

# Halton Hills Hydro Municipal Transformer Station (MTS) #1 ENVIRONMENTAL STUDY REPORT



Prepared For:

**Halton Hills Hydro Inc.**

Prepared By:

**SENES Consultants Limited**

August 2008



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Richmond Hill, Ontario

L4B 3N4

August 2008

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## **1.0 INTRODUCTION**

Transformer stations and the distribution circuits are critical assets to the safe and reliable supply of electricity. Halton Hills Hydro Inc. (Halton Hills Hydro) is proposing to design, construct, and operate a new 230/27.6 kV 125 MVA municipal transformer station (MTS) in order to address forecasted customer demand primarily in the Steeles Avenue corridor between Trafalgar Road and James Snow Parkway. The proposed undertaking would step down voltage from a transmission level to distribution level at 27.6 kV to provide a reliable source of power to address increased electricity demand as a result of new residential and industrial development in the Town of Halton Hills (Halton Hills).

A Provincial Class Environmental Assessment (Class EA) for the proposed undertaking is subject to *Environmental Assessment Act* approval in accordance with the *Class EA for Minor Transmission Facilities*. The Class EA is conducted to identify the existing environment and evaluate a number of MTS alternative sites within a study area in order to select a preferred MTS site following a specified planning and design process.

### **1.1 PROPONENT - HALTON HILLS HYDRO**

The proponent of the MTS Project is Halton Hills Hydro, located at 43 Alice Street in Acton, Ontario, who is responsible for the distribution of electricity to the service to the area shown in Figure 1.1. This area includes Acton, Georgetown, and Esquesing Township.

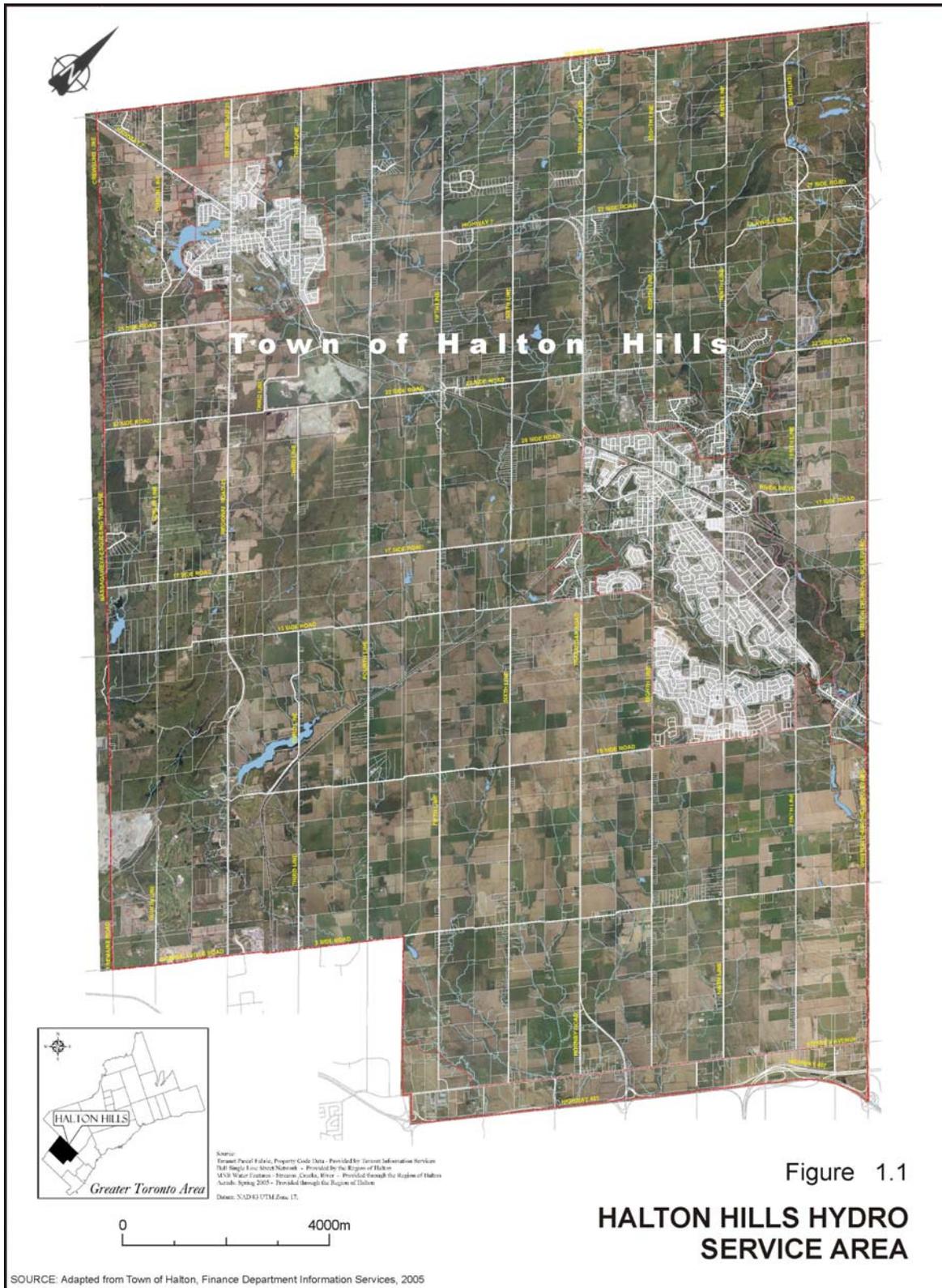
On April 1, 1980, Government Bill No. 119 went into affect dissolving the Acton and Georgetown Hydro Electric Commissions, and establishing the Halton Hills Hydro Commission. This also included a portion of the Ontario Hydro Rural service area of Esquesing Township.

Halton Hills Hydro is committed to providing safe, reliable, and economic distribution of electricity which is reflected in their core values of:

- Safety (Employee and Public);
- Customer Service;
- Reliability; and
- Profitability (Shareholder).

Halton Hills Hydro is responsible for the planning, construction, and operation of the proposed MTS. The development of the proposed MTS will assist Halton Hills Hydro in achieving their core values of reliability and customer service.

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## **1.2 TIMING OF PROJECT**

The proposed MTS is being planned for an in-service date of Spring 2011 as load forecasts indicate that the Halton Transformer Station (TS), owned by Hydro One, will reach capacity by approximately 2011 – 2013. Detailed engineering, equipment procurement, and construction of the MTS will occur over a period of 24 months to 36 months. Site construction is planned to commence in March 2010 with final commissioning in May 2011. The MTS is expected to operate for a period of approximately 40 years without a major refurbishment.

## **1.3 CLASS EA PROCESS**

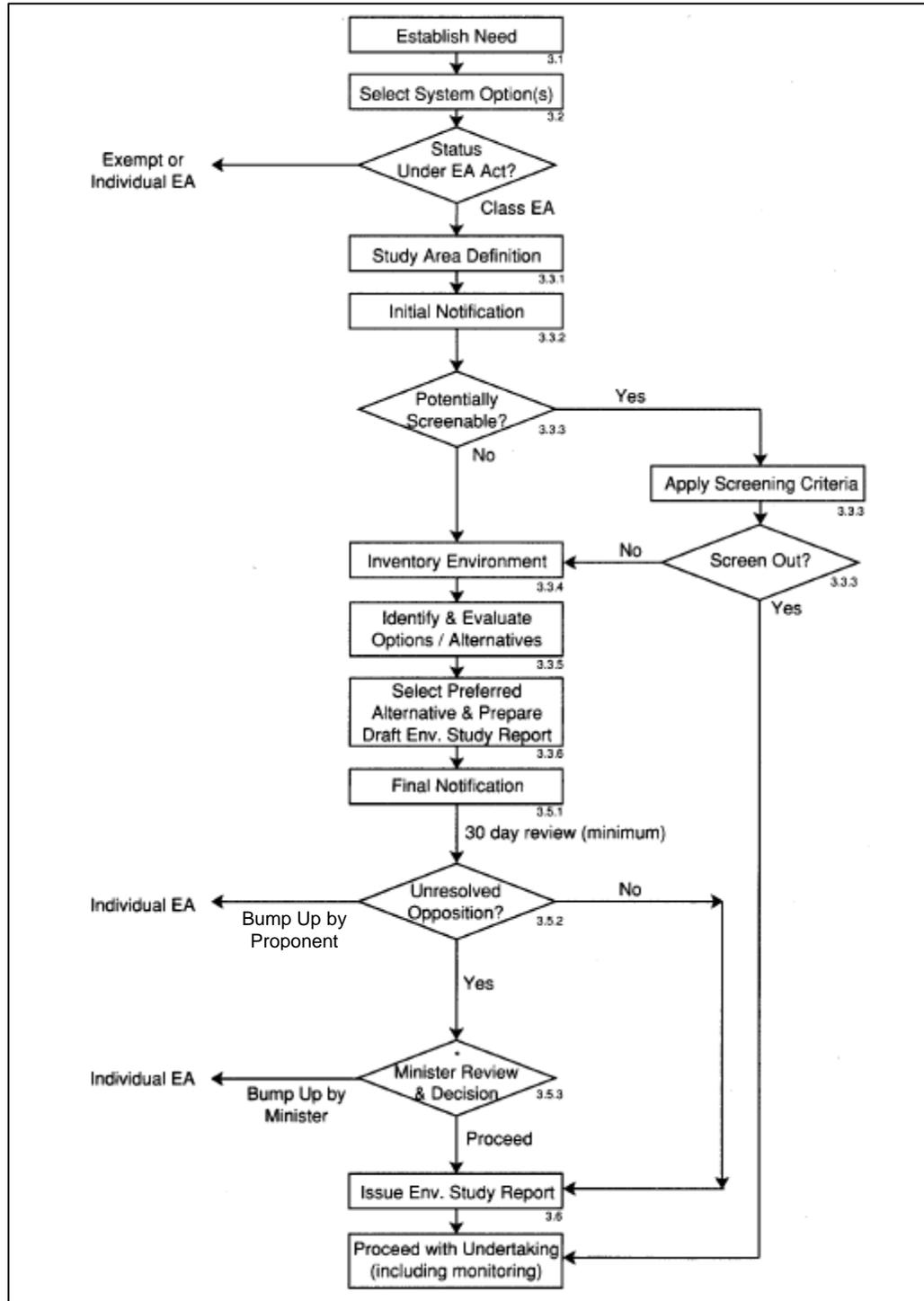
The Class EA process follows a predetermined methodology to document the information gathered and activities conducted through the study. The Class EA process for the proposed Halton Hills Hydro MTS project was conducted according to the requirements defined by the *Class EA for Minor Transmission Facilities (revision 6 April 1992)*.

The steps required to carry out a Class EA study include the following:

- establish need;
- evaluation of alternatives to the undertaking;
- definition of study area;
- initial stakeholder and public notification;
- environmental inventory;
- development of Project description;
- identification and evaluation of alternative methods;
- selection of preferred alternative;
- public consultation;
- preparation of Environmental Study Report (ESR); and,
- final notification.

The Class EA study process conducted for the proposed Halton Hills Hydro MTS is shown in Figure 1.2.

**FIGURE 1.2  
CLASS EA PROCESS FLOWSHEET**



#### **1.4 OTHER APPROVALS**

Additional approvals/permits may potentially be required from the local municipality, region, conservation authorities, provincial agencies, and utility owners to proceed with the Project. The list provided below is not inclusive and will be modified, as required, during the detailed design phase:

- Utility owners – Agreements on construction procedures for crossing linear utilities (i.e., rail lines, water and sewer lines, gas pipelines);
- Regional and Local Municipalities – Approval and permits for road crossings, allowances/severances, site plans, removal of trees, vehicle restrictions and traffic mgmt plans, noise control, building permits;
- Conservation Halton – Fill, Construction and Alteration to Waterways permit, as required. Permit to cross Conservation Authority lands;
- Ministry of Environment – Noise and drainage approvals related to TS;
- Ministry of Culture – Stage II Assessment Clearance (if required);
- Ministry of Natural Resources – Work Permit Controls for clearing of a Forest or Woodland under the Forest Fires Prevention Act (if required); and
- Electricity Industry Agencies – (Independent Electricity System Operator (IESO); Hydro One Networks Inc (Hydro One); Electrical Safety Authority (ESA).)

## **2.0 PROJECT NEED**

The need for the Project must be established and supported by documentation providing information on the extent to which the existing and future loads have or will tax the system, and the capabilities of the various transformer station components which comprise the electric distribution system. Awareness of need generally comes from these routine reviews which indicate weak spots or areas of concern in the system. More detailed studies are carried out to establish why, where and when the system will become inadequate, and determine the consequences of the inadequacy.

The *GTA West Supply Study* (February 2006), a joint utility planning study, was initiated by Hydro One in the summer of 2004 to assess the future requirements for additional electrical capacity in the Halton Region due to growing load forecasts and existing infrastructure at or near capacity. Five (5) local distribution companies (LDCs) that have customers within the GTA West and associated Hydro One areas participated in the study, including Hydro One Networks Inc., Enersource (Hydro Mississauga), Hydro One Brampton, Milton Hydro Distribution, and Halton Hills Hydro.

The final report for the *GTA West Supply Study* was completed 16 February 2006 and included the following conclusions:

- The “Do Nothing” alternative would load circuits above their acceptable ratings and therefore was not considered an acceptable alternative. The Independent Electricity Systems Operator’s (IESO) Planning and Operating Standards would not be satisfied as a long range goal of the Conservation Bureau of the Ontario Power Generation Authority is power conservation and demand management (CDM) throughout the province.
- There was a need to reinforce the transmission system in the GTA West and upgrade several transformer stations to satisfy the high load growth in the area. The recommended transmission reinforcements required to support anticipated load growth included the need for additional transformer station capacity along the Steeles Avenue corridor between James Snow Parkway and Trafalgar Road.

The purpose of this study, undertaken by Halton Hills Hydro, addresses the need to plan for the reinforcement of the transmission system and additional transformer capacity due to the high load growth with this study and the identification of the alternatives to the undertaking.

### **3.0 ALTERNATIVES TO THE UNDERTAKING**

Alternatives to the undertaking are functionally different means of addressing the stated electricity supply, demand problems and opportunities, and achieving the purpose of the undertaking.

The objectives used to identify the alternatives to the undertaking include, but are not limited to:

- Meeting the purpose of the undertaking as defined in the GTA West Supply Study; and
- Addressing the identified electricity supply and demand problems and opportunities.

The electric distribution system facility currently serving both Milton Hydro and Halton Hills Hydro is the Halton Transformer Station (TS), owned and operated by Hydro One Networks, located near Main St East and 4<sup>th</sup> Line in Milton. An increase in residential, commercial, and industrial development in this area in recent years has caused both local utilities to experience significant load growth. Load forecasts identified in the Hydro One *GTA West Supply Study* (February 2006) and the Halton Hills Hydro internal study, *Halton Hills Hydro – 2007 Long-term Load Forecast* indicate that the Halton TS will reach its capacity limit in approximately 2011 – 2013.

The system options considered by Halton Hills Hydro to address the need for added system capacity were:

- Do Nothing;
- Expand Halton TS; and
- Construct a new Halton Hills Hydro MTS.

The rationale for the preferred system options included:

- a. ***Do nothing:*** Forecasted loads are anticipated to exceed the capability of Halton TS between 2011 and 2013 and without additional capacity cannot be connected to Halton Hill Hydro's distribution system. This option is not acceptable as development in the Steeles Avenue corridor would have to be limited as the existing supply is inadequate to meet the increased electricity demand that would occur as a result of this development.
- b. ***Expansion of Halton TS:*** A system option consideration included the expansion of Hydro One Networks existing station to provide additional capacity for Halton Hills Hydro. The ability to expand the Halton TS is severely limited by existing infrastructure servicing Milton Hydro and Halton Hills Hydro customers. Routing of

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the new circuits from the Halton TS to feed into the Halton Hills service territory would be difficult due to the number of distribution poles already present along the roadway in the vicinity of the TS. Since the initiation of this study, Milton Hydro and Hydro One Networks Inc. have initiated a study reviewing the potential for expansion of the Halton TS. This study is considered to be outside of Halton Hills Hydro's current mandate and therefore is not considered to be an acceptable option.

- c. ***New Municipal Transformer Station (MTS): This is the preferred system option.*** A new MTS could be located in the vicinity of the Steeles Avenue corridor to address forecasted need for this area and also allow for future expansion into other areas serviced by Halton Hills Hydro outside of this corridor. The proposed Halton Hills Hydro MTS would consist of two (2) 50/83 MVA 230 – 27.6 kV transformers to supply forecasted load growth over the next 25 years for the Steeles Avenue Corridor and Georgetown. The remaining MTS capacity would be utilized to address future additional requirements of Georgetown and Acton.

Therefore, based on forecasted need, the construction of a new MTS is the preferred system option and provides the basis for further delineation of the Study Area.

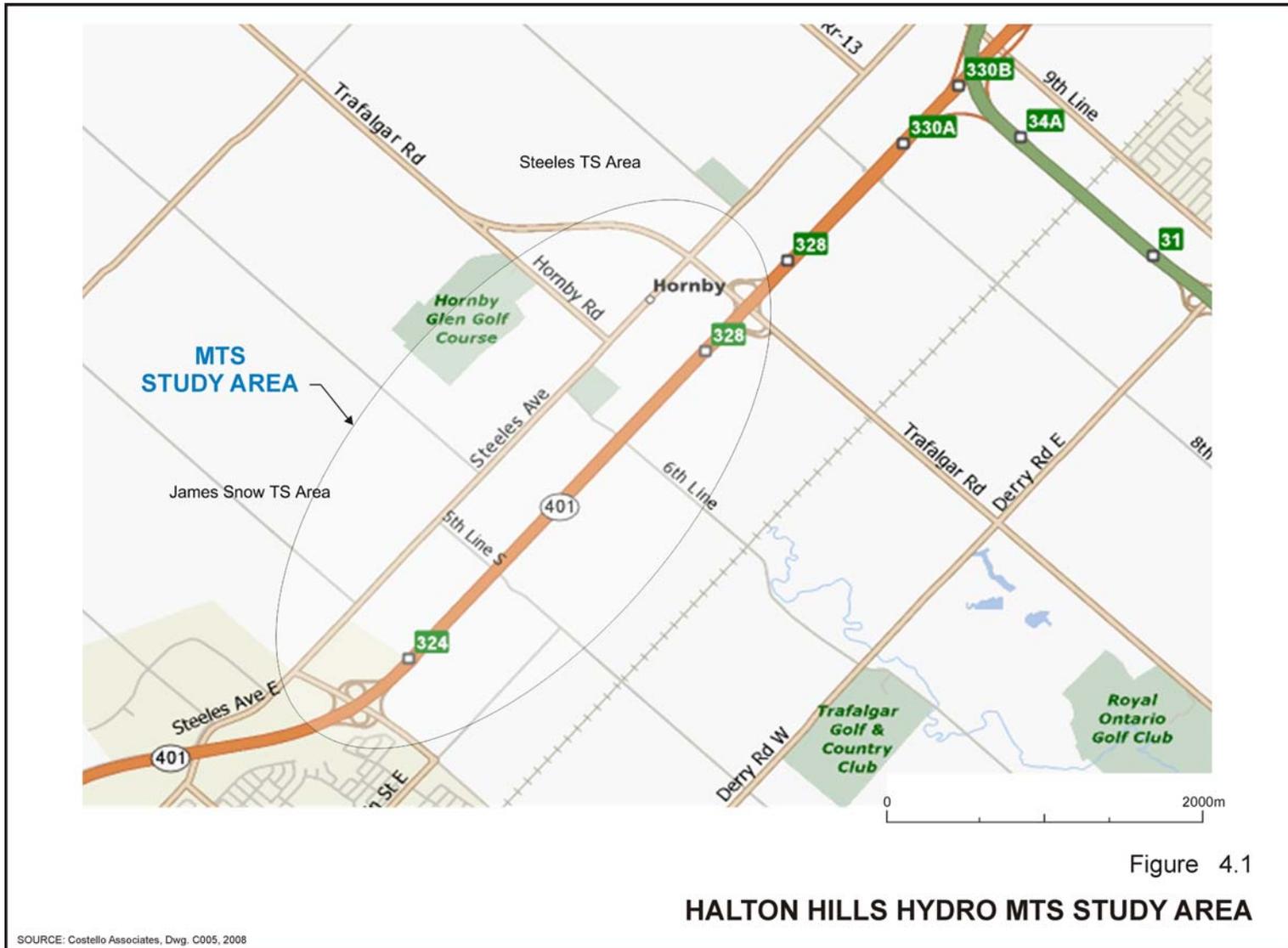
#### **4.0 STUDY AREA**

The study area is defined to encompass potential locations for an MTS, which may accommodate the selected system option, warranting further consideration.

The *GTA West Supply Study* (2006) and the Halton Hills Hydro study (2007) identified the area along Steeles Avenue between Trafalgar Road and James Snow Parkway as an area with high forecasted load growth requiring additional MTS capacity due to increasing industrial development.

The Study Area limits, based on the above studies, were therefore focused on this section of Steeles Avenue from just east of Trafalgar Road to west of James Snow Parkway. The northern study area (Figure 4.1) limit is located approximately 1 km north of Steeles Avenue with the southern limit located approximately 1 km south of Highway 401, just north of the Hydro One transmission right-of-way (ROW).

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## **5.0 ENVIRONMENTAL INVENTORY**

Baseline information is collected through a review of published/unpublished documents, technical reports/studies and verbal/written inquiries for each of the technical, environmental, and economic components to obtain an understanding of the existing (baseline) conditions for the region and study area. This section provides an inventory of the environmental features in and around the study area through characterization of the natural heritage and socio-economic factors. The natural heritage and socio-economic factors for this inventory include:

- Climate;
- Physiography;
- Soils;
- Surface and Ground Water;
- Fisheries and Aquatic Habitat;
- Vegetation;
- Wildlife;
- Environmentally Significant Areas;
- Demographic Profile;
- Existing and Planned Land Uses;
- Recreation;
- Noise;
- Cultural Heritage Features (Built Heritage and Archaeological);
- Aesthetics; and
- First Nations.

An inventory of the baseline environmental features is described on a regional level and a study area level. The regional description identifies the environmental features found in the vicinity of the study area followed by the study area description which focuses on identifying only those environmental features present within the study area.

### **5.1 NATURAL HERITAGE**

The study area for the proposed Halton Hills Hydro MTS is located within the Sixteen Mile Creek watershed in close proximity to the Niagara Escarpment (west and north) and the Great Lakes to the south. The following information provides a description of the climate, physiography, surface and ground water, fisheries and aquatic habitat, vegetation, wildlife, and the environmentally significant areas (ESAs) of the study area. The information provided in this

section is taken from the Sixteen Mile Creek Watershed Plan (Gore and Storrie *et al.* 1996) and the Supporting Document 3: Natural Environment for the Proposed Halton Hills Generating Station (EEL 2007).

### **5.1.1 Climate**

The study area is located within the Lake Ontario Climatic Region characterized by moderate temperatures and high humidity, due to the proximity to Lake Ontario and the Niagara Escarpment.

Summers tend to be warm to hot and humid with moderate winters. The mean annual temperature is 7.5°C with recorded mean daily minimum and maximum temperatures of -6.3°C (January) and 20.8°C (July) respectively.

The prevailing winds are from the west and north, averaging 4.1 m/s (LBPIA 1996-2000 data), with recorded calms 5.7% of the time. Changes in the air flow of the Region occur frequently due to the location of the GTA within one of the major storm tracks of the continent.

Precipitation in the GTA is reasonably consistent throughout the year with an average of 792.7 mm/yr (684.6 mm - rainfall and 115.4 mm – snowfall) based on information collected at Toronto Lester B. Pearson International Airport. The maximum mean monthly rainfall is 79.6 mm occurring in August.

### **5.1.2 Physiography**

The region and study area lies within the West St. Lawrence Lowland Physiographic Unit of the St. Lawrence Lowlands Physiographic Region (Bostock, 1970). The portion of the West St. Lawrence Lowland, associated with the region and study area, gradually ascends from Lake Ontario to Georgian Bay.

The study area is situated within the Peel Plain area of the Sixteen Mile Creek watershed characterized by clay soils and undulating topography (low relief) (Gore and Storrie *et al.*, 1996). The plain is imperfectly drained and its' formation attributed to temporary ponding of glacial waters and the resulting deposition of glacio-lacustrine sediments of gravel, sand, silt, and clay. The plain is characterized as bevelled till plains named for the flutings which can be clearly identified from aerial photographs.

### **5.1.3 Soils**

The region and study area are situated on the South Slope and Peel Plain. The tills which form the surface of the South Slope and Peel Plain are primarily the silty sand Leaside Till in the east and the silty Halton Till in the west (EEL 2007). The tills are modified in the south by glaciolacustrine sands and shorelines of glacial Lake Iroquois (Iroquois Plain). In the north, the till plains are replaced by the highlands of the Oak Ridges Interlobate Moraine. Other surficial deposits, which are more local in scale, are post-glacial Holocene sediments, mainly alluvium deposited by rivers. Other minor recent sediments include those created by wind deposition, as well as organic and peat deposits in wetlands (Chapman and Putnam, 1984a).

The soils in and around the study area originated from the action of ice and water of the Wisconsin glacialiation such that the majority of the watershed is covered by unsorted deposits (till) laid down by moving ice. A large portion of the watershed consists mainly of clay silt loam with varying amounts of sand and gravel generally known as imperfectly drained Halton till.

Typical soils in the vicinity of the study area are described in the *Halton Hills Generating Station (HHGS) Environmental Review Report (ERR), Supporting Document 3 – Natural Environment* (EEL 2007) as Grey Brown Luvisols and Humic Gleysols.

### **5.1.4 Surface and Ground Water**

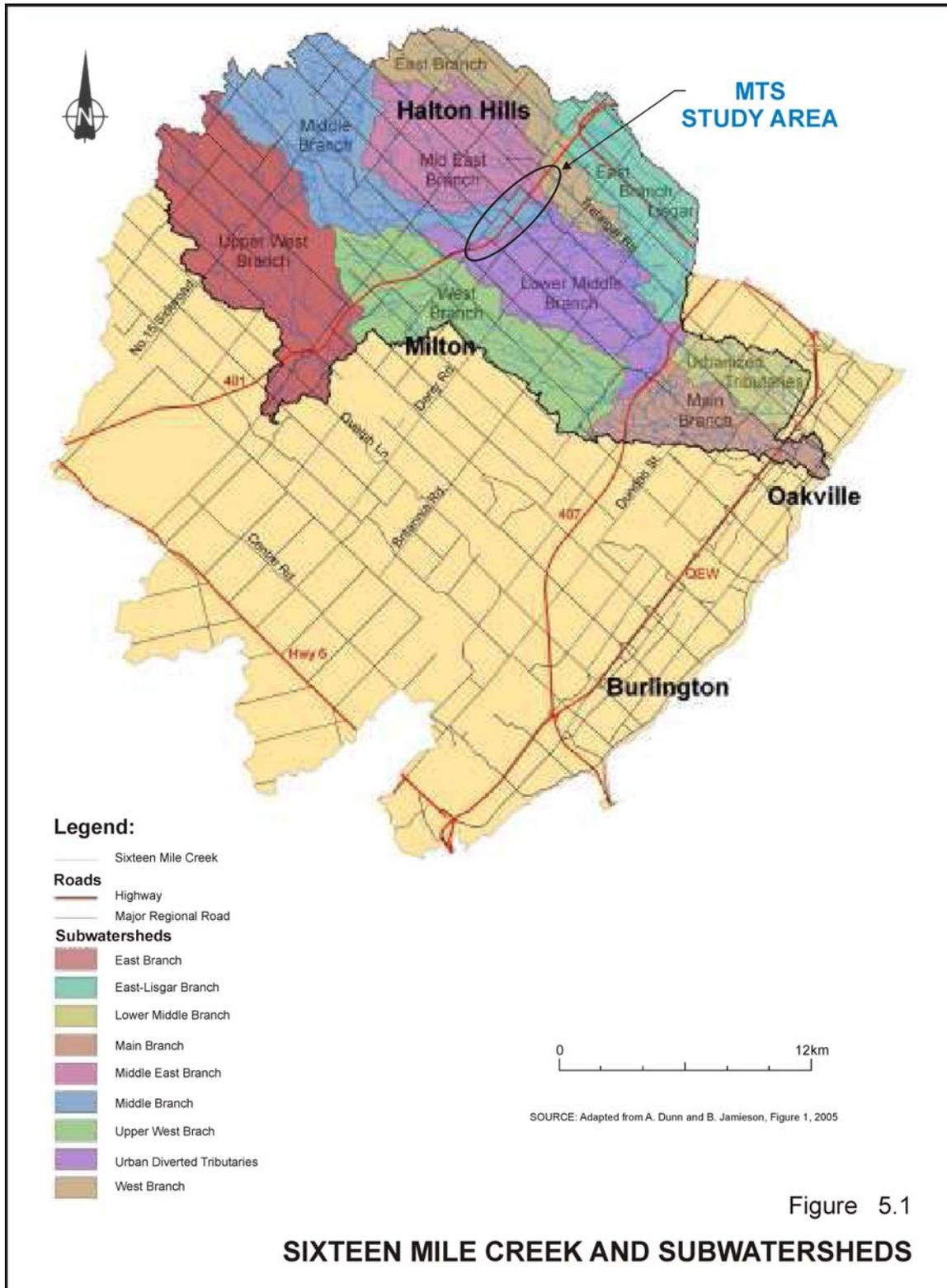
#### Surface Water

The surface water features in the vicinity of the study area are part of the Northern Lake Ontario drainage basin (Chapman and Putnam, 1984). The watershed boundaries for the study area and surrounding vicinity within this basin are clearly defined by the Oak Ridges Moraine to the north and the Niagara Escarpment to the west.

The study area and the surrounding vicinity are located within the Sixteen Mile Creek watershed (Figure 5.1) which flows southeast from the headwaters near Highway 7 to its outlet at Lake Ontario. The watershed is comprised of three (3) drainage basins (i.e., West Branch; Middle and East Branches; and downstream reaches below the confluence of the two (2) upper drainage basins (Ecoplans Ltd., 1995; Gore & Storrie/Ecoplans, 1996)) encompassing nine (9) subwatersheds.

The study area is situated predominately within the Middle Branch of Sixteen Mile Creek with the west end of the study area entering the West Branch basin and the east end entering the East Branch basin. The Middle Branch's headwaters are located on the Niagara Escarpment flowing

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down through the base of the escarpment through Scotch Block Reservoir to join the West Branch downstream of Highway 401 near Sixth Line. Most of the headwater tributaries are, or were historically, groundwater fed. The West Branch's headwaters also originate on the Niagara Escarpment with the main stream channel and a portion of a tributary flowing through concrete channels constructed for flood control purposes. Several smaller tributary systems of the East Branch, many which are intermittent, drain to the combined East and Middle Branches above their confluence with the West Branch.

Water quality data using a suite of parameters for the eastern tributary of the Middle Branch upstream and downstream of Steeles Avenue were found by Dillon (2000) to be below their respective Provincial Water Quality Objectives (PWQOs), with the exception of total phosphorus and iron at a station downstream of the location of MTS site and aluminum at two (2) stations (upstream and downstream). Concentrations for organochlorine contaminants were also well below the PWQOs.

### Groundwater

The extent over which groundwater features may exist generally require recognition of the resources on a regional basis although area-specific conclusions may be derived. Regional groundwater flows in a southerly direction towards Lake Ontario (Gore & Storrie, 1995) and consists of two (2) major aquifer systems (overburden and underlying bedrock). The majority of water wells obtain groundwater from the bedrock, as the overburden across most of the region is generally thin and does not yield adequate quantities of water.

The study area, as identified in the *HHGS ERR, Supporting Document 3 – Natural Environment* (EEL 2007) is located on the Till Complex (mainly Halton Till) overburden aquifer system and Queenston shale (underlying bedrock) aquifer systems. The majority of the wells located below the escarpment in the Peel Plain physiographic region are completed in the sand and gravel lenses.

Static groundwater levels range from 2 to 3 m below grade (Dillon, 2000).

#### **5.1.5 Fisheries and Aquatic Habitat**

The region lies within the Lake Ontario drainage basin (Chapman and Putnam, 1984a), with the immediate vicinity in and around the study area located within the Sixteen Mile Creek watershed. Sixteen Mile Creek provides coldwater and warmwater fish habitat which has been significantly affected by surrounding land use patterns including agriculture and urban development. The watershed in the upper reaches of the region are characterized as capable of

supporting coldwater fisheries although a warming trend occurs as the creek moves downstream out of the headwater areas and into the agricultural and urban lands. As noted in the *HHGS ERR, Supporting Document 3 – Natural Environment (EEL, 2007)*, deterioration of fish habitat quality in the watershed is related to increases in temperature; siltation; sedimentation; reduction in in-stream, overhead and riparian cover contributing to loss of protective stream buffers; increased nutrient loading and alteration of channel morphology; and physical habitat structure and diversity.

The historical range of the native coldwater fisheries (brook trout) for the region occur across the entire headwaters of the watershed, extending as far downstream as Milton on the West Branch and downstream to Derry Road on the Middle Branch and East Branch (EEL 2007). Most upstream reaches of the West Branch and Middle Branch of Sixteen Mile Creek exhibit low water temperatures associated with groundwater discharge and habitat conditions capable of supporting coldwater fisheries (e.g., brook trout (*Salvelinus fontinalis*)) (Ecoplans Ltd.,1995). The upstream reaches of the East Branch also exhibit lower water temperatures. Water temperatures increase downstream from the headwater areas of all branches as they flow through agricultural and urban lands.

The study area is located within the Middle Branch, Main Eastern and Hornby Tributaries of Middle Branch of Sixteen Mile Creek, Subwatersheds 3 and 4 (Main Eastern and Hornby) respectively. The study area exists primarily in Type 3 – Warmwater Sportfish and Type 4 – Warmwater Baitfish designated reaches (Gore and Storrie *et al.*, 1996). The Type 3 designation is based on the presence of smallmouth bass although no sport fish were collected during field surveys. The water temperatures which indicated that stream temperatures are influenced by ambient air temperatures and direct solar radiation in open areas through pasture and cropland. The Type 4 designation applies to most of the remaining permanent or seasonal tributaries. Baitfish communities include a variety of forage species such as minnows, sucker, chub, and shiners.

The *HHGS ERR, Supporting Document 3 – Natural Environment (EEL 2007)* noted Ecoplans (1995) had identified two (2) of the headwater tributaries as potential coldwater areas due primarily to low baseflow temperatures and unconfirmed reports of brook trout northwest of Hornby, in the vicinity of Hornby golf course. Ecoplans (1995) had also identified a largely warmwater fish population of centrachids (sunfish) and cyprinids (minnow), including smallmouth bass, pumpkinseed, creek chub, shiners, and white suckers within this reach.

Upstream of Steeles Avenue, at Fifth Line, the Middle Branch is designated coldwater habitat based on the identification of young-of-year (YOY) Rainbow Trout and reaside dace. An

abundance of reidside dace, commonly inhabiting cool, clear headwater streams, were identified approximately 4 km upstream of Steeles Ave (Fifth Sideroad east of Fifth line) by Ecoplans (1995) in addition to creek chub, blacknose dace, and white sucker. In contrast, only creek chub and pumpkinseed species caught further downstream, approximately 1 km north of Steele (SENES *et al.* 2007).

All fish species, with the exception of reidside dace, noted here are considered to be common in Ontario and not tracked by the NHIC (2006b).

### **5.1.6 Vegetation**

The study area and surrounding region is located in the transition zone between the Niagara Section (Carolinian Zone) of the Deciduous Forest Region to the south and the Huron-Ontario Forest Section of the Great Lakes-St. Lawrence Forest Region to the north (Rowe 1972). The Deciduous Forest Region forms a narrow band along the north shore of Lake Ontario in southwestern Ontario extending east to approximately Presqu'ile Peninsula. Representative species common to both the southern Carolinian forest and the Great Lakes-St. Lawrence Forest Region to the north and northwest are found in this area.

The natural vegetation of the Huron-Ontario Section of the Great Lakes-St. Lawrence Forest Region is dominated by mixed wood forests (Rowe 1972). This Section is characterized by a number of dominant broad-leaved species with eastern white pine (*Pinus strobus*), eastern hemlock (*Tsuga canadensis*), and balsam fir (*Abies balsamea*) owing to the transition between the southern deciduous forests and the northern coniferous forests in this area. Habitat fragmentation, as a result of intensive agriculture and urbanization, have left only vestiges of the original forest communities.

Dominant broad-leaved species identified include sugar maple (*Acer saccharum* ssp. *saccharum*), red and white oak (*Quercus* ssp.) and American beech (*Fagus americana*); and Carolinian species such as black walnut (*Juglans nigra*) and sycamore (*Plantanus occidentalis*).

The presence of a number of woodlots, associated with the Middle Branch of Sixteen Mile Creek and its tributaries, have been identified in the north portion of the study area (north of Steeles Ave.) (EEL 2007).

The dominant vegetation community in the area is agricultural in nature, primarily crop fields that are used for a rotation of corn (*Zea mays*), soybean (*Glycine max*), winter wheat (*Triticum aestivum*), hay and pasture (Dillon, 2000) although well established hedgerows are present in some fields.

### **5.1.7 Wildlife**

Agricultural, woodlot and urban parkland in the study area provide habitat for those wildlife species fully habituated to human activities.

#### **Mammals**

The principal large wildlife species in the vicinity of the study area is considered to be the white-tailed deer (*Odocoileus virginianus*) likely as a result of the current mixed land uses in the area. Principle winter deer habitat is also available approximately 2 km north of the study area in Hornby Swamp Complex (Ecoplans Ltd., 1995).

Approximately 44 mammal species were identified within the Sixteen Mile Creek watershed, of which 31 were identified as native species (Dillon 2000). The species considered to be common within the study area include grey squirrel, ground hog, Eastern chipmunk, vole species, Eastern cottontail, striped skunk, red fox, coyote, raccoon, and red squirrel. No species present within the study area are considered to be at risk federally by COSEWIC (2007) or provincially by COSSARO (OMNR 2006a).

#### **Avifauna**

The avifauna in the vicinity of the study area, as documented in the HHGS *ERR, Supporting Document 3 – Natural Environment (EEL, 2007)*, was characterized on a watershed basis. The habitat of this area consists of diverse habitat consisting of active and abandoned agricultural fields and pasture, hedgerows, early successional vegetation and mature woodlots which could potentially support a diverse assemblage of bird species. Information on breeding birds within the Sixteen Mile Creek Watershed was taken from the Ontario Breeding Bird Atlas using 10x10 km Mercator Grid Squares. The study area is located within a 10 x 10 km square (17NU92) which does not contain any ESAs or large habitat areas, and is mainly open agricultural land. Small woodlots and riparian zones associated with East Sixteen Mile Creek tributaries provide the majority of the habitat cover and diversity with numerous tree nurseries and orchards providing habitat for some species.

Approximately 150 avian species were documented within the Sixteen Mile Creek watershed of which 88 species were likely or confirmed breeders. The 88 breeding bird species included 22 and 40 species considered locally rare and locally uncommon in Halton Region, respectively.

Six (6) species of the 22 locally rare species are considered to likely be breeding in the 10-km by 10-km grid encompassing the study area, with five of these species are ranked by NHIC (2006b)

as common in Ontario. Twenty-three (23) of the 40 locally uncommon species are likely or confirmed to be breeders in the grid with all of these species identified as very common or common in Ontario (Dillon 2000).

Provincially rare and significant species identified were the Cooper's Hawk (confirmed breeder) and Orchard Oriole (probable breeder).

## **Herpetofauna**

The term "herpetofauna" includes both reptiles and amphibians and are usually found in wetland areas accompanied by mature forest. The herpetofauna in the vicinity of the study area, as documented in the HHGS *ERR, Supporting Document 3 – Natural Environment (EEL 2007)*, was characterized on a watershed basis. Approximately 14 amphibians and 12 reptiles were identified within the Sixteen Mile Creek watershed. Jefferson salamander is designated as a threatened species federally by COSEWIC (2007), as well as provincially by COSSARO (OMNR 2006a). Northern map turtle, eastern ribbon and milk snake are designated as species of special concern federally by COSEWIC (2007), as well as provincially by COSSARO (OMNR 2006a). One (1) amphibian and four (4) reptile species are considered to be locally rare in Halton Region, with four (4) amphibians and one (1) reptile species considered locally uncommon.

### **5.1.8 Environmentally Significant Areas**

Environmentally significant areas can be defined as wetlands, Areas of Natural and Scientific Interest (ANSIs) and Environmentally Sensitive Areas (ESAs) which provide important habitat for a variety of wildlife and plant species. Development and site alteration in or adjacent to these areas are not permitted unless no negative impacts on the natural features or their ecological functions can be demonstrated.

Wetlands, identified as Provincially Significant Wetlands (PSWs), are protected under the Wetlands Policy Statement, which was incorporated into the Provincial Policy Statement (OMMAH, 2005) in 2005, to ensure no net loss of these wetland areas whose function includes water storage and control to reduce erosion and flooding, assists in improving water quality, and provides areas for a range of recreational pursuits.

Areas of Natural and Scientific Interest (ANSIs), identified as either life science or earth science ANSIs, and Environmentally Sensitive Areas (ESAs) are natural areas identified by OMNR and conservation authorities and/or municipalities, respectively, for protection of their natural

landscapes and/or features for heritage appreciation, scientific study or conservation education purposes.

The only wetland complex in the vicinity of the study area is the Hornby Swamp Complex (Class 7), approximately 18 ha in size, which is located adjacent to the northern (2 km) boundary of the study area.

There are no evaluated wetlands, Areas of Natural and Scientific Interest (ANSIs), or Environmentally Sensitive Areas (ESAs), identified or designated in the study area (Halton Region, 1978; Hanna, 1984; Geomatics, 1991, 1993; Halton Region and NSEI, 2005).

### **5.1.9 Noise**

Noise levels experienced at a regional level are directly related to the type of land use in a particular area. Traffic noise associated with road infrastructure is considered to be the major source of noise generated in the region with the exception of industrial areas (e.g., manufacturing) or construction sites (e.g., urban development) where noise levels are elevated either periodically or daily above background traffic levels.

Publication NPC-205 of the Model By-Law defines and sets Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (Urban) (MOE 1995) as follows:

A "Class 1 Area" is defined as:

*an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the urban hum.*

A "Class 2 Area" is defined as:

*an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas, and in which a low background sound level, normally occurring only between 23:00 and 07:00 hours in Class 1 Areas, will typically be realized as early as 19:00 hours.*

Other characteristics which may indicate the presence of a Class 2 Areas include:

- *absence of urban hum between 19:00 and 23:00 hours;*
- *evening background sound level defined by natural environment and infrequent human activity; and*
- *no clearly audible sound from stationary sources other than from those under assessment.*

Publication NPC-205 also states that the sound level limit must be established based on the principle of "predictable worst case" noise impact. Generally, the limit is based on the background sound level at the receptors and must represent the minimum background sound level that occurs or is likely to occur during the operation of the stationary source under assessment.

The sound level limits for a Class 1 and 2 Area, provided in Table 5.1, are established in Publication NPC-205. Energy equivalent sound levels identified in the table are measured in  $L_{eq}$ , in dBA. If the stationary source contains any noticeable features such as tonal components or buzzing, a 5 dB tonal penalty must be added to the noise level of the source as per NPC-104.

**TABLE 5.1  
MINIMUM VALUES OF ONE-HOUR  $L_{eq}$  or  $L_{LM}$  BY TIME OF DAY**

Time of Day	One Hour $L_{eq}$ (dBA)	
	Class 1 Area	Class 2 Area
07:00 - 19:00	50	50
19:00 - 23:00	47	45
23:00 - 07:00	45	45

The study area is predominately rural with an extensive road infrastructure and urban development to the east, west, and south. The background sound level is dominated by local traffic along Highway 401, Trafalgar Road, and Milton (south and west). The local traffic noise levels decline as you proceed further north in the study area and therefore the study area could be defined as either a Class 1 or Class 2 Area.

## **5.2 SOCIO-ECONOMICS AND LAND USE**

The demographic profile, description of the existing and planned land uses, socio-economic features (community, business and recreation), and cultural heritage features are identified in a regional and study area context.

### **5.2.1 Demographic Profile**

The Halton Hills is experiencing considerable growth as are other communities in transition across the Greater Toronto Area (GTA). The Halton Hills had an estimated 2006 population of 55,289, an increase of 14.7% in the 2001 population estimate. The majority of the population is relatively young between the ages of 25-44 (33.53%) with the population expected to reach 70,000 by 2021. Specific demographic profile information is not available for the study area.

### **5.2.2 Existing and Planned Land Uses**

It is estimated that all lands currently used for rural land uses (i.e., agriculture, idle fields, and existing development) may be developed for urban uses over the long-term therefore increasing the current total urban land use from 15% to over 80% (Dillon 2000).

#### **Existing Land Use**

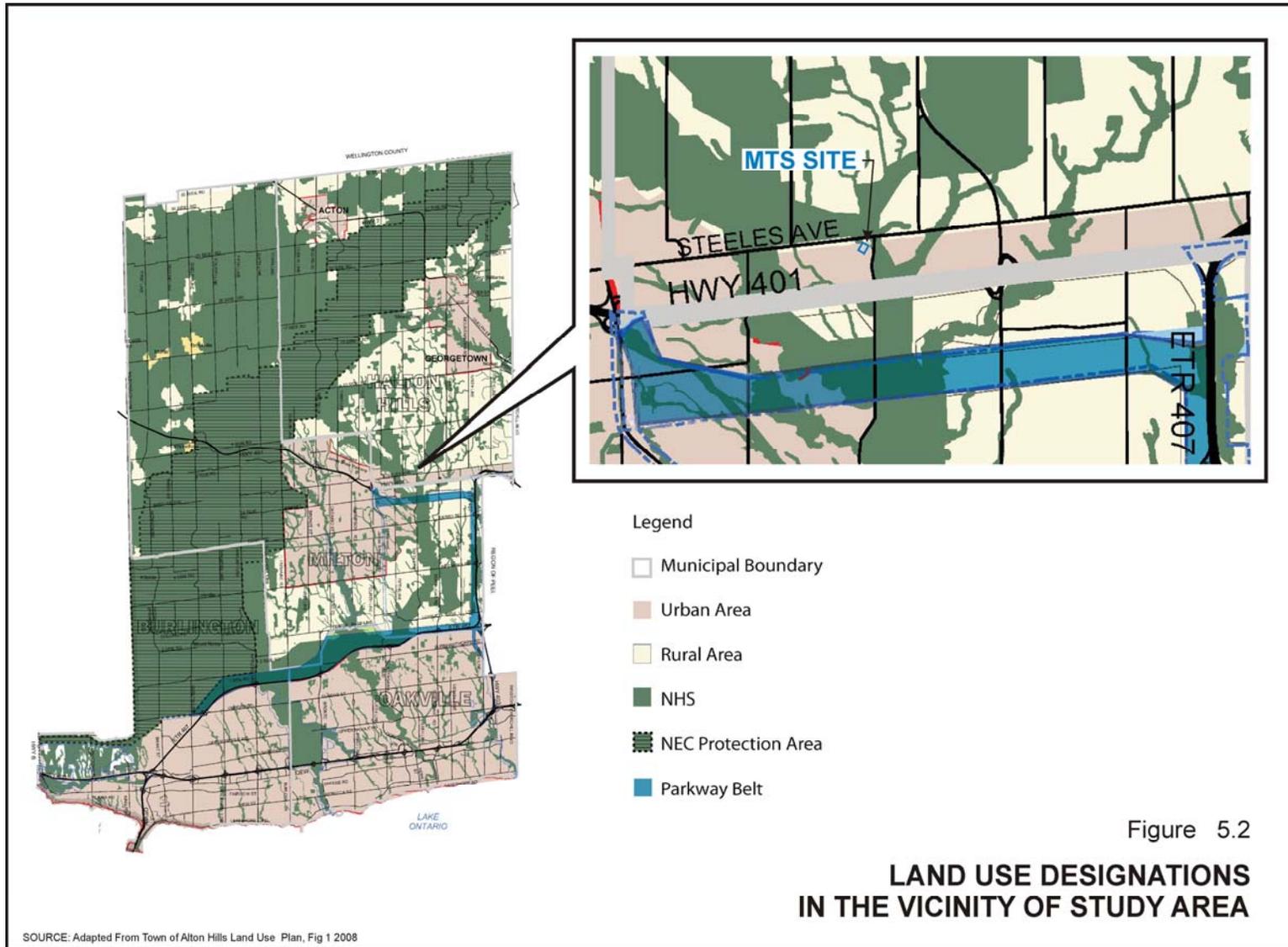
The existing land uses in Halton Region are identified in the Sustainable Halton Plan (Halton Region 2008) by five (5) land use types consisting of Greenbelt, Parkway Belt, Other Protected Greenlands, Rural Lands and Urban Areas. The existing land uses are as follows:

- The Greenbelt is defined as a broad band of permanently protected land set aside by the Provincial *Greenbelt Act* (2005) and the associated Greenbelt Plan comprised of the Niagara Escarpment Plan Area and Protected Countryside encompassing approximately 44% of the Region.
- The original Parkway Belt, defined as a multi-purpose utility corridor, urban separator, and linkage to an open space system, has over the past 25 years largely been removed from the Parkway Belt Plan (1978) with much of the remaining area now an integral part of the Greenbelt.
- Other Protected Greenlands include natural areas of regional significance which is not included in the Greenbelt or Parkway Belt Plan, as designated in the Regional Official Plan.
- Other “Rural Lands”, generally located south and east of the Greenbelt area and almost entirely located in the Towns of Milton and Halton Hills, are defined as most of the land outside of the Greenbelt or greenlands system that is not currently designated urban.
- Acton, Burlington, Georgetown, Milton, Oakville and the Halton Hills 401 Corridor employment area are all considered “Urban Areas” designated for residential, employment, commercial, and institutional uses.

Many of the former rural municipalities in the GTA have been transformed, due to rapid development in the GTA, into urban and semi-urban areas. Halton Hills is an example of this transformation as the former Equeusing Township, and urban centres of Georgetown and Acton are considered an integral part of this Town. Milton is the largest urban centre adjacent to the west and south of this area.

The study area, as identified in the Halton Region Official Plan (2006) encompasses or is immediately adjacent to a number of land use designations including urban areas, agricultural areas, rural cluster, special policy, Greenlands A and B, private open space, prestige industrial, gateway and major parks and open space (Figure 5.2).

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The Highway 401/407 Employment Area is located within the study area with Hornby located on the eastern boundary of this area. Hornby is designated a rural cluster (Halton Hills Official Plan) currently in transition from a predominately rural farming area, where historically residents had long-term business or agricultural ties to the community, to an integral part (gateway) of Halton Hills.

### **Land Use Planning**

The Golden Horseshoe by the year 2031 is forecasted to reach a population size of approximately 3.7 million people and 1.8 million more jobs (based on 2001 Census data) as specified in the Provincial Growth Plan for the Greater Golden Horseshoe area. The Provincial Growth Plan identifies the Province's vision for the future forecasted growth of its municipalities, infrastructure required to support that growth, and the cultural and natural heritage resources to be protected. Halton Region is expected to accommodate an additional 780,000 people and 340,000 jobs (based on 2006 Census data) by 2031.

In response to the Growth Plan, Halton Hills is working with other local municipalities within the region on a long-term growth management strategy called Sustainable Halton Plan (formerly "Durable Halton Plan") intended to implement Places to Grow – the Greater Golden Horseshoe Area Growth Plan, the Greenbelt Plan and the 2005 Provincial Policy Statement into the Regional Official Plan and subsequently local official plans. This workplan addresses resource management (agriculture, natural heritage, aggregate resources, source protection) and growth management (intensification, land supply analysis, housing, economic development) within the context provided by the Growth Plan and other recent provincial initiatives.

According to Statistics Canada, Halton Hills, with an area of approximately 276.26 km<sup>2</sup>, is designated as 81.5% urban and 18.5% rural. It is anticipated that new urban land and additional urban intensification will be required to meet the 2031 targets for the Region (Sustainable Halton, Draft 2008). A portion of Halton Hills, including the study area and the 401/407 Employment Area, is identified as part of the primary study area in the Sustainable Halton Plan. This Plan focuses on the potential for future growth within the primary study area to accommodate the forecasted increase in population and jobs. Currently the Halton Region (2006) Official Plan addresses anticipated growth to the year 2021 whereas Sustainable Halton, once adopted, would include planning initiatives to the year 2031. It is anticipated that a total of 3010 ha (residential, employment, community infrastructure), mainly within the primary study area, will be required to accommodate the 2031 population and employment targets.

Land use planning within the study area is currently focused on the portion of the 401/407 Employment Area located in the study area. The Highway 401/407 Employment Area,

designated in the Halton Hills Official Plan (May 2008), is identified as an important component in the future development of Halton Hills. It is currently an area in transition characterized by a mix of commercial, industrial, agriculture, and residential uses with future plans for more intensive industrial/commercial/gateway development of the corridor.

### **5.2.3 Recreation**

The recreation facilities in the vicinity of the study area are limited to the Hornby Glen Golf Course in the north portion of the study area and Hornby Park, immediately south of Steeles Avenue. Both of these recreation facilities are located within the study area.

Hornby Park functions as a recreational area for outlying areas as well as the larger surrounding communities due to its proximity to major transportation routes such as Highway 401, Steeles Avenue and Trafalgar Road and location away from concentrated residential development. The main eastern tributary of the Middle Branch of Sixteen Mile Creek runs through the park.

The parks facilities include a playground, pavilion with washroom facilities, and two (2) baseball diamonds (one (1) illuminated). There are no programmed uses of the park although it is typically used to host adult baseball leagues during the weekdays and on weekends for tournaments. The park is also used extensively for dog trials and as a staging area for cycling trips. Use of the park for cycling has become frequent enough that the Town is considering implementation of measures to manage this activity (SENES 2007).

The reconstruction of Steeles Avenue and increasing development in this corridor is anticipated to change current uses of the park including the relocation of the park access to the north corner of the park in the former location of the regional recycling depot.

The Hornby Glen Golf Course is located approximately 1 km north of Steeles Avenue on Hornby Road. This is a public golf course which is designated as private open space in the Halton Hills Official Plan.

### **5.2.4 Aesthetics**

Aesthetics, as it relates to this study, is the visual impact that a proposed MTS will have on the surrounding existing environment to identify the level of compatibility and potential to change the landscape.

The region is a diverse rolling landscape, delineated to the west and north by the Niagara escarpment, consisting of pockets of forested areas, agricultural fields and hedgerows, and valley systems interspersed by sections of urban/ industrial development and associated infrastructure.

The study area as viewed from Highway 401 is dominated by open agricultural field (SENES 2007). The diversity of the study area may be seen from along Steeles Avenue starting in the west with agricultural fields and hedgerows interspersed with industrial buildings, proceeding east through a rolling landscape of mixed agricultural, residential, and parkland, into a more level landscape comprised of mixed residential and business, and terminating in the vicinity of Trafalgar Road with a predominately commercial environment interspersed with residential and agricultural uses.

### **5.2.5 Cultural Heritage Features**

The Halton Hills Official Plan (2008) identifies approximately five (5) buildings within the study area limits that are identified as “Buildings with Historic Significance”. Built heritage is defined in the Official Plan as an individual or group of significant buildings, structures, monuments, installations, or remains, which are associated with architectural, cultural, social, political, economic, or military history and identified as being important to a community. These resources may be designated or subject to a conservation easement under the *Ontario Heritage Act*, or listed by the federal or provincial governments or the Town.

Two (2) of the heritage buildings are located to the west of Fifth Line, one each north and south of Steeles Avenue, one (1) located on the Halton Hills Generating Station site, and the remaining two (2) located west of Trafalgar line on the south side of Steeles Ave.

A Stage 1 and 2 archaeological assessment (ASI 2006) of the Snoek and Ballard Lands was conducted in support of the Halton Hills Generating Station (HHGS). The Snoek and Ballard Lands are located south of Steeles Avenue and north of Highway 401 between Fifth Line South and Sixth Line South. The study identified two (2) previously registered sites (AjGw-20 and AjGx-19) within a two (2) km radius of these Lands. The Bradley site (AjGw-20) was described as an artifact collection from an Archaic and Paleo-Indian campsite with AjGx-19 (unnamed) representing an unknown component located north of Steeles Avenue and west of Trafalgar Road. This study also identified the presence of a nineteenth century farmstead recorded in the 1877 Illustrated Historical Atlas of Halton, Ontario (Walker & Miles, 1877). Archaeological assessment of the remainder of the study area was not conducted.

### **5.2.6 First Nations**

Contact was made with the Ontario Native Affairs Secretariat during the HHGS ERR (SENES 2007) and it was determine that there were no claims in the vicinity of the HHGS site.

## **6.0 ALTERNATIVE MTS SITES**

A number of alternative sites for the proposed MTS were identified and evaluated through the use of criteria reflecting known environmental, technical, and cost concerns. These criteria are applied to the environmental baseline inventory and value judgements made on the relative importance of various mapped environmental data types. An environmental, technical, and cost evaluation were then carried out based on the quantitative and qualitative effects associated with each of the alternative identified. Net environmental effects were addressed in the environmental evaluation through the consideration of net effects after mitigation is taken into account. This evaluation provides a basis for the determination of a preferred site to be studied in further detail.

Alternative sites chosen for this study were based on locations which would:

- provide adequate area and infrastructure in which to accommodate all components of a MTS station;
- were currently undeveloped; and
- in close proximity to a major transmission corridor.

A typical MTS requires approximately 1 ha of land with suitable vehicle access. The entire perimeter is fenced to prevent unauthorized access to high voltage components. Electrical equipment can be classified as either outdoor and indoor equipment.

High voltage equipment is typically placed outdoors in the main switchyard and includes two (2) incoming 230 kV circuit breakers, underground 230 kV cables, two (2) 230 kV air disconnect switches, two (2) step-down power transformers, and two (2) power capacitor banks.

The 28 kV distribution equipment is typically located indoors, along with protection and control systems. Eight (8) distribution feeders will leave the station to supply power to the Steeles Avenue corridor, in addition to areas where future residential development is anticipated.

Distribution egress is the infrastructure (poles, circuits, and lines) exiting the station and connecting directly to the municipalities distribution system for further distribution to the end users. Egress may be conducted through either an overhead or underground system. Distribution egress is generally limited to one (1) pole line, in close proximity to the MTS, on either side of a public roadway as multiple pole lines are generally not permitted on the same side of the roadway due to the aesthetics and lack of physical space in the municipal right-of-way.

The locations of the 11 alternative MTS sites are provided in Figure 6.1.

## **6.1 EVALUATION COMPONENTS AND CRITERIA**

All 11 alternative sites must be evaluated equally in order to determine the location most suitable for siting the MTS facility. The evaluation of the sites is based on a number of environmental, technical, and cost concerns, and an associated set of criteria for each component, determined to be relevant and important considerations when siting a new MTS within the identified study area. Table 6.1 identifies the evaluation components and criteria and provides the rationale associate with each criteria used in evaluating the 11 alternative sites.



Figure 6.1

**ALTERNATIVE MTS SITE LOCATIONS  
WITHIN THE STUDY AREA**

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**TABLE 6.1  
EVALUATION COMPONENTS AND CRITERIA**

COMPONENT	CRITERIA	RATIONALE
<b>TECHNICAL</b>		
<i><b>Operational Management and Constructability</b></i>	<ul style="list-style-type: none"> <li>• Proximity to Market.</li> <li>• Proximity to Transmission Grid Connection.</li> <li>• Potential for Station Egress (outlet).</li> <li>• Available Land Size.</li> <li>• Relocation of Existing Wholesale Metering Equipment.</li> <li>• Distribution Circuit Egress (outlet).</li> </ul>	<ul style="list-style-type: none"> <li>• Location of the station in relation to existing supply facilities and future anticipated loads.</li> <li>• The proximity and routing of transmission circuits may impact reliability, security, and public safety.</li> <li>• The location of the station to the distribution pole lines determines the length of the station feeder cables, and road crossings, if necessary. Road crossings require coordination with other underground utilities.</li> <li>• An adequate amount of physical space is required to accommodate station equipment, and provide enough grounding to ensure the safety of operating staff and the general public.</li> <li>• Existing wholesale metering equipment is installed on the western boundary of the Steeles Ave. corridor. This equipment may need to be related if the station were to be located to the west of the existing metering equipment.</li> <li>• Distribution egress (outlet) is limited by the number of circuits permitted in public right of ways, and physical limitations of poles and associated hardware.</li> </ul>
<b>ENVIRONMENT</b>		
<i><b>Potential to Affect Fisheries and Aquatic Biology</b></i>	<ul style="list-style-type: none"> <li>• Proximity or potential to affect water flow or quality of watercourses within or adjacent to site.</li> <li>• Proximity or potential to affect rare, threatened or endangered fish.</li> <li>• Potential to affect aquatic habitat within or adjacent to the site.</li> </ul>	<ul style="list-style-type: none"> <li>• Watercourses may include significant habitat for threatened and endangered aquatic species. Water that does not support fish may also be important in sustaining fish habitat or wildlife downstream.</li> <li>• Harmful alteration, disruption or destruction (HADD) of fish habitat is prohibited and related aquatic systems are important as water sources and corridors for adjacent terrestrial habitats.</li> </ul>

**TABLE 6.1 (Cont'd)  
EVALUATION COMPONENTS AND CRITERIA**

<b>COMPONENT</b>	<b>CRITERIA</b>	<b>RATIONALE</b>
<i><b>Potential to Affect Wildlife and Terrestrial Biology</b></i>	<ul style="list-style-type: none"> <li>• Proximity or potential to affect a wooded area.</li>   <li>• Proximity to ESA, ANSI, Greenlands, etc. (Natural Heritage).</li>   <li>• Proximity to wetland areas.</li>   <li>• Proximity or potential to affect rare, threatened or endangered wildlife.</li> </ul>	<ul style="list-style-type: none"> <li>• Presence or absence of wildlife species are indicators of the quantity and quality of habitat present (i.e., absence of species may indicate habitat degradation).</li> <li>• Woodlots (e.g., forested areas) provide wildlife habitat, and ecosystem protection features (soil and erosion). Removal of these features may result in removal of habitat or degradation in and adjacent to affected area.</li> <li>• ANSIs and ESAs (natural landscapes and features) are provincially/regionally significant areas protected under provincial legislation due to their value with relation to protection, natural heritage appreciation, and scientific studies or education.</li> <li>• Wetlands, depending on their class, may contain critical habitats, play an essential hydrological role or significant social/economic benefit.</li> <li>• Wildlife designated as rare, threatened, or endangered are protected under Federal legislation (SARA).</li> </ul>
<i><b>Potential to Affect Existing and Planned Land Use and Access</b></i>	<ul style="list-style-type: none"> <li>• Zoning.</li>   <li>• Accessibility.</li> </ul>	<ul style="list-style-type: none"> <li>• Compatibility with Official Plan existing and planned land uses are considered. Re-zoning of a designated land use would require a separate process.</li> <li>• Sites located immediately adjacent to municipal, regional or provincial roads require no additional acquisition of land for access ROW.</li> </ul>
<i><b>Potential to Affect Socio-Economic (Community, Business, Agriculture, and Recreation)</b></i>	<ul style="list-style-type: none"> <li>• Types of business</li>   <li>• Potential for interruption of business (includes agriculture).</li> <li>• Proximity to developed residential areas.</li>   <li>• Proximity to recreational/park areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Affect on business may depend on type of business in the area (Industrial vs. retail).</li> <li>• Short-term (construction) and long-term (operation).</li>   <li>• Aesthetic issues as well as quality of life considered in or adjacent to residential areas.</li>   <li>• Hazards associated with locating a site adjacent to a recreational or park area (includes types of recreational activities).</li> </ul>

**TABLE 6.1 (Cont'd)  
EVALUATION COMPONENTS AND CRITERIA**

COMPONENT	CRITERIA	RATIONALE
	<ul style="list-style-type: none"> <li>• Potential to affect prime/priority agricultural lands.</li> <li>• Requirement for removal of buildings associated with agricultural operations.</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid areas designated as prime /priority agricultural lands and associated buildings are considered valuable resources.</li> </ul>
<i>Potential to Affect Cultural Heritage (Archaeology and Built Heritage)</i>	<ul style="list-style-type: none"> <li>• Proximity or potential to affect Built Heritage Features.</li> <li>• Proximity or potential to affect areas of known archaeological significance</li> </ul>	<ul style="list-style-type: none"> <li>• Building or landscapes designated as built heritage features are considered a historic resource and protected under Provincial heritage, environmental and planning legislation.</li> <li>• Areas of archaeological significance are important component of our heritage and are protected under Provincial heritage, environmental and planning legislation.</li> </ul>
<b>ECONOMIC</b>		
<i>Project Cost</i>	<ul style="list-style-type: none"> <li>• Distance from transmission circuits.</li> <li>• Distance from station switchgear to public roadway.</li> <li>• Ability to connect to existing transmission infrastructure north of Highway 401.</li> <li>• Quantity of distribution circuits that need to be rebuilt based on the location of the station on Steeles Ave.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs are relative to the quantity of cables, excavation, and installation labour, and costs of land purchases or easements.</li> <li>• Costs are relative to the quantity of cables, excavation, and installation labour.</li> <li>• Costs are relative to need for 230 kV underground circuits to connect to the transmission corridor and need to build a switching station at the transmission corridor junction.</li> <li>• Costs are relative to the quantity of distribution circuits required from the proposed location along Steeles Ave. to the distribution plant.</li> </ul>

## **6.2 EVALUATION OF ALTERNATIVE SITES**

The evaluation of the alternative sites was conducted to assess the quantitative and qualitative effects of locating the Project on a specific site. The description of the MTS (Section 6.0) components and the interaction with the existing baseline conditions (Section 5.0) were assessed to determine the potential effects using the criteria established (Table 6.1) for each component. Each component (technical, environmental, and economic) was evaluated using the results of the effects assessment and a qualitative ranking was given to each of the alternative sites based on professional experience (Table 6.2). An overall ranking for each of the alternative sites based on combining the rankings given to each of the technical, environmental, and economic components was then determined in order to identify the preferred site. The overall rankings given to each of the alternative sites is provided in Table 6.3 resulting in the identification of the preferred location (2C) as outlined in bold.

The rankings used in this evaluation are as follows:

- High Acceptability – No effects are associated or anticipated for this site based on identified criteria.
- Medium Acceptability – Few effects have been identified although the potential exists to prevent or mitigate these effects through implementation of alternative measures and/or methodologies.
- Low Acceptability - A number of effects have been identified although the potential for avoidance or mitigation is low.
- Unacceptable – Effects or limitations identified are considerable (numerous) and mitigation or avoidance is not possible, therefore precluding the site from further consideration.

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**TABLE 6.2  
EVALUATION OF ALTERNATIVE SITES**

Alternative Sites	1A	1B	1C	2A	2B	2C	2D	3A	3B	3C	3D
<b>Technical Summary</b>	<b>Unacceptable</b> Site is constrained by potential for expansion of 500 kV transmission corridor.  Provides limited redundancy with existing supply from Hydro One.	<b>Unacceptable</b> Site is constrained by potential for expansion of 500 kV transmission corridor.  Provides limited redundancy with existing supply from Hydro One.	<b>Low</b> Provides limited redundancy with existing supply from Hydro One. Requires dual 27.6 kV pole lines to be built the length of Steeles Ave. corridor.	<b>Medium</b> Site can physically accommodate station. Requires new 230 kV underground supply from south of Hwy 401. Introduces operational complexity, possible reliability and safety issues with buried transmission circuits due to future development.	<b>Unacceptable</b> Soil stockpiles have been established on this site since initiation of the study.	<b>High</b> The 230 kV transmission circuits are available adjacent to the site, from the Halton Hills Generating Station. This reduces the operational complexity, safety risk of buried transmission circuits in public areas. Provides supply diversity with existing Hydro One station.	<b>Medium</b> Requires new 230 kV underground supply from south of Hwy 401. Provides supply diversity with existing Hydro One supply.	<b>Medium</b> Requires new 230 kV underground supply from south of Hwy 401. Provides supply diversity with existing Hydro One supply.	<b>Medium</b> Requires new 230 kV underground supply from south of Hwy 401. Provides supply diversity with existing Hydro One supply.	<b>Unacceptable</b> Distribution egress along Trafalgar Road is not possible due to conflict with Milton Hydro distribution plant. This site is located in Milton, and Milton Hydro has rights to public right of ways.	<b>Unacceptable</b> Distribution egress along Trafalgar Road is not possible due to conflict with Milton Hydro distribution plant. This site is located in Milton, and Milton Hydro has rights to public right of ways.
<b>Environmental (Physical and Social) Summary</b>	<b>Low</b> No physical environmental constraints have been identified that would limit development of this site.  There are no socio-economic impacts related to the site and current zoning is "prestige" industrial.  However, the highest potential for impacting the physical and socio-economic environment would result from need to	<b>Unacceptable</b> No physical environmental constraints have been identified that would limit development of this site.  The socio-economic (zoning-OP) constraints for this site precludes it from further consideration. This site is designated in the Halton Hills OP as "gateway" which precludes development of	<b>Low</b> No physical environmental constraints have been identified that would limit development of this site.  There are no socio-economic impacts related to the site as this site is located within an industrial development and is currently zoned "prestige" industrial.  The highest	<b>Low</b> No physical environmental constraints have been identified that would limit development of this site.  The potential to impact the socio-economic environment is low due to the potential for disruption of traffic associated with construction for the few businesses and residences in the area. This site is currently zoned	<b>Low</b> No physical environmental constraints have been identified that would limit development of this site.  The potential to impact the socio-economic environment is low due to the potential for disruption of traffic associated with construction for the few businesses and residences in	<b>Medium</b> The potential to impact the physical environment is considered medium as the site is located adjacent to a watercourse where the potential for presence of coldwater fisheries has been identified. However site development will not encroach on the 15 m buffer	<b>Low</b> There is potential to impact the physical environment as the site currently exists as a hardwood woodlot with an identified potential for breeding birds. Development of this area would remove an existing remnant forest in an area with very few remaining.  The potential to impact the socio-economic environment is low with temporary impacts associated with the potential for disruption of traffic associated with	<b>Unacceptable</b> No physical environmental constraints have been identified that would limit development of this site.  The socio-economic (zoning-OP) constraints associated with this site, precludes it from further consideration. This site is designated in the Halton Hills OP as "gateway" which precludes development of this type. This area is also adjacent to a building of historic significance and to the Hornby Rural Cluster	<b>Unacceptable</b> No physical environmental constraints have been identified that would limit development of this site.  The socio-economic (zoning-OP) constraints associated with this site, precludes it from further consideration. This site is designated in the Halton Hills OP as "gateway" which precludes development of this type. This area is also adjacent to a building of historic significance and to the Hornby Rural Cluster	<b>Low</b> No physical environmental constraints have been identified that would limit development of this site.  Potential for socio-economic constraints is considered medium as this site is not currently accessible.  The potential for impacting the physical and socio-economic environment would also be high as a result from need to construct	<b>Medium</b> No physical environmental constraints have been identified that would limit development of this site.  Potential for socio-economic constraints is considered medium as this site is not currently accessible. This property is also adjacent to ORC land (to south).

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Alternative Sites	1A	1B	1C	2A	2B	2C	2D	3A	3B	3C	3D
	construct a 1800 m underground feed to connect to the existing grid as displacement and disruption to existing features would result	this type. The highest potential for impacting the physical and socio-economic environment would result from need to construct a 1500 m underground feed to connect to the existing grid as displacement and disruption to existing features would result.	potential for impacting the physical and socio-economic environment would result from need to construct a 1500 m underground feed to connect to the existing grid as displacement and disruption to existing features would result.	“prestige” industrial. The highest potential for impacting the physical and socio-economic environment would result from need to construct a 1600 m underground feed to connect to the existing grid as displacement and disruption to existing features would result.	the area. This site is currently zoned “prestige” industrial. The highest potential for impacting the physical and socio-economic environment would result from need to construct a 1600 m underground feed to connect to the existing grid as displacement and disruption to existing features would result.	previously identified for HHGS. A number of trees may be affected in an area identified as a cultural woodland although current development occurring at the site has already impacted this woodland.  The potential to impact the socio-economic environment is medium due to the removal of the barn currently existing on-site and also temporary impacts associated with the potential for disruption of traffic associated with construction for the residences and businesses in the area. This site is currently zoned prestige industrial. There are no interconnection effects associated with this site.	construction for the residences and businesses in the area. This site is currently zoned prestige industrial.  The potential for impacting the physical and socio-economic environment would also result from need to construct a 1600 m underground feed to connect to the existing grid as displacement and disruption to existing features would result. This would also have to be constructed under HHGS.	Area. There are no identified physical environmental constraints associated with development on this site.  The potential for impacting the physical and socio-economic environment would also be high as a result from need to construct a 1500 m underground feed to connect to the existing grid as displacement and disruption to existing features would result.	Area. There are no identified physical environmental constraints associated with development on this site.  The potential for impacting the physical and socio-economic environment would also be high as a result from need to construct a 1500 m underground feed to connect to the existing grid as displacement and disruption to existing features would result.	a 900 m underground feed to connect to the existing grid as displacement and disruption to existing features would result.	

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<b>Alternative Sites</b>	<b>1A</b>	<b>1B</b>	<b>1C</b>	<b>2A</b>	<b>2B</b>	<b>2C</b>	<b>2D</b>	<b>3A</b>	<b>3B</b>	<b>3C</b>	<b>3D</b>
<b>Cost Summary</b>	<b>Unacceptable</b> The highest cost option, as the location is the furthest away from the transmission right-of-way south of Hwy 401.	<b>Low</b> High cost due to distance from the transmission right-of-way south of Hwy 401.	<b>Low</b> High cost due to distance from the transmission right-of-way south of Hwy 401.	<b>Low</b> High cost due to distance from the transmission right-of-way south of Hwy 401.	<b>Low</b> High cost due to distance from the transmission right-of-way south of Hwy 401.	<b>High</b> The availability of 230 kV transmission circuits at HHGS eliminates substantial costs in new underground circuits.	<b>Low</b> High cost due to distance from the transmission right of way south of Hwy 401.	<b>Low</b> High cost due to distance from the transmission right of way south of Hwy 401.	<b>Low</b> High cost due to distance from the transmission right of way south of Hwy 401.	<b>Low</b> High cost due to expense of constructing all eight distribution circuits under Hwy 401, and the length of these circuits running up Trafalgar Road to Steeles Ave.	<b>High</b> Direct connection to the 230 kV aerial circuits south of Hwy 401 is less expensive than underground transmission circuits. Bulk of costs related to distribution feeders required along Trafalgar Road, under Hwy 401, to Steeles Ave.

**TABLE 6.3**  
**SUMMARY OF ALTERNATIVE SITE EVALUATION AND OVERALL RANKINGS**

<b>Alternative Site Identification and Location</b>	<b>1A</b> North side of Steeles Avenue, near James Snow Parkway	<b>1B</b> South side of Steeles Avenue, near James Snow Parkway	<b>1C</b> South side of Steeles Avenue, near Fifth Line North	<b>2A</b> South side of Steeles Avenue, near Fifth Line South	<b>2B</b> South side of Steeles Avenue, near Fifth Line South (east of site 2A)	<b>2C</b> South side of Steeles, near Sixth Line South (HHGS site)	<b>2D</b> South side of Steeles Avenue, forested area near Sixth Line South (west of HHGS site)	<b>3A</b> South side of Steeles Avenue, just west of Trafalgar Road	<b>3B</b> South side of Steeles Avenue, just west of Trafalgar Road	<b>3C</b> Trafalgar Road, south side of Highway 401	<b>3D</b> Trafalgar Road, Hornby Junction (ORC Lands) – South of Highway 401
<b>Technical Summary</b>	<i>Unacceptable</i>	<i>Unacceptable</i>	<i>Low</i>	<i>Medium</i>	<i>Unacceptable</i>	<i>High</i>	<i>Medium</i>	<i>Medium</i>	<i>Medium</i>	<i>Unacceptable</i>	<i>Unacceptable</i>
<b>Environmental (Physical and Social) Summary</b>	<i>Low</i>	<i>Unacceptable</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Medium</i>	<i>Low</i>	<i>Unacceptable</i>	<i>Unacceptable</i>	<i>Low</i>	<i>Medium</i>
<b>Cost Summary</b>	<i>Unacceptable</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>High</i>
<b>Overall Ranking</b>	<i>Unacceptable</i>	<i>Unacceptable</i>	<i>Low</i>	<i>Low-Medium</i>	<i>Unacceptable</i>	<i>High-Medium</i>	<i>Low-Medium</i>	<i>Unacceptable</i>	<i>Unacceptable</i>	<i>Unacceptable</i>	<i>Unacceptable</i>

- Denotes preferred MTS site

## **7.0 PROJECT DESCRIPTION**

The preferred MTS site was identified based on the results of the quantitative and qualitative analysis of the alternatives through a comparison of the advantages and disadvantages for each alternative in terms of environment, technical and cost. The selected MTS site had the most advantages and least disadvantages. A detailed study was then conducted to obtain additional information specifically related to the environment, technical, and cost components (and related factors) for the preferred MTS site. The remaining sections of this ESR (Sections 7 through 13) provide discussion on the detailed studies conducted for the preferred MTS site.

The general location and technical requirements of the Project are provided including land, size and type of equipment, description of building, connections to grid, operation, etc.

### **7.1 DESIGN PHASE**

The design phase for the MTS Project will continue through April 2010, with detail design anticipated to commence upon completion of the 30-day review period for the ESR anticipated in October 2008. The proposed MTS is a 230/27.6 kV, eight (8) feeder station with an emergency rating of 125 MVA.

The station will be situated on approximately 1 ha of land adjacent to the Halton Hills Generating Station (HHGS) (Figure 7.1). The proposed outdoor arrangement (Figure 7.2), includes two (2) incoming 230 kV circuit breakers (located on the HHGS site), underground 230 kV cables feeding two (2) 230 kV air disconnect switches, two (2) step-down power transformers, and two (2) power capacitor banks for power factor correction. All outdoor equipment will be enclosed by an eight-foot chain link fence, topped with barbed wire. The MTS Project consists of a MTS site and access road from public roads to the site.

The location of the access road is unknown at this time. Discussions with TransCanada, Halton Hills, and Conservation Halton to determine a suitable location for the access road will be conducted during detail design.

A switchgear and control building will enclose the 28 kV distribution switchgear, and all of the station protection and control systems. The 28 kV switchgear will include eight (8) 28 kV feeder circuit breakers which will supply power to the distribution system.

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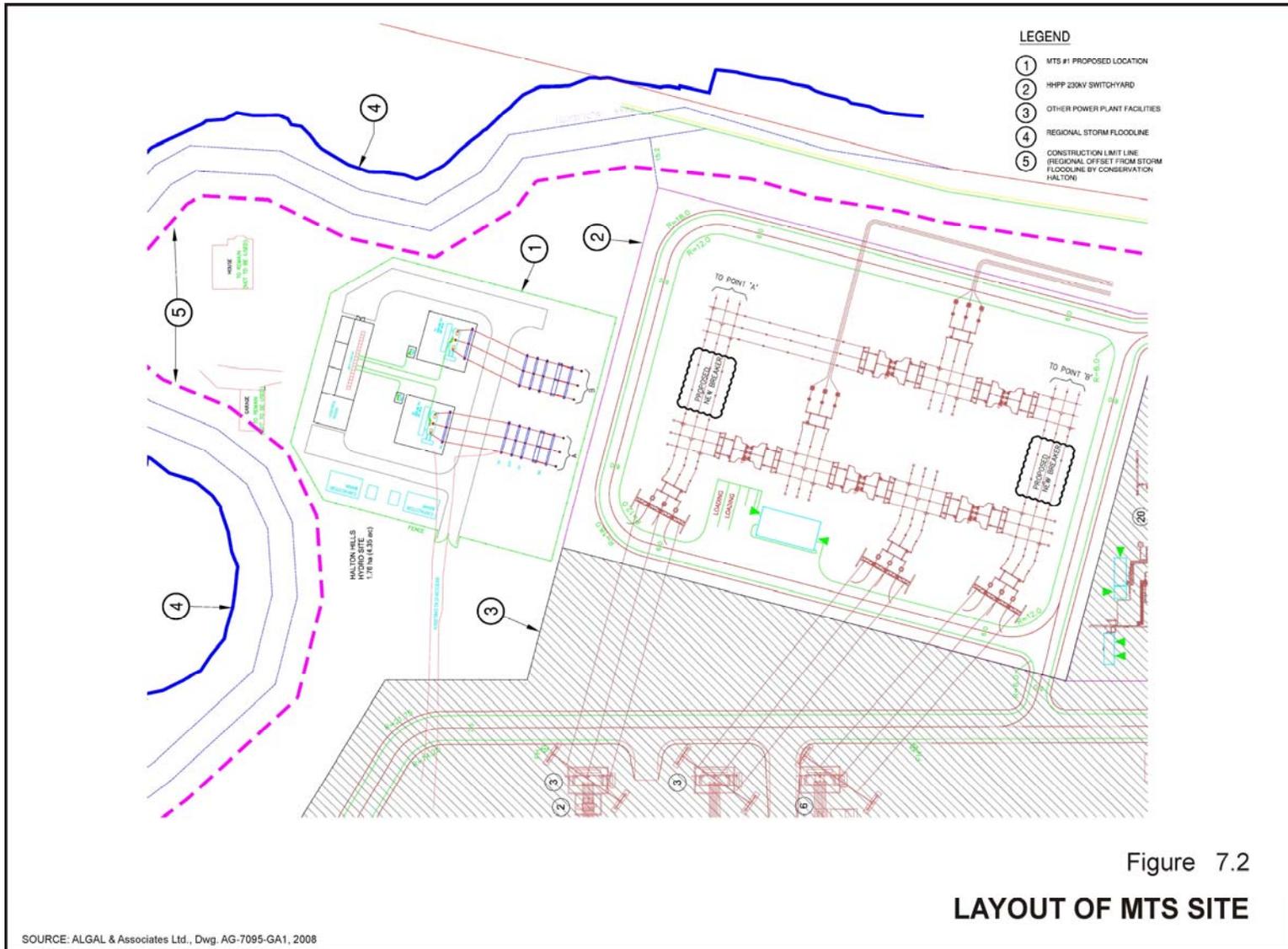


Figure 7.1

**AERIAL PHOTOGRAPH OF MTS SITE LOCATION**

SOURCE: Costello Associates, Dwg. C008, 2008

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The distribution system in the Steeles corridor area is primarily an overhead system. It is anticipated that the eight (8) new feeders will run underground from the MTS to the overhead system via underground duct banks. A four (4) distribution circuit is required to service the Steeles Ave commercial/industrial load, based on forecasted demand of approximately 68 MVA for the commercial/industrial Steeles Ave corridor, with an additional four (4) distribution circuits required to service the future northern load of the Georgetown and Acton areas. Halton Hills Hydro design standards permit up to four (4) distribution circuits on one (1) pole line. This is based on structural demands as well as reliability.

The transformers will be located within a lined containment area consisting of a vertical concrete wall around the perimeter of the transformer pad. The containment area extends well outside the transformer tank and radiators and sized to accommodate 100% of the volume of oil in the transformers plus accumulated water volume (snow and rain). The lining in the containment area is comprised of both clay and impermeable fabric liner overlaid by crushed limestone. The containment area is designed to direct runoff to a local drain where it can either be manually pumped or automatically removed. If an automatic pumping system is utilized, built-in oil sensors shut down the pumping system and raise alarms should oil be detected in the drain. The pumping system is constantly monitored in the utility control centre (24 hours).

## **7.2 CONSTRUCTION PHASE**

The station construction is anticipated to start in April 2010, as soon as the site is sufficiently dry for heavy equipment. It is anticipated that up to thirty construction personnel will be on site at any given time.

Initial site preparation including site grading, underground services, foundations, footings, and duct bank construction is anticipated to occur over approximately three (3) months. Construction of the switchgear and control building, transformer pads, and yard equipment foundations will commence, following the completion of site preparation activities, and take approximately six (6) months followed by the installation of indoor switchgear and control systems in December 2011. Installation of high voltage outdoor electrical equipment will be initiated once the roadways, foundations, and transformer pads are completed. The interconnection of all electrical equipment will take place in the first quarter of 2011. Testing and commissioning of all systems is anticipated to occur over two (2) months following the completion of the interconnection of all electrical equipment currently scheduled for the first quarter of 2011. Commissioning and start-up of the station is scheduled for May 2011.

### **7.3 OPERATION AND MAINTENANCE PHASE**

The station will operate automatically and requires no on-site personnel for regular day to day operation. The station control systems will be remotely monitored and controlled by the Halton Hills Hydro control room, located at the Halton Hills Hydro Office in Acton, in addition to being monitored by Hydro One Networks and the Independent Electricity System Operator (IESO).

Periodic maintenance inspections are required weekly or bi-weekly, depending on system conditions. Utility stations personnel typically visit MTS stations with small vehicles (i.e. pickup trucks or vans), for 30-45 minute inspections.

Major equipment maintenance is carried out typically every two (2) years. Given that a complete outage would interrupt power to customers, utilities often maintain half of the station every year. Maintenance activities include infrared inspections, oil testing, testing of circuit breakers, transformers, cables, and protection systems. Approximately ten to fifteen staff and contractors are on site one to two weeks per maintenance cycle.

## **8.0 ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES**

### **8.1 APPROACH**

The identification of potential environmental effects associated with the construction and/or operation of a new MTS is conducted in phases. The first phase requires an understanding of the Project (Section 7.0) including a description of the facilities to be built (design) and the sequence of activities that will occur or be undertaken during the construction and operation of the MTS. The second phase involves the identification of the baseline environmental conditions occurring in and adjacent to the MTS site. The third phase involves the determination of the interaction between the MTS and the existing environmental conditions through the use of standard methodologies to predict the potential environmental effects (i.e., project footprint on vegetation communities, computer modelling of the predicted noise levels). The fourth phase identifies mitigation measures that may be implemented to prevent, minimize or mitigate any potential negative effects. These environmental effects remaining after the application of mitigation measures are net effects.

### **8.2 NATURAL ENVIRONMENT**

#### **8.2.1 Physiography/Soils**

##### **Existing Environmental Conditions**

The MTS site is located on the Peel Plain, a bevelled till plain (Chapman and Putnam, 1984b) and is moderately flat, sloping gently to the east (SENES 2008a). A large portion of the site is described as disturbed/landscaped residential property which has been altered from its natural state as a result of past activities and erection of structures associated with a farm homestead. More recently, a portion of the MTS site was levelled and graded to accommodate a laydown area to assist in the construction of the HHGS (SENES 2007). The remaining northern portion of the site adjacent to the watercourse (northeast corner) slopes gently to the east.

The parent materials identified, during the investigations for the HHGS, were Oneida silt loam on fine textured glacial till, largely composed of ice ground materials from the underlying Ordovician rock formations (Gillespie *et al.*, 1971). The Brunisolic Grey-Brown Luvisol soils (Great Group) are well-drained and slightly stony with a topographic slope of 5% to 9%.

### **Effects of Construction**

The MTS is to be located adjacent to the HHGS where the physiography is fairly flat or has been previously levelled as a result of HHGS development activities. The remaining portion of the MTS site is currently in use either as a laydown area for the HHGS development or currently occupied by a barn, which is understood to be removed prior to construction of the MTS.

Construction of the MTS will require some additional grading as well as excavation to accommodate the transformer facilities. It is anticipated that the topsoil, and potentially a small amount of the subsurface layer, on a portion of the site will have been removed for the construction activities associated with the HHGS. Compression and mixing of soil horizons beneath the MTS facility is expected to occur as the area is subjected to loading from the facility. Excess subsurface material (silty clay glacial till), below the topsoil, to be excavated but not required for construction of the MTS facility will potentially be utilized for landscaping purposes in and around the facility.

The location of the access road is currently unknown but it is anticipated that compaction and mixing of the soil horizons beneath the access road location is expected to occur as a result of construction vehicle traffic.

### **Mitigation Measures and Net Effects**

Compression and mixing of soil horizons beneath the MTS facility will be mitigated through the conduct of additional geotechnical studies, related to foundations, to determine the loading restrictions of the site and the type of foundation (gravel or concrete) most suitable for the conditions identified on-site. It is anticipated that although the location of the access road has not been determined, potential impacts to the soil can be addressed through the provision of a stabilizing material (e.g., crushed stone).

### **Effects during Operations**

The activities associated with the operation of the MTS facility are not anticipated to create additional disturbance of soils or earth moving (excavation) activities that would affect the physiography or soils within or adjacent to the MTS site.

### **Mitigation Measures and Net Effects**

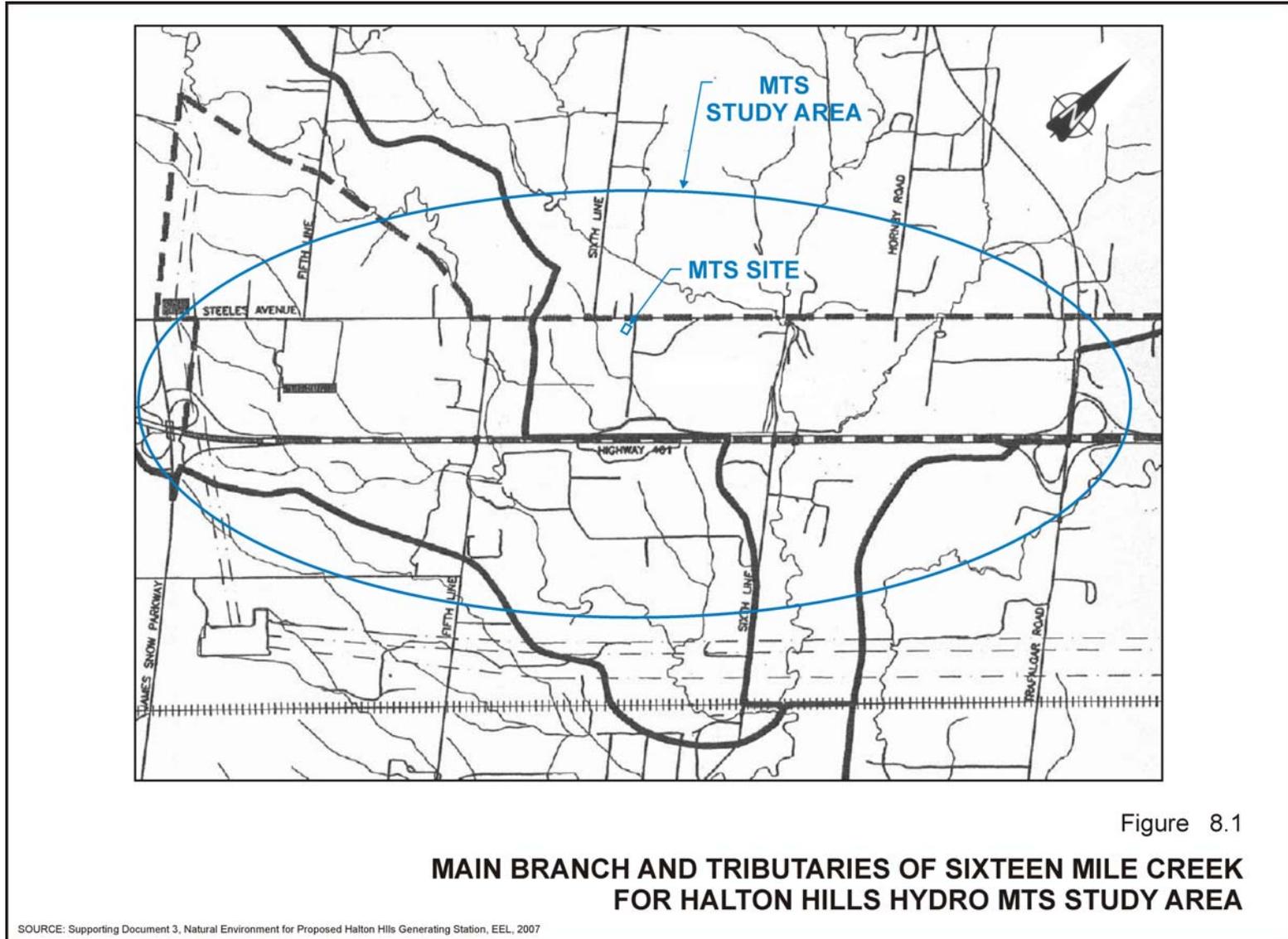
The physiography or soils are not anticipated to be affected by the operation of the MTS facility and therefore no mitigation is required.

## **8.2.2 Surface Water**

### **Existing Environmental Conditions**

The main eastern tributary of the Middle Branch of Sixteen Mile Creek, one of the main watercourses in Subwatershed 4, is located adjacent to the northwest corner of the site (Figure 8.1). The portion of the main eastern tributary between Steeles Avenue and Sixth Line is approximately 50 m in length. The tributary flows from the north of Steeles Avenue and meanders in a southeasterly direction across the top of the preferred site proceeding approximately 1.5 km east of Lower Sixth Line, where it joins the Middle Branch of Sixteen Mile Creek. The south banks of the watercourse between Steeles Avenue and Lower Sixth Line are approximately 2 m in height, consisting of a silt and clay mixture.

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The banks have been subjected to erosional forces at the toe of the slope causing bank angles to become overly steep and at risk of failure.

Historical hydrological data collected for Sixteen Mile Creek indicates that the largest stream flows occur in March and April (spring freshet) with lowest flows occurring from June to October.

A fisheries survey conducted on 26 June 2006, in support of the HHGS Project, included the collection of hydrologic, substrate and water quality information for the Main Eastern tributary. The data collected for Station 1 and Station 2 (upstream of Steeles Ave. and downstream of Sixth Line respectively) is presented in Table 8.1.

**TABLE 8.1  
HYDROLOGIC, SUBSTRATE, AND WATER QUALITY DATA FOR STATIONS 1  
AND 2 ON MAIN EASTERN TRIBUTARY (EEL 2007)<sup>1</sup>**

Parameter	Station 1 <sup>2</sup>	Station 2 <sup>3</sup>
<b>Flow Velocity (m/s)</b>	<b>0.2</b>	<b>0.15</b>
<b>Mean Width (m)</b>	<b>3</b>	<b>2.5</b>
<b>Mean Depth (m)</b>	<b>0.2</b>	<b>0.3</b>
<b>Substrate Type (%):</b>		
<b>Boulder</b>	<b>0</b>	<b>10</b>
<b>Cobble</b>	<b>15</b>	<b>5</b>
<b>Gravel</b>	<b>30</b>	<b>10</b>
<b>Sand</b>	<b>30</b>	<b>40</b>
<b>Silt</b>	<b>10</b>	<b>35</b>
<b>Clay</b>	<b>15</b>	<b>0</b>
<b>Water Temperature (°C)</b>	<b>18.9</b>	<b>18.1</b>
<b>Dissolved Oxygen (mg/L)</b>	<b>7.0</b>	<b>7.69</b>
<b>Oxygen Saturation (%)</b>	<b>76</b>	<b>82</b>
<b>Conductivity (µmhos/cm)</b>	<b>599</b>	<b>661</b>
<b>pH (units)</b>	<b>7.89</b>	<b>8.15</b>
<b>Water Colour</b>	<b>Blue/green</b>	<b>Blue-green</b>
<b>Water Clarity</b>	<b>clear</b>	<b>Turbid</b>

<sup>1</sup> - Extraction of information contained in Table 2.8 of the HHGS ERR, *Supporting Document 3 – Natural Environment, 2007.*

<sup>3</sup> - Station location upstream of Steeles Avenue and west of Sixth Line North.

<sup>2</sup> - Station location downstream of preferred sit on east side of Lower Sixth Line.

Station 1, upstream of the MTS site and north of Steeles Avenue (above Sixth Line), had a mean channel width of 3 m, mean water depth of 0.2 m, and flow velocity of 0.20 m/s and a substrate predominately comprised of gravel/sand with some cobble, clay, and silt. Station 2, downstream of the MTS site, had a mean channel width of 2.5 m, mean water depth of 0.3 m and flow velocity of 0.15 m/s with a substrate predominately comprised of silty sand with some gravel, cobble, and boulders. At the time of the survey, the water in this section (Station 2) of watercourse adjacent to the preferred site was turbid, whereas both upstream and downstream locations appeared clear. This condition was also observed during surveys conducted 7 June 2006 in support of the HHGS Project.

### **Effects during Construction**

#### ***Erosion/Run-off***

The potential for erosion and/or run-off to occur due to the removal of vegetation, and exposure and/or excavation of subsurface soils for construction of the MTS facility is anticipated. All construction activities will be restricted to the area outside of the “Construction Limit Line” identified for the HHGS Project. The “Construction Limit Line” is determined by Conservation Halton as a 15 m allowance adjacent to the stable top of bank for a “major valley system” which includes a 7.5 m lot line setback and a further 7.5 m internal development setback for the portion of the main eastern tributary of the Middle Branch of Sixteen Mile Creek located adjacent to the MTS site. Drainage from the MTS facility is expected to be directed to the Subwatershed Impact Study (SIS) Stormwater Management Facility (SWMF) developed for the parcel of land within the 401 Corridor between Sixth Line South and Fifth Line South including a parcel of land north of Steeles Avenue and west of Sixth Line North. (SENES 2008a). The MTS site is located on this parcel of land.

### **Mitigation Measures and Net Effects**

Submission of a grading and drainage plan is required as part of Halton Hills Site Plan Approval process. Erosion and sediment control measures implemented prior to initiation of construction activities and the direction of site run-off to the HHGS SWMF will ensure run-off associated with the construction of the MTS will be appropriately managed. Erosion and sediment control measures will include:

- Silt fences located downstream of the construction site with doubling of silt fences along the edge of the construction site adjacent to the watercourse;
- Excavation of drainage ditches around the perimeter and diversion channels in areas with increased erosion potential (i.e., down slopes, exposed areas) of the MTS site;
- Location of stockpiles at least 30 m from the watercourse; and
- Revegetation of areas no longer required for construction activities.

### ***Spills/Releases***

Spills to the environment of fuels, oils, lubricants and other liquids (e.g., paints) used during construction of the MTS is anticipated. The potential also exists for the release of liquid wastes (sanitary wastes from portable toilets, concrete) generated or chemical compounds used for construction. Solid waste, both construction and domestic, will be generated on-site on a daily basis.

### **Mitigation Measures and Net Effects**

All large vehicles will be fuelled and any maintenance required performed off-site, where possible. Where large vehicles are to be fuelled on-site, spill kits will be made available in the case of a release to the environment. Small equipment will be fuelled and maintained in designated areas where spills may be contained. Spill prevention, containment, and clean-up measures will be developed by Halton Hills Hydro and implemented by all Contractors conducting work on-site. Spills occurring to the natural environment will be reported to the Ministry of the Environment in accordance with O. Reg. 675/98. All waste material will be handled in accordance with O. Reg. 347, where required. Arrangements for the collection of the sanitary waste generated on-site will be made for the duration of the construction period. All domestic and construction wastes will be collected and deposited on a daily basis in a designated area.

### **Effects during Operations**

#### ***Erosion/Run-off/Stormwater***

Erosion is not anticipated as exposed soil surfaces will be revegetated immediately following construction. Run-off from the facility and stormwater flows are not expected to affect the water quality of the main eastern tributary of Sixteen Mile Creek as drainage from the site will be directed to the HHGS SWMF. Measures will be implemented within the MTS site to prevent the movement of fuels, oils, sediment or other contaminants from leaving the site.

### **Mitigation Measures and Net Effects**

No effects due to erosion are anticipated and therefore no mitigation is required. Run-off and stormwater flows will be directed to the HHGS SWMF and therefore any potential effects will be mitigated prior to being released to the main eastern tributary of Sixteen Mile Creek.

### ***Spills/Releases***

The potential exists for the release of transformer oil in the event of an equipment failure, although the possibility of this occurring is considered low. Spills of lubricants, fuels, and oils may occur during maintenance inspections anticipated to occur on a weekly or bi-weekly basis or during the major equipment maintenance generally conducted once every two (2) years.

### **Mitigation Measures and Net Effects**

The transformers are contained by a full base liner within a vertical concrete wall around the perimeter of the transformer pad to prevent any liquids to seep into the soil below. The containment area is filled with crushed limestone and can accommodate 100% of the transformer oil plus accumulated water from snow and rain.

Water and oil is channelled to a manhole within the facility to allow for either manual pumping or automatic removal of water. Oil sensors shut down the pumping system and raise alarms should oil be detected in the manhole. The system is constantly monitored in the utility control centre (24 hours). The potential effects related to a spill or release from the MTS facility is addressed by the implementation of the containment and monitoring systems within the MTS facility and therefore the need for additional mitigation measures are not anticipated.

### **8.2.3 Groundwater**

#### **Existing Conditions**

Groundwater resources within and adjacent to the MTS site were identified for the HHGS Study (EEL 2007) to flow in a north to northeast direction towards the main eastern tributary of the Middle Branch of Sixteen Mile Creek, located adjacent to the north boundary of the MTS site.

An overburden aquifer system and an underlying aquifer system, Till Complex and Queenston Shale respectively, comprise the two (2) main aquifer systems of the MTS site. As specified in EEL 2007, the Till Complex overburden aquifer system consists mainly of Halton Till with a sandy silt to silty clay composition and low permeability with groundwater yields generally obtained from the sand and gravel lenses. The groundwater is generally considered suitable for domestic purposes.

The Queenston Shale bedrock aquifer system, as identified in EEL 2007 for the HHGS study, forms the base of the groundwater flow system due to a confining layer of bedrock shale. The scarcity of high-yielding overburden aquifers classifies this aquifer system as regionally

significant. Yields depend on a number of aquifer characteristics but are generally less than 1 L/s.

The static water levels, on the HHGS site were identified in the range of 2 m to 5 m below grade with very low groundwater recharge (50-100 mm/y). Groundwater levels were measured to be 0.23 m to 0.96 m below ground in June 2006 for geotechnical investigations conducted for the HHGS property (EEL 2007).

### **Potential Effects during Construction**

High water table levels were identified for the HHGS site (EEL 2007) during geotechnical investigations although the local aquifers, from which area wells draw water, were measured at approximately 30 m below ground level. Additional geotechnical investigations for the MTS site are anticipated during detail design to confirm the information provided in the HHGS study and to determine the specific foundations to be used for the MTS. It is anticipated that the activities required to construct the foundations will not affect groundwater. If dewatering of construction areas is required, the appropriate permits or approvals to take water will be identified and obtained prior to the initiation of construction activities. The use of groundwater during the construction phase of the MTS is not anticipated and therefore groundwater flow or quantity is not expected to be affected.

### **Mitigation Measures and Net Effects**

Construction of the transformer station is not expected to affect groundwater quality or quantity and therefore no mitigation measures are required.

### **Potential Effects during Operations**

Groundwater is not required during the operation phase of this Project and therefore groundwater flow or quantity will not be affected.

### **Mitigation Measures and Net Effects**

Operation of the MTS is not expected to affect groundwater quality or quantity and therefore no mitigation measures are required.

## **8.2.4 Fisheries and Aquatic Habitat**

### **Existing Conditions**

The Middle Branch of the Main Eastern Tributary of Sixteen Mile Creek is located adjacent to the north boundary of the MTS site (Figure 7.2). A fisheries resource survey was conducted on 26 June 2006, in support of the HHGS ERR, at four stations with a reach stretching from north of Steeles Avenue at Sixth line to the Canadian Pacific Railway Bridge (south of Highway 401) (EEL 2007). Stations #1 and #2 are immediately upstream and downstream of the MTS site and thus are identified in Table 8.2.

The Main Eastern tributary passes under Steeles Avenue, onto the HHGS site and more specifically along the north boundary of the MTS site, proceeding across Fifth Line South to Hornby Park. The study (EEL 2007) characterized the watercourse as having an active channel width of approximately 8 m, depth of 0.1 m with substrate consisting of silt, large cobbles and submerged aquatic vegetation.

The surveyed reach was identified as a typical warmwater fish community consisting largely of minnow, sunfish and perch species (EEL 2007) with the presence of young-of-year (YOY) warmwater species potentially indicating that this reach may also provide spawning and/or nursery habitat. Two (2) YOY rainbow trout and eggs were identified just downstream of the HHGS and MTS site possibly suggesting that this location may provide spawning and/or nursery habitat for this coldwater species.

Table 8.2 provides the species identified during the 26 June 2006 survey for Stations 1 and 2 on the middle branch of the main eastern tributary. All species are considered common in Ontario by NHIC (2006). The presence of watercress may indicate groundwater inputs to this reach as well as lower water temperatures when compared to stations located upstream and downstream.

The portion of Middle Branch running along the northern boundary of the MTS site (between Steeles Avenue and Sixth Line) is classified as reddsides dace survival habitat as part of the “Redside Dace Recovery Strategy” by Conservation Halton, based on the presence of reddsides dace approximately 2.5 km upstream of the MTS site (SENES 2008a). A 30 m meander belt setback was delineated to protect this habitat.

### **Effects during Construction**

The removal of the vegetation and excavation of soils associated with the construction of the MTS may potentially increase the potential for gully or rill erosion to occur and therefore may

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result in increased levels of sediment to the Sixteen Mile Creek tributary adjacent to the northern boundary of the MTS site. A 15 m setback (as measured from the “stable” top of bank) precluding the construction of structures identified for the HHGS Project (ERR 2007), and the 30 m meander belt setback, also defined in the SIS study (SENES 2008a) will be observed for the MTS Project.

**TABLE 8.2  
FISH SPECIES RECORDED AT STATIONS 1 AND 2 IN THE MAIN EASTERN  
TRIBUTARY OF THE MIDDLE BRANCH OF SIXTEEN MILE CREEK (26 JUNE 2006)**

Fish Species	Station 1		Station 2	
	Number	Life Stage <sup>1</sup>	Number	Life Stage <sup>1</sup>
Common shiner	5	J,A		
Bluntnose minnow	3	J,A	13	YOY, J, A
Blacknose dace	36	J,A	6	YOY, J, A
Creek chub	17	J,A	5	YOY, J, A
White sucker	22	YOY,J,A	30	YOY, J, A
Stonecat			1	J
Rainbow trout			2	YOY
Brook stickleback	1	A		
Rock bass		J	5	J,A
Pumpkinseed				
Smallmouth bass				
Rainbow darter	33	J,A	14	J, A
Fantail darter				
Johnny darter	30	YOY, J,A	35	J, A

<sup>1</sup> - Life stage: YOY = young-of-the-year; J = juvenile; A = adult.

### **Mitigation Measures and Net Effects**

Silt fences and other sediment and erosion control measures will be identified and implemented prior to the initiation of construction activities. It is anticipated that no effects to fisheries or aquatic habitat will occur as a result of construction activities for the MTS and therefore no further mitigation measures are required.

### **Effects during Operations**

The Halton Hills Official Plan (2008) and *O. Reg. 97/04: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* (2006) require a 15 m allowance adjacent to the stable top of bank of major valley/watercourse systems to protect “Hazard Lands”. As specified in Construction Effects above, no structure for the MTS will be located within 15 m of the stable top of bank of the watercourse or within the 30 m meander belt setback identified by Conservation Halton for the HHGS Study (ERR 2007). All stormwater

runoff will be directed to the SWMF for the SIS site, identified in Section 8.2.2 prior to being released to the watercourse.

### **Mitigation Measures and Net Effects**

It is anticipated that no effects to fisheries or aquatic habitat will occur as a result of the operation of the MTS and therefore no further mitigation measures are required.

### **8.2.5 Vegetation**

#### **Existing Conditions**

The identification of vegetation communities on the MTS site are based on studies (EEL 2007) undertaken for the HHGS ERR using the Ecological Land Classification (ELC) system to an ecosite level (Lee *et al.* 1998). The MTS site is located predominately on a Cultural Woodland (CUW#5) which is characterized by historic anthropogenic disturbance, such as land clearing/agricultural use and subsequent abandonment. A residence, barn and other buildings (Figure 8.2) are associated with this community.

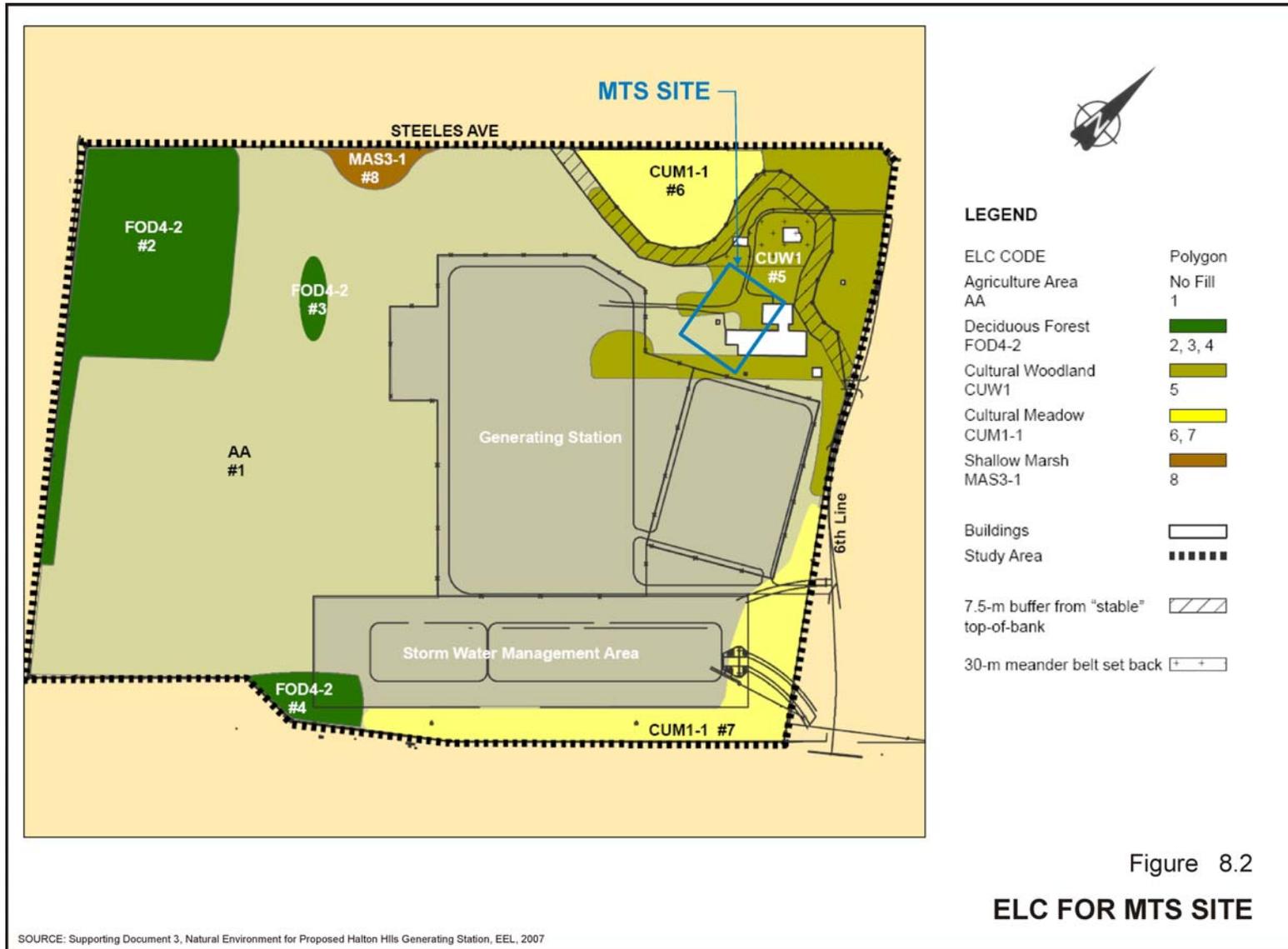
The cultural woodland is characterized by native trees, such as white ash (*Fraxinus americanus*), black walnut (*Juglans nigra*), yellow oak (*Q. muehlenbergii*), sugar maple (*A. saccharum*), Manitoba maple (*A. negundo*), American basswood (*Tilia Americana*) and honey locust (*Gleditsia triacanthos*), as well as other non-native species (e.g., Norway spruce (*Picea abies*), white willow (*Salix alba*) and northern catalpa (*Catalpa speciosa*)). The ground cover is historically manicured lawn which has fallen to disuse in the immediate past.

The remainder of the MTS site was originally identified in EEL 2007 as agriculture area but it is anticipated that the area has been developed and is at least partial used as a laydown area for the HHGS Project (SENES 2008a).

#### **Effects during Construction**

A portion of the cultural woodland area and agricultural area identified in EEL 2007, on which the MTS and the access road is to be constructed, is currently in use as a laydown area for the HHGS and therefore the existing vegetation has already been removed. The remainder of the vegetation, with the exception of three (3) species, associated with the Cultural Woodland area to be affected are designated by the NHIC (2006b) as S5 (very common in Ontario), and therefore will have a negligible effect on the overall populations in Ontario. Additionally, the removal of any black walnut or yellow oak, designated as S4 (common in Ontario and apparently

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secure), is anticipated to have a negligible effect on the general populations. It is anticipated that a number of honey locusts identified in the cultural woodland area during the SIS study (SENES 2008a) which are designated by NHIC (OMNR 2006b) as S2 (very rare in Ontario), are located in close proximity to the barn structure and may be impacted by the development of the MTS. The exact location of these trees will be confirmed during the development of the Site Plan and any and potential impacts/removals addressed through the development and implementation of a Landscaping Plan for the MTS to be determined in consultation with Halton Hills. The overall effect of construction of the MTS on vegetation is anticipated to be minimal.

### **Mitigation Measures and Net Effects**

Compensation for the loss of any trees for this Project will be conducted in accordance with the Halton Hills Official Plan (2008) which requires a tree inventory and preservation plan be developed along with a proposed planting program. Halton Hills Hydro will also apply for a tree removal permit prior to construction, in accordance with Halton Region Tree By-law No. 121-05.

### **Effects During Operations**

A landscape plan for the MTS site and the access road will be developed in accordance with the 401 Corridor Urban Design Guidelines, Conservation Halton (2005a) planting and tree preservation guidelines, and Halton Hills Standards through consultation with the Town of Halton Hills and Conservation Halton. The main purpose of the landscape plan is to replace native vegetation and enhance the aesthetics of the site to the passerby. The operation of the MTS and access road is not expected to affect the vegetation communities although a positive net benefit is expected to be derived through the development and implementation of a landscape plan.

### **Mitigation Measures and Net Effects**

Operation of the MTS is not expected to affect the vegetation communities and therefore no further mitigation measures are required.

## **8.2.6 Wildlife**

### **Existing Conditions**

A total of 11 mammals, based on direct and indirect observations, were recorded for the HHGS site during a survey conducted on 28 June 2006 for the HHGS ERR (SENES 2007). Mammals identified included Virginia opossum (*Didelphis virginiana*), eastern cottontail (*Sylvilagus floridanus*), eastern chipmunk (*Tamias striatus*), groundhog (*Marmota monax*), eastern grey squirrel (*Sciurus carolinensis*), meadow vole (*M. pennsylvanicus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*) and white-tailed deer (*Odocoileus virginianus*). All of these species are associated with areas of human disturbance and are not considered to be at risk federally by COSEWIC (2006) or provincially by COSSARO (OMNR 2006a).

The presence or absence of avifauna in one (1) area is difficult to assess, due to their increased mobility, unless nests are identified. Approximately 19 avian species were observed on the HHGS site, during a survey conducted 28 June 2006, with 15 species confirmed or identified as likely to be breeding in the 10-km by 10-km grid. Two of the 15 bird species were considered non-native/exotic with the remaining 13 considered very common in Ontario (SENES 2008a). A number of terrestrial bird species were considered to be likely locally residents that may nest on the HHGS site (EEL 2007).

### **Effects During Construction**

The displacement of wildlife due to the conduct of construction activities is expected to be minimal based on the location of the MTS site next to the HHGS, and the level of disturbance currently occurring on and adjacent to the MTS site associated with the construction of the HHGS. Any effects are anticipated to be short-term as the wildlife identified in the survey may leave the area to avoid the noise and disturbance associated with construction activities returning once these activities have concluded.

The potential exists to affect avian resources, most of which are protected under the *Migratory Birds Convention Act*, as a number of trees in the vicinity of the barn, including a number of honey locust, may have to be removed to accommodate the MTS structures and access road. In accordance with the *Migratory Birds Convention Act*, vegetation clearing is not permitted in southern Ontario between 01 May and 31 July during the breeding season of migratory birds in order to avoid the destruction of nests. If clearing is to take place between these dates, a breeding bird survey must first be performed by a qualified avian biologist and a 50 m buffer

restricting construction activities must be enforced and maintained around the any nests found until the young have left the nests.

The construction of the MTS is anticipated to have minimal effect on wildlife in the area. The construction of the access road is anticipated to also have minimal effect on wildlife in the area as the location will be determined in consultation with the Town of Halton Hills and Conservation Halton, if required.

### **Mitigation Measures and Net Effects**

The clearing of vegetation should take place prior to 01 May or following 31 July to avoid the breeding bird season. If clearing activities are to be conducted during this period, a breeding bird survey must be completed by a qualified avian biologist. Any nests found during the survey must remain undisturbed and a 50 m buffer in which construction activities are prohibited observed until the young have fledged. The overall effect of the construction of the MTS on wildlife populations and/or wildlife-carrying capacity is anticipated to be minimal.

### **Effects during Operations**

Operation of the MTS is not expected to further affect wildlife resources or wildlife-carrying capacity as wildlife and avian species may return to the areas with suitable habitat adjacent to the site (northeast corner of property on northeast side of tributary).

Noise generated by the MTS is not expected to affect the movement of wildlife back to the area as they have become accustomed to noise generated by human disturbance (e.g., highway and vehicle traffic, farming activities).

Bird collisions are not anticipated as the MTS will abut and have a much lower profile than the HHGS.

### **Mitigation Measures and Net Effects**

No effect on wildlife populations and/or wildlife-carrying capacity is anticipated for the operation of the MTS.

## **8.2.7 Environmental Significant Areas**

### **Existing Conditions**

There are no ESAs, ANSIs or PSWs on or in the immediately vicinity of the MTS site. The closest classified area is the Class 7 Hornby Swamp located approximately 2 km north of the site (EEL 2007).

### **Effects During Construction**

No effects are associated with construction activities as there are no ESAs located within or immediately adjacent to the MTS site.

### **Mitigation Measures and Net Effects**

There are no effects related to construction and therefore no mitigation measures are required.

### **Effects During Operations**

No effects are associated with the operation of the MTS as there are no ESAs located within or immediately adjacent to the MTS site.

### **Mitigation Measures and Net Effects**

There are no effects related to operation of the MTS and therefore no mitigation measures are required.

## **8.2.8 Noise**

### **Existing Conditions**

The MTS site is located in a predominately rural area surrounded by road infrastructure to the north, east and south and urban development to southwest. The background sound level is characterized by local traffic along Highway 401 and Steeles Ave.

It is acknowledged that the HHGS site, currently under development, is expected to be operational at the time of commissioning of the MTS. The acoustic modelling for the MTS was conducted based on the background sound level characterized by local traffic only and did not include the noise generated by the operation of the HHGS (SENES 2008b). Further discussion

on the effects of the HHGS on the noise modelling for the MTS is provided in the subsequent sections.

The Model Municipal Noise Control By-Law (MOE 1978) defines a receptor or point of reception as *"any point on the premises of a person where sound or vibration originating from other than those premises is received."* The point of reception may be located on any of the following existing, or zoned for future use premises:

- permanent, seasonal or rental residences;
- hotels/motels;
- nursing/retirement homes;
- hospitals;
- campgrounds; or
- noise sensitive buildings such as schools, day care facilities and places of worship.

The nearest point of reception to this MTS site is a residential property approximately 220 meters north-west of the nearest on-site noise source. A second receptor was identified is also a residential property to the west of the MTS site at a distance of approximately 300 m.

### **Effects During Construction**

Potential sources of noise associated with the MTS construction activities are anticipated to occur over a nine (9) to 12 month period. Site grading, underground services, foundations, footings, and duct bank construction activities will occur over approximately three (3) months followed by the construction of the switchgear and control building, transformer pads, and yard equipment foundations over an additional six months. Installation of high voltage outdoor electrical equipment will commence once the roadways, foundations, and transformer pads are completed. Equipment utilized for these construction activities may include bulldozers, front-end loaders, small trucks, bobcats, backhoes, dump trucks, cement trucks and mobile cranes. Indoor construction activities, and the placement of transformers and other electrical equipment are not expected to generate the noise levels anticipated during the initial construction activities.

An increase in the noise levels for the surrounding environs, resulting from the conduct of these activities, are anticipated to be temporary and infrequent in nature and therefore the effects are expected to be minimal.

### **Construction Noise Limits**

Specific sound emission standards for construction equipment are provided in *NPC Document #115* of the Ontario Model Municipal Noise Control By-law (MOE 1978).

Qualitative noise restrictions associated with various activities are set out in Halton Hills By-Law No. 93-177 “A By-Law with Respect to Noise” which states:

*No person shall make, cause or permit noise which disturbs or may disturb the quiet, peace, rest enjoyment, comfort or convenience of the inhabitants of the Town.*

*As the by-law pertains to the construction of the MTS, more specifically the operation of machinery or equipment:*

*Any noise from any excavation or construction work, including the erection, demolition, alteration or repair of any building which disturbs or is likely to disturb the peace, quiet, rest, enjoyment, comfort or convenience of persons in any office or residential point of reception or of any person in the vicinity, arising between the hours of 6:00 p.m. of one day and 7:00 a.m. of the following day, unless the following day is a Sunday or holiday, in which case the time shall be 9:00 am.*

### **Mitigation Measures and Net Effects**

The potential noise sources associated with the MTS site were determined to be temporary and infrequent. Additionally, all construction activities will be conducted in accordance with standard construction practices and the Halton Hills By-law No. 93-177 and therefore no mitigation is required. All noise-related complaints received from the general public will be documented and investigated.

### **Effects during Operation**

The acoustic assessment report was prepared in accordance with the format outlined in the Ontario Ministry of the Environment (MOE) document titled *Supporting Information for the Preparation of an Acoustic Assessment Report*, prepared by the Air and Noise Unit, Environmental Assessment and Approvals Branch, November 2003.

#### *Noise sources*

The two (2) transformer units were the only significant on-site sources of noise from the MTS identified by Halton Hills Hydro. The transformers are not expected to be located within a

building structure. Insignificant noise sources were identified as the maintenance facilities, and periodic maintenance activities, which are expected to generate little to no noise and the on-site switch yard connected to the two (2) transformers, also considered an insignificant source of noise.

The HHGS is expected to be operational when the MTS is commissioned; however, it is anticipated that the noise generated by the MTS will be comparatively insignificant, as noted in the following paragraph:

A simple comparison was completed using an acoustic assessment previously conducted for the HHGS ERR (SENES 2007), which identified day and night-time sound levels at two (2) receptors locations to be in the order of 44.7 dBA and 47.8 dBA, respectively. The maximum noise impact from the MTS is 35.9 dBA (SENES 2008b) during the night at receptor R2. This is a minimum 8.8 dB difference between the existing HHGS noise and the contribution from the MTS resulting in a maximum increase in the receptor sound levels of approximately 0.5 dB due to the MTS operation. Increases of this magnitude are generally imperceptible to the human ear.

The acoustic modelling for this study was based only on the noise generated by the operation of the MTS.

### *Regulatory Requirements*

The MTS must obtain a Certificate of Approval (C of A) (Air and Noise) through compliance with the noise guidelines stipulated in the Ministry of the Environment (MOE 1978) Model Municipal Noise Control By-law. The MTS is a stationary noise source, as defined in the By-law, must comply with the limits set out in Noise Pollution Control publication 205 (NPC-205) (MOE 1995).

As provided in Section 5.1.9 – Noise, Publication NPC-205 of the Model By-Law defines and sets Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (Urban) (MOE 1995) as follows:

A "Class 1 Area" is defined as:

*an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the urban hum.*

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A "Class 2 Area" is defined as:

*an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas, and in which a low background sound level, normally occurring only between 23:00 and 07:00 hours in Class 1 Areas, will typically be realized as early as 19:00 hours.*

Other characteristics which may indicate the presence of a Class 2 Areas include:

- *absence of urban hum between 19:00 and 23:00 hours;*
- *evening background sound level defined by natural environment and infrequent human activity; and*
- *no clearly audible sound from stationary sources other than from those under assessment.*

Publication NPC-205 also states that the sound level limit must be established based on the principle of "predictable worst case" noise impact. Generally, the limit is based on the background sound level at the receptors and must represent the minimum background sound level that occurs or is likely to occur during the operation of the stationary source under assessment.

The sound level limits for a Class 1 and 2 Area, provided in Table 8.3, are established by Publication NPC-205. Energy equivalent sound levels identified in the table are measured in  $L_{eq}$ , in dBA. If the stationary source contains any noticeable features such as tonal components or buzzing, a 5 dB tonal penalty must be added to the noise level of the source as per NPC-104.

No restrictions apply to a stationary source resulting in a one hour  $L_{eq}$  lower than the minimum values for the time periods specified in Table 8.3.

**TABLE 8.3  
MINIMUM VALUES OF ONE-HOUR  $L_{eq}$  or  $L_{LM}$  BY TIME OF DAY**

Time of Day	One Hour $L_{eq}$ (dBA)	
	Class 1 Area	Class 2 Area
07:00 - 19:00	50	50
19:00 - 23:00	47	45
23:00 - 07:00	45	45

The MTS site and the two (2) receptors were determined to be located in a Class 1 Area.

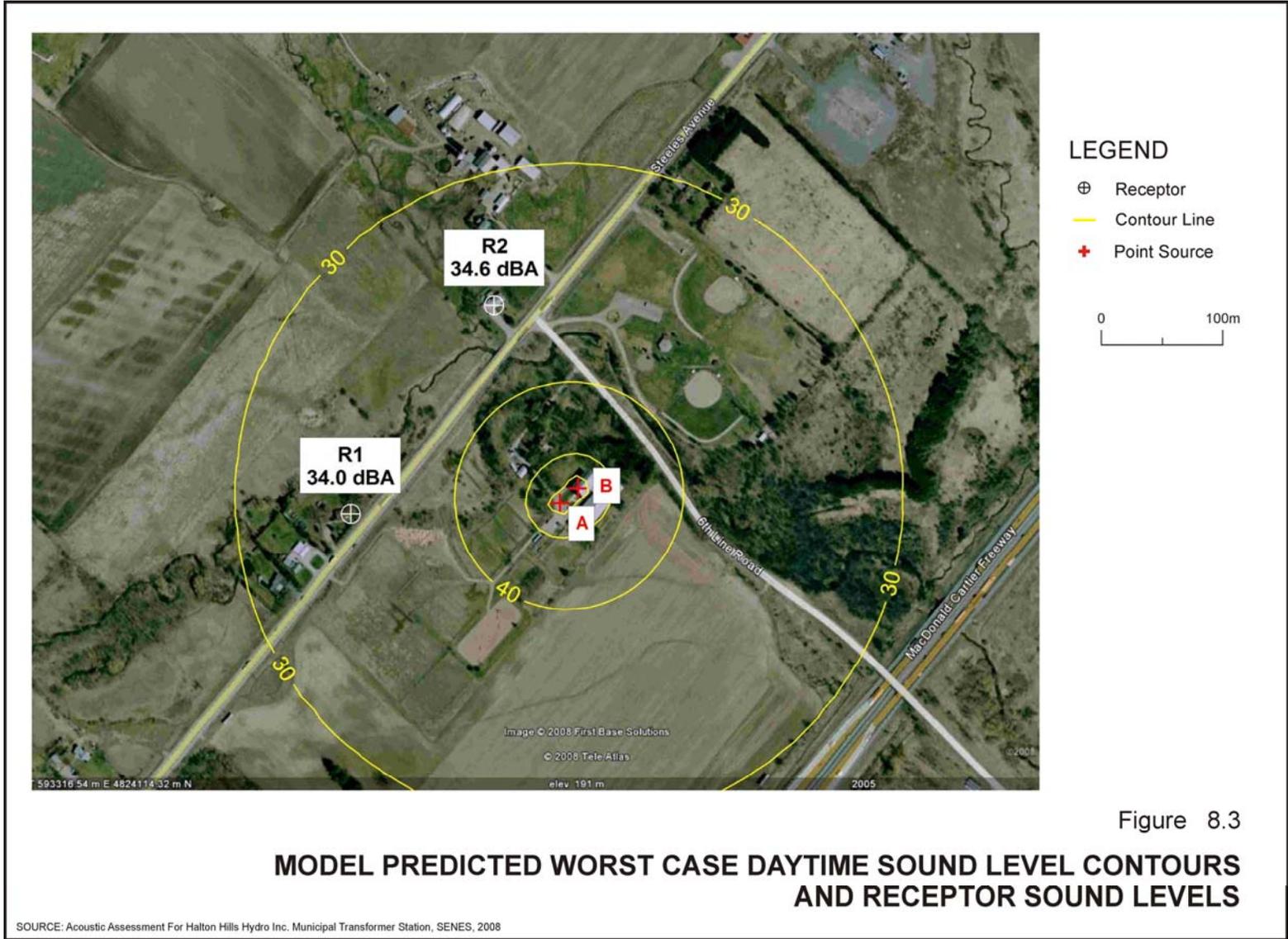
*Noise Assessment*

The noise assessment was based on a 24 hours per day, 7 days per week, 365 days per year operation schedule using transformer noise data collected in accordance with ANSI Standard C57.12.90. The worst case one-hour operating scenarios assumed that the transformer units would operate continuously throughout the worst-case hour for both daytime and night-time hours. The worst-case hour is defined as the one-hour continuous operating period for the MTS during which the background noise is determined to be the lowest (both day and night timeframes).

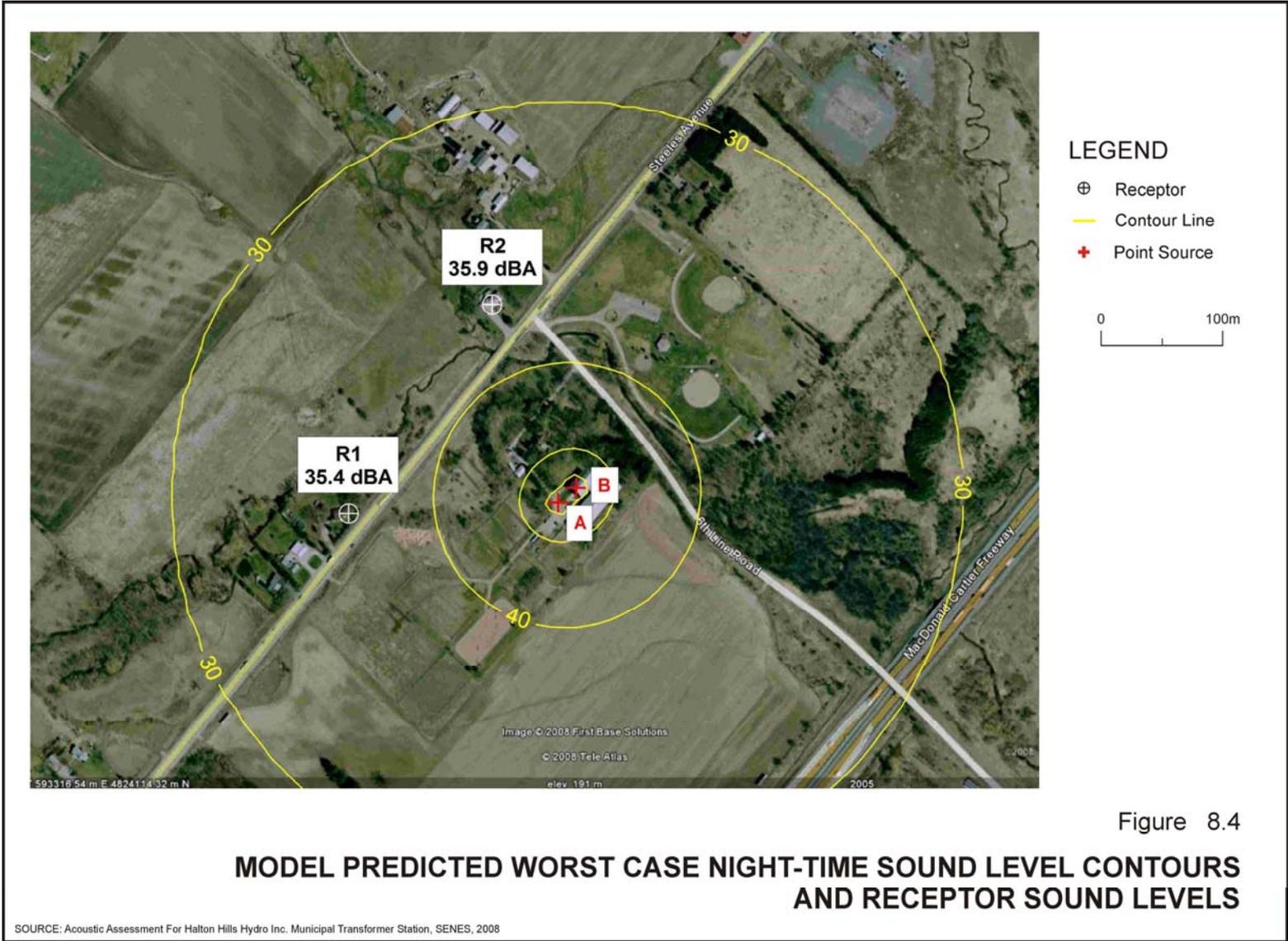
The noise levels, based on the worst-case operating scenario, were modelled using the Cadna-A modelling software to assess whether the noise impact resulting from MTS operations would be in compliance with the limits identified in Table 8.3 at the receptor locations. Figures 8.3 and 8.4 provide the model-predicted sound level contours for the worst case daytime and night-time noise emission scenarios. The tabulated results of the acoustic assessment are provided below in Table 8.4.

The acoustic assessment results (Table 8.4) indicate that the model-predicted receptor sound levels pertaining to activities at the MTS site, while operating under the worst-case daytime and night-time noise emission scenarios (Figures 8.3 and 8.4), are in compliance with performance limits established in Table 8.3.

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**TABLE 8.4  
ACOUSTIC ASSESSMENT SUMMARY TABLE**

Receptor ID	Receptor Description	Sound Level at Receptor ( $L_{eq}$ , dBA)		Verified by Acoustic Audit (Yes/No)	Performance Limit ( $L_{eq}$ , dBA)		Compliance with Performance Limit (Yes/No)
		Day	Night		Day	Night	
R1	House	34.0	35.4	No	50	45	Yes
R2	House	34.6	35.9	No	50	45	Yes

### **Mitigation Measures and Net Effects**

The results of the acoustic assessment indicates that operation of the MTS will not exceed performance limits established in the Ministry of the Environment’s (MOE 1995) Model Municipal Noise Control By-law - Publication NPC-205 and therefore no mitigation is required.

## **8.3 SOCIO-ECONOMICS AND LAND USE**

### **8.3.1 Existing and Planned Land Uses**

#### **Existing Conditions**

The MTS site is located on a portion of the HHGS site which is currently under development for industrial use. The HHGS property is designated Urban Area in the Region of Halton’s Official Plan (2006) and is identified in the Halton Hills OP (2008) as part of the 401/407 Employment Corridor. The planning of a 401/407 Employment Corridor is intended to promote development of a range of industrial, office, commercial, and institutional uses on full municipal services (Figure 8.5). The HHGS site is zoned M7 – Prestige Industrial by Halton Hills zoning By-law. The M7 zoning designation permits a wide range of uses including industrial uses within a wholly enclosed building.

The community of Hornby is located to the north and northeast of the HHGS site with many of the adjacent residents operating small businesses from their homes or involved in active agricultural practices. A number of the residents along the north side of Steeles Avenue have been involved in the planning for both the 401/407 Employment Corridor and the HHGS EA study and are aware of the land use changes proposed.

A vacant farmhouse, barn and other buildings associated with an agricultural history is present on-site. The vacant farmhouse is designated a building with historic significance and the barn was a former equestrian centre. The vacant homestead will remain although it is our understanding at the time of this report that the barn will be removed.

A Phase 1 Environmental Site Assessment, including the buildings, was completed in support of the HHGS EA Study for the site and no concerns/issues were identified (SENES 2007).

The northeast corner of the HHGS site is zoned “Greenlands” due to the presence of the middle branch of the main eastern tributary of Sixteen Mile Creek and the associated valley lands (EEL 2007). To the east of the site, the land is designated as Greenlands and Open Space encompassing Hornby Park (see Figure 8.5).

### **Effects of Construction**

The HHGS ERR (2007) identified the area residents concerns as increased traffic, and nuisance effects associated with construction noise. It is anticipated that approximately 30 personnel will be on-site at any time during the construction period from April 2010 to commissioning in May 2011. It is anticipated that approximately 10 vehicles per hour will be accessing the MTS site during construction. The effects of construction traffic on local residences and Hornby Park users is anticipated to be minimal and will be confirmed upon final determination of the access road location. It is anticipated that the overall effects on existing land uses will be minimal. The effects of construction noise on existing land uses are addressed in Section 8.2.6.

The MTS is to be constructed in accordance with the Prestige Industrial (M7) zoning of the 401/407 Employment Corridor identified in Halton Hills Official Plan (2008) and therefore no effects on planned uses are anticipated.

### **Mitigation Measures and Net Effects**

The location of the access road is unknown at the time of writing of this ESR and will be determined during detail design of the MTS through consultation with TransCanada, Halton Hills, Conservation Halton, and other interested stakeholders to determine the most suitable access route.

The effects of construction on planned land uses are not anticipated and therefore no further mitigation is required.

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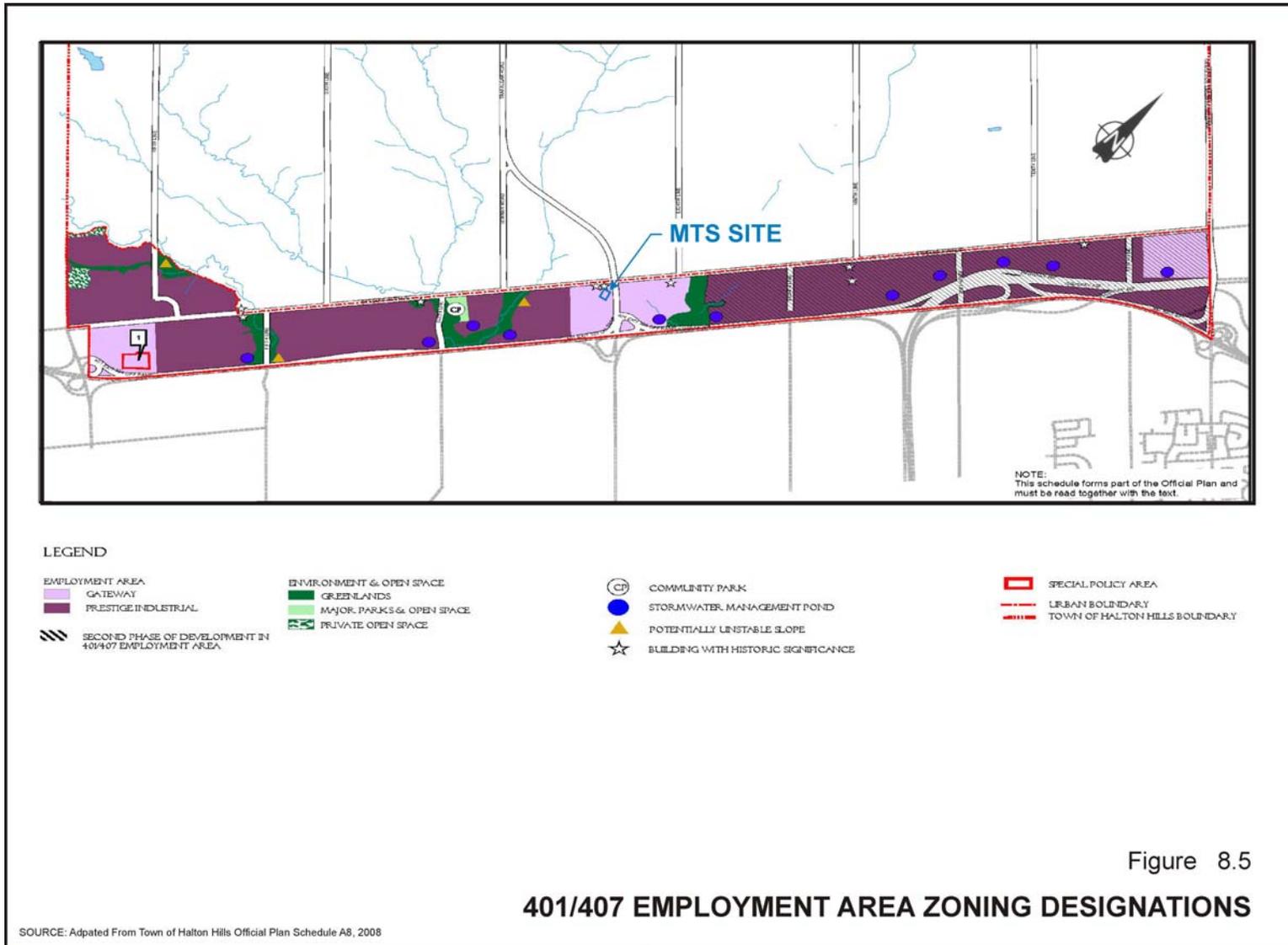


Figure 8.5

## **Effects of Operation**

Only small vehicle traffic as required for maintenance purposes will be required on an infrequent basis for the operation of the MTS. The effects of operation as it relates to noise are provided in Section 8.2.6.

## **Mitigation Measures and Net Effects**

The effects of operation, as it relates to an increase in traffic/nuisance on both planned and existing land uses are not anticipated and therefore no further mitigation is required.

### **8.3.2 Recreation**

#### **Existing Conditions**

The site is located immediately to the west of Hornby Park which functions as a recreational area for outlying areas, as well as the larger surrounding communities, due to its proximity to major transportation routes such as Highway 401, Steeles Avenue and Trafalgar Road and location away from concentrated residential development. The main eastern tributary of the Middle Branch of Sixteen Mile Creek runs through the park.

The parks facilities include a playground, pavilion with washroom facilities, and two (2) baseball diamonds (one (1) illuminated). There are no programmed uses of the park although it is typically used to host adult baseball leagues during the weekdays and on weekends for tournaments. The park is also used extensively for dog trials and as a staging area for cycling trips. Use of the park for cycling has become frequent enough that the Town is considering implementation of measures to manage this activity.

The reconstruction of Steeles Avenue and increasing development in this corridor is anticipated to change current uses of the park including the relocation of the park access to the north corner of the park in the former location of the regional recycling depot.

#### **Effects during Construction**

The potential for construction traffic to affect park users is anticipated to be temporary, limited to daytime weekday hours, and not expected to change the current usage of the park. At this point in the Study, the final location and exit for the MTS access road has not been identified and may factor into the final determination of effects on park users. Evening and weekend park users are not expected to encounter construction traffic with the exception of those utilizing the park facilities close to the end of the day during the work week. It is anticipated, based on the number

of construction vehicles and potential access locations that the overall effect on park users will be minimal.

### **Mitigation Measures and Net Effects**

Consultation with TransCanada, Halton Hills, Conservation Halton, and interested stakeholders will be undertaken during detail design to determine the optimal access road location and access point for the MTS.

### **Effects during Operations**

Operation of the MTS will not affect park users.

### **Mitigation Measures and Net Effects**

The operation of the MTS will not affect park users and therefore no further mitigation is required.

## **8.3.3 Aesthetics**

### **Existing Conditions**

A wooded area located on the north and east portion of the site, which is part of the Sixteen Mile Creek valley system, currently provides a partial visual screen for views from Steeles Avenue and Sixth Line South. The HHGS site is currently under development and is clearly visible from Highway 401, Hornby Park, and adjacent residences and businesses.

### **Effects of Construction/Operation**

The MTS will be located adjacent to the northeast corner of the HHGS and comparatively will be a much smaller structure. It was determined during the HHGS ERR, that until the 401/407 Employment Corridor was further developed, the HHGS would stand out in the landscape (SENES 2007) as the capability of HHGS to blend into the surrounding landscape is minimal due to its proximity to Highway 401 and the limited potential for use of landscaping to screen the HHGS from view.

The visual impact of the MTS will be limited to the views from Steeles Avenue and Sixth Line where the existing natural feature is to be preserved and enhanced. The landscape plan for the HHGS Project provides for planting of trees along the north property limits to provide visual continuity of existing natural forms and enhance view corridors (SENES 2007). It is anticipated

that the visual impact of the MTS will be minimal as the greatest visual impact will occur with the development of the HHGS and the MTS will be considered an integral part of the HHGS industrial landscape.

### **Mitigation Measures and Net Effects**

A landscape plan to enhance the aesthetics of the MTS site and access road will be developed in accordance with the 401 Corridor Urban Design Guidelines, Conservation Halton (2005a) planting and tree preservation guidelines, and Halton Hills Standards through consultation with the Halton Hills and Conservation Halton.

#### **8.3.4 Cultural Heritage Features**

##### **Existing Conditions**

A vacant farmhouse, designated in the Halton Hills OP (Figure 9. as a building with historic significance, is located adjacent to the east of the MTS site. A Stage 2 Archaeological survey was conducted for the HHGS site and concluded that the site should be considered free of any archaeological planning concerns (ASI 2006).

##### **Effects during Construction and Operations**

The farmhouse will not be affected by the construction or operation of the MTS. The HHGS, including the site identified for the MTS, was considered as being free of any archaeological planning concerns and therefore the potential to affect archaeological resources is minimal.

##### **Mitigation Measures and Net Effects**

The construction or operation of the MTS is not anticipated to affect the identified cultural heritage features and therefore no mitigation measures have been identified. However, the potential exists for the unearthing of deeply buried cultural remains, including human burials, and therefore if during construction activities any previously undiscovered remains are unearthed all work will cease immediately and the archaeological staff at the Ontario Ministry of Culture will be notified immediately. If human remains, are unearthed, the Ontario Ministry of Culture and the Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Consumer and Commercial Relations will be contacted immediately.

### **8.3.5 First Nations**

#### **Effects of Construction and Operation**

Construction and operation of the MTS is not anticipated to affect First Nations, as determined for the HHGS ERR (SENES 2007).

#### **Mitigation Measures and Net Effects**

The construction/operation of the MTS will not affect First Nations and therefore no further mitigation is required.

## 9.0 SUMMARY OF IMPACT, MITIGATION MEASURES AND NET EFFECTS

Table 9.1 summarizes the potential impacts, mitigation measures, and net effects associated with the construction and operation phases of the MTS Project. The mitigation measures are commitments to be fulfilled during the construction and operation of the MTS to order to achieve net effects identified in this table.

**TABLE 9.1  
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES,  
AND NET EFFECTS**

Potential Impact	Mitigation Measures	Net Effects
<b>Construction</b>		
Change in physiography /soils.	Additional geotechnical studies, to determine the loading restrictions and foundation type (gravel or concrete). Use of stabilizing material (e.g., crushed stone) on access road.	Negligible
Erosion and runoff to surface water.	Implementation of sediment and erosion control measures (silt fencing, sedimentation ponds) prior to initiation of construction activities.  Development of Site Plan including grading and drainage plan.  Stormwater management in accordance with plan for site developed for HHGS.	Negligible
Spills/Releases of fuel or other materials.	Fuelling will be performed off-site where possible.  Fuelling of construction equipment will be performed in contained areas to prevent releases to the natural environment.  Use of standard measures to prevent, contain and clean-up spills.	Negligible
Dewatering	Permit to Take Water	No effect
Waste	All waste will be disposed of in accordance with regulatory requirements.  Waste collection procedures will be developed and adhered to by all on-site workers and contractors.	Negligible
Potential to affect fisheries and aquatic resources.	Observance of the 15 m construction setback and 30 m meander belt setback	No effect

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**TABLE 9.1 (Cont'd)  
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES,  
AND NET EFFECTS**

Potential Impact	Mitigation Measures	Net Effects
<b>Construction</b>		
Removal of on-site vegetation.	Site plan including a tree inventory and landscaping plan.  Landscaping of site to enhance aesthetics and blend MTS into the surrounding environment.	Net benefit
Displacement of nesting birds.	All clearing activities will be conducted in accordance with the <i>Migratory Birds Convention Act</i> .  All clearing activities will occur prior to May 1 or after July 31 to avoid potential impacts with breeding birds.  Trees will be planted as specified in the landscaping plan.	Net benefit
Access road location and exit on users of Hornby Park.	Consultation with Halton Hills, Conservation Halton, and TransCanada.	No effect.
Increase in traffic in vicinity of site	Consultation with Halton Hills, Conservation Halton, and TransCanada to determine optimal access location.  Monitor and respond to complaints from residents.	Negligible
Noise from construction vehicles, equipment and development activities.	All activities conducted in accordance with Halton Hills By-law 93-177.  Construction equipment will comply with NPC Document #115 specifying noise standards.	Negligible as closest receptors will not experience noise levels above the allowable standards.
<b>Operations</b>		
Spills/Releases of lubricants/transformer oils.	Transformer units are located within a containment area with oil/water separator and spill detector.	Negligible
Effect of releases of spills to aquatic environment	Sump located within the containment area for the transformer units.	No effects
Visual impact to local residents.	Landscaping plan will be implemented.	Negligible
Stormwater/Runoff on receiving water quality.	Implementation of the Stormwater Management Plan developed for the SIS site.  Stormwater/runoff is directed to the Stormwater Management Facility developed for the SIS site	Negligible
Noise associated with operation of transformer units	Modelling for compliance with the Ministry of the Environment's (MOE) Model Municipal Noise Control By-law - Publication NPC-205	No effects

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The quantifiable effects, identified in Table 9.1, are either localized in effect, short-term, infrequent, or do not represent a substantive or order of magnitude change from baseline conditions. The overall net effects of construction and operation are not considered to be significant.

## **10.0 PUBLIC AND STAKEHOLDER CONSULTATION**

Public and stakeholder (includes government agencies) consultation was conducted in accordance with the requirements of the “Class EA for Minor Transmission Facilities” to provide an opportunity for those interested to actively participate in the study. The public consultation program for the Halton Hills Hydro MTS#1 study included the following points of contact:

- Initial Stakeholder Meetings;
- Notice of Study Commencement; and
- Public Information Centre.

Information applicable to public and stakeholder consultation is provided in Appendix A.

### **10.1 MUNICIPAL CONSULTATION**

The Class EA Process provides for initial contact of those government agencies or stakeholders (e.g., conservation authorities) which may have an interest in the proposed project. Notification is conducted through the conduct of meetings with selected stakeholders, and notification of study commencement by letter mail. The meetings are conducted to introduce the stakeholder to the Project to obtain feedback on any potential issues that may be foreseen.

Initial stakeholder meetings were held with the Town of Halton Hills, Region of Halton, and Conservation Halton on 24 January 2008, 18 March 2008, and 28 March 2008, respectively. The meetings were conducted by Halton Hills Hydro/Costello Associates to introduce the project and team, and discuss any potential issues or concerns that the stakeholders may have with the project. A brief summary of the initial meetings with municipal government agencies and stakeholders is provided in Table 10.1.

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**TABLE 10.1  
SUMMARY OF MUNICIPAL CONSULTATION**

<b>Government Group</b>	<b>Meeting Date</b>	<b>Topics Covered</b>	<b>Comments Raised</b>
Town of Halton Hills	24 January 2008	<ul style="list-style-type: none"> <li>• Need for additional electric distribution capacity based on projected growth</li> <li>• Proposed in-service date for new supply facility</li> <li>• Typical station construction process</li> <li>• Typical station appearance</li> <li>• Class EA for Minor Transmission Projects – process and timing</li> <li>• Study area and possible site locations</li> <li>• Zoning</li> <li>• Site Plan review process</li> <li>• Setback requirements</li> <li>• Storm water management</li> </ul>	<ul style="list-style-type: none"> <li>• Site access during construction and operation (quantity of personnel, vehicles, and access roads)</li> <li>• Zoning by-law and frontage requirements</li> <li>• Process for severances and variances</li> <li>• Urban design guidelines</li> <li>• Gateway designation of some of the alternate sites</li> <li>• Use of house on TCE property to comply with by-law</li> <li>• Method of feeder egress (overhead vs. underground, routing)</li> </ul>
Region of Halton	18 March 2008	<ul style="list-style-type: none"> <li>• Need for additional electric distribution capacity based on projected growth</li> <li>• Proposed in-service date for new supply facility</li> <li>• Typical station construction process</li> <li>• Typical station appearance</li> <li>• Class EA for Minor Transmission Projects – process and timing</li> <li>• Study area and possible site locations</li> <li>• Water and sewer servicing</li> <li>• Feeder egress</li> <li>• Firefighting</li> <li>• Site Access</li> <li>• Noise modeling</li> </ul>	<ul style="list-style-type: none"> <li>• Location of existing water and sewer for supply to proposed transformer station</li> <li>• Region practices for site servicing</li> <li>• No direct connections to 600mm main line</li> <li>• Concerns for creeks, CH is prime agency</li> <li>• strongly recommend pre-development consultation meeting</li> <li>• Construction and permanent access given sensitivities for traffic concerns</li> <li>• Well at house on TCE property – keep or remove</li> <li>• Region doesn't permit two water services on one tap line (could not have station services fed from neighbouring property)</li> <li>• For TCE site option, suggest permanent access from Sixth Line</li> </ul>

**TABLE 10.1 (Cont'd)  
SUMMARY OF INITIAL STAKEHOLDER MEETINGS**

<b>Government Group</b>	<b>Meeting Date</b>	<b>Topics Covered</b>	<b>Comments Raised</b>
Conservation Halton	28 March 2008	<ul style="list-style-type: none"> <li>• Need for additional capacity by 2011 – 2012</li> <li>• Class EA for Minor Transmission Projects – process and timing</li> <li>• Typical station construction process</li> <li>• Typical station appearance</li> <li>• Study area and possible site locations</li> <li>• Specific questions for sites that could be sensitive to Conservation Halton</li> <li>• Request for Sixteen Mile Creek Watershed Plan Study</li> <li>• Anticipated issues concerning creeks, servicing, feeder egress, site access</li> </ul>	<ul style="list-style-type: none"> <li>• Setback requirement from creek at TCE site</li> <li>• Discussion of construction and operation site access, and access to century home on TCE site</li> <li>• Feeder egress underground or overhead would require approval</li> <li>• TCE doing extensive landscaping in valley. Should feeders egress this area, work to coordinate landscaping</li> <li>• Directional boring under Creek would require approval</li> <li>• Conservation Halton prefers servicing at TCE site to be fed from TCE, not a separate service from Steeles Ave. Conflicts with Region. CH will discuss with Region</li> <li>• Requested study documents are Region documents</li> <li>• No insurmountable challenges foreseen.</li> </ul>

## **10.2 NOTICE OF STUDY COMMENCEMENT**

Public consultation is conducted through placement of a Study Commencement Notice in the local media. Stakeholders and the public were notified of the study commencement through a letter notice and media notice (Appendix A-1). The Notice of Study Commencement letter (Appendix A-1) was sent to contacts within the government agencies and stakeholder groups identified through other studies conducted for the study area. The letter contained an introduction to the project and study area, Class EA process, plans for conduct of public consultation activities, study commencement notice to the media, Project contacts, and an interest response page. The interest response page is to be returned by the recipient of the letter to more clearly identify their interest in the project and/or provide an alternative contact for that specific stakeholder group. The recipient is asked to check one of the following: no further contact required; study information or technical input required and technical/alternative contact. Eight (9) responses were received of which two (2) indicated no further contact was required; one (1) provided the Hydro One notification process and potential for interference with Hydro One facilities; four (4) indicated they would like to provide technical input on the Project with two (2) of the four (4) providing alternative contacts; one (1) indicated that ORC land was

located in the vicinity of study area; and one (1) indicating paternity leave and provided an alternative contact person.

### **10.3 PUBLIC INFORMATION CENTRE**

A public information centre (PIC) was held on 29 May 2008 at Hornby Glen Golf Course, 8286 Hornby Road, Hornby, Ontario from 4:30 p.m. to 7:00 p.m. The purpose of this open house was to:

- Introduce the proposed Halton Hills Hydro MTS, and the Class EA process to the community;
- Present the evaluation of the alternative MTS sites and the preferred location; and
- Provide an opportunity for the general public to become informed and comment on Study progress to date.

Agency and stakeholder consultation was conducted through letter notification (Appendix A-2). Notification of the public was achieved through placement of an advertisement (Appendix A-2) in the local media, hand-delivery of the notice to residents adjacent to the preferred MTS site, and posting of the notice in the local postal outlet.

The PIC display boards included information on:

- Objective of the PIC;
- Who is Halton Hills Hydro;
- Project overview;
- Class EA Process;
- Need for Project;
- Study Options;
- Location and Study Area for Alternative Sites;
- Evaluation Process for and Evaluation of Alternative Sites;
- Preliminary Preferred Site Selected;
- Details of Proposed Halton Hills Hydro MTS#1;
- Public Consultation Process; and
- Next Steps to be Conducted for Study.

Comment sheets and handouts of the information on the display boards were provided upon request. A copy of the display boards are provided in Appendix A-2. A total of eight (8) residents and six (6) agency representatives attended the PIC.

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No comment sheets were received although three (3) requests (two (2) e-mail and one (1) letter) for PIC handouts, inclusion on Project mailing lists; and technical input on Project were received. The PIC handouts were sent to those individuals who had requested the information. Following the PIC, the powerpoint presentation of the PIC display boards was posted on the Halton Hills Hydro website.

## **11.0 PERMITS AND APPROVALS**

The following provides a more detailed list of the notifications, permits, and approvals which may potentially be required to proceed with the Project. This list is not inclusive and will be modified following detailed assessment of the preferred site.

**Regional and Municipal Permits/Approvals** (Halton Region and Town of Halton Hills) – Site Plan Approval, zoning variances, building permits, and municipal water and sewer use in accordance with the *Planning Act*, R.S.O. 1990, c.P.14 and the respective regional and municipal Official Plans. The Site Plan Approval (Town of Halton Hills) includes a Tree Survey and Preservation Plan, and Landscape Plan.

**Conservation Halton Permit** – Location of MTS facilities and/or access road with respect to Ontario Regulation 162/06: Regulation of development, interference with wetlands and alterations to shorelines **and** watercourses.

**Permit to Take Water** (Ministry of Environment (MOE)) – Water use required for construction activities in excess of 50,000 L/day in accordance with Section 34 of the Ontario Water Resources Act (OWRA).

**Certificate of Approval (C of A) - Industrial Sewage** (MOE - EAAB) – Discharge of stormwater to a Stormwater Management Facility (SWMF) in accordance with the OWRA (Section 53).

**Certificate of Approval (Noise)** (MOE - EAAB) The MTS must obtain a Certificate of Approval (C of A) (Air and Noise) through compliance with the noise guidelines stipulated in the Ministry of the Environment (MOE) Model Municipal Noise Control By-law.

**Preliminary Impact Assessment and Connection Authorization (IESO)** - The Connection Assessment and Approval process allows the IESO to assess the impact of new or modified connections on the reliability of the integrated power system.

**Connection Impact Assessment (CIA) (Hydro One)** - A CIA is a detailed assessment of a project's impact to the grid. The results include a technical report outlining project feasibility, technical specifications needed for the project and the impacts the project would have on the distribution grid.

**Connection Authorization (ESA)** - Before connecting to the distribution system, the ESA inspects the MTS and provides a Connection Authorization to Hydro One.

## **12.0 MITIGATION AND MONITORING**

The monitoring requirements for the MTS site will be conducted in accordance with the subwatershed impact study (SIS) completed for the site (SENES 2008). The SIS addressed the parcel of land within the 401 Corridor between 6<sup>th</sup> Line South and 5<sup>th</sup> Line South which includes the MTS site.

Erosion and sediment controls will be implemented throughout construction and into operation, as required, to ensure protection of the watercourse adjacent to the MTS site. Measures are to include, but not be limited to, silt fences, sediment traps (i.e., berms, geotextile, riprap), swale cut-off adjacent to valley and stream corridors, measure illustrated on final design drawings.

The basic principles utilized to minimize erosion and sedimentation will include:

- Minimization of disturbance to landscape (e.g., grading) and exposure time to potential erosive elements (i.e., wind, water);
- Implementation of sediment and erosion control measures prior to the initiation of construction activities;
- Scheduled inspections to ensure the sediment and erosion control measures (e.g., silt fences) are working effectively and reporting of conditions of the erosion and sediment control measures, including the timely repair or maintenance, as required;
- Edge monitoring to ensure there has been no encroachment on the wooded areas to be left undisturbed and that the protective fencing is maintained in good working order.

The SIS (SENES 2008) specifies the requirement for weekly monitoring of the sediment and erosion control measures in addition to monitoring during and after a major storm event.

A site-specific Emergency Response Plan will be developed to allow for a timely and effective response in the case of a release of oil, fuel or other hazardous materials to the environment. The Plan will include the process for responding to an emergency (involving situational assessment), defining and prioritizing critical issues, emergency action planning, and effective activation of resources (SENES 2008).

Measures to prevent spills during construction will include, but not be limited to, on-site spill kits; hazardous material containment facilities; fire protection; and disposal of solid wastes in accordance with applicable acts and regulations. Oil/grit separators will be incorporated into the design of the MTS site to address the potential for spills related to the commissioning and operation of the MTS.

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The Tree Survey and Preservation Plan, and Landscape Plan, will be submitted for Site Plan Approval, addressing both the preservation of trees on the property as well as the newly planted vegetation, and include a long-term maintenance plan. Monitoring by a Certified Arbourist will be conducted every two (2) years, as a minimum, with the extent and duration of the monitoring program to be determined by the Certified Arbourist responsible for the implementation of the Plans. In accordance with the approved SIS (SENES 2008), any changes to the woodland areas or natural corridors will be assessed every five (5) years using aerial photography.

Additional monitoring requirements/responsibilities (i.e., SWM facility, Sixteen Mile Creek) will be developed during detail design in consultation with the responsible authorities and identified in the conditions of the permit/approval to address the environmental components where net effects have been identified. These monitoring programs are conducted to assess the effectiveness of the environmental mitigation measures and provide a degree of measure to the commitments of any required permits or approvals.

### **13.0 ENVIRONMENTAL ADVANTAGES AND DISADVANTAGES**

The environmental advantages and disadvantages are identified and assessed in Table 13.1 to provide the basis on which to determine whether the negative net environmental effects of the project are acceptable when compared to the positive benefits, screening criteria, and impact assessment. Advantages are defined as positive net environmental effects and disadvantages are negative net environmental effects.

The key aspects associated with the development of the MTS may be summarized through the identification of the advantages and disadvantages in Table 13.1 which indicate, in part, that the MTS will be located on a site zoned industrial where development has been already been initiated. This is in direct contrast to other areas within and adjacent to the defined Steeles Avenue/ 401/407 Employment Corridor where industrial development has not yet been initiated and active agriculture may still be practiced.

The location of the MTS adjacent to the HHGS allows for safe, reliable interconnections, and facilitates the distribution of electricity, not only to the Steeles Avenue corridor, but to other areas within the Halton Hills service area (i.e., Acton, Georgetown) and potentially additional outlying areas in the future.

The development of the MTS adjacent to the HHGS will have less of an aesthetic impact on the surrounding landscape, and thus area residents, through a blending of purposes related to electrical development and on-site landscaping to enhance the existing natural environment.

The disadvantages relating to noise and traffic are considered short-term and/or infrequent relating directly to construction activities which will occur over a time period of approximately one (1) year. The location of the MTS to the watercourse is considered negligible as the 15 m construction setback and the 30 m meander belt setback, determined during the HHGS study (SENES, 2007), will be observed during the development of the MTS. Permits will be obtained prior to the removal of any trees from the MTS site and a net benefit will be recognized as landscaping/planting requirements for the site will be undertaken.

This overall conclusion of this analysis of the advantages and disadvantages clearly illustrates that the negative net effects, generally negligible or short-term, of the MTS are offset by the advantages of the Project, both in meeting a need to address the demand for electricity of a growing urban area and minimizing the potential effect to the natural environment by locating the MTS on a site with existing industrial development in close proximity to electrical generation.

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**TABLE 13.1  
ADVANTAGES AND DISADVANTAGES OF THE MTS**

<b>Advantages</b>	<b>Disadvantages</b>
Site is currently being developed for industrial purposes.	Location adjacent to a watercourse with identified potential for presence of coldwater fisheries (negligible).
230 kV transmission circuits are available adjacent to the site (HHGS) reducing the operational complexity, safety risk of buried transmission circuits to the public.	Removal of a number of trees in Cultural Woodland (negligible).
Assists in reducing capacity loading on Milton TS.	Short-term and infrequent construction noise on local residents (two (2) receptors) and Hornby Park users.
Provides supply diversity with existing Hydro One station.	Short-term disruption of traffic to residents, businesses and Hornby Park users associated with construction vehicles.
The availability of 230 kV transmission circuits at HHGS eliminates substantial costs in new underground circuits.	
The site is currently zoned for prestige industrial.	
There are no interconnection effects associated with this site.	
Allows for future expansion into other areas serviced by Halton Hills Hydro outside of this corridor.	
Employment opportunities for thirty construction personnel over a one (1) year plus period.	
Provides additional distribution capacity from GTA West transmission system to support anticipated load growth through additional transformer station capacity along the Steeles Avenue corridor between James Snow Parkway and Trafalgar Road.	
Short-term business opportunities for suppliers of building materials and equipment.	
Cultural Woodland previously affected by development of HHGS.	
Change in aesthetics of landscape lessened by proximity to HHGS.	
Active agricultural land or "Greenfield" site not affected.	
Site aesthetics enhanced through landscaping to natural areas on-site.	

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## **Appendix A - Public Consultation**

Appendix A-1 – Notice of Study Commencement

Appendix A-2 – Public Information Centre #1

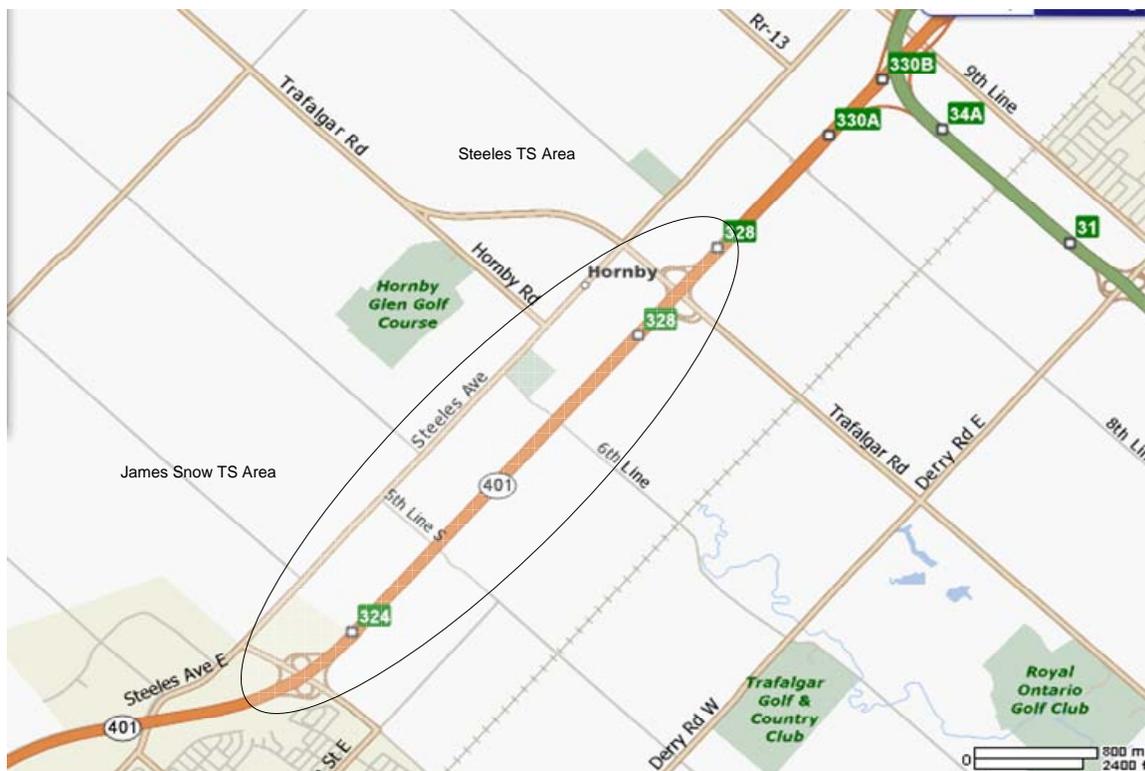
**Appendix A-1**  
**Notice of Study Commencement**

## Notice of Study Commencement

### Halton Hills Hydro Transmission Station No. 1 Class Environmental Assessment

#### THE PROJECT

Halton Hills Hydro is initiating a plan to design, construct, and operate a 230/28 kV 125 MVA DESN municipal transformer station along the Steeles Avenue corridor between Trafalgar Road and James Snow Parkway. The proposed undertaking would connect to the existing distribution network at 27.6 kV to provide a reliable source of power to address increased electricity demand as a result of new residential and industrial development in the Town of Halton Hills.



#### THE PROCESS

A Class Environmental Assessment (Class EA) for the proposed undertaking is required under *Ontario Regulation 116/01 – Electricity Projects* and subject to *Environmental Assessment Act* approval in accordance with the “Class EA for Minor Transmission Facilities”. The Class EA is conducted to select a preferred site following a specified planning process to identify environmental effects and evaluate a number of alternative sites.

A comprehensive consultation process involving government agencies and the public will be initiated early in the study process by the Project Team commencing with stakeholder notification. A Public Information Centre (PIC), as part of the overall consultation process, is currently scheduled for Spring 2008 to provide opportunities for review and comment on Project initiatives. Notices providing the time and locations for each PIC will be published in local newspapers.

An Environmental Study Report (ESR) documenting the study results will be prepared and made available for a 30-day public review period nearing completion of the study. Notices informing the public of the commencement of this review period will also be published in local newspapers.

### COMMENTS

If you would like to provide input to the study, request additional information, or have any questions related to the Project, please contact:

Ms. Kathryn Wherry  
SENES Consultants Limited  
121 Granton Drive, Unit 12  
Richmond Hill, Ontario  
L4B 3N4  
Phone: 905-764-9380 Ext. 435  
E-mail: [kwherry@senes.ca](mailto:kwherry@senes.ca)  
Facsimile: 905-764-9386

Mr. Mike Maroschak, C.E.T.  
Halton Hills Hydro Inc.  
43 Alice Street  
Acton, ON  
L7G 2A9  
Phone: 519-853-3700 Ext. 240  
E-mail: [MikeM@haltonhillshydro.com](mailto:MikeM@haltonhillshydro.com)  
Facsimile: 519-853-5168

Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments will become part of the public record with the exception of personal information.

April 1, 2008

Agatha Garcia-Wright  
Director, Environmental Assessment & Approvals Branch  
Ministry of Environment  
2 St. Clair Avenue West, 12A Floor  
Toronto, Ontario  
M4V 1L5

**RE: HALTON HILLS HYDRO TRANSFORMER STATION - CLASS  
ENVIRONMENTAL ASSESSMENT**

Dear Agatha,

Halton Hills Hydro Inc. is initiating a plan to design, construct, and operate a 230/28 kV 125 MVA DESN municipal transformer station in the Steeles Avenue corridor from Trafalgar Road to James Snow Parkway. The proposed undertaking would connect to the existing distribution network at 27.6 kV to provide a reliable source of power to address increased electricity demand as a result of new residential and industrial development in the Town of Halton Hills.

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Yours truly,

Mike Maroschak, C.E.T.  
Engineering Supervisor  
Halton Hills Hydro Inc.

No further contact required

Study information or technical input required

Technical/Alternative Contact

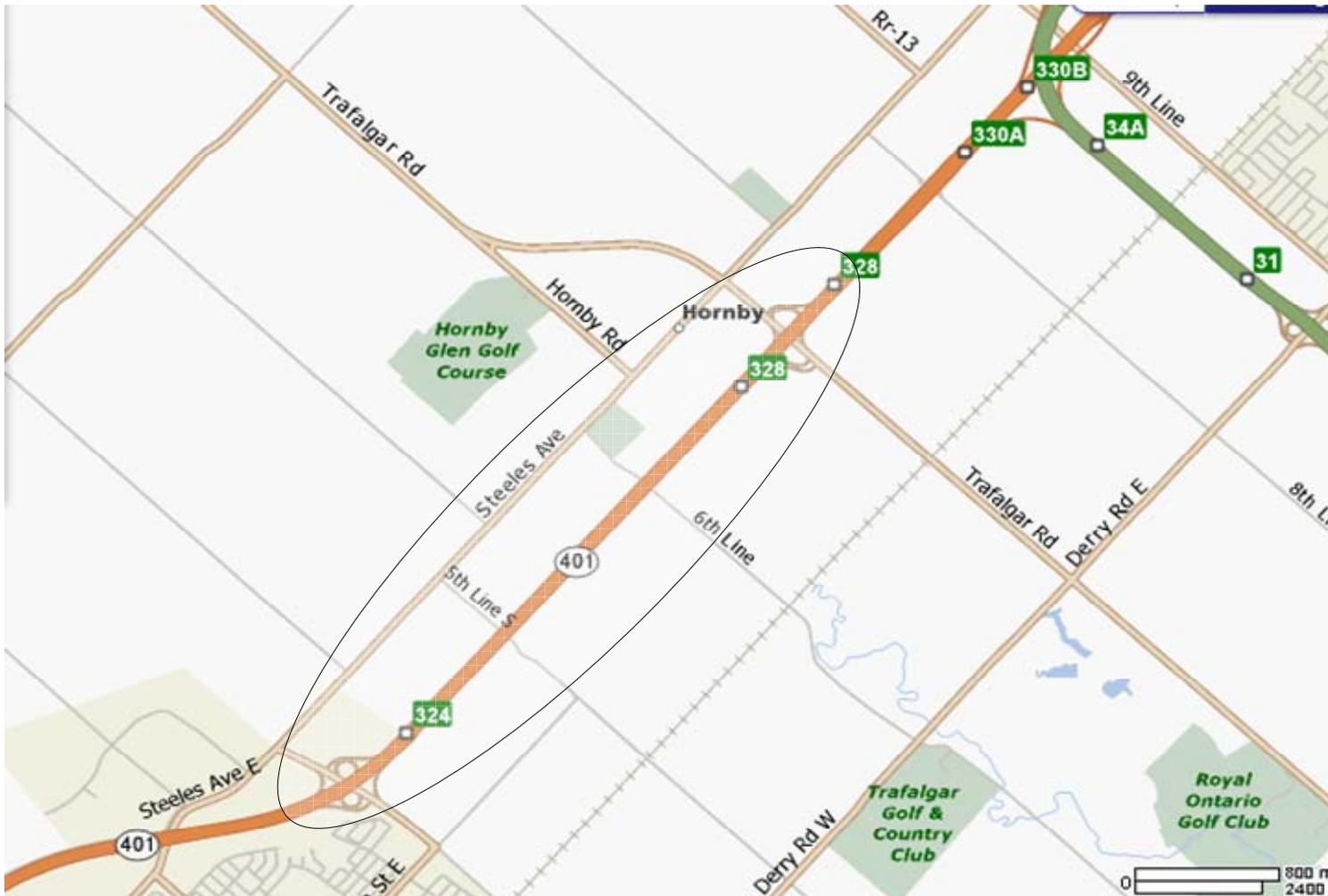
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Name/Title/Contact Number

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Signature

KEY PLAN



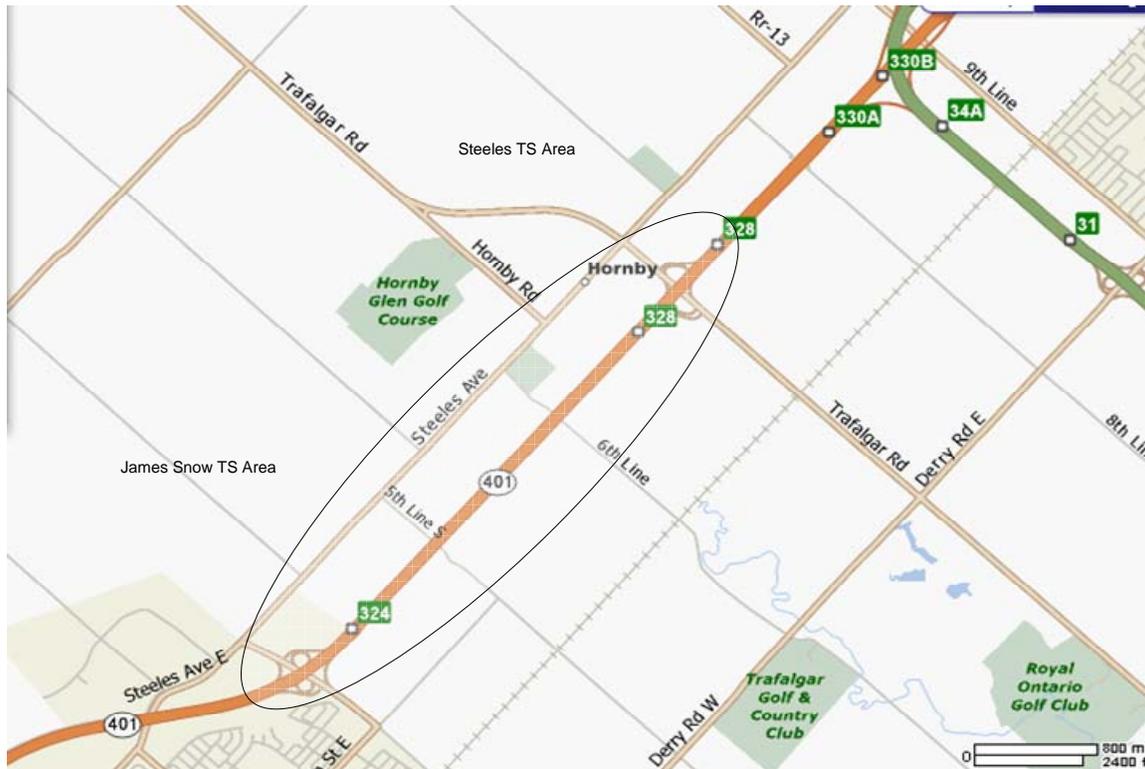
**Appendix A-2**

**Public Information Centre #1**

# Halton Hills Hydro Municipal Transformer Station (MTS) No. 1 Class Environmental Assessment

## NOTICE OF PUBLIC INFORMATION CENTRE

Halton Hills Hydro is initiating a plan to design, construct, and operate a 230/28 kV 125 MVA DESN municipal transformer station (MTS) along the Steeles Avenue corridor between Trafalgar Road and James Snow Parkway. The proposed undertaking would connect to the existing distribution network at 27.6 kV to provide a reliable source of power to address increased electricity demand as a result of new residential and industrial development in the Town of Halton Hills.



The Class Environmental Assessment (Class EA) study will be conducted in accordance with “Class EA for Minor Transmission Facilities”. The required consultation process was initiated for this study with the publication and notification of Study Commencement in the New Tanner on 27 March 2008, and the Georgetown Independent and Free Press on 2 April 2008. Additionally, as part of the on-going consultation process for this study, a Public Information Centre (PIC) will be held as follows:

**Date: May 29, 2008**  
**Time: 4:30pm to 7:00pm**  
**Location: Hornby Glen Golf Course**  
**8286 Hornby Road**  
**Hornby, Ontario**

The purpose of the PIC is to provide opportunities for review and comment on Project initiatives. Halton Hills Hydro staff and consultant representatives will be available at the PIC to provide clarification on the information displayed and receive comments.

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Yours truly,

Mike Maroschak, C.E.T.  
Engineering Supervisor  
Halton Hills Hydro Inc.

No further contact required

Study information or technical input required

Technical/Alternative Contact

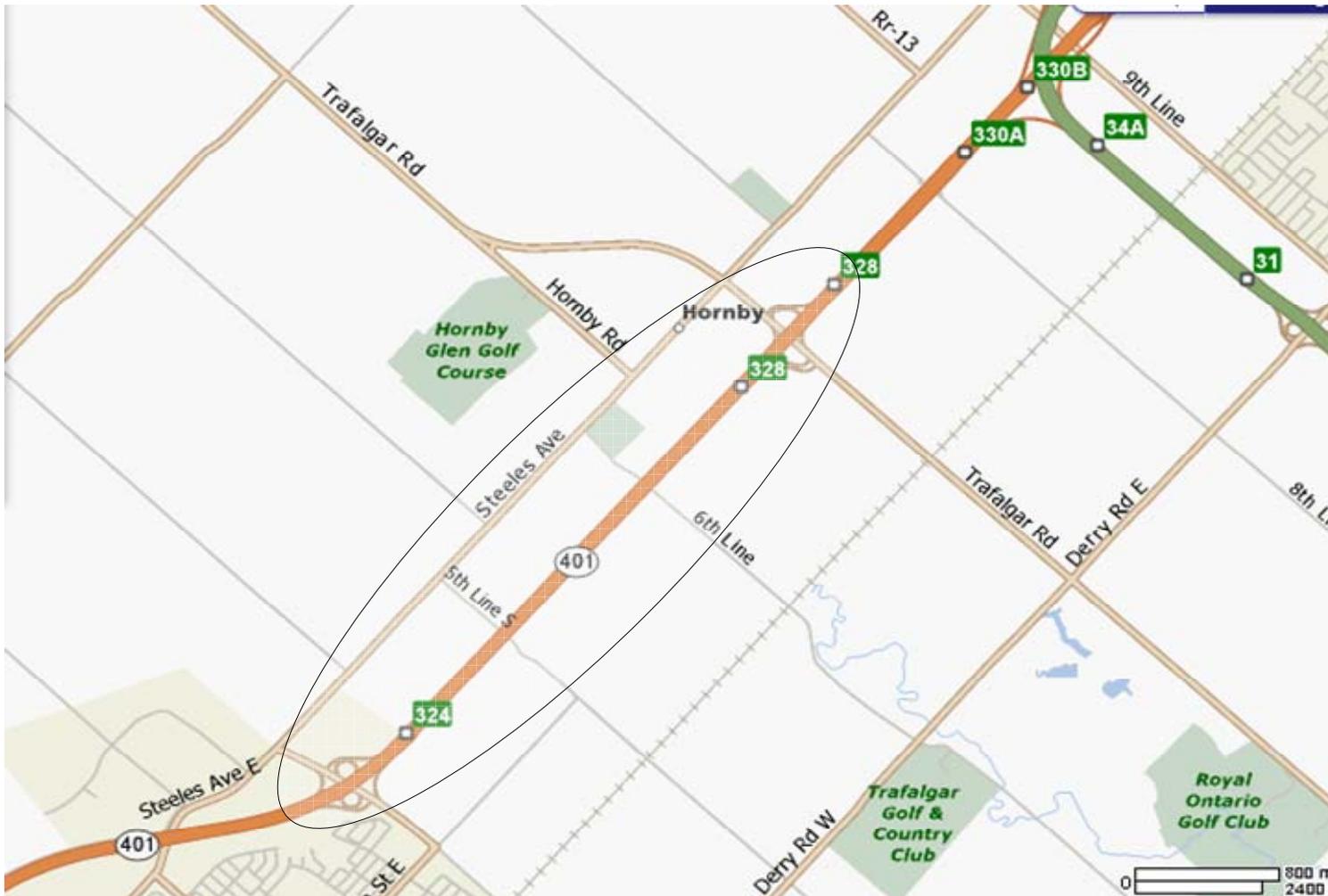
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Name/Title/Contact Number

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Signature

KEY PLAN



**HALTON HILLS HYDRO  
MUNICIPAL TRANSFORMER  
STATION No. 1**

**CLASS ENVIRONMENTAL  
ASSESSMENT (CLASS EA)**



**PUBLIC INFORMATION  
CENTRE**

# Welcome

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- ❑ Please sign-in to ensure receipt of future Project mailings.
- ❑ Please complete a Comment Sheet and either deposit it in the comment box or return by mail/fax or e-mail, if you would like to provide written comments.

All information is being gathered to assist Halton Hills Hydro in the planning process for this Project. All personal information, such as name, address, and telephone number, included on the comment sheets becomes part of the public record files for the Project and can be released to any person if requested under the Municipal Freedom of Information and Protection of Privacy Act, and the Environmental Assessment Act.

# Objective of Public Information Centre

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- ❑ Introduce the Municipal Transformer Station (MTS) Project and the Provincial Class EA Process to the general public.
- ❑ Present the evaluation of the alternative MTS sites and the preferred location.
- ❑ Provide an opportunity for the general public to become informed and comment on Study progress to date.

# Who is Halton Hills Hydro?

Halton Hills Hydro Inc. is located at 43 Alice Street, Halton Hills (Acton) Ontario. The service area is:



Halton Hills Hydro is committed to providing safe, reliable, and economic distribution of electricity.

Our core values are:

- ❖ Safety (Employee and Public);
- ❖ Customer Service;
- ❖ Reliability; and
- ❖ Profitability (Shareholder).

Our proposed MTS Project meets our core values in the area of reliability and customer service.

# MTS #1 Project Overview

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## What?

- ❖ Provide an additional reliable source of power to address increased electricity demand as a result of new residential and industrial development in the Town of Halton Hills.

## Where?

- ❖ Steeles Avenue corridor between Trafalgar Road and James Snow Parkway.

## Why?

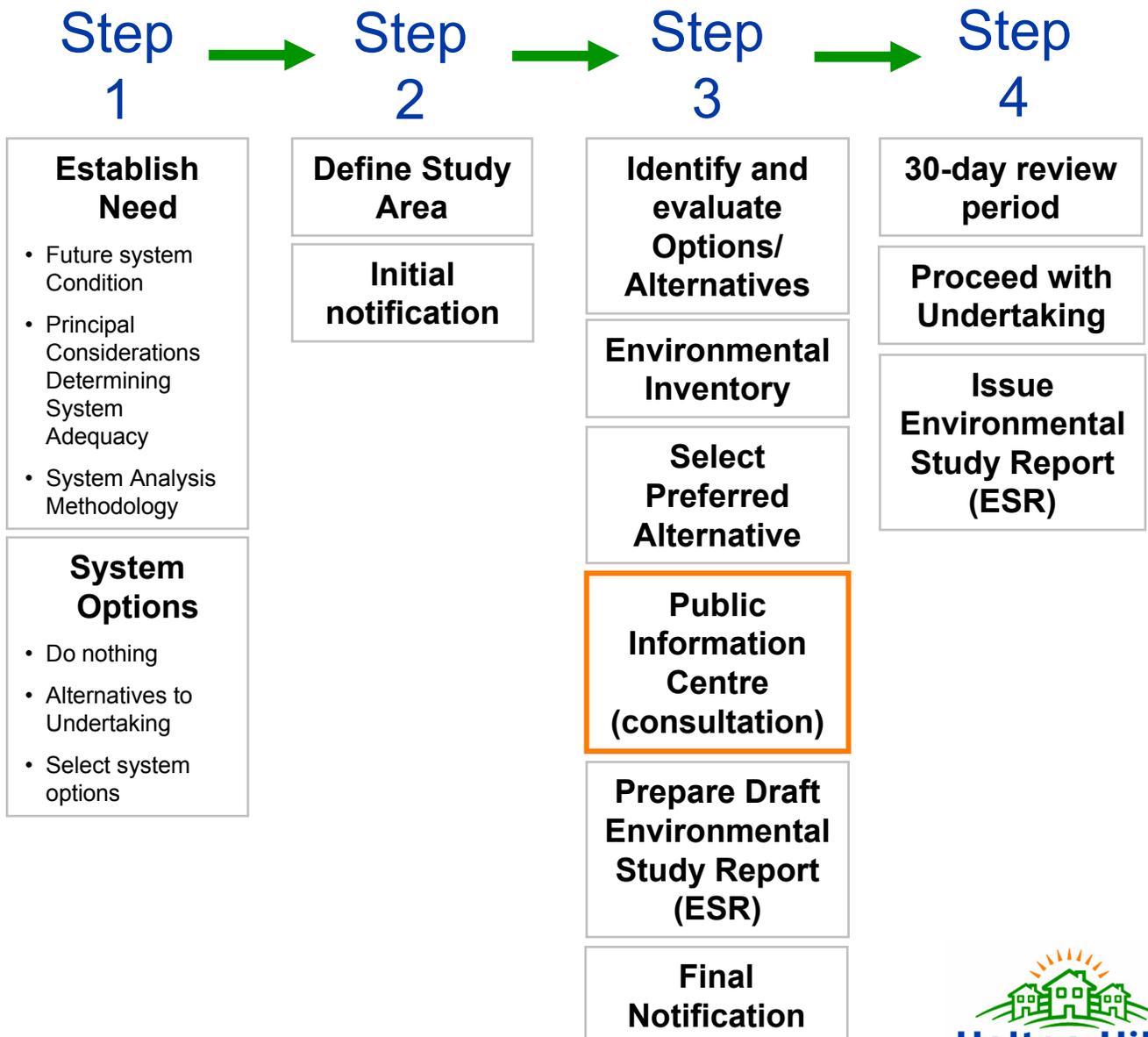
- ❖ Existing facilities are nearing capacity.

## How?

- ❖ Design, construct, and operate a municipal transformer station that will step down voltage from a transmission level to distribution level.

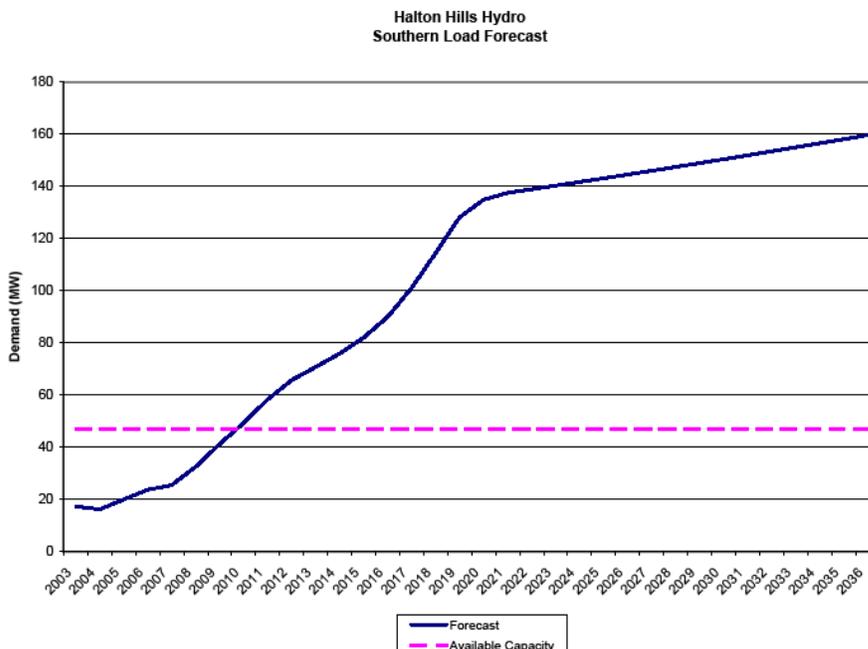
# Class EA Process

A Class Environmental Assessment (Class EA) for the proposed undertaking is required under Ontario Regulation 116/01 – Electricity Projects and subject to *Environmental Assessment Act* approval in accordance with the “Class EA for Minor Transmission Facilities”.



# Need for Project

- ❑ Joint Planning Study initiated by Hydro One entitled “GTA West Supply Study” identified the need for additional transformer station capacity along the Steeles Avenue corridor between James Snow Parkway and Trafalgar Road to address future electricity needs.
- ❑ Study participants included:
  - ❖ Hydro One Networks Inc.;
  - ❖ Enersource (Hydro Mississauga);
  - ❖ Hydro One Brampton;
  - ❖ Milton Hydro Distribution; and,
  - ❖ Halton Hills Hydro.



# Study Options to Undertaking

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Three (3) study options considered:

**Option 1** – Expand Halton Transformer Station (Hydro One) near Main St East and 4th Line in Milton.

**Option 2** – Build a New Transformer Station.

**Option 3** – Do Nothing.

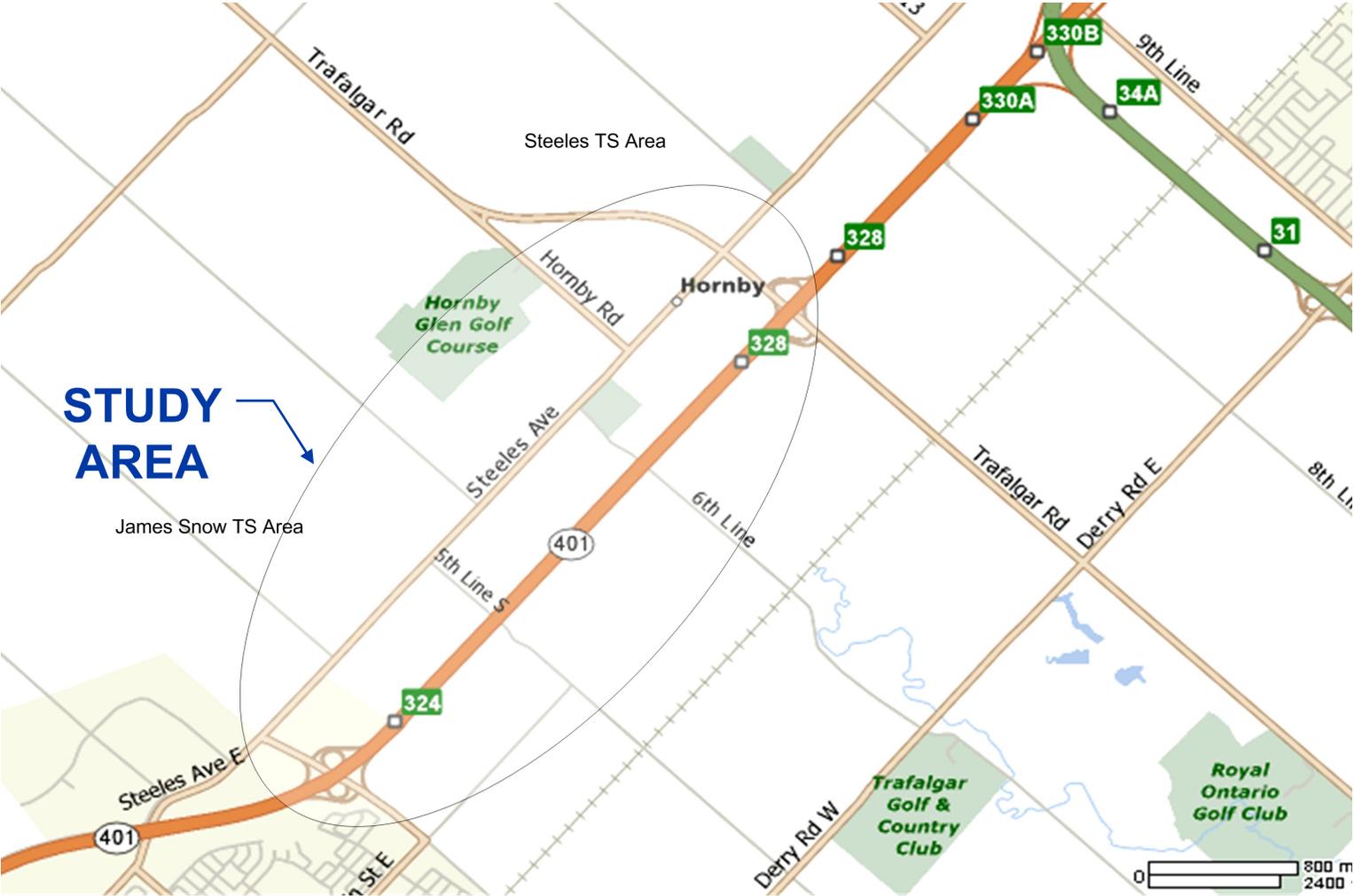
## Study Results

**Option 1** – Unacceptable - Infrastructure limitation in area does not allow additional feeders out of Halton Transformer Station into the Halton Hills Hydro service territory.

**Option 3** - Unacceptable - The existing supply will not meet the future increased electricity demand of the Halton Hills Hydro service territory.

**Option 2** - Accepted - Build a New Transformer Station was the preferred study option.

# Study Area for Alternative Sites



# 11 Alternative Site Locations

## James Snow Pkwy. and Hwy 401 Sites 1a, 1b, 1c

REVISIONS			
REV	DESCRIPTION	DATE	BY

Costello Associates  
 Sudbury, ON  
 (705) 922-0591  
[www.costelloassociates.ca](http://www.costelloassociates.ca)

Halton Hills  
 HYDRO  
 MTS #1 Site Selection  
 Alternate Location #1  
 James Snow PW & Steeles Ave

**C006**

## Steeles Ave. between Fifth Line South and Sixth Line South Sites 2a, 2b, 2c, 2d

REVISIONS			
REV	DESCRIPTION	DATE	BY

Costello Associates  
 Sudbury, ON  
 (705) 922-0591  
[www.costelloassociates.ca](http://www.costelloassociates.ca)

Halton Hills  
 HYDRO  
 MTS #1 Site Selection  
 Alternate Location #2  
 Steeles Ave - 5<sup>th</sup> to 6<sup>th</sup> Line South

**C007**

## Steeles Ave. and Trafalgar Rd. Sites 3a, 3b, 3c, 3d

REVISIONS			
REV	DESCRIPTION	DATE	BY

Costello Associates  
 Sudbury, ON  
 (705) 922-0591  
[www.costelloassociates.ca](http://www.costelloassociates.ca)

Halton Hills  
 HYDRO  
 MTS #1 Site Selection  
 Alternate Location #3  
 Trafalgar Road & Steeles Ave

**C008**

# Process for Evaluation of Alternative Sites

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## Evaluation Criteria

Developed based on known concerns for the following three (3) components:

- ❖ **Technical** – Related to proximity to demand and transmission connection, available land size, availability of distribution circuits.
- ❖ **Environmental (Physical and Social)** – Related to terrestrial and aquatic ecology, existing/planned land uses, and cultural heritage.
- ❖ **Economic** – Related to total cost for completion (design and build) of MTS with consideration for equipment required.

## Evaluation Process

1. Assess each of the alternative site locations for the potential effects on each component.
2. Determine an overall qualitative ranking for each of the alternative sites.
3. Select a preliminary preferred site to be studied in further detail.

# Evaluation of Alternative Sites

Table 1: Evaluation of Alternative Sites

Alternative Site Identification and Location	1A North side of Steeles Avenue, near James Snow Parkway	1B South side of Steeles Avenue, near James Snow Parkway	1C South side of Steeles Avenue, near 5 <sup>th</sup> Line North	2A South side of Steeles Avenue, near 5 <sup>th</sup> Line South	2B South side of Steeles Avenue, near 5 <sup>th</sup> Line South (east of site 2A)	2C South side of Steeles, near 6 <sup>th</sup> Line South (HHGS site)	2D South side of Steeles Avenue, forested area near 6 <sup>th</sup> Line South (west of HHGS site)	3A South side of Steeles Avenue, just west of Trafalgar Road	3B South side of Steeles Avenue, just west of Trafalgar Road	3C Trafalgar Road, south side of Highway 401	3D Trafalgar Road, Hornby Junction (ORC Lands) – South of Highway 401
Technical Summary	Unacceptable	Unacceptable	Low	Medium	Unacceptable	High	Medium	Medium	Medium	Unacceptable	Unacceptable
Environmental Summary	Low	Unacceptable	Low	Low	Low	Medium	Low	Unacceptable	Unacceptable	Low	Medium
Cost Summary	Unacceptable	Low	Low	Low	Low	High	Low	Low	Low	Low	High
Overall Ranking	Unacceptable	Unacceptable	Low	Low-Medium	Unacceptable	High-Medium	Low-Medium	Unacceptable	Unacceptable	Unacceptable	Unacceptable

## Evaluation Rankings:

**High Acceptability** – No effects are associated or anticipated for this site based on identified criteria.

**Medium Acceptability** – Few effects have been identified although the potential exists to prevent or mitigate these effects through implementation of alternative measures and/or methodologies.

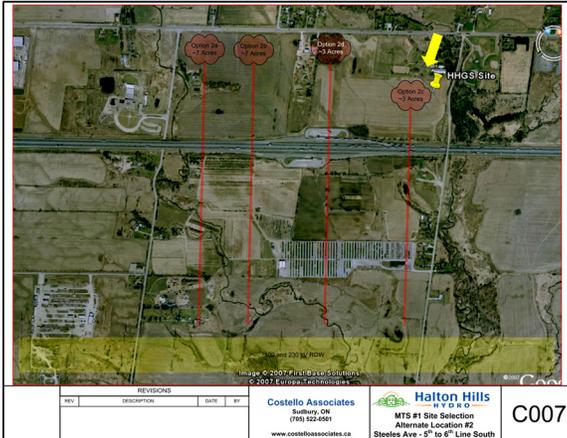
**Low Acceptability** - A number of effects have been identified although the potential for avoidance or mitigation is low.

**Unacceptable** – Effects or limitations identified are considerable (numerous) and mitigation or avoidance is not possible, therefore precluding the site from further consideration.

# Preliminary Preferred Site Selected

## Site 2C

(as highlighted on Table 1: Evaluation of Alternative Sites)



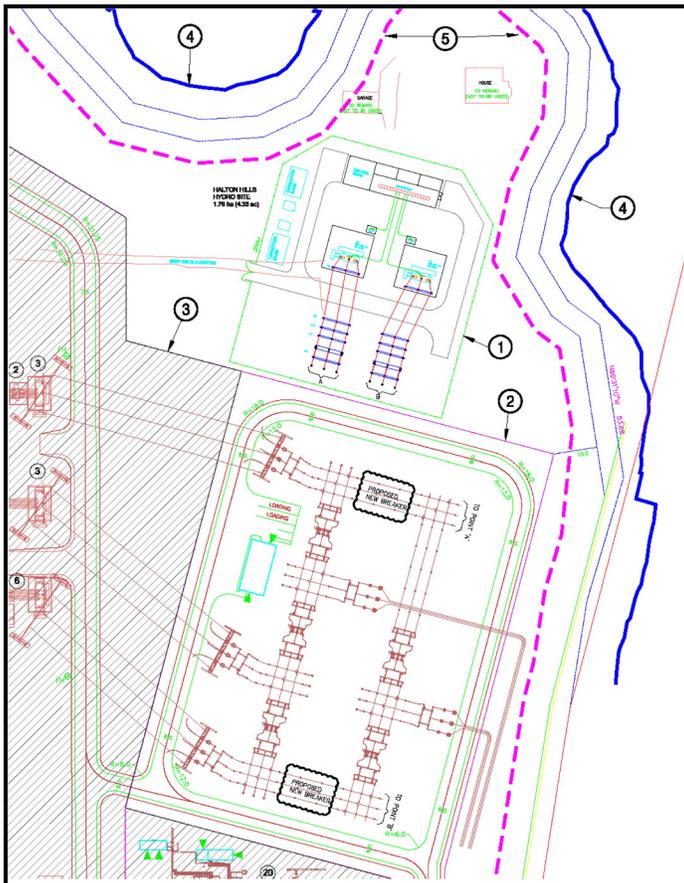
### Location:

Northeast corner of Halton Hills Generating Station Site. -southwest of Eastern Sixteen Mile Creek Tributary and century home

### Land Area Required:

1.76 ha (4.35 ac)

## Site Layout



### Attributes of Preferred Site

- ❖ Highest overall ranking and highest ranking for each of technical, environmental, and economic components.
- ❖ Located on industrial zoned site.
- ❖ Close proximity to electricity supply.
- ❖ Close proximity to market demand.

# Details of Proposed Halton Hills Hydro MTS #1

Design, construct, and operate a municipal transformer station that will step down voltage from a transmission level to distribution level.



## Construction

- ❖ **Anticipated Start Date:** March 2010
- ❖ **Construction Period:** 14 to 18 months
- ❖ **Number of Personnel:** Approximately 30



## Operation

- ❖ **Commissioning:** May 2011
- ❖ **Expected Years of Operation:** 40+ years
- ❖ **Number of Permanent On-site Personnel:** 0



# Public Consultation

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**Public consultation is a key component of a Class EA Study which is undertaken at various stages of the Study through different media.**

- ❖ Newspaper notices and direct mailings to key government agencies and directly affected landowners/stakeholders at study commencement, public information centre (PIC), and study completion.
- ❖ PIC to present study findings and seek public input to the study.
- ❖ Communication between the public and the Project Team through informal discussions, meetings, and written correspondence.
- ❖ Filing of the Environmental Study Report (ESR) for public review and comment at the end of the study.

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# Next Steps

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- ❑ Receive and evaluate public comments on preferred site selection.
- ❑ Conduct detailed studies on selected Preferred Site for technical, environmental, and economic components.
- ❑ On-going consultation with public and government agencies.
- ❑ Prepare an ESR documenting the study results.
- ❑ Initiate a 30-day public review period nearing completion of the study to allow interested parties to review and comment on the ESR.