METROLINX GO RAIL NETWORK ELECTRIFICATION

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Reviewed By: Lisa Merritt, ASI Date: June 14, 2017

Approved By: Lisa Merritt, ASI Date: June 16, 2017

The above electronic signatures indicate that the named document is controlled by ASI and has been:

1. Prepared by qualified staff in accordance with generally accepted professional practice.
2. Checked for completeness and accuracy by the appointed discipline reviewers and that the discipline reviewers did not perform the original work.
3. Reviewed and resolved compatibility interfaces and potential conflicts among the involved disciplines.
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# REVISION HISTORY

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Report Disclaimer

NOTWITHSTANDING the results and recommendations presented in this study, Archaeological Services Inc. 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 Ministry of Tourism, Culture and Sport should be immediately notified.
## Glossary of Terms

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archaeological Assessment</td>
<td>For a defined area or property, a survey undertaken by a licensed archaeologist within those areas determined to have archaeological potential in order to identify archaeological sites, followed by evaluation of their cultural heritage value or interest, and determination of their characteristics. Based on this information, recommendations are made regarding the need for mitigation of impacts and the appropriate means for mitigation those impacts.</td>
</tr>
<tr>
<td>Archaeological Management Plan</td>
<td>A document that provides an inventory of archaeological sites, develops a municipality or region-specific mechanism for determining archaeological potential, and then maps that potential for the municipality. It may also state the municipality’s policies and processes for the management of archaeological resources. It may also include a summary of the municipality’s cultural history, means for promoting and educating the community about archaeological conservation, local strategies for storing and curating archaeological materials, and other issues related to conservation of archaeological resources within the community.</td>
</tr>
<tr>
<td>Archaeological Potential</td>
<td>The likelihood that the property contains archaeological resources.</td>
</tr>
<tr>
<td>Archaeological Resources</td>
<td>In the context of the Standards and Guidelines, objects, materials and physical features identified by licensed archaeologists during a Stage 2 archaeological assessment as possibly possessing cultural heritage value or interest. Analysis using the criteria set out in the Standards and Guidelines determines whether those objects, materials and physical features meet the definition of an archaeological site under the <em>Ontario Heritage Act</em> and whether Stage 3 archaeological assessment is required. In various planning and development contexts, the term may refer to any or all of archaeological potential, artifacts and archaeological sites.</td>
</tr>
<tr>
<td>Archaeological Site</td>
<td>Defined in Ontario regulation as “any property that contains an artifact or any other physical evidence of past human use or activity that is of cultural heritage value or interest”.</td>
</tr>
<tr>
<td>Artifact</td>
<td>Defined in Ontario regulation as “any object, material or substance that is made, modified, used, deposited or affected by human action and is of cultural heritage value or interest”.</td>
</tr>
<tr>
<td>Autotransformer</td>
<td>Apparatus which helps boost the overhead contact system (OCS) voltage and reduce the running rail return current in the 2 X 25 kV autotransformer feed configuration. It is a single winding transformer having three terminals. The intermediate terminal located at the midpoint of the winding is connected to the rail and the static wires, and the other two terminals are connected to the catenary and the negative feeder wires, respectively.</td>
</tr>
<tr>
<td>Cantilever</td>
<td>A beam that is supported by a pole at only one end and carries the load of the electrification equipment on top of tracks. At multiple track locations where cantilever frames are not practical, portal structures should be utilized.</td>
</tr>
<tr>
<td>Word</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Catenary System</td>
<td>An assembly of overhead wires consisting of, as a minimum, a messenger wire, carrying vertical hangers that support a solid contact wire which is the contact interface with operating electric train pantographs, and which supplies power from a central power source to an electrically-powered vehicle, such as a train.</td>
</tr>
<tr>
<td>Cultural Heritage Value or Interest (CHVI)</td>
<td>For the purposes of the <em>Ontario Heritage Act</em> and its regulations, archaeological resources that possess CHVI are protected as archaeological sites under Section 48 of the act. Where analysis of documented artifacts and physical features at a given location meets the criteria stated in the Standards and Guidelines, that location is protected as an archaeological site and further archaeological assessment may be required.</td>
</tr>
<tr>
<td>Duct Bank</td>
<td>A duct bank is an assembly of electrical conduits that are either directly buried or encased in concrete. The purpose of the duct bank and associated conduit is to protect and provide defined routing of electrical cables and wiring. It also provides physical separation and isolation for the various types of cables.</td>
</tr>
<tr>
<td>Feeder</td>
<td>A current-carrying electrical connection between the overhead contact system and a traction power facility (substation, paralleling station or switching station).</td>
</tr>
<tr>
<td>Gantry</td>
<td>Supporting structures parallel to the tracks, and on both sides of the tracks, at TSS, SWS, and PS used to connect the traction power feeders to the catenary</td>
</tr>
<tr>
<td>Hydro One</td>
<td>Hydro One Incorporated delivers electricity across the province of Ontario. Hydro One has four subsidiaries, the largest being Hydro One Networks. They operate 97% of the high voltage transmission grid throughout Ontario.</td>
</tr>
<tr>
<td>kV</td>
<td>Abbreviation for kilovolt (equal to 1000 volts).</td>
</tr>
<tr>
<td>Maintenance Facility</td>
<td>A mechanical facility for the maintenance, repair, and inspection of engines and railcars.</td>
</tr>
<tr>
<td>Mitigation Measure</td>
<td>Actions that remove or alleviate, to some degree, the negative effects associated with the implementation of an alternative.</td>
</tr>
<tr>
<td>MTCS</td>
<td>The acronym for the Ontario Ministry of Tourism, Culture and Sport.</td>
</tr>
<tr>
<td>OASD</td>
<td>The acronym for the Ontario Archaeological Sites Database which contains detailed locations and information for archaeological sites registered in Ontario.</td>
</tr>
<tr>
<td>Overhead Contact System (OCS)</td>
<td>OCS is comprised of: 1. The aerial supply system that delivers 2x25 kV traction power from traction power substations to the pantographs of Metrolinx electric trains, comprising the catenary system messenger and contact wires, hangers, associated supports and structures including poles, portals, head spans and their foundations), manual and/or motor operated disconnect switches, insulators, phase breaks, section insulators, conductor termination and tensioning devices, downguys, and other overhead line hardware and fittings.</td>
</tr>
<tr>
<td>Word</td>
<td>Definition</td>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2. Portions of the traction power return system consisting of the negative feeders and aerial static wires, and their associated connections and cabling.</td>
<td></td>
</tr>
<tr>
<td>Pantograph</td>
<td>Device on the top of a train that slides along the contact wire to transmit electric power from the catenary to the train.</td>
</tr>
<tr>
<td>Paralleling Station (PS)</td>
<td>An installation which helps boost the OCS voltage and reduce the running rail return current by means of the autotransformer feed configuration. The negative feeders and the catenary conductors are connected to the two outer terminals of the autotransformer winding at this location with the centre terminal connected to the traction return system. The OCS sections can be connected in parallel at PS locations.</td>
</tr>
<tr>
<td>Portal</td>
<td>Portal is an OCS structure that spans over the tracks between two OCS support poles located on the sides of the tracks in order to support the electrification equipment. The portal structure is used at multiple track locations where cantilever frames are not practical.</td>
</tr>
<tr>
<td>S &amp; P</td>
<td>An acronym for the <em>Standards and Guidelines for Consultant Archaeologists</em> which detail the archaeological practices enforced by the Ministry of Tourism, Culture and Sport and required for use by licensed, consultant archaeologists conducting land-based archaeology in Ontario, in accordance with the <em>Ontario Heritage Act</em>.</td>
</tr>
<tr>
<td>Tap Location</td>
<td>Points at which high voltage power will the “tapped” from Ontario Hydro’s existing grid</td>
</tr>
<tr>
<td>TPAP</td>
<td>Transportation Planning Assessment Process</td>
</tr>
<tr>
<td>Traction Power Facility (TPF)</td>
<td>A traction power substation, paralleling station, or switching station.</td>
</tr>
<tr>
<td>Traction Power Substation</td>
<td>Electric Traction Facility that transforms the utility supply voltage of 230 kV to 50 kV and 25 kV for distribution to the trains via catenary and negative feeders.</td>
</tr>
<tr>
<td>Switching Station (SWS)</td>
<td>SWS is an installation where the supplies from two adjacent traction power substations are electrically separated and where electrical energy can be supplied to an adjacent but normally separated electrical section during contingency power supply conditions. It also acts as a paralleling station.</td>
</tr>
</tbody>
</table>
1. Background

Metrolinx is undertaking an Environmental Assessment (EA) under the Transit Project Assessment Process (TPAP) under Ontario Regulation 231/08 - Transit Projects and Metrolinx Undertakings for electrification of the GO Transit Rail Network (see Figure 1-1). The Project involves conversion of several rail corridors within the GO Transit network from diesel to electric propulsion. The undertaking will entail design and implementation of traction power supply and distribution components including an Overhead Contact System (OCS) along the rail corridors, as well as a number of electrical power supply/distribution facilities located in the vicinity of the rail corridors.

Electrification of the GO Transit network also requires electrical power to be supplied from Ontario’s electrical system through Hydro One’s existing high voltage grid via new high voltage (e.g., 230kV) connections to the Traction Power Substations. The design/routing of these connections will be detailed as part of the conceptual design to be completed.

Figure 1-1. GO Transit Network
1.1 Environmental Assessment Process
The proposed conversion of the GO Network from diesel to electric power falls under Schedule 1, 2.1 Subsection 2 (1) of O. Reg. 231/08. This Regulation applies to a transit project that is carried out by any proponent or any of its successors or assigns if the transit project includes any one or more of the following in relation to the electrification of a new or existing commuter rail corridor:

The electrification of rail equipment propulsion. May include planning, designing, establishing, constructing, operating, changing or retiring an associated power distribution system.
The planning, designing, establishing, constructing, operating, changing or retiring of power supply infrastructure.

1.2 Scope of the Project
The scope of the GO Transit Rail Network Electrification undertaking will involve electrification of several rail corridors. At the time of writing this report, the scope of the baseline conditions data collection phase included the following rail corridors:

1. Union Station Rail Corridor (USRC) – From UP Express Union Station to Don Yard Layover
2. Lakeshore West Corridor – From Strachan Ave to Burlington
3. Kitchener Corridor – From UP Express Spur1 (at Highway 427) to Bramalea
4. Lakeshore East Corridor – From Don Yard Layover to Oshawa Station
5. Barrie Corridor – From Parkdale Junction (off Kitchener Corridor) to Allandale Station
6. Stouffville Corridor – From Scarborough Junction (off Lakeshore East Corridor) to Lincolnville Station

It should be noted that the electrification of the UP Express Route from UP Express Station (just west of the Union Station Train Shed) to Terminal 1 Station at Pearson International Airport, including power supply and power distribution components, was previously approved as part of the Metrolinx UP Express Electrification EA (June, 2014) (see Figure 1-2).

1.3 Study Area
The Study Area for the baseline conditions phase of the TPAP encompasses the GO Transit rail corridors outlined above including proposed locations for the electrical power supply/distribution facilities (see Figure 1-2). A conservative 30 metre buffer area was established around these elements of the Study Area at the baseline conditions phase to allow for comprehensive baseline data collection. Once the
conceptual design is further advanced, the study area will be refined as/if required as part of the impact assessment phase.

Figure 1-2. GO Network Electrification TPAP Study Area

Therefore, the Study Area can be summarized as follows:

1.3.1 GO Rail Corridors
1. USRC – From UP Express Union Station to Don Yard Layover (UP Express Union Station to Strachan Avenue was previously assessed/approved as part of the UP Express Electrification EA and is therefore not included in the EA Study Area).

2. Lakeshore West Corridor – From Strachan Ave to Burlington
3. Kitchener Corridor – From UP Express Spur (at Highway 427) to Bramalea (Strachan Avenue to UP Express spur (at Highway 427) was previously assessed/approved as part of the UP Express Electrification EA and is therefore not included in the EA Study Area)

4. Lakeshore East Corridor – From Don Yard Layover to Oshawa GO Station

5. Barrie Corridor – From Parkdale Junction (off Kitchener Corridor) to Allandale GO Station

6. Stouffville Corridor – From Scarborough Junction (off Lakeshore East Corridor) to Lincolnville GO Station

1.3.2 Traction Power Facility Locations

There are 19 traction power facilities required to support the GO Rail Network Electrification undertaking (3 of which were previously assessed and approved as part of the UP Express Electrification TPAP). Therefore, the scope of the GO Rail Network Electrification TPAP will include assessment of the remaining 16 TPFs, as detailed in Table 1-1 below.

- Five Traction Power Substations (TPSs)
- Five Switching Stations (SWSs)
- Six Paralleling Stations (PSs)

Table 1-1 summarizes the traction power facilities required along each corridor and Figures 1-3 to 1-8 provide corresponding key maps showing the approximate location of each facility. The tap locations (points as which high voltage power will be ‘tapped’ from Hydro One’s existing grid) were still under development at the time of writing this report, therefore they will be assessed as part of the impact assessment phase of the TPAP.

Table 1-1 Summary of Traction Power Facilities by Corridor

<table>
<thead>
<tr>
<th>GO Corridor</th>
<th>Approx. Length of Corridor</th>
<th>Type of Facility</th>
<th>Location(s)</th>
</tr>
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<tbody>
<tr>
<td>Union Station</td>
<td>2.8 km</td>
<td>TPS</td>
<td>• N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tap Point</td>
<td>• N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SWS</td>
<td>• Ordnance/Bathurst (previously approved as part of the UP Express Electrification EA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PS</td>
<td>• N/A</td>
</tr>
<tr>
<td>Lakeshore West</td>
<td>48.1 km</td>
<td>TPS</td>
<td>• Burlington</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mimico</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tap Point</td>
<td>• Burlington Tap</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mimico Tap</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SWS</td>
<td>• Oakville</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mimico</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PS</td>
<td>• N/A</td>
</tr>
<tr>
<td>Location</td>
<td>Length</td>
<td>Type</td>
<td>Notes</td>
</tr>
<tr>
<td>---------------</td>
<td>---------</td>
<td>----------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Kitchener</td>
<td>6.5 km</td>
<td>TPS</td>
<td>- CityView (previously approved as part of the UP Express Electrification EA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tap Point</td>
<td>- N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PS</td>
<td>- Bramalea</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Eglinton (this site was approved as part of the UP Express Electrification EA)</td>
</tr>
<tr>
<td>Barrie</td>
<td>96.1 km</td>
<td>TPS</td>
<td>- Allandale</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tap Point</td>
<td>- Preferred Allandale Tap</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Alternate Allandale Tap</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SWS</td>
<td>- Newmarket</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PS</td>
<td>- Gilford</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Maple</td>
</tr>
<tr>
<td>Stouffville</td>
<td>35.3 km</td>
<td>TPS</td>
<td>- Scarborough</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tap Point</td>
<td>- Scarborough Tap</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SWS</td>
<td>- N/A</td>
</tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Lincolnville</td>
</tr>
<tr>
<td>Lakeshore East</td>
<td>48.3 km</td>
<td>TPS</td>
<td>- East Rail Maintenance Facility</td>
</tr>
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<td></td>
<td></td>
<td>Tap Point</td>
<td>- ERMF Tap</td>
</tr>
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<td></td>
<td></td>
<td>SWS</td>
<td>- Scarborough</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Durham</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PS</td>
<td>- Don Yard</td>
</tr>
</tbody>
</table>

**Figure 1-3. Union Station Rail Corridor**
Figure 1-4. Lakeshore West Corridor

Figure 1-5. Kitchener Corridor
Figure 1-6. Barrie Corridor
Figure 1-7. Stouffville Corridor
Figure 1-8. Lakeshore East Corridor
1.3.3 Modifications to Willowbrook Maintenance Facility and East Rail Maintenance Facility

It is assumed that no new maintenance facilities will be built to support GO Network Electrification. Rather, two existing GO Transit maintenance facilities (Willowbrook and East Rail Maintenance Facility) will be modified to accommodate electric GO Trains. The modifications to these facilities will be detailed as part of the conceptual design to be developed.

1.3.4 Modifications to Existing Layover Facilities

The modifications required to existing layover facilities to accommodate electrification will be detailed as part of the conceptual design phase. If new property is required, the study area will be expanded to include this and impacts assessed accordingly.

2. Overview of Project Components

2.1 Tap Locations

A new tap location will be required in the vicinity each new Traction Power Substation. The tap locations are those areas where Metrolinx will ‘tap into’ the existing Hydro One high voltage grid as part of the power supply portion of the project. These tap locations and concept design details were under development at the time of the baseline conditions phase, therefore assessment of the potential impacts associated with the tap locations will be addressed as part of the Impact Assessment phase of the TPAP and captured accordingly within the impact assessment reports.

2.2 230kV/55kV/25kV Connection Routes

Electrical power will be supplied from Ontario’s electrical system through Hydro One’s existing high voltage grid via new high voltage (e.g., 230kV) connections to the new TPSs. The exact type/routing of the high voltage connections and method of installation will be further detailed as part of the conceptual engineering design to be developed. In addition, there may be feeder routes (55kV/25kV) required between tap locations and/or from new traction power facilities to the rail ROW. The routing and conceptual design of the high voltage connections and 55kV/25kV feeder routes were still under development at the time of preparing this baseline conditions report, therefore these components will be assessed as part of the impact assessment phase of the TPAP and will be summarized in the subsequent impact assessment report.

2.3 Traction Power Substations

TPSs will be required at various points along the rail corridors in order to provide electrical power to the GO system. The electrified GO Transit Network will be a 2 x 25 kV AC autotransformer fed electrification system which will be connected directly to a high voltage system. The TPSs will transform the utility supply voltage (e.g., 230 kV) to 2x25 kV along the OCS for distribution to the electric trains along the GO rail corridors.
2.4 Traction Power Distribution System
The power supplied by the TPSs will be distributed throughout the GO rail corridors via the power distribution system which will be comprised of an OCS, gantries, 55kV/25 kV feeders (which bring power from the SWSs and PSs to the rail corridor), SWSs, and PSs. The trains will collect their propulsion power from the OCS by means of pantographs mounted on top of the trains.

2.4.1 Overhead Contact System (OCS)
The preferred traction power distribution system for the GO Network electrification is an OCS that is comprised of a wiring system which will provide power to the electric trains. The wiring system will be suspended from a number of new OCS support structures (i.e., portals, cantilevers) placed along and over the track, including on bridges/overpasses where required (Figure 2-1). It should be noted that OCS attachments to GO Stations and at Bridges may also be required.

Figure 2-1. Example of OCS Support Structures (Portals)

2.4.2 Paralleling and Switching Stations
Electric trains can only operate if the OCS voltage remains within acceptable limits. PSs help raise the OCS voltage and hence facilitate operation of trains further away from the source of power (see Figure 2-2). PSs and SWSs help to distribute the electric power through the GO Transit Network and are connected to the rail corridors via feeders.

A set of gantries will be located in the vicinity of each PS/SWS location to provide power to the corridors (see Figure 2-3). The locations of the gantries and duct banks will be identified as part of the preliminary design phase.
2.4.3 Modified Maintenance Facilities

It is assumed that no new maintenance facilities will be built to support GO Network Electrification. Rather, two existing maintenance facilities (Willowbrook and East Rail Maintenance Facility) will be modified to accommodate electric GO Trains. The modifications to these facilities will be detailed as part of the conceptual design to be developed.
2.5 Bridge Modifications
Certain modifications will need to be made to bridges in order to accommodate electrification. As noted above, OCS attachments to bridges may be required to allow the wires to run underneath the bridge. The details of the type of attachments will be detailed as part of the conceptual design to be developed. In addition, all overhead bridge structures will require bridge barrier protection to be added.
3. Methodology

3.1 Report Purpose
The primary purpose of this report is to provide a comprehensive review of the existing archaeological conditions within the study area based on a review of available secondary source information (i.e., previously completed archaeological assessment reports/studies). This includes a Data Gap Analysis (see Section 4) of all Traction Power Facility (TPF) study areas within the corridors, such as switching stations (SWS) or paralleling stations (PS), or along the corridors at traction power substations (TPS) where previous archaeological assessment work has not yet been undertaken. The purpose of this review exercise is to inform the next step in the process which will entail completion of Stage 1 Archaeological Assessments at those specific locations where no previous archaeological assessment work has been undertaken. These areas/properties (i.e., areas of concern outside of Metrolinx owned ROW where the OCS Impact Zone falls and TPF sites) will be detailed and summarized in Section 5 – Future Work.

With this in mind, the following methodology was applied in order to summarize and document baseline conditions within the GO Rail Network Electrification Study Area:

3.2 Background Information Review
The study area was reviewed based on pertinent (and available) background archaeological reports, previous archaeological fieldwork conducted within and in its vicinity, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and its current land use and field conditions.

Four sources of information were consulted to provide information about previous archaeological research in the study corridors:

- Archaeological assessments previously conducted on the Metrolinx rail network within the study area;
- The Ontario Archaeological Sites Database. This database is housed at the Ministry of Tourism, Culture and Sport (MTCS) and contains detailed locations and information for all registered archaeological sites in Ontario; it was consulted for a list of all sites within 1 km of the study area limits, per the Standards and Guidelines for Consultant Archaeologists (S & G), Section 1.1.1 (MTCS 2015). The S & G are supervised by the MTSC and mandated under the Ontario Heritage Act in order to conduct archaeology in Ontario;
- published and unpublished documentary sources; and,
- Archaeological Services Inc. (ASI) archives and files.

In addition to the presence of or proximity to known archaeological sites and historic features, the state of the natural environment is an important indicator of archaeological potential. Accordingly, a descriptive overview of the study area geography, physiography and soils will be provided.
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, 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, 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. Physical indicators of use may be present, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including food or medicinal plants (migratory routes, spawning areas) or scarce raw materials are also considered characteristics that indicate archaeological potential. Finally, historical features are important such as sites indicating early Euro-Canadian industry and/or settlement, early transportation routes, properties listed on a municipal register, federal, provincial or municipal historic landmarks or sites, or areas where local histories or information identify possible archaeological potential.

### 3.3 Data Gap Analysis

The Data Gap Analysis will systematically review the Study Area to indicate where archaeological assessments have been completed and where they may be required. Maps of the study corridors will be provided that indicate the location of previously assessed lands, the locations of archaeological sites and other features, such as cemeteries and ossuary potential that are within and in the immediate vicinity (defined as 50 m) of the study area limits. To facilitate analysis, this discussion is organized by the six individual rail corridors (per Table 1-1), and each will then be divided into a series of corridor sections and discussed in terms of the available archaeological data; this approach will also apply to the TPFs.
4. Baseline Conditions
This section provides a summary of the archaeological baseline conditions within the Study Area in the context of the secondary source review that was undertaken. The discussion is directed to each of the six rail corridors and its associated corridor sections and TPFs.

Table 4-1 summarizes the established rail corridor sections, list of facilities in each, as well as the associated maps (Figure #’s) for ease of reference. It should be noted that the starting point of each corridor map originates at the Union Station Rail Corridor and continues out to the furthest point of the corridor to be electrified.

Table 4-1. GO Network Corridor Sections & Mapping

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<tr>
<th>Corridor Section</th>
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<th>Traction Power Facilities</th>
<th>Figure References</th>
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<td>USRC-1 UP Express Union Station to Don Yard Layover</td>
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<td>7-1 and 7-7</td>
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<tr>
<td>LSW-1 Strachan Avenue to Mimico GO Station</td>
<td>8.2</td>
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<td>7-1 and 7-2</td>
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<tr>
<td>LSW-2 Mimico GO Station to Long Branch GO Station</td>
<td>4.8</td>
<td>Mimico TPS</td>
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<tr>
<td>LSW-3 Long Branch GO Station to Port Credit GO Station</td>
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<td>7-2 and 7-3</td>
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<tr>
<td>LSW-4 Port Credit GO Station to Clarkson GO Station</td>
<td>6.0</td>
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<td>7-3 and 7-4</td>
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<tr>
<td>LSW-5 Clarkson GO Station to Oakville GO Station</td>
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<td>Oakville SWS</td>
<td>7-4</td>
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<td>LSW-6 Oakville GO Station to Bronte GO Station</td>
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<td>LSW-7 Bronte GO Station to Appleby GO Station</td>
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<td>7-5</td>
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<td>LSW-8 Appleby GO Station to Burlington GO Station</td>
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<td>7-5 and 7-6</td>
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<td>KT-1 UP Express Spur (at Highway 427) to Malton GO Station</td>
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<td>7-27</td>
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<td>7-27</td>
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<td>Traction Power Facility located west of KT-2 Segment as shown in Figure TPF 4</td>
<td>Bramalea PS</td>
<td>7-27</td>
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</tr>
<tr>
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<td>5.2</td>
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<td>7-1 and 7-12</td>
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<tr>
<td>BR-2 Caledonia GO Station to Downsview Park GO Station</td>
<td>7.1</td>
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<tr>
<td>BR-5 King City GO Station to Bathurst Street</td>
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<tr>
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<td>Aurora GO Station to East Gwillimbury GO Station</td>
<td>9.0</td>
<td>Newmarket SWS</td>
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<td><strong>BR-8</strong></td>
<td>East Gwillimbury GO Station to Bradford GO Station</td>
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<td><strong>BR-9</strong></td>
<td>Bradford GO Station to 13th Line</td>
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<td><strong>BR-10</strong></td>
<td>13th Line to 6th Line</td>
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<td>Gilford PS</td>
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<td>6th Line to Barrie South GO Station</td>
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<td><strong>BR-12</strong></td>
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<td>Traction Power Facility located west of BR-12 Segment</td>
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<td>Scarborough TPS</td>
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<td>Agincourt GO Station to Milliken GO Station</td>
<td>4.7</td>
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</tr>
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<td>SV-3</td>
<td>Milliken GO Station to Unionville GO Station</td>
<td>3.3</td>
<td>Unionville PS</td>
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<td>SV-4</td>
<td>Unionville GO Station to Markham GO Station</td>
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<td>Markham GO Station to Mount Joy GO Station</td>
<td>2.2</td>
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<td>SV-6</td>
<td>Mount Joy GO Station to Stouffville GO Station</td>
<td>8.1</td>
<td></td>
</tr>
<tr>
<td>SV-7</td>
<td>Stouffville GO Station to Lincolnville GO Station</td>
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<td>Lincolnville PS</td>
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<td>LSE-1</td>
<td>Don Yard Layover to Danforth GO Station</td>
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<td>Danforth GO Station to Scarborough GO Station</td>
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<td>Scarborough GO Station to Guildwood GO Station</td>
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<td>Scarborough SWS</td>
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<td>LSE-4</td>
<td>Guildwood GO Station to Rouge Hill GO Station</td>
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<tr>
<td>LSE-5</td>
<td>Rouge Hill GO Station to Pickering GO Station</td>
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<td>Ajax GO Station to Whitby GO Station</td>
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<td>LSE-8</td>
<td>Whitby GO Station to Oshawa GO Station</td>
<td>4.8</td>
<td>ERMF TPS</td>
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</table>
4.1 Union Station Rail Corridor

A review of the historic land use of the Union Station Rail Corridor (USRC) indicates that it has been occupied by Aboriginal peoples for thousands of years. It is situated within the traditional territory occupied by the ancestral Huron-Wendat until the turn of the sixteenth century; subsequently occupied by the Seneca First Nation until the late seventeenth century; and, subsequently occupied by the Mississauga First Nation until 1805 (Benn 2008; Williamson 2008). The background research also acknowledges that, since the turn of the eighteenth century, the Métis have lived throughout the Province of Ontario but are often muted in the historical record (Métis Nation of Canada [MNC] n.d.; Stone and Chaput 1978: 607,608). Since 1805, the corridor has also been occupied by Euro-Canadian peoples and is situated within the former Township of York, County of York (Benn 2008).

A review of the physiography of the corridor indicates that it is situated within the Iroquois Plain physiographic region of southern Ontario (Chapman and Putnam 1984). Detailed information on the soils within the USRC is not available for the City of Toronto due to the extensive urban development affecting the natural soil drainage (Figure 6-2).

The potential for the survival of any Aboriginal archaeological remains in primary contexts with this corridor is essentially nil. Such sites will not have survived the historic development activities that have removed or heavily altered all elements of the original topography. This conclusion is consistent with the statements concerning the removal of archaeological potential (“disturbance”) outlined in the S & G, Section 1.3.2.

A review of 19th century mapping indicates that the corridor includes both historic features and transportation routes (Miles & Co. 1878; Tremaine 1860) (Figures 5-1 and 5-7).

For each section and associated TPF within the Union Station Rail Corridor discussed below, a Data Gap Analysis is conducted which provides a preliminary assessment of archaeological potential, summarizes previous archaeological assessments completed, and lists archaeological sites and/or other features such as a cemetery or ossuary potential. A summary of the Data Gap Analysis for the Union Station Rail Corridor is provided in Section 4.1.2.

4.1.1 Section USRC-1 – UP Express Union Station to Don Yard Layover

The following criteria (and perhaps others to be determined) indicate the potential for Euro-Canadian and, to a much lesser degree, Aboriginal archaeological sites within the Section USRC-1 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Toronto)
- Proximity to historic transportation route (Grand Trunk Railway)
- Proximity to deeply buried deposits or historic features (landfill south of Front Street; wharves)
- Proximity to water source (Lake Ontario)

These will be confirmed during the Stage 1 Archaeological Assessment.
At least two archaeological assessments have been completed for Section USRC-1 (ASI 2009d; 2010b) (see Figures 7-1 and 7-7) and approximately 1 ha (hectares) has been previously assessed.

4.1.2 Data Gap Analysis Summary – Union Station Rail Corridor
Based on the available background documents, previous archaeological assessments have been completed on part of the corridor sections within the Union Station Rail Corridor (Figures 7-1 and 7-7: areas highlighted in orange). The Stage 1 Archaeological Assessment will confirm what additional lands will require archaeological assessment.

4.2 Lakeshore West Corridor
A review of the historic land use of the Lakeshore West Corridor indicates that it has been occupied by Aboriginal peoples for thousands of years. It is situated within the traditional territories occupied by the ancestral Huron-Wendat and Iroquoian populations who are generally accepted to be ancestral to the Neutral Nations. The north shore of Lake of Ontario was abandoned by ancestral Huron-Wendat populations near the turn of the sixteenth century while Neutral Nation populations occupied the region of the head of Lake Ontario until the early-mid seventeenth century. The corridor was subsequently occupied by the Seneca First Nation until the late seventeenth century; and, subsequently occupied by the Mississauga First Nation until 1795 (Sections LSW-7 and LSW-8); 1805 (LSW-1, LSW-2 and LSW-3); and, 1806 (LSW-3, LSW-4, LSW-5, LSW-6 and LSW-7) (Aboriginal Affairs and Northern Development Canada [AANDC] 2013b; 2013c; 2013d; Benn 2008; Birch 2015; Ellis 2013; Williamson 2013). The background research also acknowledges that, since the turn of the eighteenth century, the Métis have lived throughout the Province of Ontario but are often muted in the historical record (MNC n.d.; Stone and Chaput 1978: 607,608). Since 1784, the corridor has been occupied by Euro-Canadian peoples and is situated within the former Township of East Flamborough, County of Wentworth; since 1795 within the former Township of Nelson, County of Halton; since 1805 within the former Townships of Etobicoke and York, County of York; and, since 1806 within the former Township of Trafalgar, County of Halton and the former Township of Toronto, County of Peel (Benn 2008; Boulton 1805; Pope 1877a; 1877b).

A review of the physiography of the corridor indicates that it is situated within the Iroquois Plain physiographic region of southern Ontario (Chapman and Putnam 1984). Detailed information on the soils within the Lakeshore West Corridor is not available for parts of the City of Toronto, Town of Oakville and City of Burlington due to the extensive urban development affecting the natural soil drainage. Parts of the corridor do however contain well-drained sandy soils (Department of Agriculture 1953a; 1953b; 1971; 1977; Gillespie et al. 1971; Hoffman and Richards 1953; 1955) (Figures 6-1 and 6-2).

A review of 19th century mapping indicates that the corridor includes both historic features and transportation routes (Miles & Co. 1878; Page & Smith 1875; Pope 1877a; 1877b; Tremaine 1858; 1859; 1860) (Figure 5-1 to 5-6).

For each section and associated TPF within the Lakeshore West Corridor discussed below, a Data Gap Analysis is conducted which provides a preliminary assessment of archaeological potential, summarizes
previous archaeological assessments completed, and lists archaeological sites and/or other features such as a cemetery or ossuary potential. A summary of the Data Gap Analysis for the Lakeshore West Corridor is provided in Section 4.2.10.

4.2.1 Section LSW-1 – Strachan Avenue to Mimico Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Section LSW-1 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Mimico, Parkdale)
- Proximity to historic transportation route (Great Western Railway; roads; Humber River)
- Proximity to historic features (farmhouses, church)
- Proximity to water source (Humber River and Lake Ontario)

These will be confirmed during the Stage 1 Archaeological Assessment.

Section LSW-1 also encroaches on the Christ Church Mimico Memorial Gardens, a cemetery with burials dating to the early nineteenth century. These lands should be protected and avoided from any planned impacts by the project. Mitigation options for the cemetery will be discussed in the Stage 1 Archaeological Assessment (Figure 7-2).

At least three archaeological assessments pertaining to Section LSW-1 have been completed (ASI 2009c; 2009e; 2014a) (see Figures 7-1 and 7-2), and approximately 1.9 ha have been previously assessed.

4.2.2 Section LSW-2 – Mimico Station to Long Branch Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSW-2 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Mimico)
- Proximity to historic transportation route (Great Western Railway)
- Proximity to historic features (farmhouse)
- Proximity to water source (Etobicoke Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

No known archaeological assessments have been conducted within Section LSW-2, and this will be confirmed during the Stage 1 Archaeological Assessment.

4.2.2.1 Mimico TPS and SWS
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Mimico TPS and SWS study area, depending on the amount of past disturbance and presence of physical features:
4.2.3 Section LSW-3 – Long Branch Station to Port Credit Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSW-3 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Port Credit)
- Proximity to historic transportation route (Great Western Railway; Hurontario Street)
- Proximity to historic features (farmsteads)
- Well-drained sandy soil (Fox sandy loam)
- Proximity to water source (Etobicoke Creek)
- Associated First Nation occupation (Port Credit Mississauga settlement)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least two archaeological assessments pertaining to Section LSW-3 have been completed (ASI 2004a; 2014f) (see Figures 7-2 and 7-3), and approximately 1 ha has been previously assessed.

4.2.4 Section LSW-4 – Port Credit Station to Clarkson Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSW-4 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Port Credit, Clarkson)
- Proximity to historic transportation route (Great Western Railway; Mississauga Road; Credit River)
- Proximity to historic features (farmsteads)
- Well-drained sandy soil (Fox sand)
- Proximity to previously registered archaeological sites (Klinker, AjGv-49)
- Proximity to water source (Credit River)
- Associated First Nation occupation (Port Credit Mississauga settlement)

These will be confirmed during the Stage 1 Archaeological Assessment.
The Klinker Site (AjGv-49) is located within this Section LSW-4 but will not be disturbed by the project (Figure 7-3). The site has no Cultural Heritage Value or Interest (CHVI) (MTCS 2015) and does not require further assessment.

At least two archaeological assessments pertaining to Section LSW-4 have been completed (ASI 1989; 2000b) (see Figure 7-3), and approximately 1.3 ha has been assessed. In addition, an Environmental Study Report (URS Canada Inc. [URS] 2006) was completed for the GO Transit Lakeshore West Corridor Rail Expansion Class Environmental Assessment (EA) between Port Credit Station and Kerr Street, City of Mississauga and Town of Oakville, and this included a Stage 1 archaeological assessment of Section LSW-4 study area as part the EA. The archaeological assessment recommended that no further work was required for this section due to previous disturbance. As part of the Stage 1 Archaeological Assessment, ASI will review the EA report and confirm the archaeological information relevant to Section LSW-4.

4.2.5 Section LSW-5 – Clarkson Station to Oakville Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSW-5 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Oakville)
- Proximity to historic transportation route (Great Western Railway; Trafalgar Road)
- Proximity to historic features (farmsteads)
- Proximity to water source (Joshua’s Creek; Sixteen Mile Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

An Environmental Study Report (URS 2006) was completed for the GO Transit Lakeshore West Corridor Rail Expansion Class EA, between Port Credit Station and Kerr Street, City of Mississauga and Town of Oakville, and this included a Stage 1 archaeological assessment of Section LSW-5 as part of the EA. The archaeological assessment recommended that no further work was required for this section due to previous disturbance. As part of the Stage 1 Archaeological Assessment, ASI will review the EA report and confirm the archaeological information relevant to Section LSW-5.

4.2.5.1 Oakville SWS
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Oakville SWS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Great Western Railway; Maple Grove Drive)
- Proximity to historic features (farmhouse)

These will be confirmed during the Stage 1 Archaeological Assessment.
Adjacent to the Oakville SWS, an Environmental Study Report (URS 2006) was completed for the GO Transit Lakeshore West Corridor Rail Expansion Class EA, between Port Credit Station and Kerr Street, City of Mississauga and Town of Oakville, and this included a Stage 1 archaeological assessment of Section LSW-5 as part of the EA. The archaeological assessment recommended that no further work was required for this section due to previous disturbance.

No known archaeological assessments pertaining to the Oakville SWS study area have been completed, and this will be confirmed during the Stage 1 Archaeological Assessment.

4.2.6 Section LSW-6 – Oakville Station to Bronte Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSW-6 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Oakville)
- Proximity to historic transportation route (Great Western Railway; Lyons Lane)
- Proximity to water source (Sixteen Mile Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

Section LSW-6 has been subject to at least at least one archaeological assessment (ASI 2008) (see Figures 7-4 and 7-5) and approximately 6.1 ha have been previously assessed.

An Environmental Study Report (URS 2006) was completed for the GO Transit Lakeshore West Corridor Rail Expansion Class EA, between Port Credit Station and Kerr Street, City of Mississauga and Town of Oakville, and this included a Stage 1 archaeological assessment of Section LSW-6 as part of the EA. The archaeological assessment recommended that no further work was required for this section due to previous disturbance. As part of the Stage 1 Archaeological Assessment, ASI will review the EA report and confirm the archaeological information relevant to Section LSW-6.

4.2.7 Section LSW-7 – Bronte Station to Appleby Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSW-7 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Great Western Railway; Bronte Road)
- Proximity to historic features (farmsteads)
- Proximity to water source (Bronte Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least one previous archaeological assessment pertaining to Section LSW-7 has been completed (ASI 2008) (see Figure 7-5), and approximately 1 ha has been assessed.
4.2.8  Section LSW-8 – Appleby Station to Burlington Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSW-8 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Great Western Railway)
- Proximity to historic features (farmsteads)
- Proximity to previously registered archaeological sites (George Richardson, AiGw-87)
- Proximity to water source (unnamed tributaries)
- Well-drained sandy soils (Fox sandy loam)

These will be confirmed during the Stage 1 Archaeological Assessment.

No known archaeological assessments pertaining to Section LSW-8 have been completed, and this will be confirmed during the Stage 1 Archaeological Assessment.

4.2.8.1  Burlington TPS
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Burlington TPS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Great Western Railway)
- Well-drained sandy soils (Font sand)

These will be confirmed during the Stage 1 Archaeological Assessment.

No known archaeological assessments pertaining to the Burlington TPS study area have been completed, and this will be confirmed during the Stage 1 Archaeological Assessment.

4.2.9  Data Gap Analysis Summary – Lakeshore West Rail Corridor
Based on the available background documents, previous archaeological assessments have been completed on part of the corridor sections and/or TPFs within the Lakeshore West Rail Corridor (Figures 7-1 to 7-6: areas highlighted in orange). The Stage 1 Archaeological Assessment will confirm what additional lands will require archaeological assessment.

4.3  Kitchener Corridor
A review of the historic land use of the Kitchener corridor indicates that it has been occupied by Aboriginal peoples for thousands of years. It is situated within the traditional territory occupied by the ancestral Huron-Wendat until the turn of the sixteenth century; subsequently utilized by the Seneca First Nation as a hunting ground until the late seventeenth century; and, subsequently occupied by the Mississauga First Nation until 1806 (Section KT-1; KT-2); and 1818 (TPF-4) (AANDC 2013a; 2013d; Ellis 2013; Williamson 2013). The background research also acknowledges that since the turn of the
The Métis have lived throughout the Province of Ontario but are often muted in the historical record (MNC n.d.; Stone and Chapat 1978:607,608). Since 1806, the corridor has been occupied by Euro-Canadian peoples and is situated within the former Townships of Toronto Gore and Toronto, County of Peel; and, since 1818 within the former Township of Chinguacousy, County of Peel (Pope 1877b).

A review of the physiography of the corridor indicates that it is situated within the Peel Plain physiographic region of southern Ontario (Chapman and Putnam 1984). Review of soils information indicates that the corridor does not include any well-drained sandy soils (Department of Agriculture 1953; Hoffman and Richards 1953) (Figures 6-1 and 6-2).

A review of 19th century mapping indicates that the corridor includes both historic features and transportation routes (Tremaine 1859; Pope 1877b) (Figure 5-27).

For each section and associated TPF within the Kitchener Corridor discussed below, a Data Gap Analysis is conducted which provides a preliminary assessment of archaeological potential, summarizes previous archaeological assessments completed, and lists archaeological sites and/or other features such as a cemetery or ossuary potential. A summary of the Data Gap Analysis for the Kitchener Corridor is provided in Section 4.3.3.

**4.3.1 Section KT-1 – UP Express Spur (at Highway 427) to Malton Station**

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the KT-1 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Grand Trunk Railway; former alignment of Goreway Drive)
- Proximity to historic features (farmstead)
- Proximity to water source (Mimico Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least two archaeological assessments pertaining to Section KT-1 have been completed (ASI 2009a; 2009b) (see Figure 7-27), and approximately 2.2 ha have been assessed. ASI (2009a) conducted a Stage 1 archaeological assessment for the Georgetown South Service Expansion and Union Pearson Rail Link under the project direction of Rob Pihl (P057-509-2008). This Stage 1 archaeological assessment recommended that part of Section KT-1 possessed no archaeological potential due to previous disturbance, however, the assessment only encompassed this section to the west of Goreway Drive.
4.3.2 Section KT-2 – Malton Station to Bramalea Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the KT-2 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Malton)
- Proximity to historic transportation route (Grand Trunk Railway; Bramalea Road)
- Proximity to historic features (farmsteads)
- Proximity to water source (tributary of Etobicoke Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

No known archaeological assessments pertaining to Section KT-2 have been completed, and this will be confirmed during the Stage 1 Archaeological Assessment.

4.3.2.1 Bramalea PS
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Burlington PS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Grand Trunk Railway; Steeles Avenue East)
- Proximity to water source (unnamed historic tributary)

These will be confirmed during the Stage 1 Archaeological Assessment.

No known archaeological assessments pertaining to the Bramalea PS study area have been completed, and this will be confirmed during the Stage 1 Archaeological Assessment.

4.3.3 Data Gap Analysis Summary – Kitchener Corridor
Based on the available background documents, previous archaeological assessments have been completed on part of the corridor sections and the Bramalea PS within the Kitchener Corridor (Figure 7-27: areas highlighted in orange). The Stage 1 Archaeological Assessment will confirm what additional lands will require archaeological assessment.

4.4 Barrie Corridor
A review of the historic land use of the Barrie corridor indicates that it has been occupied by Aboriginal peoples for thousands of years. It is situated within the traditional territory occupied by the ancestral Huron-Wendat, however the Northshore of Lake Ontario was abandoned around the turn of the sixteenth century while Simcoe County was occupied until the mid-seventeenth century. The corridor was subsequently utilized by the Seneca First Nation for hunting until the late seventeenth century; and, subsequently occupied by Ojibwa First Nations until 1805 (Sections BR-1, BR-2, BR-3, BR-4, BR-5, BR-6 and BR-7); 1818 (Sections BR-9, BR-10, BR-11 and BR-12); and, 1923 (Sections Br-7 and BR-8) (AANDC
The background research also acknowledges that since the turn of the eighteenth century, the Métis have lived throughout the Province of Ontario but are often muted in the historical record (MNC n.d.; Stone and Chaput 1978: 607, 608). Since 1805, the section has been occupied by Euro-Canadian peoples and is situated within the former Townships of King, Vaughan, Whitchurch and York, County of York; since 1818, within the former Townships of Innisfil and West Gwillimbury, County of Simcoe; and, since the 1790s, within the former Townships of East Gwillimbury and King, County of York and the former Township of Innisfil, County of Simcoe (Benn 2008; Mika and Mika 1977; Miles & Co. 1878; Rayburn 1997).

A review of the physiography of the corridor indicates that it is situated within the Iroquois Plain, Oak Ridges Moraine, Peel Plain, Peterborough Drumlín Field, Schomberg Clay Plains, Simcoe Lowlands and South Slope physiographic regions of southern Ontario (Chapman and Putnam 1984). Detailed information on the soils within the Barrie Corridor is not available for the City of Toronto due to the extensive urban development affecting the natural soil drainage. Parts of the corridor do, however possess well-drained sandy soils (Department of Agriculture 1959; 1977; Hoffman and Richards 1955; Hoffman et al. 1962) (Figures 6-1 and 6-2).

A review of 19th century mapping indicates that the corridor includes both historic features and transportation routes (Belden & Co. 1881; Hogg 1871; Miles & Co. 1878; Tremaine 1860) (Figures 5-1 and 5-12 to 5-21).

For each section and associated TPF within the Barrie Corridor discussed below, a Data Gap Analysis is conducted which provides a preliminary assessment of archaeological potential, summarizes previous archaeological assessments completed, and lists archaeological sites and/or other features such as a cemetery or ossuary potential. A summary of the Data Gap Analysis for the Barrie Corridor is provided in Section 4.4.13.

4.4.1 Section BR-1 – Parkdale Junction to Caledonia Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-1 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Brockton)
- Proximity to historic transportation route (Northern Railway)
- Proximity to historic features (farmsteads)

These will be confirmed during the Stage 1 Archaeological Assessment.

A review of 19th century mapping indicates that part of Section BR-1 includes a portion of the former property of St. Helen’s Roman Catholic Church (Goad 1890; Robertson 1908) (Figure 7-1). While the available 19th century mapping does not indicate a cemetery on the church property, this does not preclude the probability that an associated cemetery may remain intact on the property (cf. ASI
2015d:1; 2015f). Additional background research on the property will be required as part of the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-1 has been completed (ASI in-preparation) (see Figures 7-1 and 7-12), and approximately 30.6 ha have been assessed. ASI (in-preparation) is currently conducting a Stage 1 archaeological assessment for the Barrie Rail Corridor Expansion (BRCE) Transit Project Assessment from Mile 3.00 to Mile 63.00. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-1 will require additional archaeological assessment.

4.4.2 Section BR-2 – Caledonia Station to Downsview Park Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-2 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Village of Weston)
- Proximity to historic transportation route (Northern Railway)
- Proximity to historic features (farmsteads; historic community of Weston Station)
- Proximity to water source (Maple Leaf Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

Section BR-2 includes lands within the Mt. Sinai Memorial Park cemetery. These lands should be protected and avoided from any planned impacts by the project. Preliminary mitigative options for the cemetery will be provided in the Stage 1 Archaeological Assessment (Figure 7-13).

An archaeological assessment of part of Section BR-2 has been completed (ASI in-preparation) (see Figures 7-12 and 7-13), and approximately 44.6 ha have been assessed. ASI (in-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63.00. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-2 will require additional archaeological assessment.

4.4.3 Section BR-3 – Downsview Park Station to Rutherford Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-3 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Northern Railway)
- Proximity to historic features (farmsteads)
- Proximity to previously registered archaeological sites (AlGu-22; AlGu-30)
- Proximity to water source (Don River West Branch)

These will be confirmed during the Stage 1 Archaeological Assessment.
Two previously registered archaeological sites are located within 50 m of Section BR-3 (AkGu-30; and, AlGu-22) (Figure 7-14). Site AlGu-22 will not be disturbed by this project and does not require further assessment as MTCS records indicate that it has been determined to not have CHVI; this will be confirmed during the Stage 1 Archaeological assessment. Site AkGu-30 is reported to possess CHVI but has most likely been destroyed by subsequent development (MTCS 2015). Its condition will be confirmed as part of the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-3 has been completed (ASI In-preparation) (see Figures 7-13 and 7-14), and approximately 53.1 ha have been assessed. ASI; (In-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63.00. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-3 will require additional archaeological assessment.

4.4.4 Section BR-4 – Rutherford Station to King City Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-4 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (King City; Maple)
- Proximity to historic transportation route (Northern Railway; Major Mackenzie Drive; Keele Street)
- Proximity to historic features (farmsteads)
- Well-drained sandy soils (Woburn sandy loam)
- Proximity to previously registered archaeological sites (AlGu-23)
- Proximity to water source (tributary of Don River)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered archaeological site is located within 50 m of Section BR-4 (AlGu-23) (Figure 7-14). Site AlGu-23 is reported to possess CHVI but most likely has been destroyed by subsequent development (MTCS 2015). Its condition will be confirmed as part of the Stage 1 Archaeological Assessment.

Section BR-4 encroaches upon the Maple United Cemetery (Figure 7-14). These lands should be protected and avoided from any planned impacts by the project. Preliminary mitigative options for the cemetery will be provided in the Stage 1 Archaeological Assessment.

Section BR-4 includes lands modeled to possess potential for an ancestral Huron-Wendat Ossuary (Figure 7-14). Preliminary assessment options for these lands will be included in the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-4 has been completed (ASI In-preparation) (see Figures 7-14 and 7-15), and approximately 57.1 ha have been assessed. ASI (In-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00
to Mile 63.00). The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-4 will require additional archaeological assessment.

### 4.4.4.1 Maple PS

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Maple PS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Northern Railway; Keele Street)
- Proximity to historic features (farmsteads)
- Well-drained sandy soils (Woburn sandy loam)

These will be confirmed during the Stage 1 Archaeological Assessment.

The Maple PS is immediately adjacent to the Hope Primitive Methodist Cemetery (Figure 7-14). These lands should be protected and avoided from any planned impacts by the project. Preliminary mitigative options for the cemetery will be provided in the Stage 1 Archaeological Assessment.

The Maple PS includes lands modeled to possess potential for an ancestral Huron-Wendet Ossuary (Figure 7-14). Preliminary assessment options for these lands will be included in the Stage 1 Archaeological Assessment.

At least one archaeological assessment of the Maple PS study area has been completed (Archeoworks 2010) (see Figure 7-14). Archeoworks (2010) completed a Stage 2 archaeological assessment of the entire property. This will be confirmed during the Stage 1 Archaeological Assessment.

### 4.4.5 Section BR-5 – King City Station to Bathurst Street

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-5 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (King City/Springhill)
- Proximity to historic transportation route (Northern Railway; Bathurst Street)
- Proximity to historic features (farmsteads)
- Well-drained sandy soils (Woburn sandy loam)
- Proximity to water source (tributary of Humber River)

These will be confirmed during the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-5 has been completed (ASI In-preparation) (see Figures 7-15), and approximately 20.9 ha have been assessed. ASI (In-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-5 will require additional archaeological assessment.
4.4.6 Section BR-6 – Bathurst Street to Aurora Station
These criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-6 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Town of Aurora)
- Proximity to historic transportation route (Northern Railway; Yonge Street)
- Proximity to historic features (farmsteads)
- Well-drained sandy soil (Pontypool sandy loam)
- Proximity to water source (tributary of East Holland River)

These will be confirmed during the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-6 has been completed (ASI In-preparation) (see Figures 7-16), and approximately 23.9 ha have been assessed. ASI (In-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63.00. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-6 will require additional archaeological assessment.

4.4.7 Section BR-7 – Aurora Station to East Gwillimbury Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-7 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Aurora; Newmarket)
- Proximity to historic transportation route (Northern Railway)
- Proximity to historic features (farmsteads)
- Proximity to previously registered archaeological sites (BaGu-49)
- Proximity to water source (East Holland River)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered archaeological site is located within 50 m of Section BR-7 (BaGu-49) (Figure 7-17). Site BaGu-49 will not be disturbed by the project and does not require further assessment because it has been determined to have no CHVI (MTCS 2015). This will be confirmed during the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-7 has been completed (ASI In-preparation) (see Figures 7-16 and 7-17), and approximately 40.3 ha have been assessed. ASI (In-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63.00. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-7 will require additional archaeological assessment.
4.4.7.1 Newmarket SWS
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Newmarket SWS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to water source (East Holland River)

These will be confirmed during the Stage 1 Archaeological Assessment.

No known archaeological assessments have been completed within the Newmarket SWS, but this will be confirmed during the Stage 1 Archaeological Assessment.

4.4.8 Section BR-8 – East Gwillimbury Station to Bradford Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within BR-8 the study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Bradford; Holland Landing)
- Proximity to historic transportation route (Holland River; Northern Railway; Yonge Street; Toronto Carrying Place Trail)
- Proximity to historic features (farmsteads)
- Well-drained sandy soil (Pontypool sandy loam)
- Proximity to previously registered archaeological sites (BaGu-141)
- Proximity to water source (Holland River)
- Associated occupation (Ojibwa settlement at Holland Landing)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered archaeological site is located within 50 m of Section BR-7 (BaGu-141) (Figure 7-17). BaGu-141 will not be disturbed by this project and does not require further assessment because it has been determined to have no CHVI (MTCS 2015). This will be confirmed during the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-8 has been completed (ASI In-preparation) (see Figures 7-17 and 7-18), and approximately 36.2 ha have been assessed. ASI (In-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63.00. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-8 will require additional archaeological assessment.

4.4.9 Section BR-9 – Bradford Station to 13th Line
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-9 study area, depending on the amount of past disturbance and presence of physical features:
• Proximity to Euro-Canadian settlement (Bradford)
• Proximity to historic transportation route (Northern Railway)
• Proximity to historic features (farmsteads)
• Proximity to previously registered archaeological sites (BaGv-18)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered archaeological site is located within 50 m of Section BR-9 (BaGv-18) (Figure 7-18). Site BaGv-18 is reported to have CHVI (MTCS 2015). This will be confirmed during the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-9 has been completed (ASI In-preparation) (see Figures 7-18 and 7-19), and approximately 28.9 ha have been assessed. ASI (In-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63.00. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-9 will require additional archaeological assessment.

4.4.10 Section BR-10 – 13th Line to 6th Line
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-10 study area, depending on the amount of past disturbance and presence of physical features:

• Proximity to Euro-Canadian settlement (Lefroy)
• Proximity to historic transportation route (Northern)
• Proximity to historic features (farmsteads)
• Well-drained sandy soils (Bondhead sand loam; Tioga sandy loam)
• Proximity to water source (Innisfil Creeks)

These will be confirmed during the Stage 1 Archaeological Assessment.

Section BR-10 includes lands adjacent to the historic Lefroy United Church (Figure 7-19). These lands require further background research to determine if a historic cemetery associated with the church is located on the property. This background research and any recommendations on mitigating potential impacts by the project will be provided in the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-10 has been completed (ASI In-preparation) (see Figures 7-19), and approximately 29.6 ha have been assessed. ASI (In-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63.00 under the project direction of Paul David Ritchie (P392-0170-2015). The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-10 will require additional archaeological assessment.
4.4.10.1 Gilford PS
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Gilford PS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Northern Railways)
- Well-drained sandy soils (Bondhead sandy loam)

These will be confirmed during the Stage 1 Archaeological Assessment.

There are no known previous assessments which have been completed within the Gilford PS.

4.4.11 Section BR-11 – 6th Line to Barrie South Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-11 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Craigvale)
- Proximity to historic transportation route (Northern Railway; Yonge Street/Penetang Road)
- Proximity to historic features (church; school; post office)
- Well-drained sandy soils (Sargent sandy loam)
- Proximity to previously registered archaeological sites (BbGv-50; BbGv-51; BbGv-52)
- Proximity to water source (Hewitts Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

Three previously registered archaeological sites are located within 50 m of Section BR-10 (BbGv-50; BbGv-51; and, BbGv-52) (Figure 7-20). Site BbGv-50 is reported to have CHVI (MTCS 2015). This will be confirmed during the Stage 1 Archaeological Assessment. Information on BbGv-51 and BbGv-52 is limited but both sites are reported to have CHVI (MTCS 2015). This will be confirmed during the Stage 1 Archaeological Assessment.

Section BR-11 includes lands within the St. Pauls Innisfil Cemetery (Figure 7-20). These lands should be protected and avoided from any planned impacts by the project. Preliminary mitigative options for the cemetery will be provided in the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-11 has been completed (ASI In-preparation) (see Figures 7-19 and 7-20), and approximately 30.1 ha have been assessed. ASI (In-preparation) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63.00. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-11 will require additional archaeological assessment.
### 4.4.12 Section BR-12 – Barrie South Station to Allandale Waterfront Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the BR-12 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Allandale)
- Proximity to historic transportation route (Northern Railway; Kempenfelt Bay)
- Proximity to historic features (farmsteads)
- Well-drained sandy soils (Sargent sandy loam; Tioga sandy loam)
- Proximity to previously registered archaeological sites (BbGv-20; BcGw-60)
- Proximity to water source (Lovers Creek; Kempenfelt Bay)

These will be confirmed during the Stage 1 Archaeological Assessment.

Two previously registered sites are located within 50 m of Section BR-12 (BbGv-20; BcGw-60). (Figures 7-20 to 7-21). Site BbGv-20 is identified as an ancestral Huron-Wendat village site and reported to be intact and to have CHVI (MTCS 2015). Further background research is required to determine if the site extends into the study area. This background research, as well as recommendations on mitigating potential impacts of the project to the site, will be included in the Stage 1 Archaeological Assessment.

Site BcGw-60 is also identified as an ancestral Huron-Wendat settlement site and is located within the study area. Human remains, likely from an ossuary associated with the village site have also been identified extensively across the site. Preliminary mitigative options for the site will be included in the Stage 1 Archaeological Assessment.

An archaeological assessment of part of Section BR-12 has been completed (ASI *in-preparation*) (see Figures 7-21), and approximately 29.3 ha have been assessed. ASI (*in-preparation*) is currently conducting a Stage 1 archaeological assessment for the BRCE Transit Project Assessment from Mile 3.00 to Mile 63.00. The draft BRCE Stage 1 archaeological assessment report recommends that part of Section BR-12 will require additional archaeological assessment.

#### 4.4.12.1 Allandale TPS

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Allandale TPS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Northern Railway)
- Well-drained sandy soils (Tioga sandy loam)
- Proximity to previously registered archaeological sites (BcGw-60)

These will be confirmed during the Stage 1 Archaeological Assessment.
One previously registered site is located within 50 m of the Allandale TPS (BcGw-60) (Figure 7-21). Site BcGw-60 is identified as an ancestral Huron-Wendat settlement site and is located within the study area. Human remains, likely from an ossuary associated with the village site have also been identified extensively across the site. Preliminary mitigative options for the site will be included in the Stage 1 Archaeological Assessment.

4.4.13 Data Gap Analysis Summary – Barrie Corridor
Based on the available background documents, previous archaeological assessments have been completed on part of the corridor sections and/or TPFs within the Barrie Corridor (Figures 7-1 and to 7-12 to 7-21: areas highlighted in orange). The Stage 1 Archaeological Assessment will confirm what additional lands will require archaeological assessment.

4.5 Stouffville Corridor
A review of the historic land use of the Stouffville corridor indicates that it has been occupied by Aboriginal peoples for thousands of years. It is situated within the traditional territory occupied by the ancestral Huron-Wendat, however, the north shore of Lake Ontario was abandoned around the turn of the sixteenth century. The corridor was subsequently utilized by the Seneca First Nation for hunting until the late seventeenth century; and, subsequently occupied by Ojibwa First Nations until 1805 (Benn 2008; Ellis 2013; Williamson 2013). The background research also acknowledges that since the turn of the eighteenth century, the Métis have lived throughout the Province of Ontario but are often muted in the historical record (MNC n.d.; Stone and Chaput 1978: 607,608). Since 1805, the corridor has been occupied by Euro-Canadian peoples and is situated within the former Townships of Markham, Scarborough and Whitchurch, County of York (Miles & Co. 1878).

A review of the physiography of the corridor indicates that it is situated within the Peel Plain and South Slope physiographic regions of southern Ontario (Chapman and Putnam 1984). Review of soils information indicates that the corridor includes well-drained sandy soils (Department of Agriculture 1977; Hoffman and Richards 1955) (Figures 6-1 and 6-2).

A review of 19th century mapping indicates that the corridor includes both historic features and transportation routes (Miles & Co. 1878; Tremaine 1860) (Figures 5-8 and 5-22 to 5-26).

For each section and associated TPF within the Stouffville Corridor discussed below, a Data Gap Analysis is conducted which provides a preliminary assessment of archaeological potential, summarizes previous archaeological assessments completed, and lists archaeological sites and/or other features such as a cemetery or ossuary potential. A summary of the Data Gap Analysis for the Stouffville Corridor is provided in Section 4.5.8.

4.5.1 Section SV-1 – Scarborough Junction to Agincourt Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the SV-1 study area, depending on the amount of past disturbance and presence of physical features:
Proximity to Euro-Canadian settlement (Scarborough Junction)
Proximity to historic transportation route (Toronto & Nipissing Railway; Danforth Road)
Well-drained sandy soils (Woburn sandy loam)
Proximity to historic features (farmsteads)
Proximity to previously registered archaeological sites (AkGt-16)
Proximity to water source (tributary of Highland Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered site is located within 50 m of Section SV-1 (AkGt-16) which possibly extends into the Scarborough TAP site (Figure 7-8). Available information on Site AkGt-16 is limited. The site is reported to be approximately three acres in area and as such possibly extends into the study area. Additional background research is required to determine if the site has CHVI, and this will be included in the Stage 1 Archaeological Assessment.

At least two archaeological assessments pertaining to Section SV-1 have been completed (ASI 2010a; 2014h) (see Figures 7-8 and 7-22), and approximately 3.4 ha have been assessed. ASI (2014h) conducted a Stage 1 archaeological assessment for the Stouffville Corridor Rail Service Expansion GO Transit Class Environmental Assessment Study and Preliminary Design under the project direction of Paul David Ritchie (P392-0021-2013). This Stage 1 archaeological assessment report assessed only the existing GO ROW for the Stouffville Corridor from the Scarborough junction to Unionville GO Station as well as some minor proposed property acquisitions.

4.5.1.1 Scarborough TPS
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Scarborough TPS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Toronto & Nipissing Railway; Eglinton Avenue East)
- Well-drained sandy soils (Woburn sandy loam)
- Proximity to historic features (farmsteads)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least two archaeological assessments pertaining to the Scarborough TPS study area have been completed and been subject to at least two previous archaeological assessments (ASI 2010a; 2014h) (see Figures 7-8 and 7-22), and the majority of the proposed facility has been assessed.

4.5.2 Section SV-2 – Agincourt Station to Milliken Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the SV-2 study area, depending on the amount of past disturbance and presence of physical features:
GO Rail Network Electrification TPAP  
Final Archaeological Baseline Conditions Report

- Proximity to Euro-Canadian settlement (Milliken)
- Proximity to historic transportation route (Toronto & Nipissing Railway; Steeles Avenue)
- Proximity to historic features (farmsteads)
- Proximity to water source (tributary of Highland Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

Section SV-2 includes lands which have been modeled to possess potential for an ancestral Huron-Wendat Ossuary (Figure 7-22). Preliminary assessment options for these lands will be provided in the Stage 1 Archaeological Assessment.

At least four archaeological assessments pertaining to Section SV-2 have been completed (ASI 2004d; 2005a; 2005b; 2014h) (see Figure 7-22), and approximately 1 ha has been assessed. ASI (2014h) conducted a Stage 1 archaeological assessment for the Stouffville Corridor Rail Service Expansion GO Transit Class Environmental Assessment Study and Preliminary Design under the project direction of Paul David Ritchie (P392-0021-2013). This Stage 1 archaeological assessment report assessed only the existing GO ROW for the Stouffville Corridor from the Scarborough junction to Unionville GO Station as well as some minor proposed property acquisitions.

4.5.3 Section SV-3 – Milliken Station to Unionville Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the SV-3 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Milliken)
- Proximity to historic transportation route (Toronto & Nipissing Railway)
- Proximity to historic features (farmsteads)
- Proximity to previously registered archaeological sites (AkGt-21)
- Proximity to water source (tributaries of Rouge River)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered site is located within 50 m of Section SV-3 (AkGt-21) (Figures 7-22 and 7-23). Available information on Site AkGt-21 is limited. The site may extend into the study area. Skeletal remains are reported on the site (MTCS 2015). Additional background research is required to determine if the site has CHVI, and this will be included in the Stage 1 Archaeological Assessment.

At least four archaeological assessments pertaining to Section SV-3 have been completed (ASI 1994; 2002; 2014c; 2014h) (see Figures 7-22 and 7-23), and approximately 6.8 ha have been assessed. ASI (2014h) conducted a Stage 1 archaeological assessment for the Stouffville Corridor Rail Service Expansion GO Transit Class Environmental Assessment Study and Preliminary Design under the project direction of Paul David Ritchie (P392-0021-2013). This Stage 1 archaeological assessment report
assessed only the existing GO ROW for the Stouffville Corridor from the Scarborough junction to Unionville GO Station as well as some minor proposed property acquisitions.

### 4.5.3.1 Unionville PS

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Unionville PS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Toronto & Nipissing Railway; Kennedy Road)
- Proximity to historic features (farmsteads)
- Proximity to previously registered archaeological sites (AlGt-211)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered site is located within the Unionville PS (AlGt-211) (Figure 7-23). According to OASD records, the site has been fully mitigated and requires no further archaeological assessment. This will be confirmed during the Stage 1 Archaeological Assessment.

At least one archaeological assessment pertaining to the Unionville PS study area has been completed (Stewart 1995) (see Figure 7-23). Approximately 14.5 ha was surveyed as part of the Highway 407 project, and Site (AlGt-211) was discovered (Stewart 1995).

### 4.5.4 Section SV-4 – Unionville Station to Markham Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the SV-4 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Markham; Unionville)
- Proximity to historic transportation route (Toronto & Nipissing Railway)
- Proximity to historic features (farmsteads)
- Proximity to water source (Rouge River)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least three archaeological assessments pertaining to Section SV-4 have been completed (ASI 2002; 2011a; 2014h) (see Figure 7-23), and approximately 3 ha have been assessed.

### 4.5.5 Section SV-5 – Markham Station to Mount Joy Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the SV-5 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Markham)
GO Rail Network Electrification TPAP
Final Archaeological Baseline Conditions Report

- Proximity to historic transportation route (Markham Road; Toronto & Nipissing Railway)
- Proximity to historic features (farmsteads)
- Proximity to water source (tributary of Rouge River)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least one archaeological assessment pertaining to Section SV-5 has been completed (ASI 2000c) (see Figure 7-24), and approximately 1.9 ha has been assessed.

4.5.6 Section SV-6 – Mount Joy Station to Stouffville Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the SV-6 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Markham; Stouffville)
- Proximity to historic transportation route (Toronto & Nipissing Railway)
- Proximity to historic features (farmsteads)
- Proximity to previously registered archaeological sites (AlGt-130; AlGt-259)
- Proximity to water source (Rouge River)

These will be confirmed during the Stage 1 Archaeological Assessment.

Two previously registered sites are located within 50 m of Section SV-6 (AlGt-130; AlGt-259) (Figures 7-24 and 7-25). AlGt-130 is reported to have CHVI but will require additional archaeological assessment, whereas AlGt-259 is considered to have no CHVI (MTCS 2015). The status for both sites will be confirmed in the Stage 1 Archaeological Assessment.

At least four archaeological assessments pertaining to Section SV-6 have been completed (ASI 2000a; 2000c; 2003; 2004b) (see Figures 7-24 to 7-26), and approximately 4.7 ha have been assessed.

4.5.7 Section SV-7 – Stouffville Station to Lincolnville Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the SV-7 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Stouffville)
- Proximity to historic transportation route (Toronto & Nipissing Railway)
- Proximity to historic features (farmsteads)
- Proximity to water source (West Duffins Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.
At least two archaeological assessments pertaining to Section SV-7 have been completed (ASI 2006a; 2014g) (see Figures 7-25 and 7-26), and approximately 1.1 ha has been assessed.

4.5.7.1 Lincolnville PS

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Lincolnville PS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Toronto & Nipissing Railway; York-Durham Line)
- Proximity to historic features (farmsteads)
- Proximity to water source (West Duffins Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

No known archaeological assessment pertaining to the Lincolnville PS study area has been completed, and this will be confirmed during the Stage 1 Archaeological Assessment.

4.5.8 Data Gap Analysis Summary – Stouffville Corridor

Based on the available background documents, previous archaeological assessments have been completed on part of the corridor sections and/or TPFs within the Stouffville Corridor (Figures 7-22 to 7-26: areas highlighted in orange). The Stage 1 Archaeological Assessment will confirm what additional lands will require archaeological assessment.

4.6 Lakeshore East Corridor

A review of the historic land use of the Lakeshore East Corridor indicates that it has been occupied by Aboriginal peoples for thousands of years. It is situated within the traditional territory occupied by the ancestral Huron-Wendat, however the north shore of Lake Ontario was abandoned at around the turn of the sixteenth century. The corridor was subsequently utilized by the Seneca First Nation for hunting until the late seventeenth century; and, subsequently occupied by Ojibwa First Nations until 1805 (Sections LSE-1, LSE-2, LSE-3, LSE-4 and LSE-5); and, 1923 (Sections LSE-5, LSE-6, LSE-7 and LSE-8) (AANDC 2013f; Benn 2008; Ellis 2013; Williamson 2013). The background research also acknowledges that since the turn of the eighteenth century, the Métis have lived throughout the Province of Ontario but are often muted in the historical record (MNC n.d.; Stone and Chaput 1978:607,608). Since 1805, the corridor has been occupied by Euro-Canadian peoples and is situated within the former Townships of Scarborough and York, County of York; and, since 1790s in the former Townships of East Whitby, Pickering and Whitby, County of Ontario (Armstrong 1985).

A review of the physiography of the corridor indicates that it is situated within the Iroquois Plain and South Slope physiographic regions of southern Ontario (Chapman and Putnam 1984). Detailed information on the soils within the Lakeshore East Corridor is not available for the City of Toronto due to the extensive urban development affecting the natural soil drainage. Parts of the corridor do however
include well-drained sandy soils (Department of Agriculture 1977; 1979; Hoffman and Richards 1955; Olding et al. 1956) (Figures 6-1 and 6-2).

A review of 19th century mapping indicates that the corridor includes both historic features and transportation routes (Beers 1877; Miles & Co. 1878; Shier 1960; Tremaine 1860) (Figures 5-7 to 5-11).

For each section and associated TPF within the Lakeshore East Corridor discussed below, a Data Gap Analysis is conducted which provides a preliminary assessment of archaeological potential, summarizes previous archaeological assessments completed, and lists archaeological sites and/or other features such as a cemetery or ossuary potential. A summary of the Data Gap Analysis for the Lakeshore East Corridor is provided in Section 4.6.9.

### 4.6.1 Section LSE-1 – Don Yard Layover to Danforth Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSE-1 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Don Mount)
- Proximity to historic transportation route (Grand Trunk Railway)
- Proximity to historic features (farmsteads)
- Proximity to water source (Don River; Lake Ontario)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least one archaeological assessment pertaining to Section LSE-1 has been completed (ASI 2014d) (see Figure 7-7), and approximately 4.3 ha have been assessed.

#### 4.6.1.1 Don Yard PS

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Don Yard PS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Grand Trunk Railway)
- Proximity to water source (Don River; Lake Ontario)
- Proximity to resource areas (historic Don Marsh)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least one archaeological assessment pertaining to the Don Yard PS study area has been completed (ASI 2014d) (see Figure 7-7). ASI (2014d) completed a Stage 1 archaeological assessment of the entire property. This will be confirmed during the Stage 1 Archaeological Assessment.
4.6.2 Section LSE-2 – Danforth Station to Scarborough Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSE-2 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Grand Trunk Railway; Clonmore Drive; former alignment of Dawes Road)
- Proximity to historic features (farmsteads)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least one archaeological assessment pertaining to Section LSE-2 has been completed (ASI 2011b) (see Figure 7-7), and approximately 2.4 ha have been assessed.

4.6.3 Section LSE-3 – Scarborough Station to Guildwood Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSE-3 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Scarborough)
- Proximity to historic transportation route (Eglinton Avenue; Grand Trunk Railway; Kingston Road)
- Proximity to historic features (farmsteads)
- Well-drained sandy soils (Fox sandy loam; Woburn sandy loam)
- Proximity to previously registered archaeological sites (AkGt-15)
- Proximity to water source (Highland Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered site is located within 50 m of Section LSE-3 (AkGt-15) (Figure 7-8). Available OASD information on Site AkGt-15 is limited and CHVI has not been determined (MTCS 2015). Additional background research is therefore required and will be included in the Stage 1 Archaeological Assessment.

At least three archaeological assessments pertaining to Section LSE-3 have been completed (ASI 2014e; 2014i; 2015a) (see Figure 7-8), and approximately 1.9 ha have been assessed.

4.6.3.1 Scarborough SWS
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Scarborough SWS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Grand Trunk Railway)
• Proximity to historic features (farmsteads)

These will be confirmed during the Stage 1 Archaeological Assessment.

4.6.4 Section LSE-4 – Guildwood Station to Rouge Hill Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSE-4 study area, depending on the amount of past disturbance and presence of physical features:

• Proximity to Euro-Canadian settlement (Port Union Station)
• Proximity to historic transportation route (Grand Trunk Railway; Kingston Road)
• Proximity to historic features (farmsteads)
• Well-drained sandy soil (Fox sandy loam)
• Proximity to previously registered archaeological sites (AkGs-27; AkGs-43)
• Proximity to water source (Highland Creek; Lake Ontario)

These will be confirmed during the Stage 1 Archaeological Assessment.

Two previously registered sites are located within 50 m of Section LSE-4 (AkGs-27 and AkGs-43) (Figure 7-9). OASD records indicate no CHVI for Site AkGs-43 and further archaeological assessment is not required; this will be confirmed during the Stage 1 Archaeological Assessment. Site AkGs-27 has CHVI and will require further assessment. Preliminary mitigative options for this site will be included in the Stage 1 Archaeological Assessment.

At least one archaeological assessment pertaining to Section LSE-4 has been completed (ASI 2006b) (see Figures 7-8 and 7-9), and approximately 0.4 ha has been assessed.

4.6.5 Section LSE-5 – Rouge Hill Station to Pickering Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSE-5 study area, depending on the amount of past disturbance and presence of physical features:

• Proximity to Euro-Canadian settlement (Dunbarton)
• Proximity to historic transportation route (Bayly Street/Sheppard Avenue; Liverpool Road; Grand Trunk Railway)
• Proximity to historic features (farmsteads)
• Well-drained sandy soils (Brighton sandy loam)
• Proximity to previously registered archaeological sites (AkGs-25; AkGs-39; AkGs-42; AkGs-51; AkGs-484)
• Proximity to water source (Frenchman’s Bay; Lake Ontario; Petticoat Creek; Rouge River)

These will be confirmed during the Stage 1 Archaeological Assessment.
Five previously registered archaeological sites are located within 50 m of Section LSE-5 (AkGs-25; AkGs-39; AkGs-42; AkGs-51; AkGs-484) (Figures 7-9 and 7-10). Sites AkGs-39 and AkGs-42 have no CHVI; both sites are just outside the study area and will likely not be disturbed by the project; this will be confirmed by the Stage 1 Archaeological Assessment. Sites AkGs-51 and AkGs-484 refer to the same archaeological site which has CHVI but requires further archaeological assessment; this will be discussed during the Stage 1 Archaeological Assessment. Information available on site AkGs-25 is limited and additional background research is required to determine if the site has CHVI. This background research and preliminary mitigation options for Site AkGs-51/484 will be provided in the Stage 1 Archaeological Assessment.

At least one archaeological assessment pertaining to Section LSE-5 has been completed (ASI 1996) (see Figure 7-10), and approximately 0.3 ha has been assessed.

4.6.6 Section LSE-6 – Pickering Station to Ajax Station

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSE-6 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Church Street; Grand Trunk Railway)
- Proximity to historic features (farmsteads)
- Proximity to previously registered archaeological sites (AlGs-110)
- Proximity to water source (Duffins Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered archaeological site is located within 50 m of Section LSE-6 (AkGs-110) (Figure 7-10). Although Stage 4 Mitigation of Development Impacts has been completed at Site AkGs-110 (MTCS 2015), the status of its CHVI is undetermined. This will be confirmed during the Stage 1 Archaeological Assessment.

At least one archaeological assessment pertaining to Section LSE-6 has been completed (ASI 2014b) (see Figure 7-10), and approximately 4.7 ha have been assessed.

4.6.6.1 Durham SWS

The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the Durham SWS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Grand Trunk Railway; Bayly Street)
- Proximity to historic features (farmsteads)

These will be confirmed during the Stage 1 Archaeological Assessment.
No known archaeological assessments pertaining to the Durham SWS study area have been completed, and this will be confirmed during the Stage 1 Archaeological Assessment.

4.6.7 Section LSE-7 – Ajax Station to Whitby Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSE-7 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Whitby)
- Proximity to historic transportation route (Grand Trunk Railway; Lake Ridge Road)
- Proximity to historic features (farmsteads)
- Proximity to previously registered archaeological sites (AlGr-150)
- Proximity to water source (Lynde Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

One previously registered archaeological site is located within 50 m of Section LSE-7 (AlGr-150) (Figure 7-11). Site AlGr-150 has no CHVI and will not likely be disturbed by the project. The Stage 1 Archaeological Assessment will confirm whether or not additional fieldwork will be required.

At least seven archaeological assessments pertaining to Section LSE-7 have been completed (ASI 1991; 2004c; 2011c; 2013; 2014j; 2015b; ASI and URS 2011) (see Figures 7-10 and 7-11), and approximately 37.7 ha have been assessed.

4.6.8 Section LSE-8 – Whitby Station to Oshawa Station
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the LSE-8 study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to Euro-Canadian settlement (Whitby)
- Proximity to historic transportation route (Grand Trunk Railway; Victoria Street)
- Proximity to historic features (farmsteads)
- Proximity to water source (Pringle Creek; Corbett Creek)

These will be confirmed during the Stage 1 Archaeological Assessment.

At least one archaeological assessment pertaining to Section LSE-8 has been completed (Timmins Martelle Heritage Consultants Inc. [TMHCI 2010] (see Figure 7-11), and approximately 32 ha have been assessed. TMHCI (2010) completed Stage 1 and 2 archaeological assessments for the GO Transit – Lakeshore East Corridor Oshawa to Bowmanville Rail Service Expansion EA, and they addressed proposed facility locations and new track segment.
4.6.8.1 ERMF TPS
The following criteria (and perhaps others to be determined) indicate the potential for Aboriginal and Euro-Canadian archaeological sites within the ERMF TPS study area, depending on the amount of past disturbance and presence of physical features:

- Proximity to historic transportation route (Grand Trunk Railway; Hopkins Street)
- Proximity to historic features (farmsteads)

These will be confirmed during the Stage 1 Archaeological Assessment.

An archaeological assessment pertaining to the ERMF TPS study area has been completed (TMHCI 2010) (see Figure 7-11). TMHCI (2010) completed Stage 1 and 2 archaeological assessments for the GO Transit – Lakeshore East Corridor Oshawa to Bowmanville Rail Service Expansion EA, and they addressed the proposed facility locations and new track segment.

4.6.9 Data Gap Analysis Summary – Lakeshore East Corridor
Based on the available background documents, previous archaeological assessments have been completed on part of the sections and/or TPFs within the Lakeshore East Rail Corridor (Figures 7-7 to 7-11: areas highlighted in orange). The Stage 1 Archaeological Assessment will confirm what additional lands will require archaeological assessment.
5 Future Work
The Data Gap Analysis results presented above (Section 4) is used to highlight the future work to be completed during the Stage 1 Archaeological Assessments for areas to be impacted by the GO Rail Network Electrification undertaking (e.g., OCS impact zone, TPF sites, etc.). The areas where Stage 1 Archaeological Assessment work is recommended is listed below within each rail corridor and corridor section and included associated TPFs. These areas will be evaluated to determine exactly which areas will require field-based, Stage 2 Archaeological Assessment based on the proposed conceptual design plans for the TPFs, OCS Impact Zone, and transmission/feeder routes.

- URSC-1
- LSW-1
- LSW-2
- LSW-3
- LSW-4
- LSW-5
- LSW-6
- LSW-7
- LSW-8
- Mimico TPS
- Oakville SWS
- Burlington TPS
- KT-1
- KT-2
- Bramalea PS
- BR-1
- BR-3
- BR-4
- BR-5
- BR-6
- BR-7
- BR-8
- BR-9
- BR-10
- BR-11
- BR-12
- Maple PS
- Newmarket SWS
- Gilford PS
- Allandale TPS
- SV-1
- SV-2
- SV-3
- SV-4
- SV-5
- SV-6
- SV-7
- Scarborough TPS
- Unionville PS
- Lincolnville PS
- LSE-1
- LSE-2
- LSE-3
- LSE-4
- LSE-5
- LSE-6
- LSE-7
- LSE-8
- Scarborough SWS
- Durham SWS

The Stage 1 Archaeological Assessment will comply with the MTCS Standard and Guidelines for Consultant Archaeologists, a mandatory requirement under the Ontario Heritage Act in order to conduct archaeology in Ontario. The archaeological site potential of the specified properties will be determined by:
Reviewing archaeological site location data from the Ontario Archaeological Sites Database (MTCS) and Metrolinx, including all available archeological assessment reports covering lands within 50 m of the study area limits

- Evaluating the archaeological potential of the property based on characteristics that indicate where archaeological sites are most likely to be found

- Reviewing site-sensitive factors - if one or more cemeteries are located within the study area, municipal and/or regional cemetery officials and/or heritage planners will be notified to obtain relevant information if necessary

- Conducting a property inspection of the entire project study area, as mandated by Metrolinx, which is undertaken in person by a licensed archaeologist. This will be undertaken in order to review the project study area (and layout) and to confirm and photo-document archaeological site potential. The property inspection will occur when weather conditions permit good visibility of land features. The inspection cannot occur when weather conditions may reduce the chances of observing features of archaeological potential (e.g., snow cover, frozen ground, excessive rain or drought). ASI usually conducts the Stage 1 Archaeological Assessment (property inspection) from public rights-of-way, which does not involve a physical survey of any project lands

A Stage 1 Archaeological Assessment report will be prepared which will describe the results of all background research and the property inspection fieldwork conducted, and will contain all necessary photographic and cartographic documentation. The report will include the following:

- Results of the background research pertaining to previous archaeological investigations
- Geo-environmental setting and historic settlement; archival records of property disturbance as available
- Evaluation of archaeological site potential
- Result of the property inspection

The report will provide recommendations for Stage 2 assessment, where appropriate. In addition, if there are outstanding recommendations from archaeological assessment reports pertaining to sites within the study area that require additional archaeological assessment, mitigation and/or construction monitoring, then these will also be provided in the Stage 1 Archaeological Assessment report.

### 5.1 Union Station Corridor

In addition to the property inspection and recommendations of archaeological potential, the following will be provided:

- An assessment strategy for deep-testing within lands identified to possess potential for deeply buried deposits or historic features, e.g., the landfill deposits south of Front Street or historic wharves
5.2 Lakeshore West Corridor
In addition to the property inspection and recommendations of archaeological potential, the following will be provided:

- Cemetery investigation and avoidance/protection strategy for Christ Church Mimico Memorial Gardens
- Confirmation of current conditions of Site AhGx-31
- Mitigation strategy and further research on the Falcon Creek I site (AhGx-714)

5.3 Kitchener Corridor
As outlined above, a property inspection and recommendations of archaeological potential will be assessed as appropriate.

5.4 Barrie Corridor
In addition to the property inspection and recommendations of archaeological potential, the following will be provided:

- Possible Stage 2 Cemetery Investigation strategy for Old St. Helen’s Roman Catholic Church property if required
- Avoidance/protection strategy for Mt. Sinai Memorial Park
- Confirmation of CHVI for Site AkGu-23
- Confirmation of CHVI for Site AkGu-30
- Avoidance/protection strategy and background research for Maple United Cemetery
- Avoidance/protection strategy and background research for Hope Primitive Methodist Cemetery
- Ossuary potential assessment strategy
- Assessment strategy for Site BaGv-18
- Background research and potential cemetery investigation strategy for Lefroy United Church, if required
- Assessment strategy for Site BbGv-50
- Background research and further assessment strategy for Sites BbGv-51 and BbGv-52
- Avoidance and Protection strategy and potential cemetery investigation strategy for St. Paul’s Innisfil Cemetery, if required
- Background research and mitigation strategy for Site BbGv-20
- Mitigation strategy for Site BcGw-69 and Barrie Layover Facility

5.5 Stouffville Corridor
In addition to the property inspection and recommendations of archaeological potential, the following will be provided:

- Background research and assessment strategy for Site AkGt-16
- Assessment strategy for lands with ossuary potential
5.6 Lakeshore East Corridor
In addition to the property inspection and recommendations of archaeological potential, the following will be provided:

- Background research and assessment strategy for Site AkGt-15
- Assessment strategy for Site AkGs-27
- Assessment strategy for Site AkGs-51/484
- Background research and assessment strategy for Site AkGs-25
- Background research on Site AkGs-110
List of References

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<https://www.aadnc-aandc.gc.ca/eng/1370372152585/1370372222012#ucls17>

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Archaeological Services Inc. (ASI)

In-preparation Stage 1 Archaeological Assessment Barrie Rail Corridor Expansion Transit Project Assessment Mile 3.00 to Mile 63.00 City of Toronto, Regional Municipality of York and County of Simcoe (Former Townships of East Gwillimbury, King, Vaughan, Whitchurch and York, County of York and Former Townships of Innisfil and West Gwillimbury, County of Simcoe).

1989 An Archaeological Resource Assessment of Glen Road Subdivision 21T-84020M City of Mississauga Regional Municipality of Peel

1990 An Archaeological Resource Assessment of 24T-86009 Part of Lot 13, Registered Plan 99 Part of Lot 1, Concession 1 Township of East Flamborough, Part of Jobs Lane City of Burlington Regional Municipality of Halton Ontario


1994 An Archaeological Assessment of North Denison Subdivision 19T-93001 and Armadale East III Subdivision 19T-93002, Town of Markham, Regional Municipality of York

1996 A Stage 1/2 Archaeological Assessment of Proposed Draft Plan of Subdivision, Frenchman's Bay, Town of Pickering, Regional Municipality of Durham

2000a A Stage 1 Archaeological Assessment of the Widening of Major Mackenzie Drive (Y.R. 25) from Highway 48 to 9th Line (Y.R. 69) and the Markham By-Pass from 16th Avenue (Y.R.
73) to Major Mackenzie Drive (Y.R. 25) Town of Markham, Regional Municipality of York Ontario

ASI

2000b Stage 1-2 Archaeological Assessment of Proposed Subdivision 21T-99008W2 Part of Lots 9, 10, 11, 12 and 13, Range 1 Credit Indian Reserve Former Township of Toronto Now the City of Mississauga Regional Municipality of Peel

2000c Stage 1-2 Archaeological Resource Assessment of Greensborough Secondary Planning Area Town of Markham, Regional Municipality of York Ontario. REVISED

2002 Stage 1 and 2 Archaeological Resource Assessment of Proposed Markham Centre Development Part of Lots 8 and 9, Concession 5 Town of Markham, Regional Municipality of York Ontario

2003 REVISED REPORT Stage 2 Archaeological Assessment Ninth Line Sanitary Trunk Sewer Extension to Stouffville Town of Markham and Town of Whitchurch-Stouffville Regional Municipality of York Ontario

2004a Stage 1 and 2 Archaeological Assessment of 565 Lakeshore Road East Proposed Lakeshore Village Townhouse Development Geographic Township of Toronto, County of Peel Now the City of Mississauga, RM of Peel

2004b Stage 1 and 2 Archaeological Assessment of the Lebovic - Stouffville Development, Part of Lots 32, 33, and 34, Concession 9, Town of Whitchurch-Stouffville, Regional Municipality of York Ontario

2004c Stage 1 Archaeological Assessment Achilles Road Extension, From Salem Road to the Future Audley Road (Former Pickering Township, Ontario County) Regional Municipality of Durham, Ontario. REVISED

2004d Stage 1 Archaeological Assessment Milliken GO Station between Redlea Avenue and the Rail Corridor, City of Toronto, Ontario

2005a Stage 1 and 2 Archaeological Assessment of 190 Silverstar Boulevard Geographic Township of Scarborough, County of York Former City of Scarborough, Now the City of Toronto

2005b Stage 1 and 2 Archaeological Assessment of 3250 Midland Avenue Part of Lot 27, Concession 4 Scarborough Township, County of York Now in the City of Toronto


2006b Stage 1 and 2 Archaeological Assessment of Portia Street Development Proposed Subdivision Lots 89, 90, & 91 Registered Plan 2042, and Part 6, 7, 8 Registered Plan M-
929 Part of Lot 11, concession D Geographic Township of Scarborough, County of York
Former City of Scarborough, Now the City of Toronto

2007  City of Toronto Consolidation Study - Etobicoke York Segment Stage 1 Archaeological Assessment of the Castlefield Yard 1401 Castlefield Avenue, City of Toronto, Ontario

ASI

2008  Stage 1 Archaeological Assessment Speers Road Improvements Class Environmental Assessment Study, Town of Oakville, Ontario

2009a Stage 1 Archaeological Assessment Georgetown South Service Expansion and Union-Pearson Rail Link. Revised.

2009b Stage 1 Archaeological Assessment Widening of Highway 427, Northbound and Southbound Lanes from Campus Road/Fasken Drive to Steeles Avenue, City of Toronto, Ontario

2009c Stage 1 Archaeological Resource Assessment of 39-51 East Liberty Street and 14-20 Strachan Avenue, City of Toronto, Ontario

2009d Stage 1 Archaeological Resource Assessment of 55 Mill Street, City of Toronto, Ontario ZA 06 189754 STE 28 OZ

2009e Stage 1-2 Archaeological Resource Assessment of the "Bike Pit" and Picnic Area 7, High Park, City of Toronto, Ontario

2010a Stage 1 Archaeological Assessment (Background Research and Property Inspection) Kennedy Station Re-Development, City of Toronto, Ontario

2010b Stage 1 Archaeological Resource Assessment of 5-7 Esplanade, OPA 08 231943 STE 25OZ and RA 08 223450 STE 28 OZ, City of Toronto, Ontario

2011a Stage 1 and 2 Archaeological Assessment of the Markham Centre Development Corporation Property, Enterprise Boulevard, West of Kennedy Road Part of Lots 8 and 9, Concession 5 Geographic Township of Markham, County of York, now the Town of Markham, Regional Municipality of York

2011b Stage 2 Archaeological Assessment of 411 Victoria Park Avenue Part of Lots 34 and 35, Concession A from the Bay Geographic Township of Scarborough, County of York Now the City of Toronto

2011c Stage 2 Archaeological Assessment (Property Assessment) for the Highway 407 East Owner's Engineer Assignment, Phase One (407 ETR to Simcoe Street) Regional Municipality of Durham, Ontario 2010 Results REVISED

2013 Stage 2 Property Assessment Highway 407 East Owner's Engineer Assignment, Phase One (407 ETR to East of Harmony Road) City of Pickering, Town of Whitby, and City of
Oshawa (Former Townships of Pickering, Whitby, and East Whitby in County of Ontario), Regional Municipality of Durham, Ontario. REVISED REPORT

2014a  Stage 1 and 2 Archaeological Assessment of 2150 Lake Shore Boulevard West, Lot D, Lake Front Concession Part of Lots 12, 13, 14, 15, Registered Plan 1176, Geographic Township of Etobicoke, County of York Former City of Etobicoke, Now in the City of Toronto

2014b  Stage 1 Archaeological Assessment of Part of Lot 15, 16 and 17, Concession 1 Geographic Township of Pickering, Ontario County, Town of Ajax, Municipality of Clarington, Regional Municipality of Durham [sic.]

2014c  Stage 1 Archaeological Assessment of the Milliken Secondary Plan, City of Markham, Regional Municipality of York

2014d  Stage 1 Archaeological Assessment (Background Research and Property Inspection) Port Lands and South of Eastern Avenue Transportation and Servicing Master Plan Municipal Class Environmental Assessment Lots 9-15, Broken Front Concession Former Township of York, York County City of Toronto, Ontario

2014e  Stage 1 Archaeological Assessment (Background Study and Property Inspection) Eglinton GO Station Part of Lots 21 and 22, Concessions C and D Former Township of Scarborough, York County City of Toronto, Ontario

2014f  Stage 1 Archaeological Assessment (Background Study and Property Inspection) Hurontario-Main Street Light Rail Transit (LRT) Additional Areas Preliminary Design and Transit Project Assessment Process Former Township of Toronto (Peel County) City of Brampton and City of Mississauga Regional Municipality of Peel, Ontario

2014g  Stage 1 Archaeological Assessment (Background Study and Property Inspection) Metrolinx Proposed Property Acquisition Former Township of Whitchurch, County of York Town of Whitchurch-Stouffville, Regional Municipality of York

2014h  Stage 1 Archaeological Assessment (Background Study and Property Inspection) Stouffville Corridor Rail Service Expansion GO Transit Class Environmental Assessment Study and Preliminary Design Former Township of Scarborough and former Township of Markham, York County City of Toronto and Regional Municipality of York, Ontario

2014i  Stage 2 Archaeological Assessment (Property Assessment) Eglinton GO Station GO Transit Class Environmental Assessment Part of Lot 21, Concession C, Former Township of Scarborough, County of York, City of Toronto, Ontario

2014j  Stage 2 Property Assessment Highway 407 East Owner’s Engineer Assignment, Phase One (407 ETR to East of Harmony Road) City of Pickering, Town of Whitby, and City of...
Oshawa (Former Townships of Pickering, Whitby, and East Whitby in County of Ontario), Regional Municipality of Durham, Ontario: 2012 Results REVISED REPORT

2015a Stage 1 Archaeological Assessment of the Markham Road and Dunelm Street Rezoning Lots 13, 14 and 15, and Part of Lot 12 Registered Plan 3505 Part of Lot 17, concession D Geographic Township of Scarborough, County of York City of Toronto

2015b Stage 1-2 Archaeological Assessment (Cemetery Investigation) of St. John the Evangelist Church, 49 George Street, Weston, City of Toronto, Ontario
ASl

2015c Stage 2 Property Assessment Highway 407 East Owner's Engineer Assignment, Phase One and Phase Two (407 ETR to Hwy 35/115) City of Pickering, Town of Whitby, City of Oshawa, and Municipality of Clarington (Former Townships of Pickering, Whitby, & East Whitby in County of Ontario; Former Townships of Darlington, and Clarke in County of Durham), Regional Municipality of Durham, Ontario 2013 Results REVISED REPORT

2015d Stage 3 Archaeological Assessment (Cemetery Investigation): St. John the Evangelist Church, 49 George Street, Weston, City of Toronto, Ontario

Archeoworks Inc.

2010 Stage 1-2 Archaeological Assessment (AA) of: Proposed Gusgo Warehouse Development within Part of lot 28, Concession 4, City of Vaughan, Regional Municipality of York, Ontario.

ASI and URS Canada Inc. (URS)

2011 Stage 2 Archaeological Assessment for the 407 East Individual Environmental Assessment, Regional Municipality of Durham, Ontario 2009 Results REVISED

Beers, J.H.


Belden, H.


Benn, C.


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Boulton, D’A.


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Ellis, C.J.


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1871 Hogg’s Map of the County of Simcoe. H. Belden & Co.

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2011  Standards and Guidelines for Consultant Archaeologists. Cultural Programs Branch, Ontario Ministry of Tourism and Culture, Toronto, Ontario

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1995  Archaeological Assessment of Highway 407 CNR Uxbridge Site (AlGt-211), plus Stage 3: Testing and Stage 4: Mitigation

Stone, L.M. and D. Chaput


Timmins Martelle Heritage Consultants Inc. (TMHCI)
2010  Stage 1 and 2 Archaeological Assessment GO Transit - Lakeshore East Corridor Oshawa to Bowmanville Rail Service Expansion Environmental Assessment Whitby and Darlington Townships Ontario County and Durham County

Tremaine, G.C.


Tremaine, G.C.


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2006  GO Transit Lakeshore West Corridor Rail Expansion Between Port Credit Station and Kerr Street City of Mississauga and Town of Oakville. Environmental Study Area. Class Environmental Assessment (Group ‘B’).

Williamson, R.F.


5. Appendix A: Historic Map Review
Figure 5-1, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of York (LSW-1; BR-1; USRC-1)
Figure 5-2, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Etobicoke (LSW-1; LSW-2; LSW-3)
Figure 5-3, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1877 Map of Southern Part of Toronto Township (LSW-3; LSW-4)
Figure 5-4, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1877 Map of Southern Part of Toronto Township and 1877 Map of Southern Part of Trafalgar Township (LSW-4; LSW-5; LSW-6)
Figure 5-5, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1877 Map of Southern Part of Trafalgar Township and 1877 Map of Nelson Township (LSW-6; LSW-7; LSW-8)
Study Area
Preferred TP Facility (April 2016)
GO Station

Figure 5-6, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Scarborough (LSW-8)
Figure 5-8, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Scarborough (LSE-2; LSE-3; LSE-4; SV-1)
Figure 5-9, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Scarborough and 1877 Map of Township of Pickering (LSE-4; LSE-5)
Figure 5-10, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1877 Map of Township of Pickering (LSE-5; LSE-6; LSE-7)
Figure 5-11, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1877 Map of Township of Pickering and 1877 Map of Township of Whitby (LSE-7; LSE-8)
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Figure 5-13, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of York and 1878 Map of Township of Vaughan (BR-2; BR-3)
Figure 5-14, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Vaughan (BR-3, BR-4)
Figure 5-15, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Vaughan and 1878 Map of Southern Part of Township of King (BR-4; BR-5)
Figure 5-16, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Southern Part of Township of King and 1878 Map of Township of Whitchurch (BR-5; BR-6; BR-7)
Figure 5-17, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Whitchurch and 1878 Map of Township of East Gwillimbury (BR-7; BR-8)
Figure 5-18, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of West Gwillimbury (BR-8; BR-9)
Figure 5-20, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1881 Map of Township of Innisfil (BR-10; BR-11)
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Study Area

GO Station

Figure 5-22, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Scarborough and 1878 Map of Township of Markham (SV-1; SV-2; SV-3)
Figure 5-23, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Markham (SV-3; SV-4)
Figure 5-24, GO Transit Rail Network Electrification EA Archaeology Baseline Conditions 1878 Map of Township of Markham (SV-4; SV-5; SV-6)
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6. Appendix B: Physiography
Figure 6-2: GO Transit Rail Network Electrification TPAP Stage 1 Archaeological Assessment (Soil Drainage)
7. Appendix C: Baseline Conditions
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Figure 7-2: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections LSW-1; LSW-2; LSW-3)
Figure 7-3: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections LSW-3; LSW-4)
Figure 7-4: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections LSW-4; LSW-5; LSW-6)
Figure 7-5: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections LSW-8; LSW-9)
Figure 7-6: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections LSW-8)
Figure 7-7: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections LSE-1; LSE-2; USRC-1)
Figure 7-8: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections LSE-2; LSE-3; LSE-4; SV-1)
Study Area
Preferred TP Facility
Cemetery Location
Registered Site with CHVI
Registered Site, CHVI Pending Further Research
Registered Site with no CHVI
GO Station

Figure 7-9: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections LSE-4; LSE-5)
Figure 7-10: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections LSE-5; LSE-6; LSE-7)
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Figure 7-12: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections BR-1; BR-2)
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Figure 7-14: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections BR-3; BR-4)
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Figure 7-16: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections BR-5; BR-6; BR-7)
Figure 7-17: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections BR-7; BR-8)
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Figure 7-22: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections SV-1; SV-2; SV-3)
Figure 7-23: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections SV-3; SV-4)
Figure 7-24: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections SV-4; SV-5; SV-6)
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Figure 7-26: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections SV-6; SV-7)
Figure 7-27: GO Transit Rail Network Electrification EA Archaeology Baseline Conditions (Sections KT-1; KT-2)