interior core area of 4 hectares or larger, measured 100 metres from the edge of the woodland; or

IV. the woodland is wholly or partially within 50 metres of a major creek or certain headwater creek, or within 150 metres of the escarpment brow."

Based on desktop review, the woodland located to the east of the Project Site is a significant woodland as it meets criteria II and IV for significant woodlands under the Halton Region Official Plan. This woodland is also identified as Key Features, enhancement areas, linkages, and buffers under the Region's Official Plan. Key Features, which may include significant woodlands, are shown on Map 1G Key Features within Greenbelt and Regional NHS of the Halton Region Official Plan.

3.3.2.2 Wildlife Habitat

Incidental evidence of wildlife recorded during the field assessments included vocalizations, tracks, scat, carcasses, or visual confirmations of species. Incidental observations are those which occur by chance, and are not part of a specialized species monitoring or tracking field program. The species recorded during

the field investigation, which was completed on November 5, 2018, included White-tailed Deer tracks and a Red-tailed Hawk flying overhead.

The MNRF provides specific guidance on identifying and assessing wildlife habitat in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF 2015; which overlap the Project), *Natural Heritage Reference Manual* (NHRM; OMNR 2010) and *Significant Wildlife Habitat Technical Guide* (SWHTG; MNR 2000). The MNRF recognizes five (5) main categories of wildlife habitat, each with several wildlife habitat types, each with criteria to evaluate significance. A description of each of the wildlife habitat categories is provided below.

- **Seasonal Concentration Areas of Animals** - defined as "areas where animals occur in relatively high densities for the species at specific periods in their life cycles and/or in particular seasons" and areas that are "localized and relatively small in relation to the area of habitat used at other times of the year" (OMNR 2010).

- **Rare Vegetation Communities** - defined as "areas that contain a provincially rare vegetation community and areas that contain a vegetation community that is rare within the planning area" (OMNR 2010).

- **Specialized Habitat for Wildlife** - defined as "areas that support wildlife species that have highly specific habitat requirements, areas with high species and community diversity, and areas that provide habitat that greatly enhances species' survival" (OMNR 2010).

- **Habitat for SoCC** - defined as "habitats of species that are designated at the national level as endangered or Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which are not protected in regulation under Ontario's ESA; habitats of species listed as 'Special Concern' under the ESA on the Species at Risk in Ontario (SARO) List; and habitats of species that are rare or substantially declining, or have a high percentage of their global population in Ontario" (OMNR 2010). MNR (2000) defines SoCC (i.e., rare species) at six levels: globally, nationally, provincially, regionally, locally (within a Site District) and significant within a planning authority's jurisdiction (e.g., conservation priorities identified in conservation plans).

    - **Globally Rare Species** – These species are assessed by NatureServe and assigned a global conservation status rank (G-rank) of G1 to G3.

    - **Nationally Rare Species** – These species are designated by COSEWIC as Endangered or Threatened and not protected in regulation under the *Endangered Species Act, 2007* (ESA [2007]; Government of Ontario 2008) or *Species at Risk Act* (SARA; Government of Canada 2018).

    - **Provincially Rare Species** – These species are designated by MNRF and assessed under two categories: species listed as Special Concern on the SARO List; and species that are assigned a

provincial (i.e., sub-national) conservation status rank of S1 to S3 and are not on the SARO List. There are species that can be found in both categories.

- **Regionally or Locally Rare Species** – These species are not assigned a formal designation; however, have been recognized as declining within a planning jurisdiction by government and/or non-government authorities.
- **Conservation Priority Species** – These include priority species that are recognized in government and/or non-government conservation plans and assigned a conservation objective.

- **Animal Movement Corridors** – defined as "elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another" (MNR 2000).

A screening-level assessment of candidate SWH was completed based on the results of the background review and field inventories completed for the study area. As targeted wildlife surveys were not part of the scope of work, the screening assessment was based on ELC, incidental wildlife observations, and information collected from the background review. The background review did not provide any information on SWH, although the following SoCC were noted by MNRF: Snapping Turtle *(Chelydra serpentina*) and Eastern Wood-pewee (*Contopus virens*), both of which are listed as Special Concern on the SARO List. The field inventories did not confirm the presence of these species; however, there is potential habitat within the study area for Eastern Wood-pewee.

The wildlife habitats screened are summarized in Table 4 and are based on those identified for Ecoregion 7E (MNRF 2015). Wildlife habitats confirmed to meet the criteria as significant based on existing data are denoted by a 'Y' while potential candidate SWH are denoted by a 'P'. Those wildlife habitats determined to not be present or not meet the criteria for candidate significant are denoted by an 'N'. Where habitat potential has been identified, a bullet that includes the ELC community where it would be found in the study area is provided.

TABLE 4 Screening-Level Assessment of Significant Wildlife Habitat

Seasonal Concentrations of Animals							
N	Waterfowl Stopover and Staging Areas (Aquatic)	**N**	Waterfowl Stopover and Staging Areas (Terrestrial)	**N**	Shorebird Migratory Stopover Area	**N**	Raptor Wintering Area
N	Bat Hibernacula	**P**	Bat Maternity Colonies • FOD	**N**	Turtle Wintering Areas	**P**	Reptile Hibernaculum • FOD
N	Colonially - Nesting Bird Breeding Habitat (Bank/Cliff)	**N**	Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)	**N**	Colonially - Nesting Bird Breeding Habitat (Ground)	**N**	Migratory Butterfly Stopover Area
N	Landbird Migratory Stopover Areas	**N**	Deer Winter Congregation Areas				
Rare Vegetation Community							
N	Cliff and Talus Slopes	**N**	Sand Barren	**N**	Alvar	**N**	Old Growth Forest
N	Savannah	**N**	Tallgrass Prairie	**N/A**	Other		

Specialized Habitat for Wildlife							
N	Waterfowl Nesting Area	**N**	Bald Eagle and Osprey Nesting / Foraging / Perching	**N**	Woodland Raptor Nesting Habitat	**N**	Turtle Nesting Areas
N	Seeps and Springs	**P**	Amphibian Breeding Habitat (Woodland) • FOD	**N**	Amphibian Breeding Habitat (Wetland)	**N**	Woodland Area- Sensitive Bird Breeding Habitat
Habitat for Species of Conservation Concern							
N	Marsh Bird Breeding Habitat	**N**	Open Country Bird Breeding Habitat	**N**	Shrub/Early Successional Bird Breeding Habitat	**N**	Terrestrial Crayfish
P	Rare Species • Eastern Wood-pewee (provincially and globally rare) • Snapping Turtle (provincially and globally rare) (associated with East Sixteen Mile Creek)						
Animal Movement Corridor							
P	Amphibian Movement Corridor • FOD						
FOD –Deciduous Forest							

3.3.2.3 Linkages and Corridors

Linkages and corridors are critical to any NHS, particularly in fragmented landscapes. This section is intended to provide a high-level characterization of linkages and corridors within the study area. As the Project moves through to the design phase, further assessment of linkages and corridors may be required, including consideration of potential effects to these areas and wildlife utilizing them, as well as areas where habitat connectivity can be created or enhanced through design features.

The Project Site is located on Britannia Road near Trafalgar Road on a disturbed portion of land that was formerly a school which burnt down in 2016. The lands surrounding the Project Site include a mix of recreational and commercial land uses. Natural areas within the study area include a mix of woodland, thicket and meadow communities. Naturalization and restoration works have occurred within the meadow communities near East Sixteen Mile Creek. Connectivity between the natural areas and East Sixteen Mile Creek provide the greatest linkages and corridors in the area. The bridge crossing at Britannia Road spans approximately 16 m across with an opening tall enough to support large mammals and a variety of wildlife groups. These areas are within the Greenbelt NHS and are reflected in the Halton Region Official Plan as part of the Regional NHS, Key Features, enhancement areas, linkages, and buffers and the Town of Milton Greenlands B Area designation.

The Project is not anticipated to have an impact on wildlife passage. Habitat loss or removal of vegetation that would support linkages is not anticipated. The area to the west and south of the Project Site is parkland and a large greenhouse operation surrounded by agricultlural lands. Loss of habitat or linkage functions to the area east of the Project Site is not anticipated.

3.3.2.4 Species at Risk

A screening request was sent to the Aurora District MNRF on June 1, 2017 to determine the potential for SAR in the areas surrounding the proposed wastewater pumping station location. The area where data was requested extends from 10 Side Road to south of Britannia Road in the Town of Milton, Regional Municipality of Halton. The screening request is required to determine the likelihood of SAR and/or their habitat to occur within the study area or to be impacted by the change in land use. A response to this inquiry was received on June 26, 2017, noting nine (9) SAR (see Table 3.6) with the potential to occur within the study area. Conservation Halton also provided fish species data for Sixteen Mile Creek which was reviewed for the presence of SAR. The results identified two SAR, one of which was also identified by MNRF.

An assessment of SAR habitat potential within the study area, based on the background information sources reviewed and preliminary field invenstigations, is provided in Table 5. A map showing SAR habitat potential is provide on Figure 3.

TABLE 5 Species at Risk with the Potential to Occur Within the Study Area

Species	SARA	ESA (2007)	Source	Habitat	Presence/Absence/ Habitat Assessment	Next Steps
Vegetation						
Butternut (*Juglans cinerea*)	Endangered (Schedule 1)	Endangered	MNRF	Found in a variety of habitats and conditions, including deciduous and mixed upland and lowland forests as well as streambanks with well-drained soils. (Poisson and Ursic 2013).	Not confirmed within the Project Site.	None anticipated.
Mammals						
Eastern Small-footed Myotis (*Myotis leibii*)	-	Endangered	MNRF	Roosts in tree cavities and under loose bark and buildings.	There is habitat potential for bats within the Study Area only, specifically within the deciduous woodlands. The Project Site would only provide foraging habitat; roosting habitat is not present.	None anticipated. Implement appropriate mitigation to address potential indirect effects of the Project.
Little Brown Myotis (*Myotis lucifungus*)	Endangered	Endangered	MNRF			
Northern Myotis (*Myotis septentrionalis*)	Endangered	Endangered	MNRF			
Tricolored Bat (*Perimyotis subflavus*)	Endangered	Endangered	MNRF			
Birds						
Barn Swallow (*Hirundo rustica*)	Threatened (Schedule 1)	Threatened	MNRF	Nests are typically built in man-made buildings, such as barns, with unpainted rough wood.	There is no habitat potential for this species within the Project.	None anticipated.
Bobolink (*Dolichonyx oryzivorus*)	Threatened (Schedule 1)	Threatened	MNRF	Tall grasslands, such as pastures and hayfields or shrubby overgrown fields or other open areas.	There is no habitat potential for this species within the Project.	
Eastern Meadowlark (*Sturnella magna*)	Threatened (Schedule 1)	Threatened	MNRF			

Species	SARA	ESA (2007)	Source	Habitat	Presence/Absence/ Habitat Assessment	Next Steps
Fish						
Redside Dace	Endangered (Schedule 1)	Endangered	Conservation Halton	Prefer clear, coolwater habitats and stream sections with a combination of pools and riffles flowing through open habitat types (meadows and pasture with shrubs) with overhanging vegetation. This species prefers substrates of sand, gravel, and cobble	Field inventories were not completed. Based on data and SAR mapping reviewed from Conservation Halton, there are only historical records of this species (from 1957) in Sixteen Mile Creek and habitat is not present.	None anticipated.
Silver Shiner (*Notropis photogenis*)	Special Concern (Schedule 3)	Threatened	MNRF Conservation Halton	Typically found in large stream and rivers with moderate to fast flow, usually found in deep riffles or deep pools below riffles over a variety of substrate types	Field inventories were not completed. Recent records from 2016 for Silver Shiner upstream of Britannia Road bridge and from 2014 downstream of Britannia Road bridge. Category 1 habitat is present in the runs and flowing pools. Category 2 habitat is present in the nearshore areas with emergent and floating aquatic vegetation Category 3 habitat is present in the low lying floodplain areas with restoration plantings.	Consultation with Conservation Halton and MNRF to determine if authorization will be required.

4 MITIGATION MEASURES

Mitigation measures to avoid and minimize potential effects to environmental features will be developed during detailed design. Mitigation measures for all other features may include:

- siting laydown and staging areas to avoid sensitive features (e.g., away from the woodland)
- consideration of construction methods to minimize potential effects. For example, construction activities (including permeable/impervious surfaces) will need to consider water quality and quantity and ensure pre-construction pathways and flows are maintained or similar to existing conditions. This will minimize potential impacts to both terrestrial and aquatic resources.
- implementing setbacks and tree protection zones (e.g., set distance from rooting zone – to be determined in the arborist report)
- development of the following plans:
    - Erosion and Sediment Control Plan
    - Environmental Management Plan
    - Tree Protection Plan
    - Restoration Plan
    - Emergency and Response Management Plan
- developing a wildlife protocol and rescue plan to educate staff on wildlife occurrences (including SAR) and measures to take to minimize potential for injury and incidental take, including environmental controls such as exclusionary fencing to prevent wildlife from entering the site
- implementing construction monitoring to ensure mitigation measures and contingency measures are implemented according to design and that objectives are being met

5 SUMMARY AND RECOMMENDATIONS

The Project Site is located on Britannia Road near Trafalgar Road on a disturbed portion of land that was formerly a school which burnt down in 2016. All structures associated with the school had been removed and only an abandoned field remains. Natural areas are present within the study area, east of the Project Site. Potential effects to these features are expected to be indirect and can be mitigated through best management practices and other site-specific measures which will be developed during detailed design.

The proposed new location offers better operational and hydraulic performance, potentially reduced environmental/social costs and better construction staging options, given the size of the property. The lands surrounding the Project Site include a mix of recreational and commercial land uses which is ideal for the Project compared to the previous WWPS locations which were situated near residential communities.

The following environmental constraints have been identified based on the preliminary design and are shown on Figure 3.

Policy Plan and Natural Area Designations

The following natural area designations have been identified within the study area:

- Greenbelt NHS is found throughout the study area
- Halton Region - Regional NHS, Key Features, enhancement areas, linkages, and buffers are within the study area
- Town of Milton - Greenlands A Area is in or within close proximity to the study area
- Conservation Halton – Floodplain and regulatory limits are found within the study area

Agency consultation is recommended to determine if approvals are required for the Project. Mitigation measures to minimize potential environmental effects associated with the natural area designations/functions will be developed in the detailed design phase.

Woodlands

There are two (2) woodlands (based on LIO and Conservation Halton ELC mapping) within 120 m of the Project Site. One of these woodlands is located within 10 m of the Project Site while the other woodland is located south of Britannia Road near the eastern limit of the study area. The woodland within 10 m of the Project Site meets the criteria for significant woodland identified within the Region of Halton Official Plan. New development should maintain a 30 m buffer from the edge of significant woodland. It is recommended to stake the limits of the dripline setback and avoid tree clearing (including edge trees), if possible. Mitigation measures to minimize potential environmental effects (e.g., installing silt fencing within the dripline setback to ensure construction is limited to the work area and monitoring) will be developed in the detailed design phase, including any tree protection zones required.

Wildlife Habitat

There are no confirmed SWH types within the Project. The following candidate SWH types were identified within the Study Area based on the screening-level assessment; there are no candidate SWH types within the Project Site: Bat maternity colonies, reptile hibernaculum, amphibian breeding habitat (woodland), amphibian movement corridor, and habitat of SoCC for Eastern Wood-pewee. Although not within the study area, potential habitat for Snapping Turtle is found within East Sixteen Mile Creek. There are no direct effects anticipated to these candidate SWHs. There are potential indirect effects (e.g., noise, lights) that should be assessed during detailed design, along with identifying mitigation measures to minimize potential environmental effects on these features.

Linkages and Corridors

Natural areas are present within the study area. Connectivity between the natural areas and East Sixteen Mile Creek provide the greatest linkages and corridors in the area. These areas are within the Greenbelt NHS and are reflected in the Halton Region OP as part of the Regional NHS, Key Features, enhancement

areas, linkages, and buffers and the Town of Milton Greenlands B Area designation. A full assessment of passage and landscape connectivity was not completed for the Project, if required, consultation with Conservation Halton and other agencies is recommended. An assessment of potential effects and mitigation measures will be developed in the detailed design phase.

Species at Risk

Terrestrial SAR

There were no SAR or SAR habitats identified within the Project Site based on the background review and preliminary field inventories and habitat assessments completed for the Project. Potential bat habitat was identified for the woodlands within the study area, with the closest location approximately 10 m east of the Project Site. There are no direct effects to bats and/or bat habitat as a result of the Project, however, potential indirect effects (e.g., noise, lights) may occur. Mitigation measures to minimize potential environmental effects will be developed in the detailed design phase.

Aquatic SAR

The MNRF noted that Silver Shiner may be potentially present within East Sixteen Mile Creek adjacent to the study area and information received from Conservation Halton indicated that Silver Shiner were captured in East Sixteen Mile Creek approximately 100 m upstream of the Britannia Road bridge in 2016 and downstream of the bridge location in 2014.

Classification and identification of potential Silver Shiner habitat areas within the reach will be identified through consultation with MNRF. Once design details are known, if impacts to East Sixteen Mile Creek area anticipated, MNRF and Conservation Halton should be consulted to determine next steps and identify any necessary permits. Mitigation measures to minimize potential environmental effects will be developed in the detailed design phase.

Preliminary Arborist Review

The preliminary arborist review identified nine (9) trees within the Project Site, none of which are considered a constraint tree. Mitigation measures to minimize potential environmental effects will be developed in the detailed design phase. An arborist report will be prepared as part of the final design which will include mitigation measures and any tree protection zones required.

Easting (m)

597960 598050 598140 598230 598320 598410 598500

Northing (m)

4821030 4820940 4820850 4820760 4820670 4820580

Trafalgar Road

3

Britannia Road

6

East Sixteen Mile Creek

N

- Study Area
- Proposed WWPS
- Silver Shiner Occupied Reach
- Mapped Regulatory Limits | Conservation Halton
- Greenbelt Plan - Protected Countryside and NHS Area (Undifferentiated)
- Significant Woodland
- Potential Bat Habitat
- Enhancement Areas, Linkages and Buffers (Halton Official Plan)
- Watercourse
- Highway
- Road

1:2,200 metres

20 0 20 40

NAD 1983 UTM Zone 17N

Reference: Contains information licensed under the Open Government Licence – Ontario.

Matrix Solutions Inc.
ENVIRONMENT & ENGINEERING

Hatch Corporation

Halton | South Georgetown Wastewater Pumping Station

Potential Environmental Constraints

Date:	Project:	Submitter:	Reviewer:
Jun 2019	24250	M. Esraelian	A. Fausto

Figure 3

I:\Hatch\24250\FiguresAndTables\EA2019\Report\WWPS_Report\Figure-3-Potential_Environmental_Constraints.mxd - Tabloid_L - 25-Jun-19, 01:04 PM - ehollinger - TID005

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APPENDIX A
Site Photographs

Matrix Solutions Inc.
November 5, 2018

1. View of the Project Site from the northern boundary facing south toward Britannia Road.

Matrix Solutions Inc.
November 5, 2018

2. View of the thicket communities east of the Project Site from the northeast boundary.

Matrix Solutions Inc.
November 5, 2018

3. View of the woodland (FOD9-3) east of the Project Site. Photograph taken from Britannia Road facing northwest.

Matrix Solutions Inc.
November 5, 2018

4. View of the meadow community (MEMM4) and restoration area within the Study Area near East Sixteen Mile Creek. Photograph taken from Britannia Road facing northwest.

Matrix Solutions Inc.
November 5, 2018

5. View of the upstream reach of East Sixteen Mile Creek from the bridge on Britannia Road facing north.

Matrix Solutions Inc.
November 5, 2018

6. View of East Sixteen Mile Creek from south of the bridge on Britannia Road facing southeast (downstream).

Matrix Solutions Inc.
November 5, 2018

7. View of the downstream reach of East Sixteen Mile Creek from the bridge on Britannia Road facing south.

8. View of deep riffle/run and pool habitat in downstream reach identified as potential Category 1 Silver Shiner habitat.

9. View of nearshore aquatic vegetation downstream of the bridge, identified as potential Category 2 Silver Shiner habitat.

10. View of potential Category 3 habitat for Silver Shiner provided by newly restored vegetated floodplain and riparian areas.

11. View of installed woody debris within restored area of upstream reach (facing north) to provide habitat opportunities for fish within the reach.

Appendix C

ASI Report

Stage 1 Archaeological Assessment: Part of Lot 6, Concession 7, Regional Municipality of Halton, Ontario

STAGE 1 ARCHAEOLOGICAL ASSESSMENT
HALTON GEORGETOWN WASTEWATER SERVICING
PART OF LOT 6, CONCESSION 7
(FORMER TOWNSHIP OF TRAFALGAR, COUNTY OF HALTON)
REGIONAL MUNICIPALITY OF HALTON, ONTARIO

ORIGINAL REPORT

Prepared for:

HATCH
5035 South Service Road
Burlington, ON L5L 6M9

Archaeological Licence #P450 (Parks)
Ministry of Tourism, Culture and Sport PIF# P450-0051-2018
ASI File: 16EA-299

14 May 2019

ASI
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Stage 1 Archaeological Assessment
Halton Georgetown Wastewater Servicing
Part of Lot 6, Concession 7
(Former Township of Trafalgar, County of Halton)
Regional Municipality of Halton, Ontario

EXECUTIVE SUMMARY

ASI was contracted by Hatch Corporation to conduct a Stage 1 Archaeological Assessment (Background Research) as part of the Halton Georgetown Wastewater Servicing Project in the Regional Municipality of Halton. This project involves the preferred Alternative 4 for the proposed Wastewater Pumping Station at Britannia Road and Trafalgar Road.

The Stage 1 background study determined that eight previously registered archaeological sites are located within one kilometre of the Study Area and that the Study Area has been subjected to deep and extensive land alterations from the construction, servicing and demolition of the Percy W. Merry Public school and associated structures.

In light of these results, the following recommendations are made:

1. The Study Area does not retain archaeological potential. These lands do not require further archaeological assessment; and

2. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

PROJECT PERSONNEL

Senior Project Manager:	Lisa Merritt, MSc. (P094) *Partner | Director* *Environmental Assessment Division*
Project Coordinator:	Sarah Jagelewski, Hon. BA (R405) *Lead Archaeologist | Manager* *Environmental Assessment Division*
Project Director (Licensee):	Amanda Parks, MA (P450) *Associate Archaeologist | Project Manager* *Environmental Assessment Division*
Project Manager:	Eliza Brandy, MA (R1109) *Associate Archaeologist | Project Manager* *Environmental Assessment Division*
Report Preparation:	Eliza Brandy
Graphics:	Jonas Fernandez, MSc (R281) *Archaeologist | Assistant Manager - Fleet & Geomatics Specialist* *Operations Division*
Report Reviewer:	Lisa Merritt

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1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by Hatch Corporation to conduct a Stage 1 Archaeological Assessment (Background Research) as part of the Halton Georgetown Wastewater Servicing (GWWS) Project in the Regional Municipality of Halton. This project involves the preferred Alternative 4 for the proposed Wastewater Pumping Station (WWPS) at Britannia Road and Trafalgar Road (Figure 1).

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (1990, as amended in 2018) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), administered by the Ministry of Tourism, Culture and Sport (MTCS 2011).

In the S & G, Section 1, the objectives of a Stage 1 archaeological assessment are discussed as follows:

- To provide information about the history, current land conditions, geography, and previous archaeological fieldwork of the Study Area;
- To evaluate in detail the archaeological potential of the Study Area that can be used, if necessary, to support recommendations for Stage 2 archaeological assessment for all or parts of the Study Area; and,
- To recommend appropriate strategies for Stage 2 archaeological assessment, if necessary.

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act*, RSO (Ministry of the Environment 1990 as amended 2010) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the Municipal Engineers' Association document *Municipal Class Environmental Assessment* (2000 as amended in 2007, 2011 and 2015).

The *Archaeological Master Plan for the Regional Municipality of Halton* (ASI 1998) and the 2008 Update (ASI 2008) were also consulted.

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by Hatch Corporation on June 15, 2017.

1.2 Historical Context

The purpose of this section, according to the S & G, Section 7.5.7, Standard 1, is to describe the past and present land use and the settlement history and any other relevant historical information pertaining to the Study Area. A summary is first presented of the current understanding of the Indigenous land use of the Study Area. This is then followed by a review of the historical Euro-Canadian settlement history.

1.2.1 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years before present (BP) (Ferris 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 BP, the environment had progressively warmed (Edwards and Fritz 1988) and populations now occupied less extensive territories (Ellis and Deller 1990).

Between approximately 10,000-5,500 BP, the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 BP; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest evidence for cemeteries dates to approximately 4,500-3,000 BP and is indicative of increased social organization, investment of labour into social infrastructure, and the establishment of socially prescribed territories (Ellis et al. 1990, 2009; Brown 1995:13).

Between 3,000-2,500 BP, populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2500 BP and exchange and interaction networks broaden at this time (Spence et al. 1990:136, 138) and by approximately 2,000 BP, evidence exists for macro-band camps, focusing on the seasonal harvesting of resources (Spence et al. 1990:155, 164). By 1500 BP there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolithic evidence for maize in central New York State by 2300 BP - it is likely that once similar analyses are conducted on Ontario vessels of the same period, the same evidence will be found (Birch and Williamson 2013:13–15). Bands likely retreated to interior camps during the winter. It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 BP lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (CE), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson 1990:317). By 1300-1450 CE, this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al. 1990:343). From 1450-1649 CE this process continued with the coalescence of these small villages into larger communities (Birch and Williamson 2013). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. By 1600 CE, the communities within Simcoe County had formed the Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, the traditional enmity between the Haudenosaunee[1] and the Huron-Wendat (and their Algonkian allies such as the Nippissing and Odawa) led to the dispersal of the Huron-Wendat.

[1] The Haudenosaunee are also known as the New York Iroquois or Five Nations Iroquois and after 1722 Six Nations Iroquois. They were a confederation of five distinct but related Iroquoian–speaking groups – the Seneca, Onondaga, Cayuga, Oneida, and Mohawk. Each lived in individual territories in what is now known as the Finger Lakes district of Upper New York. In 1722 the Tuscarora joined the confederacy.

Samuel de Champlain in 1615 reported that a group of Iroquoian-speaking people situated between the Haudenosaunee and the Huron-Wendat were at peace and remained "la nation neutre". In subsequent years, the French visited and traded among the Neutral, but the first documented visit was not until 1626, when the Recollet missionary Joseph de la Roche Daillon recorded his visit to the villages of the Attiwandaron, whose name in the Huron-Wendat language meant "those who speak a slightly different tongue" (the Neutral apparently referred to the Huron-Wendat by the same term). Like the Huron-Wendat, Petun, and Haudenosaunee, the Neutral people were settled village agriculturalists. Several discrete settlement clusters have been identified in the lower Grand River, Fairchild-Big Creek, Upper Twenty Mile Creek, Spencer-Bronte Creek drainages, Milton, Grimsby, Eastern Niagara Escarpment and Onondaga Escarpment areas, which are attributed to Iroquoian populations. These settlement clusters are believed by some scholars to have been inhabited by populations of the Neutral Nation or pre- (or ancestral) Neutral Nation (Lennox and Fitzgerald 1990).

Between 1647 and 1651, the Neutral were decimated by epidemics and ultimately dispersed by the Haudenosaunee, who subsequently settled along strategic trade routes on the north shore of Lake Ontario for a brief period during the mid seventeenth-century. Compared to settlements of the Haudenosaunee, the "Iroquois du Nord" occupation of the landscape was less intensive. Only seven villages are identified by the early historic cartographers on the north shore, and they are documented as considerably smaller than those in New York State. The populations were agriculturalists, growing maize, pumpkins, and squash. These settlements also played the important alternate role of serving as stopovers and bases for Haudenosaunee travelling to the north shore for the annual beaver hunt (Konrad 1974).

Shortly after dispersal of the Wendat and their Algonquian allies, Ojibwa began to expand into southern Ontario and Michigan from a "homeland" along the east shore of Georgian Bay, west along the north shore of Lake Huron, and along the northeast shore of Lake Superior and onto the Upper Peninsula of Michigan (Rogers 1978:760–762). This history was constructed by Rogers using both Anishinaabek oral tradition and the European documentary record, and notes that it included Chippewa, Ojibwa, Mississauga, and Saulteaux or "Southeastern Ojibwa" groups. Ojibwa, likely Odawa, were first encountered by Samuel de Champlain in 1615 along the eastern shores of Georgian Bay. Etienne Brule later encountered other groups and by 1641, Jesuits had journeyed to Sault Sainte Marie (Thwaites 1896:11:279) and opened the Mission of Saint Peter in 1648 for the occupants of Manitoulin Island and the northeast shore of Lake Huron. The Jesuits reported that these Algonquian peoples lived "solely by hunting and fishing and roam as far as the "Northern sea" to trade for " Furs and Beavers, which are found there in abundance" (Thwaites 1896-1901, 33:67), and "all of these Tribes are nomads, and have no fixed residence, except at certain seasons of the year, when fish are plentiful, and this compels them to remain on the spot" (Thwaites 1896-1901, 33:153). Algonquian-speaking groups were historically documented wintering with the Huron-Wendat, some who abandoned their country on the shores of the St. Lawrence because of attacks from the Haudenosaunee (Thwaites 1896-1901, 27:37).

During the 1690s, some Ojibwa began moving south into extreme southern Ontario and soon replaced, the Haudenosaunee by force. By the first decade of the eighteenth century, the Michi Saagiig Nishnaabeg (Mississauga Nishnaabeg) had settled at the mouth of the Humber, near Fort Frontenac at the east end of Lake Ontario and the Niagara region and within decades were well established throughout southern Ontario. In 1736, the French estimated there were 60 men at Lake Saint Clair and 150 among small settlements at Quinte, the head of Lake Ontario, the Humber River, and Matchedash (Rogers 1978:761). This history is based almost entirely on oral tradition provided by Anishinaabek elders such as George Copway (Kahgegagahbowh), a Mississauga born in 1818 near Rice Lake who followed a traditional lifestyle until his family converted to Christianity (MacLeod 1992:197; Smith 2000). According to Copway, the objectives of campaigns against the Haudenosaunee were to create a safe trade route

between the French and the Ojibwa, to regain the land abandoned by the Huron-Wendat. While various editions of Copway's book have these battles occurring in the mid-seventeenth century, common to all is a statement that the battles occurred around 40 years after the dispersal of the Huron-Wendat (Copway 1850:88, 1851:91, 1858:91). Various scholars agree with this timeline ranging from 1687, in conjunction with Denonville's attack on Seneca villages (Johnson 1986:48; Schmalz 1991:21–22) to around the mid- to late-1690s leading up to the Great Peace of 1701 (Schmalz 1977:7; Bowman 1975:20; Smith 1975:215; Tanner 1987:33; Von Gernet 2002:7–8).

Peace was achieved between the Haudenosaunee and the Anishinaabek Nations in August of 1701 when representatives of more than twenty Anishinaabek Nations assembled in Montreal to participate in peace negotiations (Johnston 2004:10). During these negotiations captives were exchanged and the Iroquois and Anishinaabek agreed to live together in peace. Peace between these nations was confirmed again at council held at Lake Superior when the Iroquois delivered a wampum belt to the Anishinaabek Nations.

From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there is no interruption to Anishinaabek control and use of southern Ontario. While hunting in the territory was shared, and subject to the permission of the various nations for access to their lands, its occupation was by Anishinaabek until the assertion of British sovereignty, the British thereafter negotiating treaties with them. Eventually, with British sovereignty, tribal designations changed (Smith 1975:221–222; Surtees 1985:20–21). According to Rogers (1978), by the twentieth century, the Department of Indian Affairs had divided the "Anishinaubag" into three different tribes, despite the fact that by the early eighteenth century, this large Algonquian-speaking group, who shared the same cultural background, "stretched over a thousand miles from the St. Lawrence River to the Lake of the Woods." With British land purchases and treaties, the bands at Beausoleil Island, Cape Croker, Christian Island, Georgina and Snake Islands, Rama, Sarnia, Saugeen, the Thames, and Walpole, became known as "Chippewa" while the bands at Alderville, New Credit, Mud Lake, Rice Lake, and Scugog, became known as "Mississauga." The northern groups on Lakes Huron and Superior, who signed the Robinson Treaty in 1850, appeared and remained as "Ojibbewas" in historical documents.

In 1763, following the fall of Quebec, New France was transferred to British control at the Treaty of Paris. The British government began to pursue major land purchases to the north of Lake Ontario in the early nineteenth century, the Crown acknowledged the Mississaugas as the owners of the lands between Georgian Bay and Lake Simcoe and entered into negotiations for additional tracts of land as the need arose to facilitate European settlement.

The eighteenth century saw the ethnogenesis in Ontario of the Métis, when Métis people began to identify as a separate group, rather than as extensions of their typically maternal First Nations and paternal European ancestry (Métis National Council n.d.). Métis populations were predominantly located north and west of Lake Superior, however, communities were located throughout Ontario (MNC n.d.; Stone and Chaput 1978:607,608). During the early nineteenth century, many Métis families moved towards locales around southern Lake Huron and Georgian Bay, including Kincardine, Owen Sound, Penetanguishene, and Parry Sound (MNC n.d.). Recent decisions by the Supreme Court of Canada (Supreme Court of Canada 2003, 2016) have reaffirmed that Métis people have full rights as one of the Indigenous people of Canada under subsection 91(24) of the Constitution Act, 1867.

The Study Area is within Treaty 13a, or the Toronto Purchase, signed on August 2, 1805 by the Mississaugas and the British Crown in Port Credit at the Government Inn. A provisional agreement was reached with the Crown on August 2, 1805, in which the Mississaugas ceded 70,784 acres of land bounded by the Toronto Purchase of 1787 in the east, the Brant Tract in the west, and a northern

boundary that ran six miles back from the shoreline of Lake Ontario. The Mississaugas also reserved the sole right of fishing at the Credit River and were to retain a one mile strip of land on each of its banks, which became the Credit Indian Reserve. On September 5, 1806, the signing of Treaty 14 confirmed the Head of the Lake Purchase between the Mississaugas of the Credit and the Crown (Mississauga of the New Credit First Nation 2001, 2017).

1.2.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the Former Trafalgar Township, County of Halton in Lot 6 & Concession 7.

The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 m of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

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, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006).

Township of Trafalgar

Trafalgar was simply known as Township Number 2 when it was first surveyed by Samuel S. Wilmot, and was subsequently renamed Alexander Township in honour of Alexander Grant, who was President and Administrator of the Province of Upper Canada (Mathews 1953:6). Shortly thereafter, when news reached Upper Canada of Lord Nelson's victorious sea battle off the coast of Spain, the names of two townships in the county were changed to Nelson and Trafalgar. The New Survey of Trafalgar was undertaken by Richard Bristol between April and June 1819. Bristol noted that the timber was primarily elm, beech, maple, white oak, "black ash" and pine. Trafalgar Township originally formed part of the West Riding of York in the Home District and following 1816, it became part of the Gore District, with Hamilton as the administrative District seat. Although the old Districts of Upper Canada were abolished by legislation in May 1849, the area which was to subsequently become Halton remained as part of the United Counties of Wentworth and Hamilton until it was finally separated and elevated to independent County status by an act of legislature in June 1853.

By 1817, the population had increased to 548, and the township contained one grist mill and four saw mills. The value of land had increased to 22 shillings per acre. In 1846, the township was described as "well settled… containing numerous well cleared and cultivated farms, most which have good orchards" (Smith 1846:198–199). By 1850, the population had increased to 4,513, and the township contained three grist and nineteen saw mills (Smith 1850:261). The timber cover in the township was described as "principally hardwood with a little pine intermixed" (Smith 1850:261).

The earliest families to settle within the township included those of Sovereign, Proudfoot, Katting, Freeman, Post, Biggar, Mulholland, Kenney, Chalmer, Albertson, Chisholms, Sproat, Brown and Hagar.

Village of Drumquin

Drumquin was a post office settlement located at the corner of what are now Brittania Road and Trafalgar Road. The 1858 map of Halton shows an inn on the southeast corner and a church north of the village centre along Trafalgar Road. By 1906, the local gazetteer states it had a bank, post office, apiarist, blacksmith, contractor, and grocer. A wood frame church was built in 1848 as the Primitive Methodist Connexion church, replacing an older church/school across the road, and operated until 1915. The 1877 map illustrates the church and a cemetery at the border of Lots 6 and 7. The extant brick church was constructed as the Bethel Methodist Church, which stands in the north corner of Lot 6, Concession 7 on Trafalgar Road.

1.2.3 Historical Map Review

The 1859 *Map of the County of Peel*, 1858 *Map of the County of Halton* and 1877 *Illustrated Historical Atlas of the County of Halton*, Trafalgar Township page (Tremaine 1858; Pope 1877) were examined to determine the presence of historic features within the Study Area during the nineteenth century (Figures 2-3).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

In addition, the use of historical map sources to reconstruct/predict the location of former features within the modern landscape generally proceeds by using common reference points between the various sources. These sources are then geo-referenced in order to provide the most accurate determination of the location of any property on historic mapping sources. The results of such exercises are often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including the vagaries of map production (both past and present), the need to resolve differences of scale and resolution, and distortions introduced by reproduction of the sources. To a large degree, the significance of such margins of error is dependent on the size of the feature one is attempting to plot, the constancy of reference points, the distances between them, and the consistency with which both they and the target feature are depicted on the period mapping.

Table 1: Nineteenth-century property owner(s) and historical features(s) within or adjacent to the Study Area

		Map Title		*Map Title*	
Con #	**Lot #**	**Property Owner(s)**	**Historical Feature(s)**	**Property Owner(s)**	**Historical Feature(s)**
7	6	Robert Wyse	None	Wm. Tolson (N.R.)	House (2) Drumquin Village

Both maps show the Study Area on the west bank of the east branch of Sixteen Mile Creek, and that Britannia Road was historically surveyed. The Study Area is adjacent to the village of Drumquin. No structures are shown within the Study Area, however the 1877 map illustrates a house to the west of the Study Area at the edge of William Tolson's property, and a house on the east bank of the river in Drumquin.

1.2.4 Twentieth-Century Mapping Review

The 1918 National Topographic System Brampton Sheet (Department of Militia and Defence 1909), 1954 aerial photography of Milton (University of Toronto 1954), 1973 National Topographic System Hornby Sheet (Department of Energy, Mines and Resources 1973), and the 1994 National Topographic System Brampton Sheet (Department of Energy, Mines and Resources 1994) were examined to determine the extent and nature of development and land uses within the Study Area (Figures 6-9).

The 1918 map illustrates one structure on the east side of the river and it's tributary along Trafalgar Road. Sixteen Mile Creek is illustrated as Oakville Creek. Drumquin is shown with four other structures at the crossroads. The 1954 aerial indicates that the Study Area remained within an active agricultural field into the mid-twentieth century.

The 1973 map illustrates the school had been constructed within the Study Area with two structures on the property adjacent to a park. The 1994 map illustrates that the school remained surrounded by a larger park area to the west.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MTCS through "Ontario's Past Portal"; published and unpublished documentary sources; and the files of ASI.

1.3.1 Current Land Use and Field Conditions

A review of available Google satellite imagery shows that between 2004 and 2016 the Study Area contained the abandoned Percy W. Merry Public School building at 12705 Britannia Road (Figure 8). Since 2016, the area has remained an open lot with the former school driveway (Figure 9). The Study Area is between the athletic field to the southwest and the Sixteen Mile Creek river valley to the

northeast. Figure 10 shows the Site Plan drawing by Peto MacCallum Ltd. (2017) from a report on the confirmatory sampling and chemical testing for site decommissioning activities which included ex-situ soil remediation, removal of septic tanks, treatment units and tile bed, decommissioning of two on-site water supply wells and removal of other above and below ground structures associated with the former school building.

The optional Stage 1 property inspection was not conducted.

1.3.2 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 BP (Karrow and Warner 1990:Figure 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Other geographic characteristics that can indicate archaeological potential include: elevated topography (eskers, drumlins, large knolls, and plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including; food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The Study Area is within sand plains of the Peel Plain physiographic region of southern Ontario. The Peel Plain is a level-to-undulating area of clay soil which covers an area of approximately 77,700 hectares across the central portions of the Regional Municipalities of York, Peel, and Halton. The Peel Plain has a general elevation of between 500 and 750 feet above sea level with a gradual uniform slope towards Lake Ontario. The Peel Plain is sectioned by the Credit, Humber, Don, and Rouge Rivers with deep valleys as well as a number of other streams such as the Bronte, Oakville, and Etobicoke Creeks. These valleys are in places bordered by trains of sandy alluvium. The region is devoid of large undrained depressions, swamps, and bogs though nevertheless the dominant soil possesses imperfect drainage.

The Peel Plain overlies shale and limestone till which in many places is veneered by occasionally varved clay. This clay is heavy in texture and more calcareous than the underlying till and was presumably

deposited by meltwater from limestone regions and deposited in a temporary lake impounded by higher ground and the ice lobe of the Lake Ontario basin. The Peel Plain straddles across the contact of the grey and red shales of the Georgian Bay and Queenston Formations, respectively, which consequently gives the clay southwest of the Credit River a more reddish hue and lower lime content than the clay in the eastern part of the plain. Additionally the region exhibits exceptional isolated tracts of sandy soil specifically in Trafalgar Township, near Unionville, and north of Brampton where in the latter location there is a partly buried esker. The region does not possess any good aquifers and the high level of evaporation from the clay's now deforested surface is a disabling factor in ground-water recharge. Further, deep groundwater accessed by boring is often found to be saline (Chapman and Putnam 1984: 174-175).

Figure 11 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by fine-textured glaciolacustrine deposits of silt and clay as well as clay to silt-textured till derived from glaciolacustrine deposits or shale (Ontario Geological Survey 2010). Soils in the Study Area consist of Chinguacousy clay loam, a grey brown luvisol with imperfect drainage (Figure 12).

The Study Area is adjacent to the east branch of Sixteen Mile Creek. The Sixteen Mile Creek watershed is a 357 square kilometre subwatershed composed of a west, middle and eastern branch, which converge below the Niagara Escarpment and flow south through the deeply incised creek valley into Lake Ontario at Oakville. The steep banks and stepped terraces of the Valley were created by glacial meltwater, and erosion of the till and shale deposits left behind by retreating glaciers and is protected as an environmentally sensitive area, as it provides habitat for rare species, has relatively undisturbed blocks of woodland, and significant geological features. The creek was known as Nanzuhzaugewazog or 'having two outlets' by the Mississauga, because it was very shallow and had a gravel bar dividing the mouth at Lake Ontario. European settlers named it Sixteen Mile Creek based on its distance from Burlington Bay (Campbell et al. 2017; Conservation Halton 2017; Town of Oakville 2017).

1.3.3 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MTCS. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block *AjGw*.

According to the OASD, eight previously registered archaeological sites are located within one kilometre of the Study Area (Ministry of Tourism, Culture and Sport 2018). A summary of the sites is provided below.

Table 2: List of previously registered sites within one kilometre of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type	Researcher
AjGw-60	n/a	Euro-Canadian	Unknown	MPP 1979
AjGw-264	Hall I	Euro-Canadian	Outbuilding	AAL 2001
AjGw-320	Hall II	Euro-Canadian	Homestead	AAL 2001

AjGw-321	Gruehl I	Pre-Contact Indigenous	Camp	AAL 2001
AjGw-322	Gruehl II	Pre-Contact Indigenous	Scatter	AAL 2001
AjGw-323	Gruelh III	Late Archaic	Findspot	AAL 2001
AjGw-566	n/a	Euro-Canadian	Homestead	Archeoworks 2017
AjGw-576	n/a	Other	Unknown	AMEC 2017

AAL – Archaeological Assessments Ltd.
MPP – Mayer Pihl Poulton & Associates Inc.

According to the background research, one previous report details fieldwork within 50 m of the Study Area.

ASI (2012) conducted a Stage 1 archaeological assessment for the Britannia Road Transportation Corridor Improvements Class EA for improvements between Tremaine Road and Highway 407, adjacent to the current Study Area. The property inspection determined that the areas adjacent to the current Study Area had been subject to due extensive and deep land alterations and did not require further survey.

2.0 ANALYSIS AND CONCLUSIONS

The historical and archaeological contexts have been analyzed to help determine the archaeological potential of the Study Area. These data are presented below in Section 2.1.

2.1 Analysis of Archaeological Potential

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Study Area meets the following criteria indicative of archaeological potential:

- Previously identified archaeological sites (see Table 2);
- Water sources: primary, secondary, or past water source (Sixteen Mile Creek);
- Early historic transportation routes (Britannia Rd,);
- Proximity to early settlements (village of Drumquin); and

According to the S & G, Section 1.4 Standard 1e, no areas within a property containing locations listed or designated by a municipality can be recommended for exemption from further assessment unless the area can be documented as disturbed. The Municipal Heritage Register was consulted and no properties within the Study Area are Listed or Designated under the Ontario Heritage Act.

The *Archaeological Master Plan for the Regional Municipality of Halton* (ASI 1998) and the 2008 Update (ASI 2008) indicates that the Study Area exhibits archaeological potential.

Figures 8-10, and 13 illustrate that the Study Area is within the disturbed areas of the recently demolished Percy W. Merry Public school. According to the S & G Section 1.3.2 these areas do not retain archaeological potential and do not require Stage 2 survey.

2.2 Conclusions

The Stage 1 background study determined that eight previously registered archaeological sites are located within one kilometre of the Study Area and that the Study Area has been subjected to deep and extensive land alterations from the construction, servicing and demolition of the Percy W. Merry Public school and associated structures.

3.0 RECOMMENDATIONS

In light of these results, the following recommendations are made:

1. The Study Area does not retain archaeological potential.

2. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the MTCS should be immediately notified.

4.0 ADVICE ON COMPLIANCE WITH LEGISLATION

ASI also advises compliance with the following legislation:

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

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

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

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

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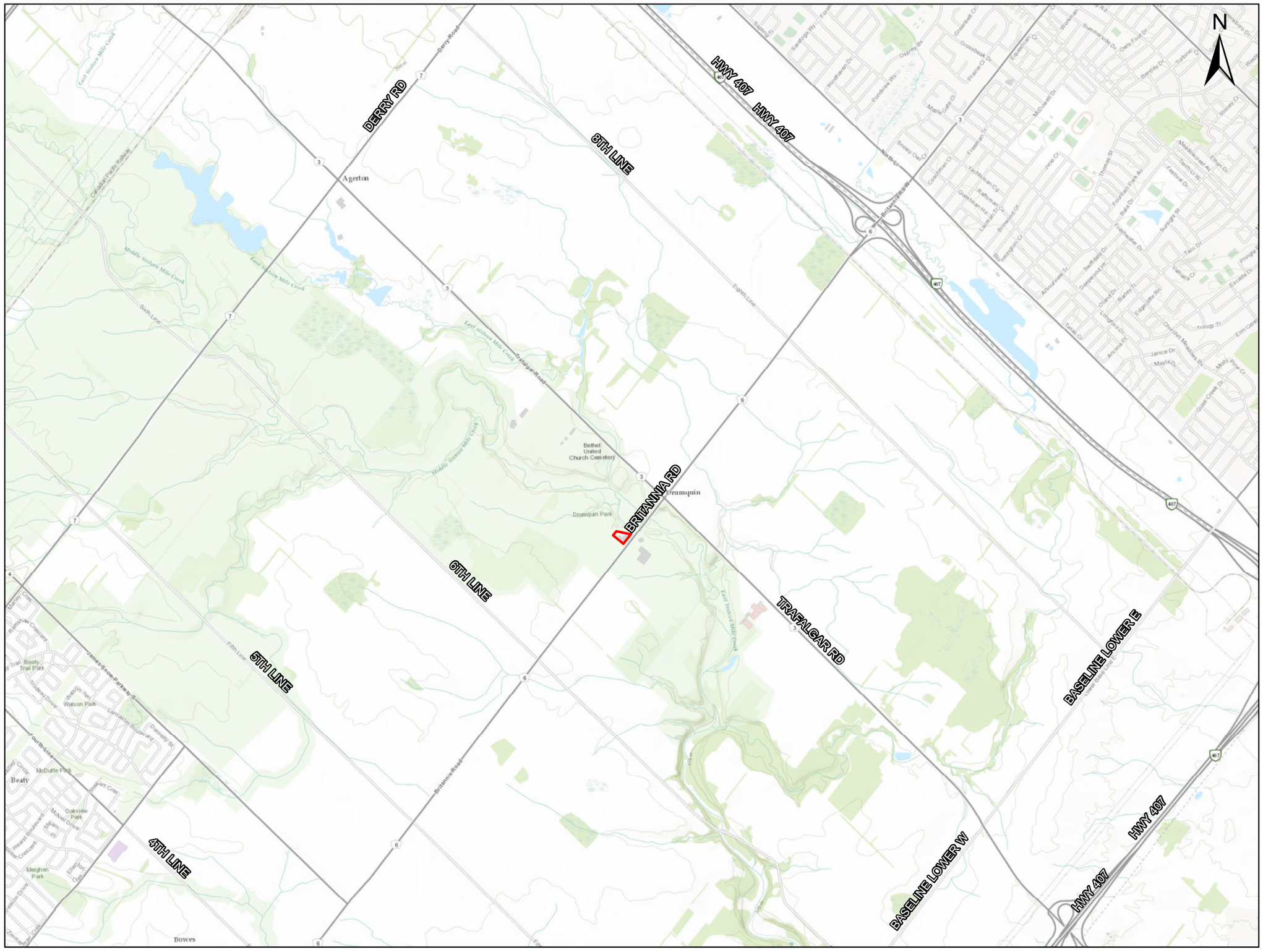
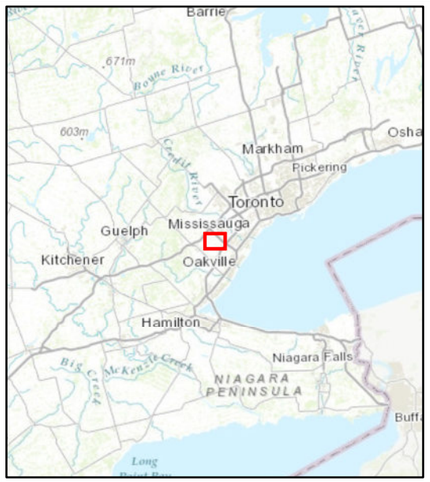
6.0 MAPS





Study Area

BASE: Ortho
Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

0 1 km

ASI PROJECT NO.:16EA-299
DATE: 5/13/2019

DRAWN BY: JF
FILE: 16EA299_fig1_v2

Archaeological & Cultural Heritage Services
528 Bathurst Street Toronto, ONTARIO M5S 2P9
416-966-1069 | F416-966-9723 | asiheritage.ca

Figure 1: Halton Georgetown Wastewater Servicing - Location of the Study Area

Figure 2: Halton Georgetown Wastewater Servicing Study Area (Approximate Location) Overlaid on the 1858 Map of the County of Halton

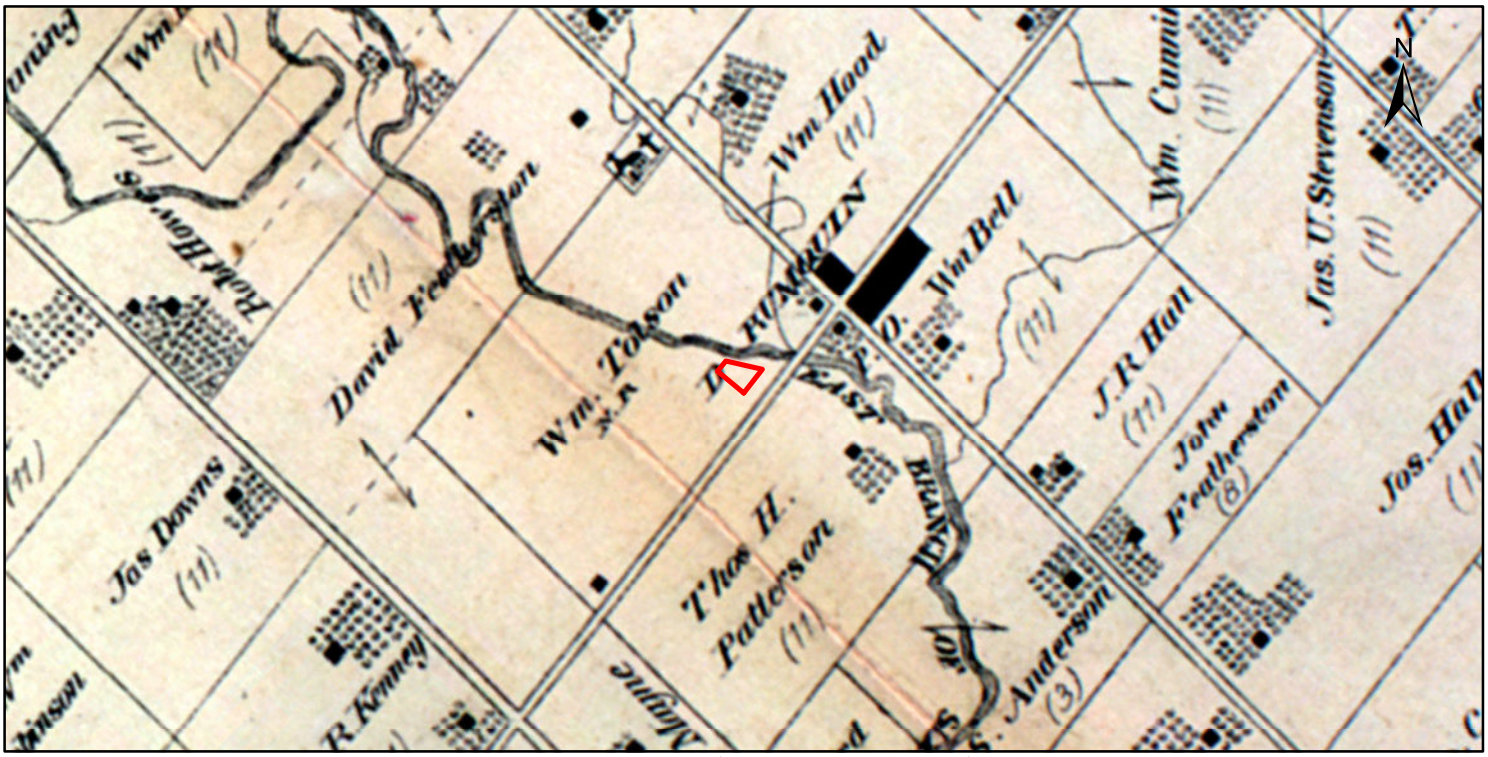


Figure 3: Halton Georgetown Wastewater Servicing Study Area (Approximate Location) Overlaid on the 1877 Illustrated Historical Atlas of the County of Halton, Trafalgar Township

ASI Archaeological & Cultural Heritage Services 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 | F416-966-9723 | asiheritage.ca	Study Area	Base: 1858 Tremaine Map County of Halton 1877 Illustrated Historical Atlas County of Halton	0 500 Metres ASI PROJECT NO.: 16EA-299 DATE: 5/13/2019 DRAWN BY: AB FILE: 16EA299_Fig2_3_hist_v2

Figure 4: Halton Georgetown Wastewater Servicing Study Area (Approximate Location) Overlaid on the 1918 National Topographic System Brampton Sheet

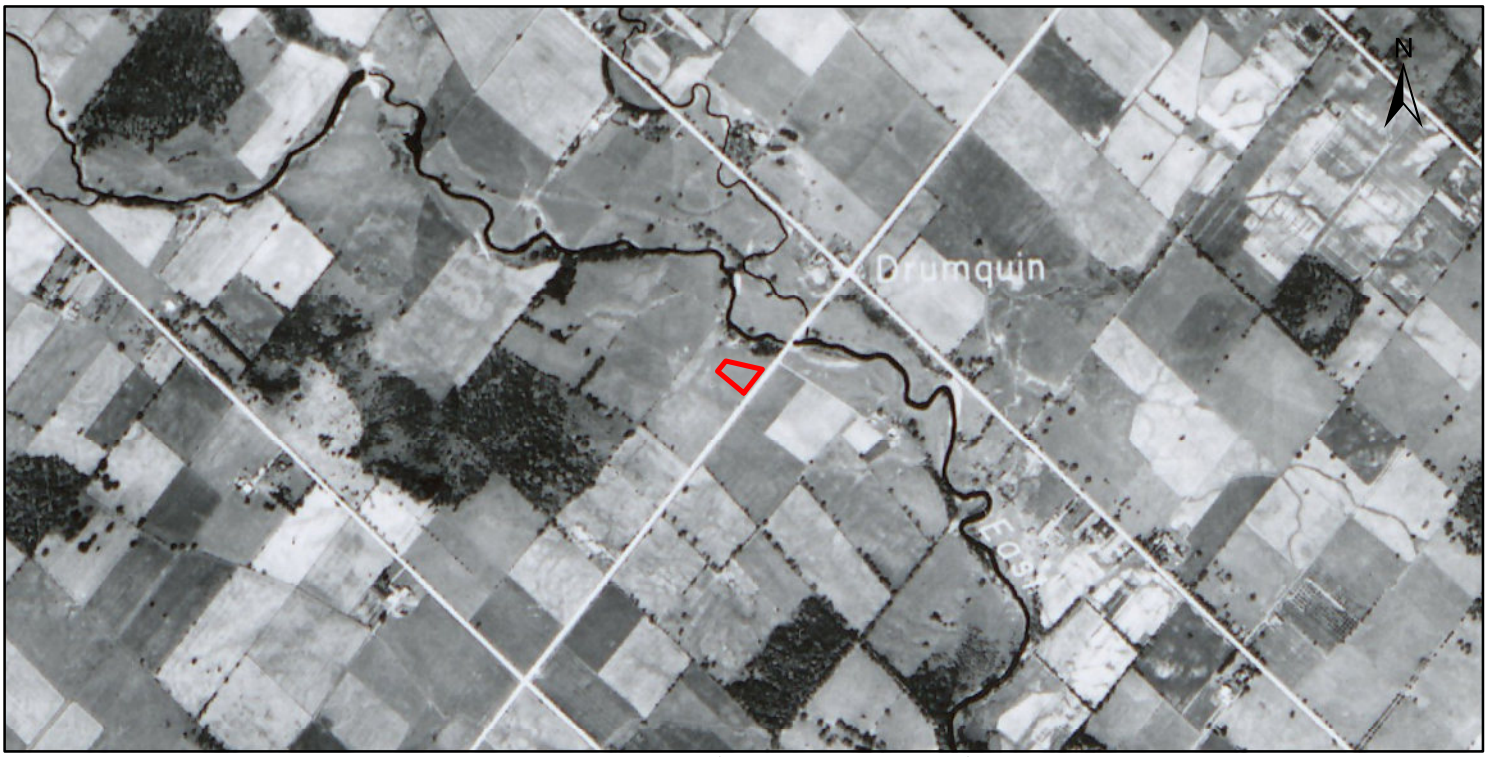


Figure 5: Halton Georgetown Wastewater Servicing Study Area (Approximate Location) Overlaid on the 1954 Aerial Photography of Milton

ASI **Archaeological & Cultural Heritage Services** 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 | F416-966-9723 | asiheritage.ca	Study Area	Base: 1918 NTS Map Brampton Sheet 1954 Aerial Photography	0 500 Metres ASI PROJECT NO.: 16EA-299 DATE: 5/13/2019 DRAWN BY: AB FILE: 16EA299_Fig4_5_hist_v2

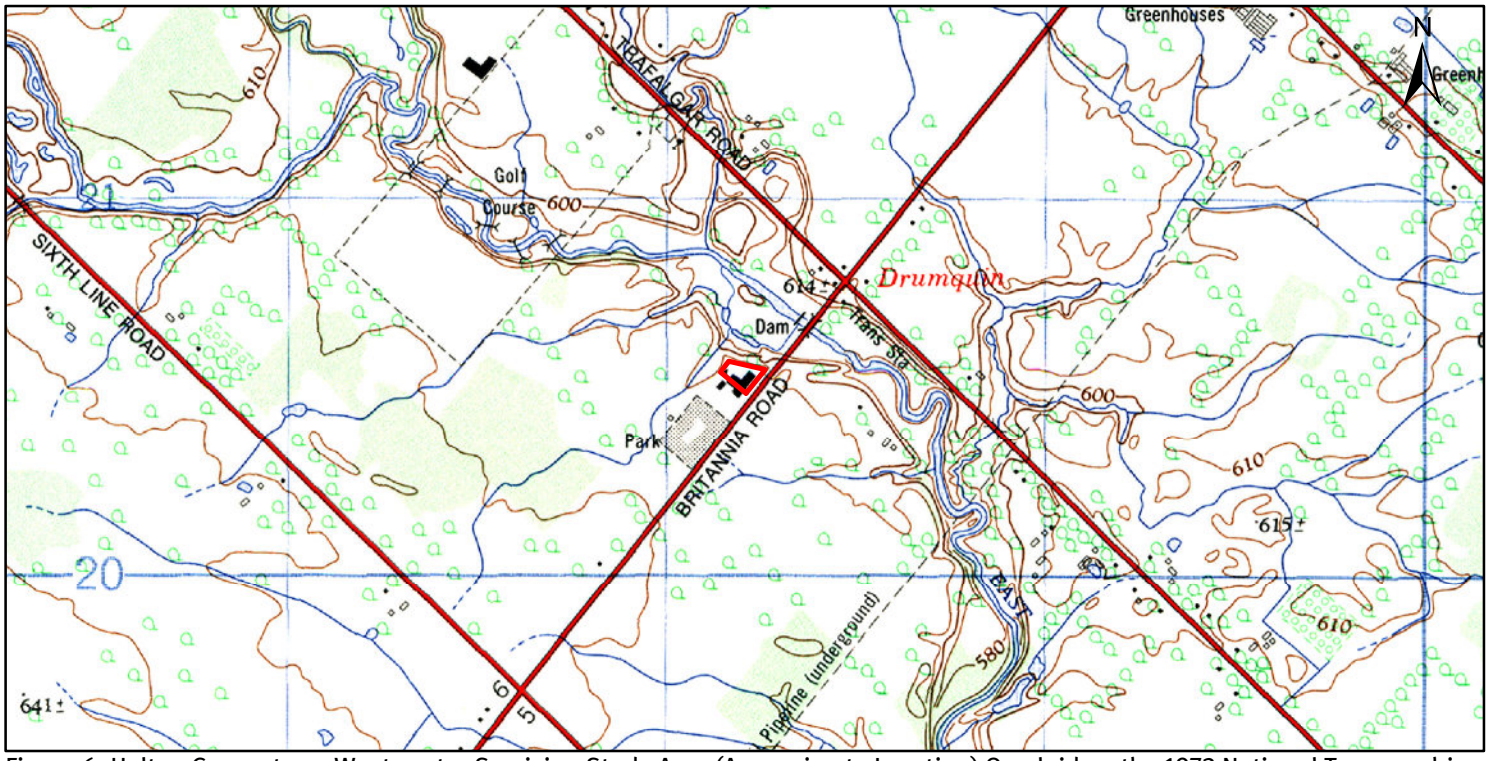


Figure 6: Halton Georgetown Wastewater Servicing Study Area (Approximate Location) Overlaid on the 1973 National Topographic System Hornby Sheet

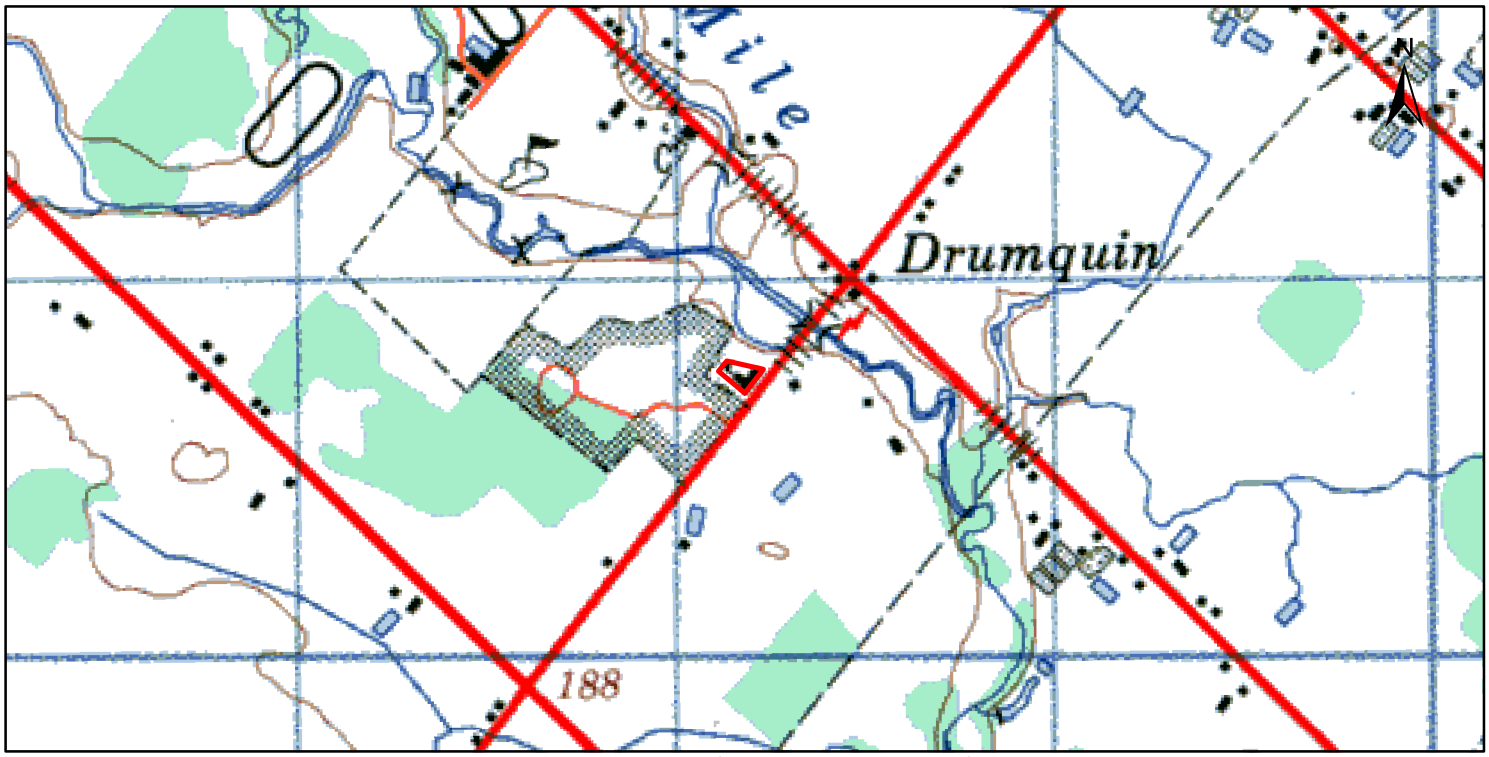


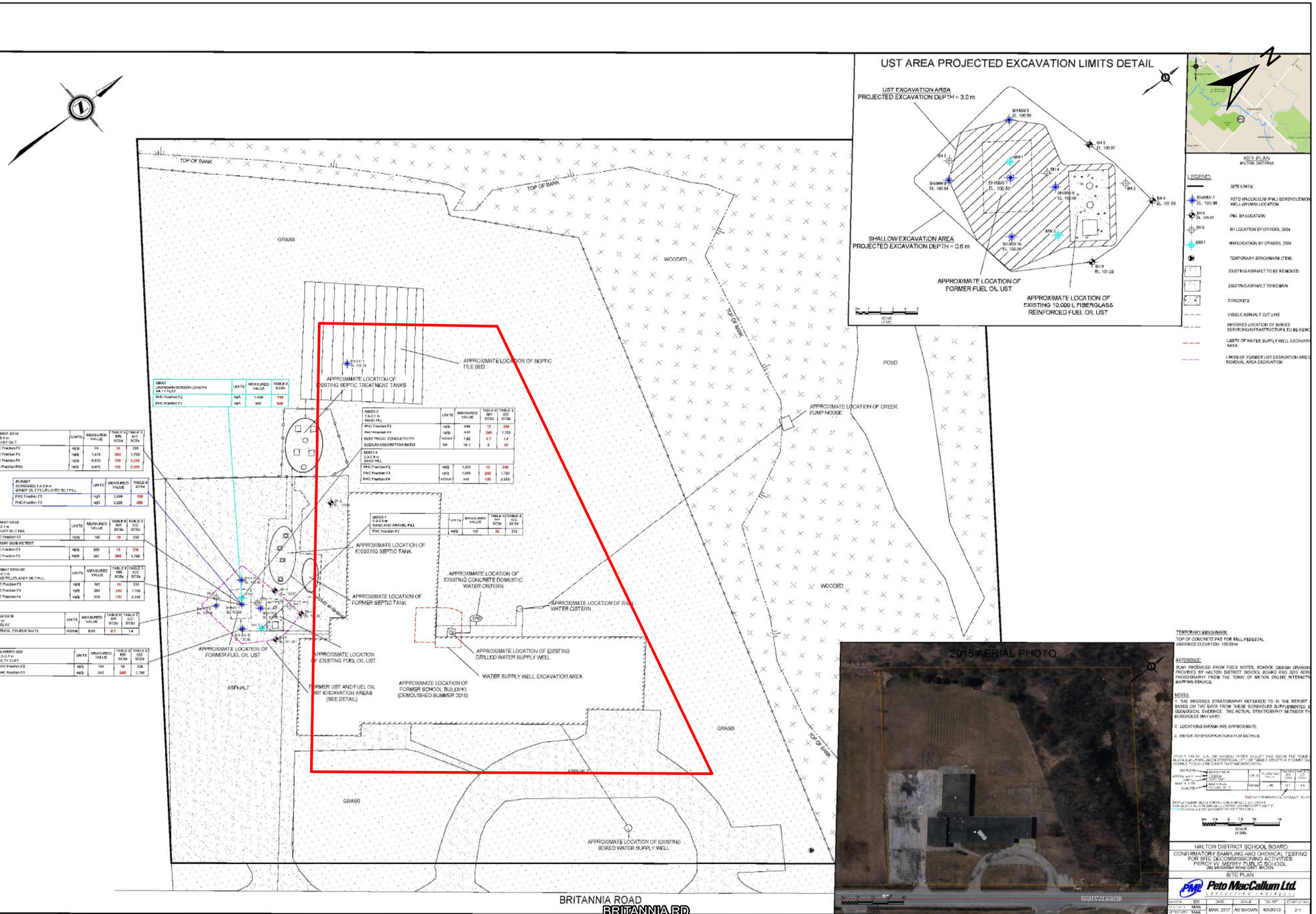
Figure 7: Halton Georgetown Wastewater Servicing Study Area (Approximate Location) Overlaid on the 1994 National Topographic System Brampton Sheet

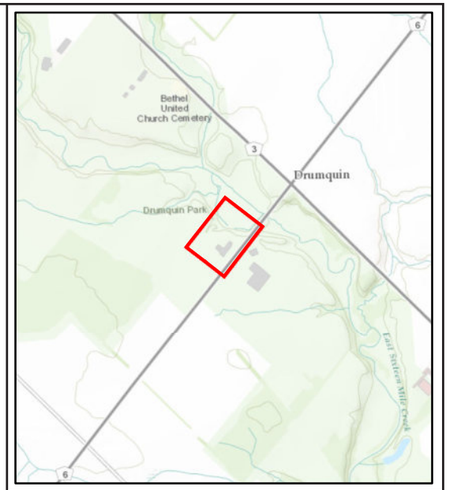
ASI Archaeological & Cultural Heritage Services 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 | F416-966-9723 | asiheritage.ca	Study Area	Base: 1973 NTS Map Brampton Sheet 1994 NTS Map Brampton Sheet	0 500 Metres ASI PROJECT NO.: 16EA-299 DATE: 5/13/2019 DRAWN BY: AB FILE: 16EA299_Fig6_7_hist_v2

Figure 8: Figure 1: Halton Georgetown Wastewater Servicing Study Area Overlaid on 2009 Google Earth Orthoimagery

Figure 9: Halton Georgetown Wastewater Servicing Study Area Overlaid on 2016 Google Earth Orthoimagery

ASI **Archaeological & Cultural Heritage Services** 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 | F416-966-9723 | asiheritage.ca	Study Area	Base: DigitalGlobe, 2009 & 2016	0 50 Metres ASI PROJECT NO.: 16EA-299 DATE: 5/13/2019 DRAWN BY: AB FILE: 16EA299_Fig8_9_Aerial_v2





Study Area

BASE: Ortho
Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

0 25
Metres

ASI PROJECT NO.:16EA-299
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FILE: 16EA299_fig10_v2

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Figure 10: Halton Georgetown Wastewater Servicing Study Area Overlaid on the School Decommissioning Site Plan (Peto MacCallum Ltd.)

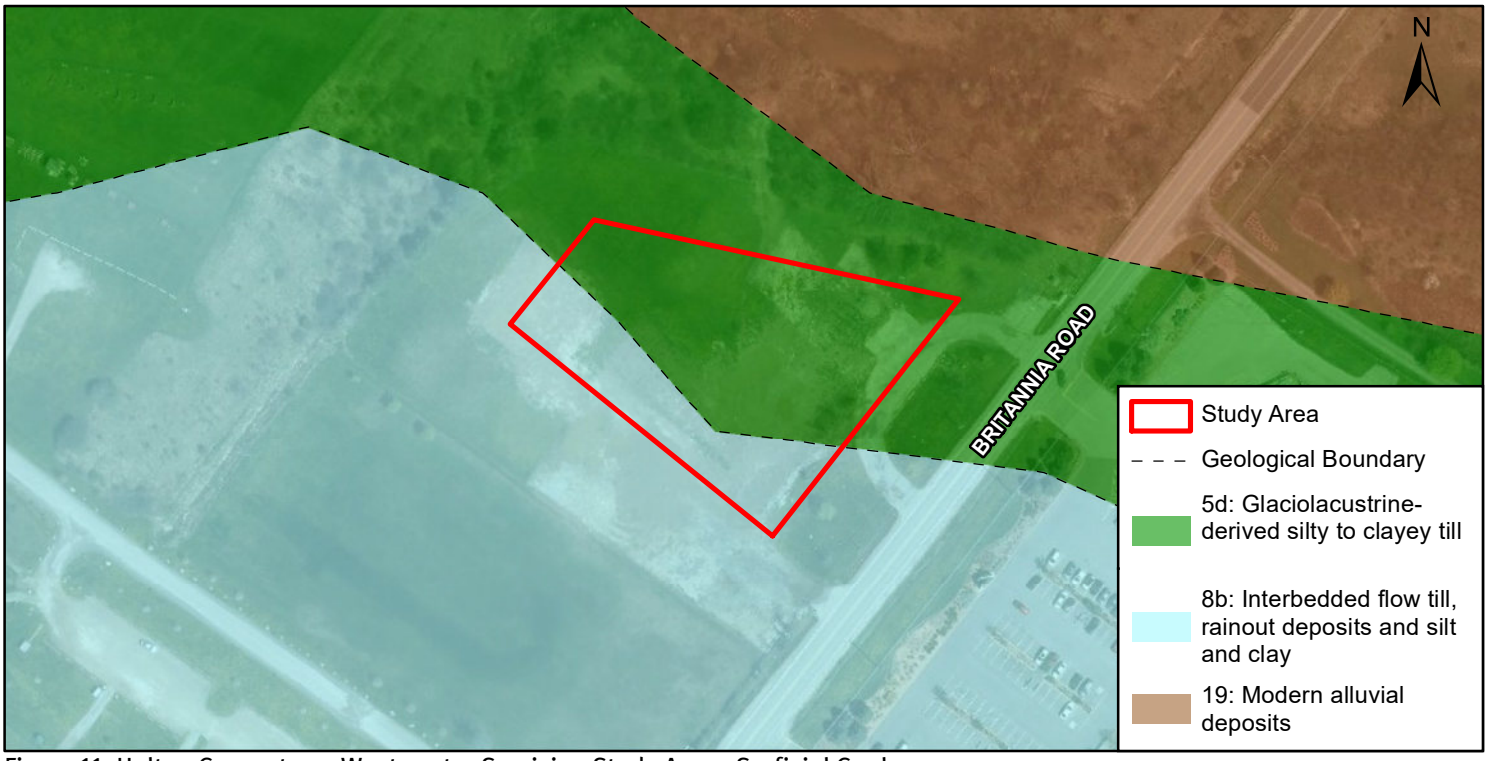

Figure 11: Halton Georgetown Wastewater Servicing Study Area - Surficial Geology

Figure 12: Halton Georgetown Wastewater Servicing Study Area - Soil Drainage

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Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar

0 50
Metres

ASI PROJECT NO.: 16EA-299
DATE: 5/13/2019

DRAWN BY: AB
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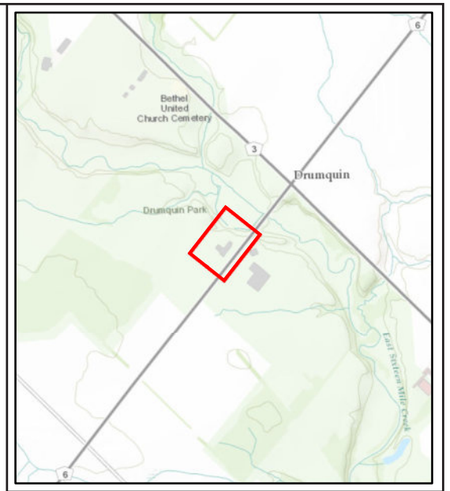

Study Area

Disturbed - No Potential

BASE:
Ortho Google Earth 2018

0 25
Metres

ASI PROJECT NO.:16EA-299
DATE: 5/13/2019

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Figure 13: Halton Georgetown Wastewater Servicing Study Area - Results of the Stage 1

Appendix D
Notice of Filing of Addendum

NOTICE OF FILING OF ADDENDUM

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY

Relocation of the Planned Trafalgar Road (Regional Road 3) / Britannia Road (Regional Road 6)
Wastewater Pump Station, Town of Milton

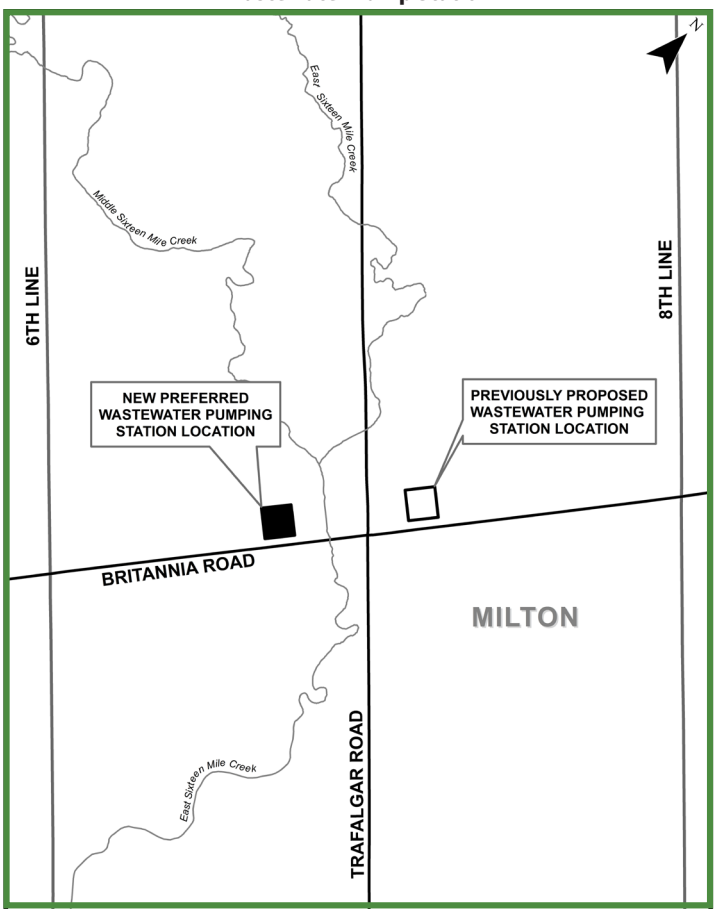
Study Addendum:

Halton Region completed the Sustainable Halton Water and Wastewater Master Plan in 2011. The purpose of the Master Plan was to develop a Region-wide water and wastewater infrastructure strategy to service growth in Halton's urban areas to 2031 based on the approved 2011 Best Planning Estimates. One component of the preferred wastewater servicing strategy included the need for a new wastewater pump station near the intersection of Trafalgar Road and Britannia Road in the Town of Milton to service growth in north Halton. Through the 2011 Master Plan, a preferred location for the new wastewater pumping station was established in accordance with Schedule B of the Municipal Class Environmental Assessment (October 2000, amended 2007, 2011 & 2015), which is approved under the Ontario Environmental Assessment Act.

At the time of the 2011 Master Plan, an area near the northeast corner of Trafalgar Road and Britannia Road was selected as the preferred location for the new wastewater pump station. Additional technical review and analysis since the completion of the 2011 Master Plan has resulted in a new preferred location for the wastewater pump station, approximately 400 meters west of the site initially selected. The new location, as illustrated in the map, is expected to provide improved operational efficiency compared to the location identified in the 2011 Master Plan.

Halton Region has completed an Addendum to the 2011 Master Plan for the new preferred location of the wastewater pump station at Trafalgar Road and Britannia Road, which documents the basis for the change in the location and the revised recommendations. Please note that only the location of the proposed wastewater pump station in the Addendum is open for review.

New Proposed Location for Trafalgar Road/Britannia Road Wastewater Pump Station



Process:

By this Notice, an Addendum is being placed on the public record for a 45-day review period in accordance with the requirements of the Municipal Class Environmental Assessment (October 2000, amended 2007, 2011 & 2015). Subject to comments received as a result of this Notice and the receipt of necessary approvals, Halton Region intends to proceed with detailed design and construction of the wastewater pump station at the new preferred location as documented in the Addendum Report and illustrated in the map. The Addendum Report is available for review at the following locations:

Clerk's Department
Regional Municipality of Halton
1151 Bronte Road
Oakville, ON L6M 3L1
Tel: 905-825-6000
Monday to Friday: 8:30 a.m. – 4:30 p.m.

Clerk's Department
Town of Milton
150 Mary Street
Milton, ON L9T 6Z5
Tel: 905-878-7252
Monday to Friday: 8:30 a.m. – 4:30 p.m.

Milton Public Library (Main Branch)
1010 Main Street East
Milton, ON L9T 6H7
Tel: 905-875-2665
Monday to Thursday: 9:30 a.m. – 9 p.m.
Friday to Saturday: 9:30 a.m. – 5 p.m.
Sunday: 1 p.m. – 5 p.m.*

***Note** that the Library is closed Sundays from July 7, 2019 to September 1, 2019)

An electronic copy of the Addendum Report can also be accessed through the Infrastructure Master Plans page on **halton.ca**.

We welcome your feedback. **Please provide comments to the Halton Region Project Manager by Monday, August 26, 2019.**

Kate Connell, P. Eng.
Project Manager, Infrastructure Planning & Policy
Halton Region
1151 Bronte Road, Oakville, ON L6M 3L1
Phone: (905) 825-6000, ext. 3112
Email: kate.connell@halton.ca

If concerns regarding this project cannot be resolved through discussions with the Region, a person or party may request that the Minister of the Environment, Conservation and Parks order the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order). The Ministry's Part II Order Request Form may be downloaded at **www.forms.ssb.gov.on.ca**.

The Part II Order Request Form noted above must be completed and sent to all three of the following recipients, at the addresses provided, no later than **Monday, August 26, 2019** (within 45 days of this Notice):

Minister
Ministry of the Environment, Conservation and Parks
College Park, 5th Floor
777 Bay Street
Toronto, ON M7A 2J3
Phone: (416) 314-6790
Email: minister.mecp@ontario.ca

Director, Environmental Assessment and Permissions Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Ave W, 1st Floor
Toronto, ON M4V 1P5
Phone: (416) 314-8001
Email: enviropermissions@ontario.ca

Kate Connell, P. Eng.
Project Manager
Infrastructure Planning & Policy
Halton Region
1151 Bronte Road
Oakville, ON L6M 3L1
Phone: (905) 825-6000, ext. 3112
Email: kate.connell@halton.ca

This notice first issued on Thursday, July 11, 2019.