SEATON MUNICIPAL TRANSFORMER STATION PROJECT

CLASS ENVIRONMENTAL ASSESSMENT

Draft Environmental Study Report

VERIDIAN CONNECTIONS

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CLASS ENVIRONMENTAL ASSESSMENT

Draft Environmental Study Report

2017

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EXECUTIVE SUMMARY

Veridian Connections (Veridian) and Hydro One Networks Inc. (Hydro One), as co-proponents, are undertaking a Class Environmental Assessment (EA) for the construction of a new Municipal Transformer Station (MTS) and its associated connection to Hydro One's transmission system in the City of Pickering in proximity to the proposed Seaton Community.

The Seaton Community in the City of Pickering is forecasted to require up to 180 megawatts (MW) of new supply capacity over the next 15 years. It is estimated that 1500 new residential lots will be constructed every year, between 2017 and 2023. Additional commercial and industrial loads are expected to develop on both sites of the Highway 407 throughout this period as well.

The Project is a near-term initiative identified in the Independent Electricity System Operators' (IESO) Pickering-Ajax-Whitby Sub-Region Integrated Regional Resource Plan (IRRP) (2016). Through an assessment of anticipated future electrical demand in the City of Pickering, Veridian (as a member of the IRRP working team) identified that a new 230 kilovolt (kV) transformer station would best serve the growing number of homes and businesses in the area. The need for a new MTS is included in the Seaton Community Master Environmental Servicing Plan (MESP) June 2013, which was developed by the Seaton Community Developer's Group (North Pickering Community Management Inc.). Site alternatives put forward in the MESP were considered as part of the EA process for the proposed Project.

Veridian initiated the Class EA process on June 15, 2015, to evaluate and identify sites for the proposed MTS. However it must be connected to Hydro One's high-voltage grid to electrify and ensure the proposed station can provide reliable power to the area. To address the change in scope, Veridian and Hydro One revised the Class EA process as co-proponents in 2016. In addition to evaluating the proposed station sites, the revised EA also evaluated the associated line connection to Hydro One's 230 kV transmission system.

The proposed MTS would step down the voltage from a transmission voltage of 230 kV to a distribution voltage of 27.6 kV. To supply the MTS, the existing Hydro One 230 kV transmission line needs to be upgraded, and new section of transmission line is required to be installed, to connect the proposed MTS to the Hydro One Grid. This added connection is referred to as a 'line tap'.

The proposed Project is subject to the Class Environmental Assessment for Minor Transmission Facilities (Class EA; Ontario Hydro, 1992) in accordance with the *Ontario Environmental Assessment Act* (*EA Act*). This draft ESR has been prepared in compliance with the requirements of the *EA Act* and describes the Class EA process that has been undertaken to date.

At the onset of the study, the technical specifications and system requirements of the proposed Project were determined. Based upon these requirements, a study area was defined. The Class EA process for the proposed Project included an assessment of the environmental features within the study area. Environmental analysis was conducted through literature reviews, reports commissioned by Veridian and Hydro One, databases, mapping, consultation and field surveys.

Since September 26, 2016 Veridian and Hydro One have conducted comprehensive consultation on the Project with municipal, provincial, federal government agencies, First Nations communities, potentially affected and interested persons, and interest groups to inform them of the proposed Project as well as to identify and resolve potential concerns. The consultation program included notification letters, email correspondence, follow-up phone calls, meetings, newspaper advertisements and Public Information Centres (PICs), which provided opportunities for interested parties to discuss, seek their feedback, and pose questions to the Veridian and Hydro One project team.

A general study area that encompassed the Project's potential effects and satisfied a defined set of criteria was delineated. Three alternative station sites and associated transmission line routes were further identified for the proposed Project, within the general study area. Criteria were established for the evaluation of the alternative station sites and associated transmission line route. After evaluation, the preferred location for the proposed Project

and associated transmission line option was selected. This selection was made on the basis of potential effects to the identified resources within the environment (natural and socio-economic), as well as technical considerations and cost for each alternative site and route option.

Based on the project design and the implementation of the proposed mitigation measures, no significant adverse or residual effects (i.e., effects following the implementation of mitigation measures) are expected during the construction and on-going operation of the proposed Project.

This draft Environmental Study Report (ESR) is being made available for public review and comment for 30 calendar days, from November 16, 2017 until December 15, 2017 at the following locations:

- Pickering Public Library (Central Branch)
  One The Esplanade
  Pickering, ON
  L1V 2R6

  Phone: 905-831-6265

- Pickering Public Library (Petticoat Creek Branch)
  470 Kingston Rd,
  Pickering, ON
  L1V 1A4
  Phone: 905-420-2254

It is also available on the Veridian and Hydro One website respectively:

Veridian's website at: www.Veridian.on.ca/Ea-Study-Seaton

Hydro One's website at: https://www.hydroone.com/about/corporate-information/major-projects/seaton

Comments and questions can be submitted to:

Andrew Roberts
Project Consultant
WSP Canada Inc.,
Email:Andrew.Roberts@wspgroup.com
1-905-882-4111 ext. 6152

All comments received during this period will be addressed and documented in the final ESR.

Veridian and Hydro One will respond to and make best effort to resolve issues raised by concerned parties during the public review period. If no concerns are expressed, Veridian and Hydro One will finalize the ESR and file it with the Ministry of the Environment and Climate Change (MOECC). The Class EA process for the proposed Project will then be considered complete and final and the Project will proceed as outlined in the ESR.

The *EA Act* has provisions that allow interested parties to request a higher level of assessment for a project subject to the Class EA process if they feel that outstanding issues have not been adequately addressed by the proponent(s). This is referred to as a Part II Order request. Such requests must be addressed in writing to the Minister of the Environment and Climate Change, as well as the Director of the Environmental Approvals Branch at the MOECC, and must be received no later than December 15, 2017 at the following addresses:

Minister of the Environment and Climate Change
77 Wellesley Street West
11th Floor, Ferguson Block
Toronto, ON M7A 2T5
Email: Minister.MOECC@ontario.ca

Director, Environmental Approvals Branch
Ministry of the Environment and Climate Change
135 St. Clair West, 1st Floor
Toronto, ON M4V 1P5
Email: EAASIBgen@ontario.ca

Craig Smith P.Eng., Project Manager
Veridan Connections
55 Taunton Road East
Ajax, ON L1T 3V3
csmith@veridian.on.ca

Olivera Radinovic, Environmental Assessment Coordinator
Hydro One Networks Inc.
483 Bay Street 12 Floor, North Tower
Toronto, ON M5G 2P5
Community.Releations@HydroOne.com

A duplicate copy of the Part II Order request must also be sent to Veridian and Hydro One via the WSP Canada Inc. contact, Andrew Roberts; to the address previously noted.

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LIST OF ACRONYMS & ABBREVIATIONS

ANSI	Areas of Natural and Scientific Interest
CA	Conservation Authority
CDM	Conservation and Demand Management
Class EA	Class Environmental Assessment for Minor Transmission Facilities
CPDP	Central Pickering Development Plan
CLI	Canada Land Inventory
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPR	Canadian Pacific Railway
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EA Act	Environmental Assessment Act
EAB	Ministry of the Environment and Climate Change, Environmental Approvals Branch
ECA	Environmental Compliance Approval
ELC	Ecological Land Classification
EMF	Electric and magnetic fields
END	Endangered
EPA	Environmental Protection Act
ESA	Environmentally Sensitive Area
ESR	Environmental Study Report
FN	First Nations
GRT	Government Review Team
HVA	Highly Vulnerable Aquifers
Hydro One	Hydro One Networks Inc.
IESO	Independent Electricity System Operators
IO	Infrastructure Ontario
IRRP	Integrated Regional Resource Plan
IPZ	Intake Protection Zones
LDC	Local Distribution Company

MESP	Master Environmental Servicing Plan
MMAH	Ministry of Municipal Affairs and Housing
MNO	Métis Nations of Ontario
MNRF	Ministry of Natural Resources and Forestry
MOECC	Ministry of the Environment and Climate Change
MOI	Ministry of Infrastructure Ontario
MP	Member of Parliament
MPP	Member of Provincial Parliament
MTCS	Ministry of Tourism, Culture and Sport
MTO	Ministry of Transportation
MTS	Municipal Transformer Station
NHIC	Natural Heritage Information Centre
NHS	Natural Heritage System Area
OHA	Ontario Heritage Act
PIC	Public Information Centre
POR	Point of Reception
PPS	Provincial Policy Statement
RoW	Right-of-Way
RS	Regulating Station
SAR	Species at Risk
SARO	Species at Risk in Ontario
SWH	Significant Wildlife Habitat
THR	Threatened
TS	Transformer Station
Veridan	Veridian Connections
WSP	WSP Canada Inc.

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1. Introduction

Veridian Connections (Veridian) and Hydro One Networks Inc. (Hydro One), as co-proponents, are planning the construction of a new Municipal Transformer Station (MTS) and its associated connection to Hydro One's transmission system in the City of Pickering in proximity to the proposed Seaton Community.

The construction of a new MTS and the refurbishment of the transmission infrastructure are referred to as the Seaton Municipal Transformer Station (MTS) Project (herein referred to as "the Project"). The location of the proposed Project is shown on Figure 1-1.

The proposed Project is being prepared in accordance with the Class Environmental Assessment for Minor Transmission Facilities (Class EA; Ontario Hydro, 1992). The Class EA process was developed as a streamlined process to ensure minor transmission facilities that have a predictable range of effects are planned and carried out in an environmentally acceptable manner in accordance with the requirements of the *Ontario Environmental Assessment Act (EA Act)*.

This draft Environmental Study Report (ESR) describes the Class EA process carried out to assess the potential environmental effects of the proposed Project.

Three sites for the proposed MTS were considered as part of the EA process (see Figure 1-2). The proposed station sites and associated line taps in the study area are located on Ontario Ministry of Infrastructure (MOI) owned lands. A separate EA process under the Ministry of Infrastructure's *Public Work Class Environmental Assessment* (2012) will be used for the Infrastructure Ontario (IO) undertaking of granting an easement for these lands.

Veridian initiated the Class EA process on June 15, 2015, to evaluate and identify sites for the proposed MTS. However the MTS must be connected to Hydro One's high-voltage grid to electrify and ensure the proposed station can provide reliable power to the area.

Therefore Veridian and Hydro One revised the Class EA process as co-proponents in 2016, to address the expanded scope of work and ensure the EA consider all aspects of the project. In addition to evaluating the proposed station locations, the revised Class EA

process evaluates the associated connections to Hydro One's 230 kV transmission system, and assesses potential effects of transmission line upgrades.

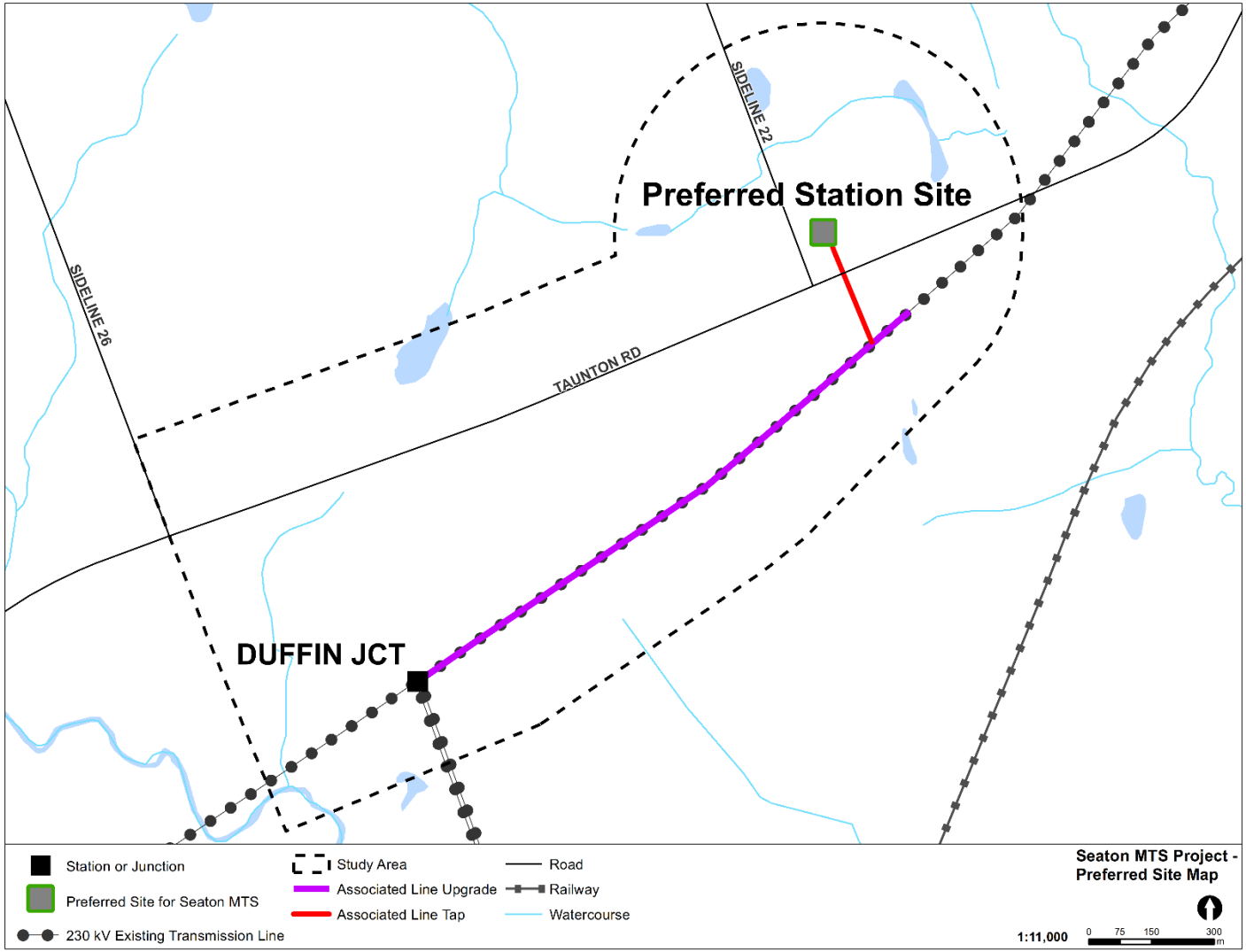


Figure 1-1: Proposed Project Location Map

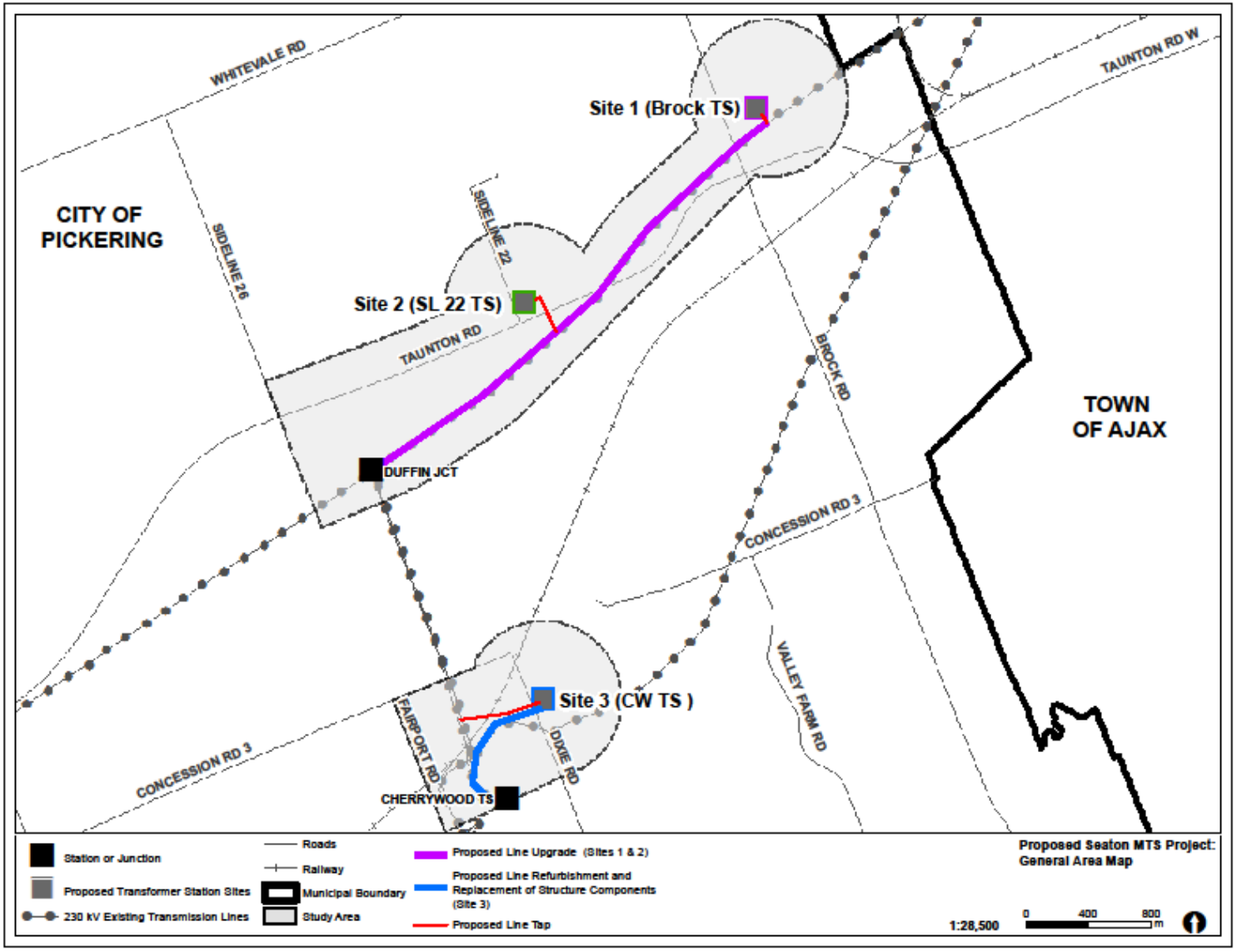


Figure 1-2: Seaton MTS Site Locations (Proposed Site #1, Site #2, and Site #3)

1.1 Need for the Undertaking

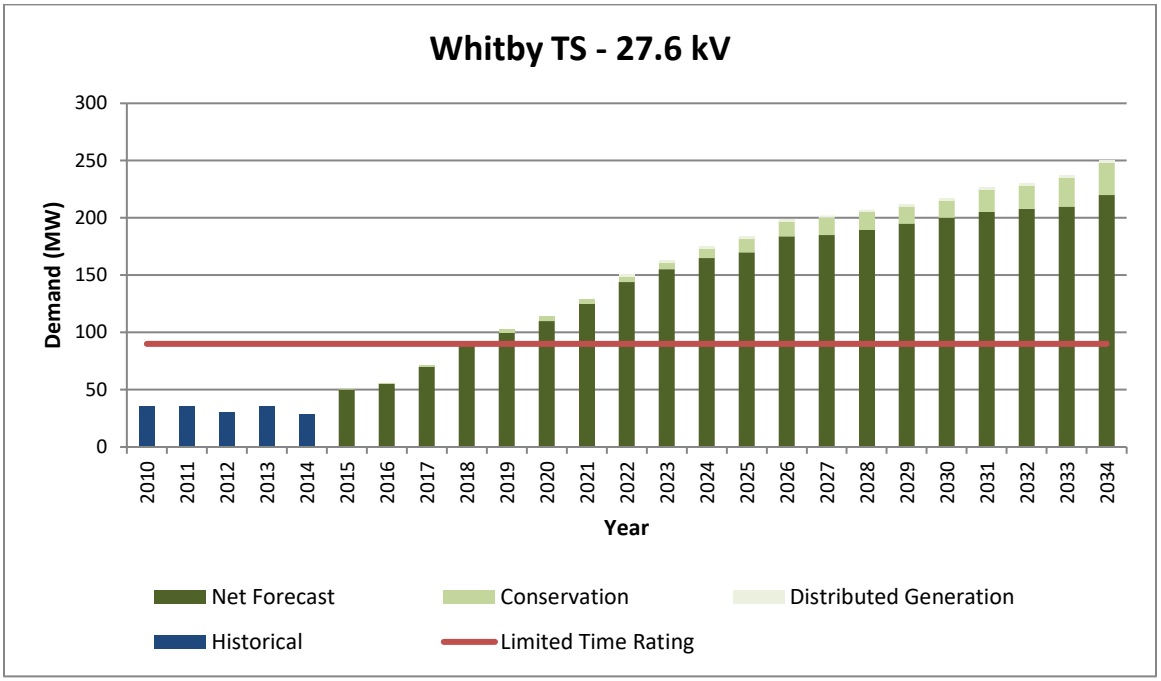
To maintain an adequate and reliable electricity supply to its customers, Veridian routinely assesses the capability and reliability of its distribution network and transformer stations. Veridian develops and implements appropriate plans for additions and modifications consistent with all regulatory requirements where gaps are found and with due consideration for safety, the environment, cost, system reliability, and security. The need for the undertaking was identified by Veridian as part of its assessment of future electricity loads in the Pickering area.

The Central Pickering Development Plan (CPDP) (City of Pickering, 2006) which established land use, transportation, and design policies for Central Pickering considers an eventual population of up to 70,000 people and 35,000 jobs in the Seaton Community. This area, in the City of Pickering, is forecasted to require up to 180 MW of new supply capacity over the next 10 to 12 years. It is estimated that 1,500 new residential lots will be constructed every year, between 2017 and 2023. Additional commercial and industrial loads are expected to develop on both sides of the Highway 407 throughout this period as well; see Figure 1-3.

This proposed Project is one of the recommended near term actions identified in the Pickering-Ajax-Whitby Sub-Region Integrated Regional Resource Plan (IRRP) (2016) which was developed by the Independent Electricity System Operator (IESO) in collaboration with Veridian, Whitby Hydro Electric Corporation, and Hydro One. Veridian is currently supplied with electricity from the Ontario transmission grid from five existing Hydro One transformer stations. Through the development of the IRRP, it was determined that a new 230/27.6 kV station, along with associated upgrades to the existing 230 kV transmission line, is required to serve the expected new load of the Seaton Community. Based on the load forecasts contained in the IRRP, the stations supplying Veridian will be at their supply capacity by 2019.

This need for this project has also been included in the Seaton Community Master Environmental Servicing Plan (MESP) July 2013, which was developed by the Seaton Community Developer's Group (North Pickering Community Management Inc.).

Veridian continues to monitor the pace of the Seaton Community development through consultation with the City of Pickering and the Seaton Community developers.



Source: IRRP 2016, Pickering-Ajax-Whitby Sub-Region Integrated Regional Resource Plan

Figure 1-3: Planning Forecast for Whitby TS 27.6 kV System (IRRP, 2016)

1.2 Purpose of the Undertaking

The purpose of the undertaking is to construct a new MTS in Pickering to:

- Accommodate anticipated electrical load growth in the Seaton Community in the coming years.
- Maintain an adequate and reliable supply of electricity to people in the area.

1.3 Description of the Undertaking

The proposed Project is to be located in the Region of Durham, in the City of Pickering (see Figure 1-1). Veridian and Hydro One as co-proponents are proposing to:

- Construct a new 230kV/27.6 kV transformer station (Seaton MTS) to be owned and operated by Veridian, using a new 230kV/27.6 kV Bermondsey style MTS (see Figure 1-4: Conceptual General Arrangement);
- Connect Seaton MTS to Hydro One's existing 230 kV line which is part of its high-voltage transmission system using a line tap of approximately 0.2 km in length, between the station and the existing Hydro One transmission line; and
- Upgrade an existing Hydro One single circuit (3 wires) transmission line of approximately 1.4 km in length to a double circuit (6 wires) transmission line.

The station would step down the transmission voltage at 230 kV to distribution voltage at 27.6 kV. The new station will occupy a footprint of approximately 200 x 200 meters and it will consist of two 230 kV/27.6 kV transformers, a 230 kV switchyard, one enclosed relay building, and associated buswork and equipment (see Figure 1-4). Upgrade of the existing Hydro One 230 kV transmission line and construction of a line tap connection are required to supply the proposed MTS with electricity from the grid.

The Hydro One line tap connection to the station will involve:

- Replacement of a section of Hydro One's existing single circuit (3 wires) 230 kV line with double circuit (6 wires). This will involve the installation of taller steel lattice structures of a different configuration (Figure 1-5);
- Installation of additional steel towers on the 230 kV line and upgrading various electrical components on the existing 230 kV lines (Figure 1-6); and
- Construction of a tap line consisting of steel structures to connect the Seaton MTS to the 230 kV line (Figure 1-7).

The proposed Project is similar to many other station and line tap projects completed by utilities such as Veridian and Hydro One. Future installation of capacitors and a communication tower may be required on the site.

Detailed design of the proposed Project will take place following submission of the final ESR, as discussed in Section 6.1. Upon the successful completion of the approval process, construction could begin as early as fall 2018.

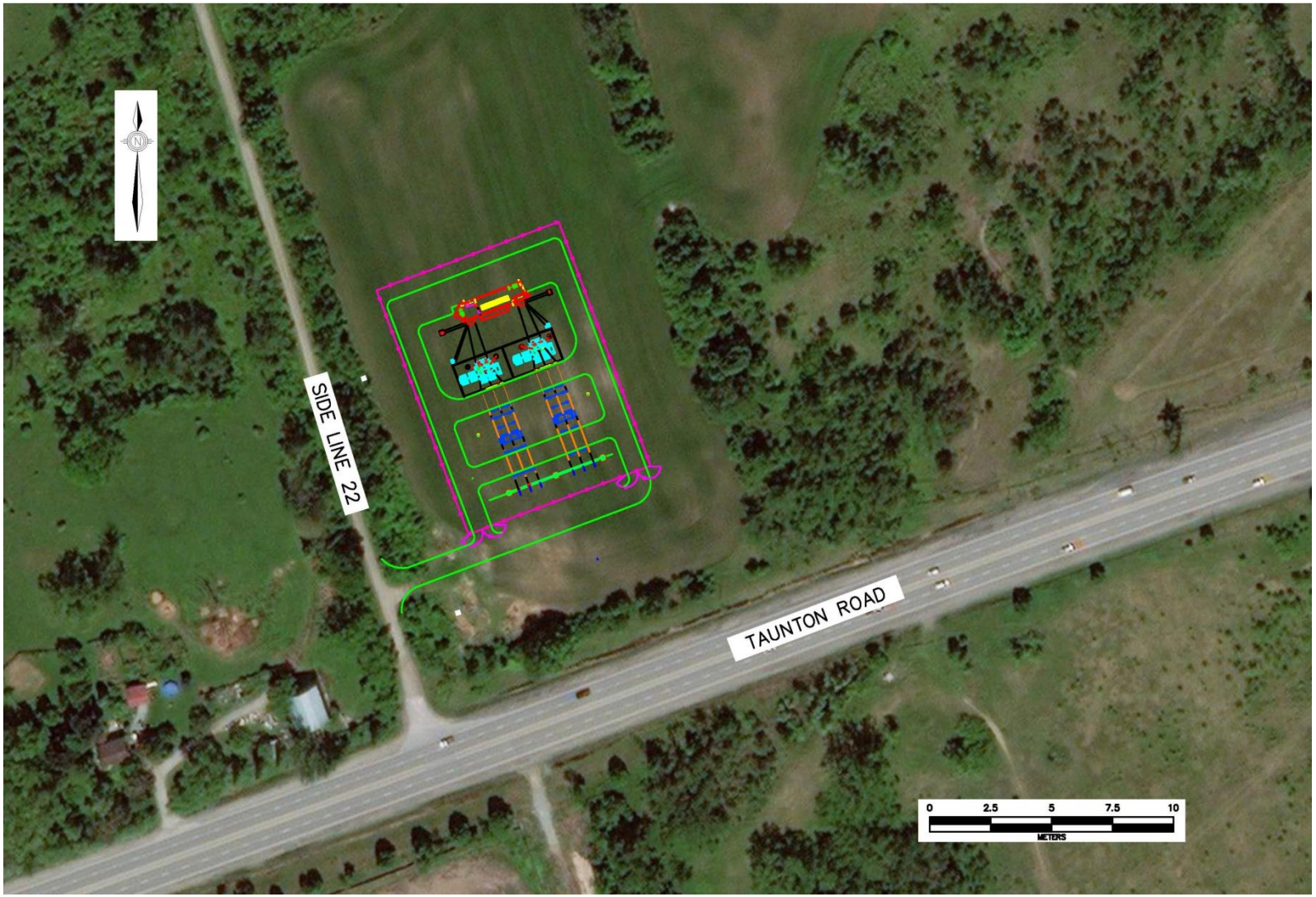


Figure 1-4: Conceptual General Arrangement

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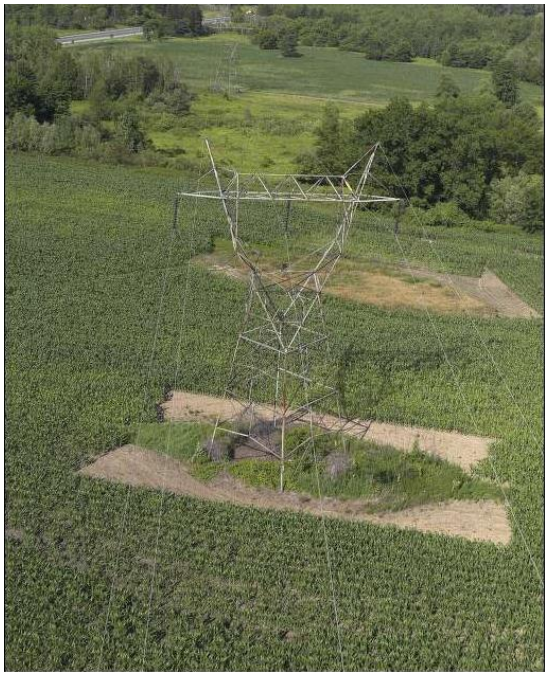


Figure 1-5: Example of an Existing Transmission Tower

Figure 1-6: Example of a Proposed Transmission Tower

Figure 1-7: Example of a Typical Line Tap Structure

1.4 Alternatives to the Undertaking

The Class EA process requires identification and evaluation of alternatives to the undertaking. These alternatives must be reasonable from a technical, economic, and environmental perspective and must fall within the mandate of the proponents.

Alternatives to the undertaking were explored by Veridian, the IESO, and Hydro One, during the development of the IRRP (2016).

These alternatives included:

Alternative 1 - The "Do Nothing" alternative

Alternative 2 - Conservation and Demand Management (i.e., achieving the estimated peak demand reduction associated with the provincial conservation targets)

Alternative 3 – Distributed Local Generation (i.e., standalone local generation facilities)

Alternative 4 - Transmission and Distribution (i.e., transmission and distribution option to address the transformation capacity need)

a) Utilize the existing transmission capacity
b) Build a new transformer station

1.4.1 Alternative 1 -"Do Nothing"

The "Do Nothing" alternative would not meet the need for the undertaking and is therefore not a feasible alternative and will not be carried forward as an alternative for further consideration in this draft ESR.

The predicted development of the Seaton Community will increase electricity demand in the City of Pickering. As a result, the capacity of the existing transmission facilities as well as the capacity of the existing distribution facilities in the Ajax and Pickering areas will not be enough to provide the required electricity supply. As per the IRRP, this will cause a transmission capacity shortfall of approximately 12 megawatts (MW) in 2019 and up to 132 MW in 2034.

1.4.2 Alternative 2 - Conservation and Demand Management

Conservation and Demand Management (CDM) would not meet the need for the undertaking, and therefore is not a feasible alternative and will not be carried forward as an alternative for further consideration in this draft ESR.

Similar to other local distribution utilities in Ontario, and in line with the provincial government plan through the Chief Energy Conservation Officer, Veridian has introduced an energy conservation culture both in its organization and with its customers. Veridian is continuing with this effort to ensure that an adequate and reliable electrical supply to their customers.

In this regard, CDM was considered as an option for relieving the expected transformer station capacity deficit. Demand management such as the installation of smart meters for load control would result in some load reduction in the area. However, with the consistent project load growth from the Seaton Community, demand management alone will not provide the necessary relief. Veridian has firm targets for CDM that it is required to achieve. Accordingly, efforts will continue to ensure CDM plays a role along with supply options to meet the needs of customers in the area.

1.4.3 Alternative 3 - Distributed Local Generation

Due to the amount of forecasted demand for electricity in the Seaton Community, local generation options would not meet the need for the undertaking. Generation capacity and contracts are offered through the IESO, and none have been located in the project area. Therefore this alternative is not feasible and will not be considered further in this draft ESR.

Generation options are normally considered for addressing generation capacity gaps, rather than transmission and distribution shortfalls. The IESO is responsible for addressing generation requirements in the province, through various long term planning and Requests for Proposals programs.

1.4.4 Alternative 4 - Transmission and Distribution

Veridian is obligated through the Distribution System Code to provide service to customers in its service area. Development in the Seaton Community area would be stalled due to lack of electricity

supply from existing sources. The IRRP considered this forecasted electricity demand, and found that conservation and distributed generation are not feasible options (IRRP, 2016, s. 7; p. 32 - 37). Both of these alternatives will therefore not be carried forward for further consideration in this ESR, as discussed in Section 1.4.2 and Section 1.4.3 above.

The transmission and distribution alternative is the only feasible alternative that will meet the forecasted electricity demand in the City of Pickering. The transformation capacity need was studied further; Veridian considered the capacity at existing Hydro One stations that could be utilized to either delay or eliminate the need for a new station. The IESO (Report, 2016) examined a number of scenarios including constructing distribution feeders from existing Hydro One Malvern TS and Sheppard TS. The IESO analysis concluded that the least costly option is to provide supply from a new transformer station site adjacent to the Seaton Community. This alternative is further discussed in Section 2.1.

1.5 Approval Process and Regulatory Requirements

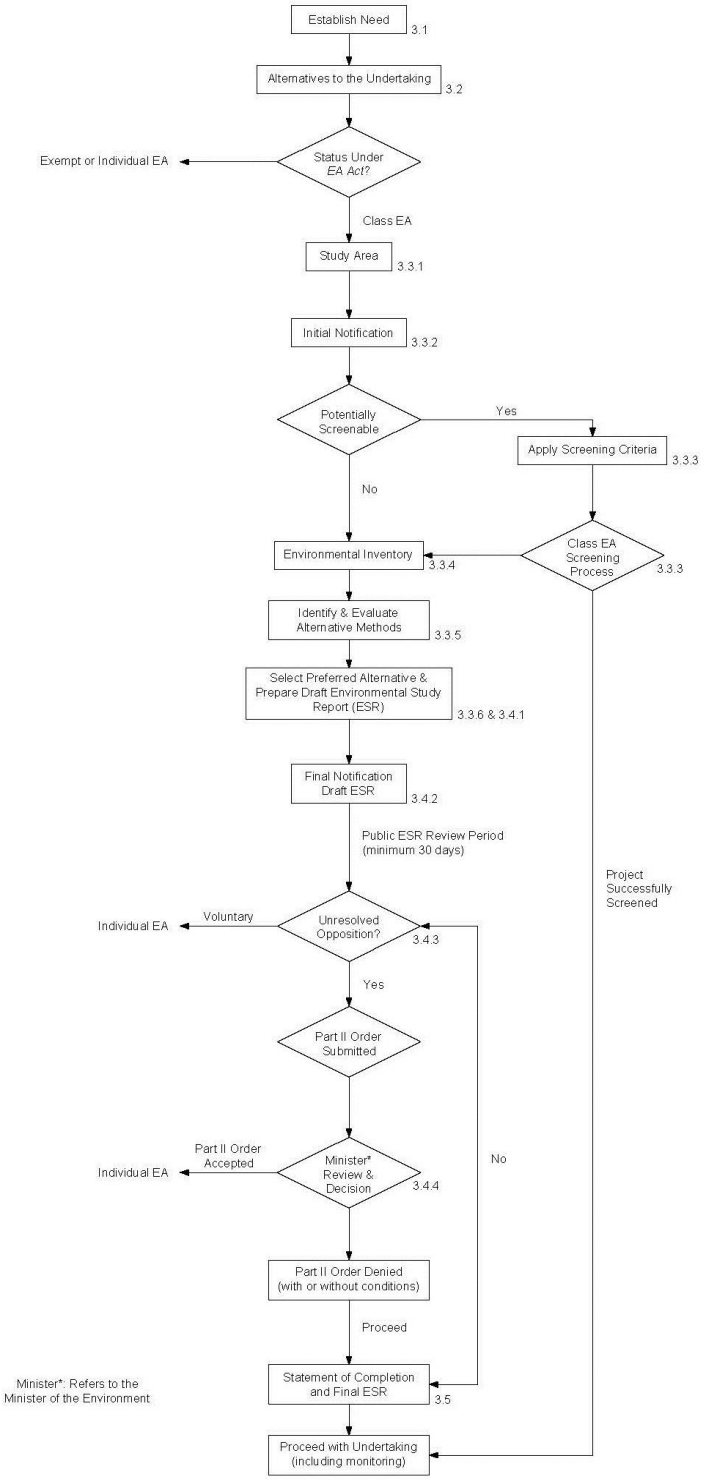
This section outlines the approval process as required under the Class EA process. Other regulatory requirements are also addressed.

1.5.1 Ontario Environmental Assessment Act

This draft ESR has been prepared in accordance with the Class EA (Ontario Hydro, 1992) which was approved under the *EA Act*. The Class EA process is illustrated in Figure 1-8. The Class EA process defines an environmental planning process which meets all requirements of the *EA Act*, including:

- Establish need (Section 1.1);
- Identify and evaluate alternatives to the undertaking (Section 1.4);
- Define study area (Section 2.1);
- Issue initial notification (Section 2.2 and Section 4.1.1);
- Conduct environmental inventory (Section 3);
- Identify and evaluate alternative methods (Section 5.1);

- Select preferred alternative method (Section 5.2) and prepare draft ESR;
- Issue final notification (Section 4.7) and commence associated draft ESR Review Period (Section 4.8);
- File Statement of Completion with the MOECC and proceed with undertaking (Section 4.9); and
- Conduct consultation throughout the process (Section 4).



Source: Ontario Hydro (1992, April). *Class Environmental Assessment for Minor Transmission Facilities*.

Figure 1-8: Class EA process

1.5.2 Class Environmental Assessment Process

The Class EA process describes the process that must be followed for a defined class of projects/undertakings in order to meet the requirements of the *EA Act*. The Class EA process is illustrated in Figure 1-8.

The Class EA process is equivalent to the Environmental Screening Process described in sections A.5.1 and A.5.2 of the Guide to Environmental Assessment Requirements for Electricity Projects (MOECC, 2011). The Class EA process applies to Category B transmission projects that are not associated with Category B generation projects.

Transmission facilities covered under the Class EA process include:

a. The planning, design and construction of minor transmission lines and/or transmission stations (including telecommunication stations), and the subsequent operation, maintenance and retirement of these facilities.

   Minor transmission lines include all transmission line projects involving greater than 2 km of line, which:

   i. Are capable of operating at a nominal voltage equal to 115 kilovolts (kV).

   ii. Are capable of operating at a nominal voltage level higher than 115 kV and less than 500 kV, and which involve less than 50 km of line.

b. The planning, design and construction required to modify or upgrade a transmission line, and the subsequent operation, maintenance and retirement of the revised line where:

   i. The work requires replacement of poles or towers and/or changes in the right-of-way (RoW) for existing transmission lines capable of operating at a nominal voltage of equal to or greater than 115 kV and equal to or less than 500 kV.

ii. The modified or upgraded existing lines would operate at a nominal voltage of equal to or greater than 115 kV, and equal to or less than 500 kV (nominal voltage).

c. The planning, design and construction required to modify or expand a transmission station, and the subsequent operation, maintenance and retirement of the modified station where:

i. Acquisition of additional property is required; and,

ii. The modified stations are capable of operating at a nominal voltage level of equal to or greater than 115 kV and equal to or less than 500 kV (where a station has more than one voltage level, the highest level is used in defining the station's nominal operating voltage).

Should there be substantive issues or effects raised by a concerned party regarding the proposed Project that cannot be resolved by the proponent, the Class EA process has provisions for concerned parties requesting the level of assessment for the Project to be elevated to an Individual EA (referred to as a Part II Order request). See Section 4.9 for more information on Part II Order requests.

Upon completion of the draft ESR, Veridian and Hydro One will issue a final notification to all stakeholders including municipal, provincial, federal government officials, government agencies, First Nations communities, potentially affected and interested persons, and interest groups. This draft ESR will be made available for public review and comment for a period of 30 calendar days. Veridian and Hydro One will respond to and make best efforts to resolve any issues raised by concerned parties during the review period. These issues will be documented and the resolutions summarized in the final ESR.

Once the review period of the draft ESR is complete, all comments raised during the review period will be incorporated into the report and the ESR will be finalized. A copy of the finalized ESR will be placed on the Veridian and Hydro One websites, and sent to the Environmental Approvals Branch (EAB) at the MOECC and the appropriate Regional EA Coordinator for filing. The

Statement of Completion will be completed and submitted to the MOECC along with the ESR. The project will then be considered acceptable and can proceed as outlined in the final ESR.

1.5.3 Other Permits, Licenses and Approvals

In addition to meeting *EA Act* requirements, there are a number of permits, licenses and approvals that may be required under federal and provincial legislations for the proposed Project, as presented in Table 1-1. Veridian and Hydro One will contact relevant regulatory agencies to ensure that the proposed Project meets all applicable requirements and all approvals are obtained as necessary. This Project does not trigger a federal environmental assessment under the *Canadian Environmental Assessment Act*.

In addition to the necessary permits and approvals, Veridian and Hydro One will consult with the City of Pickering and the Toronto and Region Conservation Authority (TRCA) to finalize site restoration plans as appropriate.

Table 1-1: Potentially required Permits, Licenses and Approvals

PERMIT, LICENSE, OR APPROVAL	PRIMARY AGENCY	DESCRIPTION
Ministry of Infrastructure Public Work Class Environmental Assessment, 2012	Ministry of Infrastructure / Infrastructure Ontario	Category 'B' Environmental Assessment requiring a Consultation and Documentation Report for granting an easement for the substation site and line tap connection.
Environmental Compliance Approval (ECA)	Ministry of the Environment and Climate Change (MOECC)	Environmental Compliance Approval (ECA) required for Air/Noise (Transformer noise), Industrial Sewage Works (Oil containment system) and storm water management
Permit to Take Water (PTTW) or Registration on the Environmental Activity and Sector Registration (EASR)	MOECC	Water taking of groundwater and/or stormwater for the purpose of construction dewatering between 50,000 L/day and 400,000 L/day require registration on the EASR. Water takings of ground water and/or stormwater for the

PERMIT, LICENSE, OR APPROVAL	PRIMARY AGENCY	DESCRIPTION
		purpose of construction dewatering over 400,000 L/day require a PTTW.
Noise Bylaw Exemption	City of Pickering	An exemption may be required if the operation of construction equipment occurs outside of the noise bylaw curfew
Approvals and Permits	City of Pickering	Site Plan Approval, entrance permits, buildings permits, traffic management, road use agreements.
Approvals and Permit	Region of Durham	Approvals and permits for road crossings, entrances, and traffic management.
Clearance Letter	Utility and railway companies	Required to cross utilities (e.g. natural gas or oil pipelines) or railways
Water Crossings Permit (ford/culvert/bridge)	Fisheries and Oceans Canada/MNRF/Toronto Region Conservation Authority	Any in-water change to an existing, or installation of a new, water crossing.
Endangered Species Act (2007) registration, permit or authorization	MNRF	Registration, permit or other authorization for activities that contravene the *Endangered Species Act* (2007, c.6), with conditions aimed at protecting or recovering Species at Risk (SAR).
Archaeological Assessment	Ministry of Tourism, Culture and Sport (MTCS)	Concurrence with other archaeological assessments. Acceptance of assessment report is required prior to undertaking new ground disturbance in areas with archaeological potential.
Construction Authorization	Toronto and Region Conservation Authority (TRCA)	Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

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2. Project Assessment Process

This section presents a summary of the project-specific requirements of the Class EA process as they pertain to this ESR.

2.1. Study Area Definition

The study area is delineated to encompass the area of the project's potential effects based on identifying locations of proposed alternatives. The boundaries of the study area are established by considering the proposed alternatives in relation to the occurrence of known potential environmental and technical constraints, as well as constraints associated with relevant legislation and land use policies.

At the onset of the study, the technical specifications and system requirements for the proposed construction of the new station and its connection to the transmission system were determined, and criteria and guidelines were established to assist in identifying both a study area and alternative sites and route options.

Veridan and Hydro One studied the general area in the City of Pickering that may be suitable for building a new MTS in order to supply the Seaton Community with required electricity.

The general study area (Figure 1-1) covers a broad local study area in the City of Pickering bound by Whitevale Road to the north, Finch Avenue to the south, Sideline 26/Fairport Road to the west and Church Street North to the east. The general study area for the proposed Project was defined based on the criteria below:

- An area that contains or is near to the load centre projected along Taunton Road in the Seaton Community;
- An area that includes existing suitable transmission lines that are suitable for supplying the new MTS; and
- An area with adequate available land that could reasonably be acquired by Veridian on which a new transformer station could be constructed.

Veridian and Hydro One were then able to take and use this newly defined broad local study area as a starting point for selecting alternative sites and associated line upgrades. Selecting the locations of possible MTS sites required the generation of more refined and specific study areas that took into consideration technical constraints, constructability requirements, and known environmental factors.

As a result of the aforementioned process, three specific study areas for each of the alternative station sites and associated line upgrades were delineated. These three specific study areas were traced out to 300 m from each of the proposed station sites, and 150 m from either side of the existing ROW for all three connection options (see Figures 2-1; 2-2; and 2-3).

- Site #1: located northeast of Duffin Junction (JCT), to the 300 m around the Northeast corner of Taunton Road West and Brock Road (Figure 2-1);
- Site #2: located 300 m around the Northeast corner of Taunton Road West and Sideline 22 (Figure 2-2); and
- Site #3: located Southeast of Concession Road 3 and Fairport Road to the 300 m around the Southeast corner of Concession 3 and Dixie Road (Figure 2-3).

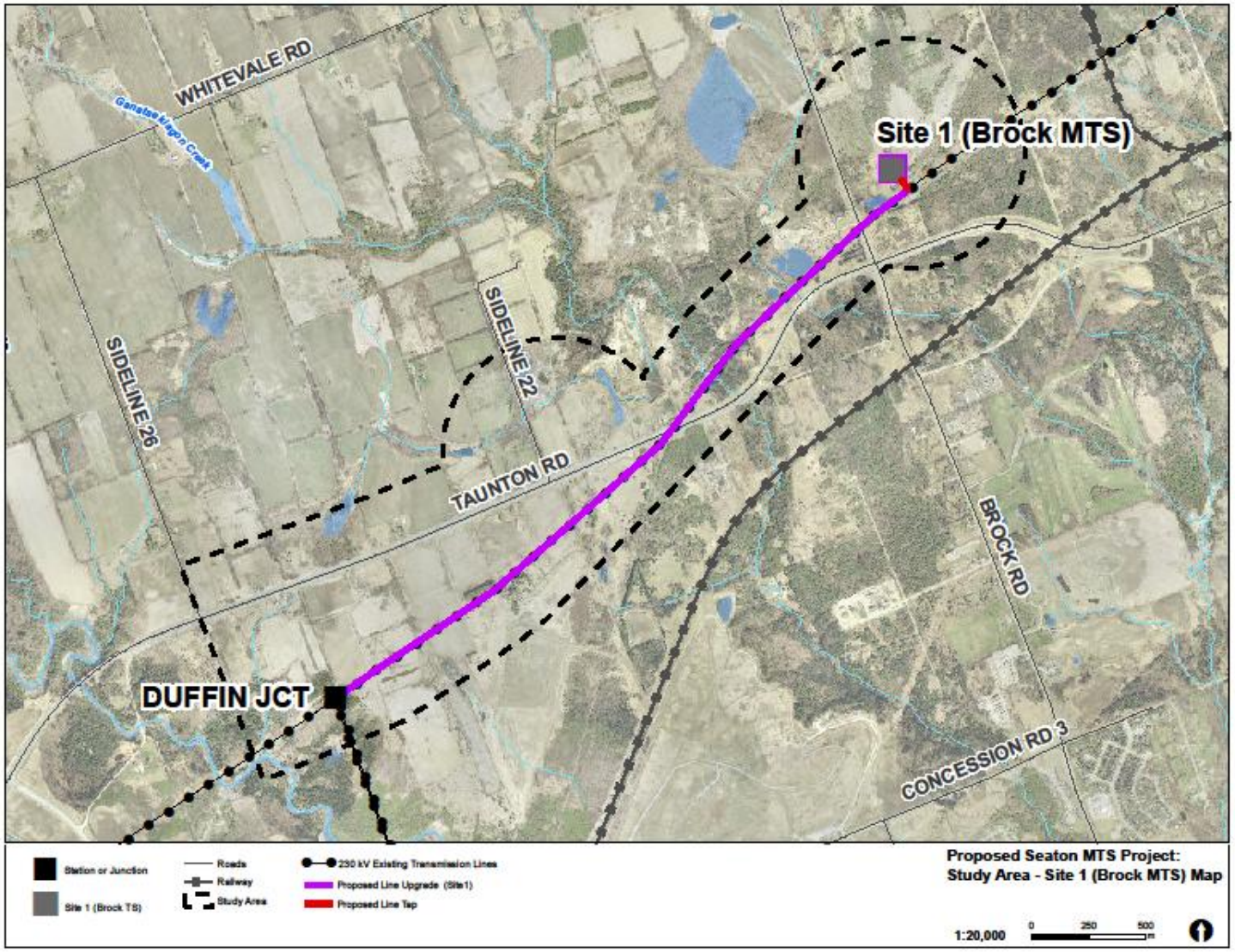

Figure 2-1: Study Area (Site #1)

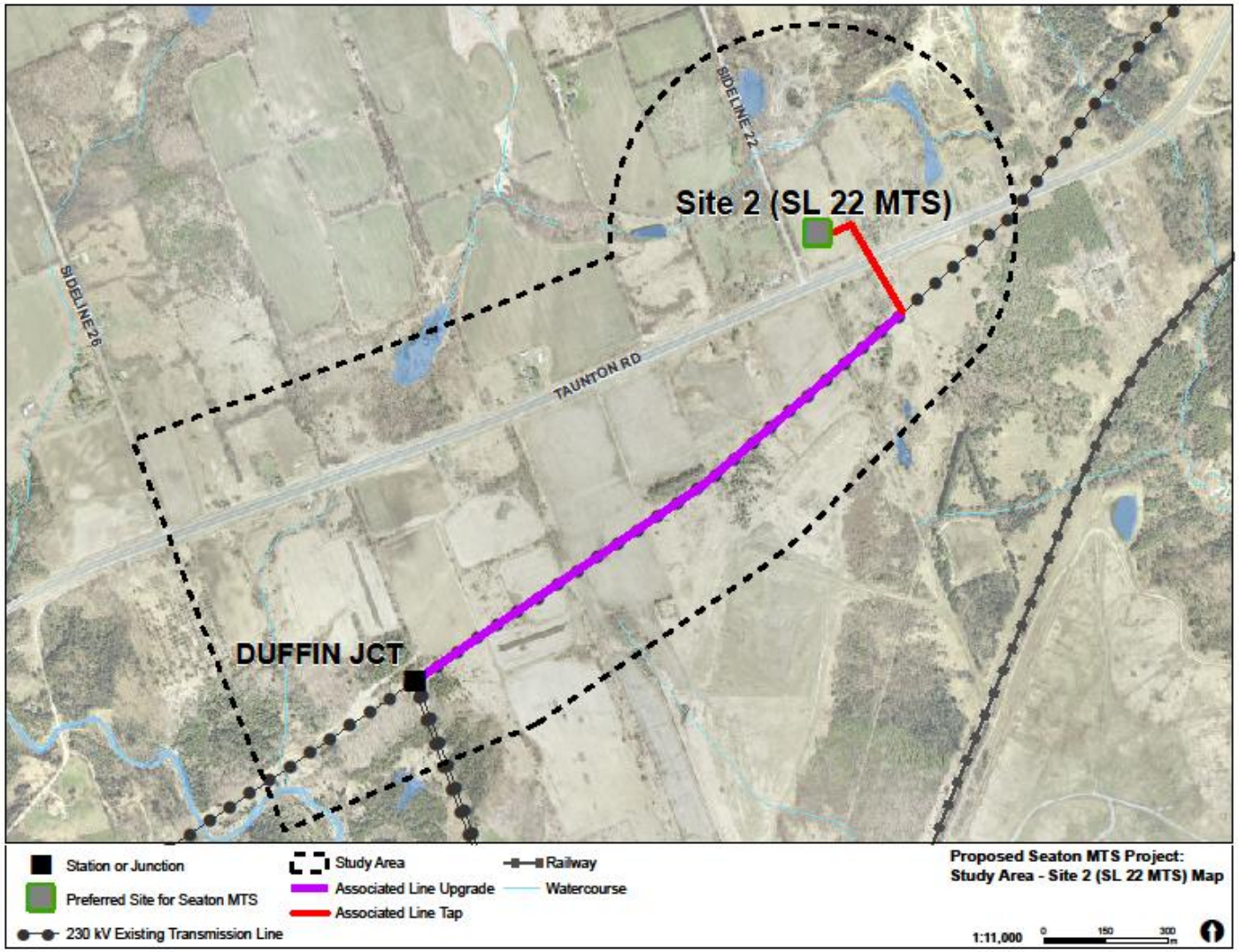

Figure 2-2: Study Area (Site #2)

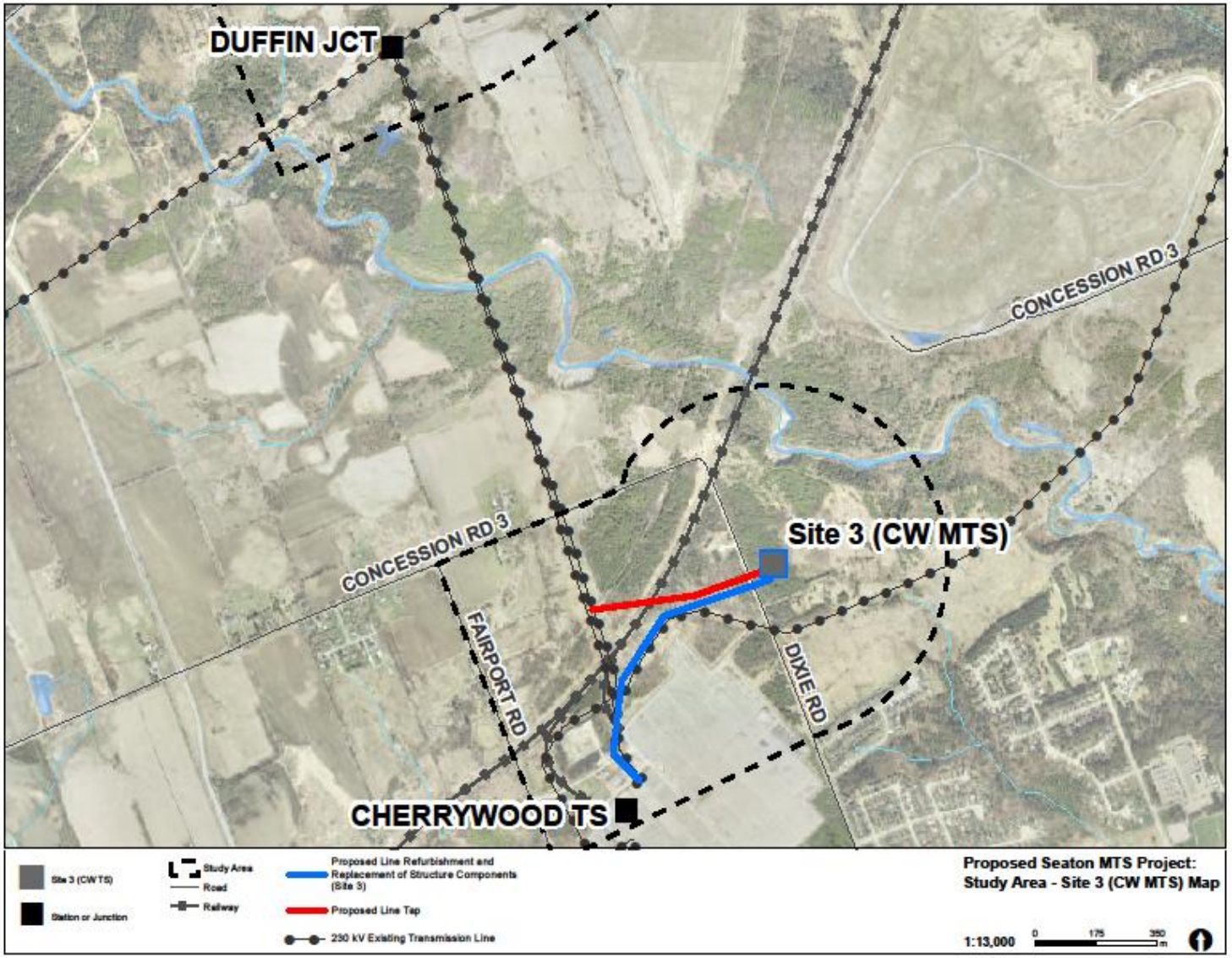

Figure 2-3: Study Area (Site #3)

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2.2. Initial Notification

2.1.1 Veridian Initiated Notification

Veridian formally began the notification process for the stations component of the Project in June 2015. Based on past project experience in the Greater Toronto Area, a contact list of potentially interested First Nations and Métis communities was developed by Veridian. These communities were notified of the proposed Project in June 2015. Initial contact to government officials and agencies, potentially affected and interested persons, and interest groups was made by Veridian in June 2015 through the Notice of Commencement, which was distributed via email, postal mail, and newspaper advertisements. Stakeholders were invited to attend the PIC (herein referred to as PIC #1a) held for on August, 4, 2015 in Ajax at the Veridian Connections Office.

Stakeholders were notified of the need for the proposed Project and study area, and were asked to provide comments. Each ministry, department or agency was asked to provide comments with respect to potential concerns relating to their respective policies, mandates and/ or jurisdictions.

Section 4 provides additional information on the consultation activities undertaken for the proposed project and Appendix A provides consultation related documents.

2.1.2 Verdian and Hydro One as Co-Proponents Initial Notification

The potentially affected First Nations communities were updated and notified of the Project on September 26 and 27, 2016. Initial contact on a broader level was made to one federal agency (Transport Canada), municipal and provincial government, agencies, potentially affected and interested persons, and interest groups in October, 2016 through the Notice of Commencement and invitation to the first joint (Veridian and Hydro One) Public Information Centre (PIC #1b).

Stakeholders were notified of the need for the proposed Project, the revised scope, and the study area; and were invited to attend the PIC (herein referred to as PIC #1b) held for the proposed

Project on November 2, 2016 in Ajax at the Veridian Connections Office. PIC #1b presented the following:

- Information about the proposed Project;
- The revised scope of the proposed Project;
- The study area for the Project;
- The three alternative transformer station sites and the associated transmission line connection identified for each site;
- The anticipated project timelines; and
- Approval process.

Refer to Section 4 for additional information on the consultation activities undertaken for the proposed Project and Appendix A for consultation related documents. The Project's Contact Lists are provided in Appendix A-1.

2.3 Environmental Inventory

The Class EA process (Hydro One, 1992) requires that environmental information is collected, summarized, mapped, and assessed for the following environmental factors:

- Agricultural Resources
- Forestry Resources
- Cultural Heritage Resources
- Human Settlements
- Mineral Resources
- Natural Environment Resources
- Recreational Resources

- Visual and Aesthetic Resources

Information pertaining to each of these factors and resources found in the study area was obtained from literature review, archaeological assessments, databases, mapping, consultation, and field surveys. The environmental baseline conditions are summarized in Section 3 of this ESR. Site-specific information was considered in evaluating the alternatives (Section 5.2) and for identifying and assessing the potential environmental effects of the proposed Project (Section 7).

2.4 Identification and Evaluation of Alternative Methods

The Class EA process requires identification and evaluation of alternative methods of carrying out the undertaking. Alternative methods of carrying out the undertaking are distinct from alternatives to the undertaking. Alternatives to the undertaking are functionally different approaches to satisfying the need for the undertaking and are presented in Section 1.4.

Alternative methods refer to different means of carrying out the same task to achieve the purpose of the undertaking (e.g. different routes, sites). Potential alternative methods are identified based on presence of environmental features, technical and cost factors, input received during the consultation process, and following the recommendations of the Provincial Policy Statement (PPS). Following the identification of alternative methods for the undertaking, evaluation criteria are established, and the evaluation and selection of a preferred alternative method occurs. Section 5 describes this process in detail.

Veridian and Hydro One considered three alternative methods to address the need for the Project. Each alternative method involves a site option considered for the new MTS and associated transmission line option to connect the new station to Hydro One's system.

The following summarises the three alternative methods:

- Site #1 (Brock MTS): The first option was to construct a station at the northeast corner of Taunton Road West and Brock Road and upgrade more than 2 km of Hydro One's 230 kV transmission line.

- Site #2 (SL22 MTS): The second option was to construct a station at the northeast corner of Taunton Road West and Sideline 22 and upgrade less than 2 km of Hydro One's 230 kV transmission line.
- Site #3 (CW MTS): The third option was to construct a station at southeast corner of Concession 6 and Dixie Road and upgrade around 1km of Hydro One's 230 kV transmission line.

Based on the site and route evaluation completed by Veridian and Hydro One, which incorporated feedback gathered through consultation completed for the proposed Project to date (see Section 4), the preferred site and route option for the proposed Project is Site #2, (SL 22 TS) and the associated 230 kV line upgrade.

2.5 Draft Environmental Study Report and Final Notification

This draft ESR describes and documents the Class EA process undertaken for the planning of the proposed Project. The information contained within this ESR consists of the following:

a. Name and description of the proposed Project (Section 1);

b. A description of the need for the proposed Project (Section 1.1);

c. A description of the alternatives to the undertaking and the preferred alternative (Section 1.4);

d. A description of a study area for the proposed Project and the existing environment (Section 2.1 and Section 3);

e. A description of the potential environmental effects (positive and negative) (Section 7);

f. A description of the alternative methods considered for the Project (Section 5.1);

g. A description of the preferred alternative (Section 5.2);

h. A description of the consultation that was undertaken (Section 4)

i. A description of other applicable permits and approvals required for the proposed Project (Section 1.5.3);

j. A description of mitigation measures and predicted net effects (Section 7); and

k. A description of any required environmental monitoring (Section 8).

Upon completion of the draft ESR, a Final Notification (i.e. Notice of Completion) is to be distributed to inform municipal, provincial, federal government officials, government agencies, First Nations communities, potentially affected and interested persons that the report is complete and the review period is commencing. Details of the Final Notification and the draft ESR review period can be found in Section 4.7 and Section 4.8.

Issues and concerns received by Veridian and Hydro One during the review period will be recognized, considered, addressed and documented. The final ESR will be prepared for the proposed Project in accordance with the Class EA process. Upon completion of the Class EA process, the final ESR will be filed with the MOECC. Copies of the report will also be forwarded to any organization or individual upon request.

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3. Environmental Features in the Study Area

As described in the Class EA process, information was collected for the factors listed below:

- Agricultural Resources
- Forestry Resources
- Cultural Heritage Resources (i.e., built heritage resources, cultural heritage landscapes and archaeological resources)
- Human Settlements
- Mineral Resources
- Natural Environment Resources (e.g., air, land, water, wildlife, etc.)
- Recreational Resources
- Visual and Aesthetic Resources (i.e., appearance of the landscape)

The following sections summarize the environmental baseline conditions in the proposed Project study area. Information for the factors was based on literature review, reports commissioned by Veridian and Hydro One, databases, mapping, consultation and field surveys. Figure 3-1 presents known environmental features within the study area.

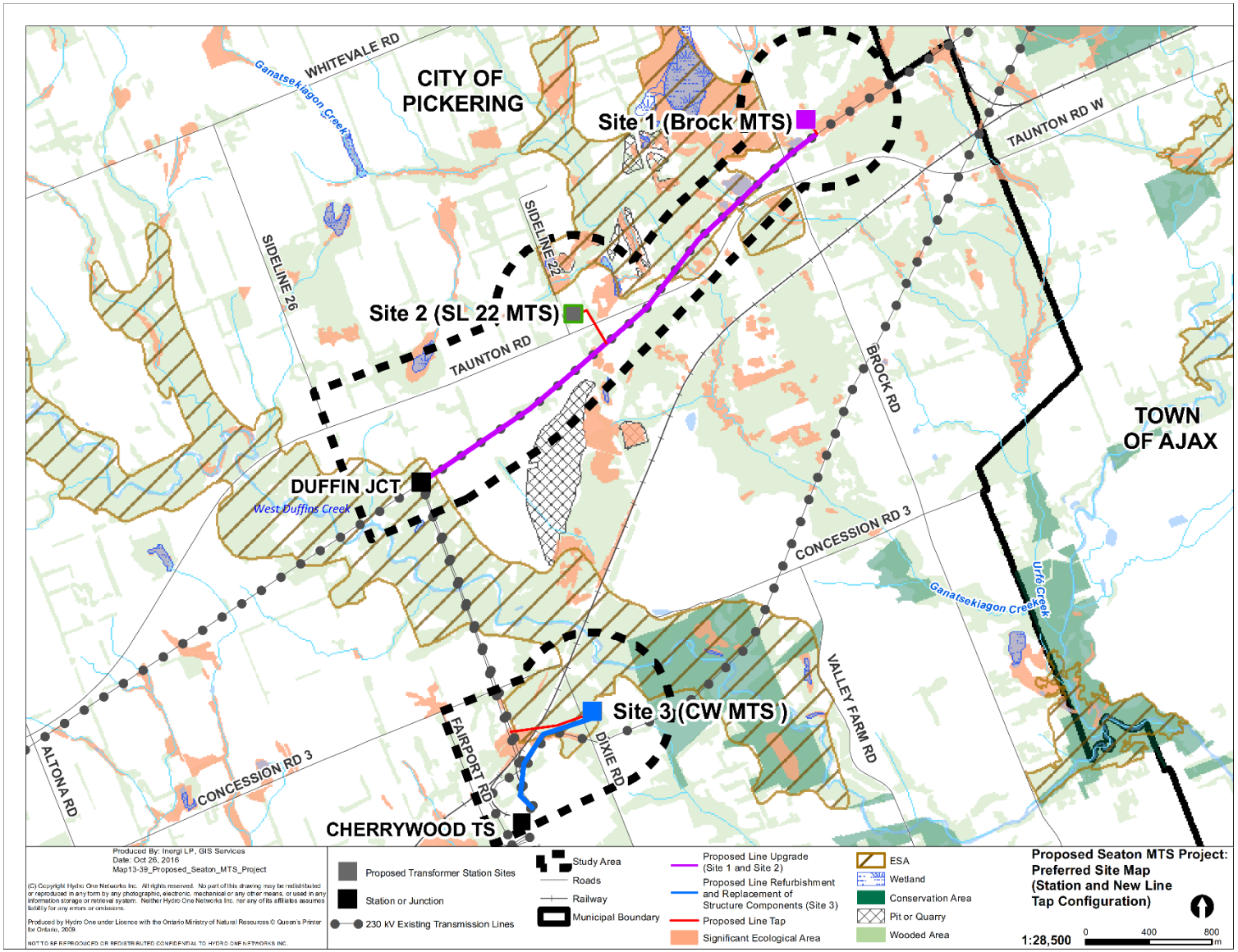


Figure 3-1: Key Environmental Features Map

3.1 Agricultural Resources

Canada Land Inventory (CLI) mapping illustrates soil capability for agriculture, categorized by soil classes according the Soil Capability Classification of Agriculture (Agriculture and Agri-Food Canada [AAFC], 2016). Soil classes are based on characteristics of the soil as determined by soil surveys, and are used to rate agricultural land capability. Class 1 lands have the highest and Class 7 lands the lowest capability to support agriculture.

The general study area is primarily composed of Class 2 lands (moderate limitations that restrict the range of crops or require moderate conservation practices), with areas of Class 1 lands (no significant limitations for crops) near Site #3 (Agriculture and Agri-Food Canada. 1998).

A portion of the study area south-west of West Duffins Creek is located in the Duffins Rouge Agricultural Preserve. The Duffins Rouge Agricultural Preserve was created by provincial legislation to protect agricultural uses in the area (Government of Ontario, 2005).

3.2 Forestry Resources

Based on a review of the Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) database, no Forestry Management Units, Agreement Forest Areas, Forest Cover Units, Forest Resource Inventory Areas, or Wood Use Areas Forest Resources (as identified through the MNRF Forest Resource Inventory) overlap the study area (MNRF, 2016b). Site reconnaissance indicates that portions of the study area near Site #3 may include marketable forestry resources suitable for saw logs or firewood.

3.3 Cultural Heritage Resources

A licensed archaeologist from WSP Canada Inc. was retained by Veridian and Hydro One to conduct a Stage 1 Archaeological Assessment at the three potential station sites in accordance with the MTCS's *Standards and Guidelines for Consultant Archaeologists* (2011). This study involved a review of

documents pertaining to the proposed alternative sites, including historical research, aerial photographs and local histories. Additionally, a property inspection of the three alternative sites was carried out on September 28, 2015. The results of the Stage 1 Archaeological Assessment were provided to the MTCS and entered into the Ontario Public Register of Archaeological Reports. Based on the findings of the Stage 1 Archaeological Assessment (WSP Canada Inc., 2015 Appendix B-1), it was determined that all three sites within the Project study area contain lands with archaeological potential. Additinally, segments of the transmission line ugrade also contained lands with archaeological potential.

A Stage 2 Archaeological Assessment was initiated based on the recommendations of the Stage 1 report. The Stage 2 survey provides an overview of archaeological resources on the properties and a determination of whether any of the resources may be artifacts and archaeological sites with cultural heritage value or interest. The Stage 2 field surveys were completed in September 2017 and completed in accordance with in accordance with the MTCS's *Standards and Guidelines for Consultant Archaeologists* (2011). The field survey consisted of using two investigative methods. In areas that had not been recently cultivated for agriculture (i.e. forested edges on the preferred site, along the transmission line corridor and along the tap line connection) test pits were dug in prallel rows, down to sterile subsoil at regular intervals. The excavated soil was sifted for artifacts. In areas that had been recently under agricultural cultivation (i.e. the main preferred substation site), a pedestrian survey was conducted after preparing the field with a moldboard plough and allowing the site to weather per the Standards and Guidelines. During the field survey, WSP's archeology team was accompanied by a site monitor from the Huron-Wendat First Nation.

The Stage 2 field survey revealed a number of pottery fragments from the test pit units along the southern edge of the preferred site in the forested area, extending into the ploughed field. Additionally, the pedestrian survey revealed artifacts related to tool building in the north eastern part of the preferred site. Test pit units in the line tap connection area close to Taunton Road revealed additional pottery fragments. All of the artifacts collected were indigenous in nature. During the field

survey as artifacts were recovered, WSP notified the Mississaugas of Scucog Island First Nation and Curve Lake First Nation of the finds, per their request.

At the time of writing, the Stage 2 report has not been completed or submitted to the MTCS for review. However, the presence of indigenous artifacts is an indicator that Stage 3 Archaeological Assessment is required prior to development and disturbance of the site for the Project.

In addition to the Stage 1 Archaeological Assessment, a screening for impacts to built heritage and cultural heritage landscapes identified one built heritage resource within the Project study area (the Woodruff-Mackenzie House). This heritage property is located in the northwest corner of Site #1 and consists of a cut stone single dwelling residence. This residence was designated in 2002. No other built heritage resources are located in, or adjacent to Sites 2 and 3. No cultural heritage landscapes were identified (Appendix B-2).

3.4 Human Settlements

3.4.1 Population and Demographics

The City of Pickering had a population of 89,900 in 2016 (City of Pickering, 2017). It is expected to experience a significant increase in population in the near term (2016 to 2020) from 89,900 to 110,500 persons, with growth in the longer term (2033) forecasted to 165,400 persons (City of Pickering, 2014).

The most significant growth will be experienced between 2016 and 2020 due to the commencement of development in the Seaton Lands, an area of land which was defined by the Central Pickering Development Plan (CPDP), and discussed in greater detail in Section 3.4.3. It is estimated that 78% of the City of Pickering's population growth from 2016 to 2032 will be accounted for in the Seaton Lands (City of Pickering, 2014).

The City of Pickering is expected to experience a significant increase in new residential units in the near term (2017 to 2021) from 30,700 to 41,100 units, with growth in the longer term (2036)

forecasted to 60,700 units. Development of new residential units will increase significantly in the 15 year period from 2017 to 2031 with 35 percent growth for the 2016 to 2021 period, 23 percent growth for the 2022 to 2026 period, and 25 percent growth for the 2027 to 2031 period (City of Pickering, 2014).

The growth in residential units reflects the anticipated development between 2017 and 2036 primarily in the greenfield areas of the Seaton Lands, and Duffin Heights, as well as the intensification of the City Centre. The Seaton Lands will account for the greatest proportion of the City of Pickering's growth in residential units in the period of 2017 to 2036 at 67 percent (City of Pickering, 2017).

3.4.2 First Nations Lands and Territory

There are no First Nations Reserve Lands located in the study area (Indigenous and Northern Affairs Canada, 2016). The study area is contained within the boundaries of the Johnson and Butler Williams Treaty of 1923 (Surtees, 1986) (Ministry of Aboriginal Affairs, 2014).

The Ministry of Energy indicated that the following First Nations communities may have an interest in the Project:

- Alderville First Nation
- Huron Wendat First Nation
- Kawartha Nishnawbe First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation

3.4.3 Land Use Planning

The Seaton Community contains lands north of the Canadian Pacific Railway (CPR) rail line within the City of Pickering and Regional Municipality of Durham (Government of Ontario, 2006). In the early 1970s, the Seaton Community was a portion of lands newly purchased and expropriated by the

provincial government. These lands were north of the then existing Town of Pickering and hence were called, collectively, the North Pickering Planning Area. The Province's plans to build a new city and the Federal government's plans for a new international airport in Seaton failed to come to fruition in the 1980s (Government of Ontario, 2006). However, by the 1990s, public consultation by the Province and reporting yielded new promise for the Seaton Community to be realized. To investigate this, the Province created the Seaton Advisory Committee in 1993 (which included representatives from both the City of Pickering, and Region of Durham, commercial developers, local community and interest groups) to report on the feasibility of building this new community (City of Pickering, 2010). The Advisory Committee's report greatly supported the idea of building further infrastructure in the Seaton Community (City of Pickering, 2010).

In 1995, the Province, Region of Durham and City of Pickering started a coordinated community planning exercise for the Seaton Community which resulted in the selection of a design for the proposed development area. In 1999, the Ontario Realty Corporation sold some portions of agricultural lands west of the West Duffins Creek to original landowners and tenant farmers, on the condition of using it for agriculture in perpetuity. The Minister of Municipal Affairs and Housing would later in 2003 place a Minister's Zoning Order on these newly sold lands, resulting in the creation of the Duffins Rouge Agricultural Reserve (Government of Ontario, 2006). The remaining lands in the development area were termed Seaton Lands and together with the Duffins Rouge Agricultural Reserve constituted the Central Pickering Lands in the context of the CPDP (Government of Ontario, 2006). For the purpose of this report, the Central Pickering Lands, Seaton Lands, and the North Pickering Planning Area will be referred to as: Seaton Community.

The Central Pickering Development Plan (CPDP) was developed by the Province to promote the sustainable urban development of the Seaton Community with a "thriving agricultural community in the Duffins Rouge Agricultural Preserve, and an extensive Natural Heritage System Area" (Government of Ontario, 2006). Common objectives for this area were identified in both the Durham Region and City of Pickering Official Plan. The CPDP is also intended to compliment the Province's Greenbelt Plan and the Proposed Growth Plan for the Greater Golden Horseshoe.

The totality of the broad local study area for this Project is located within the Seaton Community, which was delineated by an order under the *Ontario Planning and Development Act (1994)*, signed by the Minister of Municipal Affairs and Housing in 2003, and amended in 2004 to exclude Duffins Heights (Government of Ontario, 2006).

Land use is represented on Schedule 2 of the Central Pickering Development Plan (Government of Ontario, 2006). The lands to the west of West Duffins Creek are agricultural preserve and natural heritage. Currently, the hamlets of Green River, Whitevale and Cherrywood are situated within the Seaton Community.

Natural Heritage System Areas (NHS) are "systems of natural core areas and key natural corridors or linkages, such as rivers and valleys, with significant ecological value or use in land use planning" (MNR, 2010). NHS areas accounts for approximately 53% of the Seaton Lands and 54% of the total Seaton Community area and includes the following features:

- All wetlands;
- All significant woodlands;
- All streams/watercourses;
- Lake Iroquois shoreline;
- All valley systems to stable top-of-bank;
- All Environmentally Significant Areas;
- All locations of species at risk;
- Groundwater seepage/discharge areas;
- Linkage corridors; and,
- Buffer zones.

With respect to improvements in infrastructure as it relates to the NHS, the Central Pickering Development Plan permits electrical transmission infrastructure and associated facilities on lands within the Natural Heritage System. The CPDP also permits public utility corridors in agricultural lands as long as their purpose is to serve the Seaton Community. Our proposed undertaking will satisfy these CPDP conditions.

Prestige employment lands are located along the Highway 407 transport corridor. The remaining non-Natural Heritage System lands (low to high density areas, mixed corridors, local and community nodes, etc.) are located along existing and proposed transport corridors. Land use has been zoned to promote sustainable urban development.

3.4.4 Buildings and Built-Up Areas

There are few buildings located within the study area.

- Site #1: As noted previously in Section 3.3, a designated historic building is located on the Site. Additionally, there are industrial buildings associated with an aggregate operation immediately to the west of the Site, across Brock road. There are no other built-up areas near this part of the study area.
- Site #2. There are farm buildings on the west side of Sideline 22. There are no other existing built-up areas near this part of the study area.
- Site #3. There are no buildings in this part of the study area, however there is a built up area approximately 275 m south of Site #3, on the south side of the existing transmission corridor consisting of a residential area that includes Gossamer Drive and Pine Glen Drive.

Except for Site #1, no buildings fall within the proposed Project sites or routes for the proposed Project. The designated heritage property at Site #1 will be treated as a cultural resource rather than that of a built-up area for the purposes of the evaluation in Section 5. Consequently, there is no potential for the proposed Project to affect buildings. Buildings and built up areas are not discussed further and are not carried through for assessment.

3.4.5 Services and Infrastructure

The City of Pickering is the eastern gateway to the GTA, located where the City of Toronto, York and Durham Regions meet. The city is served by four major roads (Highway 401, Highway 407 ETR, Highway 2/Kingston Road and Highway 7); and also by the Pearson International Airport, the Oshawa Municipal Airport, and the Buttonville Airport located in Markham. Rail services include Canadian National Railway (CNR), Canadian Pacific Railway (CPR), and Metrolinx's GO Transit.

The study area is rural and ex-urban in nature. This area includes a combination of arterial, collector and farm access roads. Due to the rural nature of the study area, the roadways do not include sidewalks, and public transit is not available. Roadways transected by the proposed Project that have the potential to be affected include (but are not limited to) Taunton Road, Brock Road, Dixie Road and Sideline 22.

An oil pipeline is present in the study area, and runs roughly in parallel to Hydro One's Circuit C28C 230 kV transmission corridor.

A CPR freight track crosses the study area just north of Site #3, travelling in a roughly east-west direction.

3.4.6 Labour Market and Economy

The economy of the City of Pickering is broadly based in commerce, industry, advanced manufacturing and information and communication technology (City of Pickering, 2017). Approximately one-third of the 47,000 workforce is employed in retail, finance and insurance, or health care and social assistance. The top three occupations are administrative and financial, specialized middle management, and office support (Statistics Canada, 2011)

Approximately 3.8 million people reside within 50km of the City of Pickering. Of the City of Pickering's residents, 46% of aged 24-64 years have post-secondary degree or diploma (City of Pickering, 2017). With the release of the Central Pickering Development Plan in May 2006, the Province established a final plan for the Seaton Community. In the plan, lands along both sides of the Highway 407 corridor are designated for Prestige Employment uses. According to the Plan, Seaton is to accommodate total employment of 35,000 and is planned to be a showcase for a compact, sustainable urban community.

The designated Seaton employment lands are located on both sides of the 7 km Highway 407 corridor in Pickering from the hamlet of Green River at the western boundary, to Brock Road to the east. These employment lands are outside of the study area.

3.4.1 Known or Potentially Contaminated Sites

Historically, the study area is primarily agricultural in nature. No known current or historical waste disposal sites, contaminated sites, or underground storage tanks exist in the study area

The following resources were used to assess the potential for contaminated sites in the Study Area:

- Small Landfill Site database (MOECC, 2014a). Closed or operating landfills may indicate areas of potential contamination concern.
    - The closed Brock West Landfill Site owned by the City of Toronto is located across West Duffin's Creek, approximately 600 m northeast of Site #3.
- Large Landfill Site database (MOECC, 2014b).
    - No results
- Ministry of Energy, Environment and Climate Change (2017) Map: large landfill sites
    - No results
- Waste disposal site inventory (Ministry of the Environment, 1991)
    - No results
- Access Environment – environmental approvals and registrations (MOECC 2017). These registrations may indicate areas of potential contamination concern with respect to their activities.
    - EASR, water taking construction dewatering R-009-9110096284, Trans-Northern Pipelines Inc., approximately 100 m south of Site #1;
    - ECA, Air 0557-4LNRW5, Surplus Refrigeration Limited, 1469 Taunton Road West, approximately 800 m south west of Site #1 and 900 m east of Site #2;
    - ECA, Municipal and Private Sewage Works, 8742-9YWLQX, Cougs (Thickson Ltd.), approximately 700 m west of Site #1, and 1.3 km north east of Site #2;
    - EASR, water taking construction dewatering R-009-8676403476, North Pickering Community Management Inc., approximately 800 m west of Site #2; and 400 m north of the existing Hydro One transmission line corridor;
    - ECA, industrial sewage works, Hydro One Networks Inc. 0891-8KTHMK, 2275 Fairport Road, approximately 800 m west of Site #3;

  - ECA, industrial sewage works, Hydro One Networks Inc., 8315-8JSKAN (revoked/replaced);
  - ECA, industrial sewage works, Hydro One Networks Inc., 9712-6JETRT (revoked/replaced);
  - ECA, air, Hydro One Networks Inc., 9967-7FVN96 (revoked/replaced);
  - ECA, air, Hydro One Networks Inc., 3094-7F3HNS (revoked/replaced);
  - ECA, air, Hydro One Networks Inc,, 3288-7KNJDU (revoked/replaced);
  - ECA, air, the Regional Municipality of York, 4433-86HJQK, 827 m south west of Site #3.
- Records of Site Condition filed between October 1, 2004 and June 30, 2011 were searched from the MOECC Environmental Site Registry "Records of site condition and transition notices" at https://www.lrcsde.lrc.gov.on.ca/besrWebPublic/generalSearch.
  - No Records of Site Condition were noted in the Study Area.
- Records of Site Condition filed since July 11, 2001 were searched from the MOECC Environmental Site Registry "Search Records of Site Condition" at https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/searchFiledRsc_search
  - Record of Site Condition 208508 for 1755 Old Taunton Road, approximately 800 m south of Site #2. There were no contaminants of concern associated with the property.
- Federal contaminated sites inventory (Treasury Board Secretariat, undated)
  - No Results.

A Phase One Environmental Site Assessment (P1ESA) will be completed for the preferred substation site. The purpose of a P1ESA is to determine the likelihood that contaminants are present on, in, or under the property.

3.5 Mineral Resources

No abandoned mines, pits, or quarries exist in the study area (Ministry of Northern Development and Mines [MNDM], 2014). The northeast portion of the study area overlays sand deposits greater than six metres thick. There is one operating aggregate pit immediately west of Site #1 (Ontario

Geological Survey, 2010), and two former pits south of Taunton Rd, approximately 2 km east of Brock Rd (Natural Resources Canada, 2016). There are no oil, gas or salt resources in the study area (Ontario Oil, Gas & Salt Resources Library 2017).

3.6 Natural Environment Resources

This section considers air, land, water and wildlife resources within the study area. The assessment is based on the requirements outlined in the Provincial Policy Statement *(*PPS; Ontario Ministry of Municipal Affairs and Housing (MMAH), 2014) and following the "Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement" (MNRF, 2010).

Baseline information on the physical and biological condition in the study area is discussed. These features include the following:

- physical environment;
- atmospheric environment;
- surface and groundwater resources;
- designated or special natural areas; and,
- natural heritage features;

3.6.1 Physical Environment

The study area lies in the Mixedwood Plains Ecozone, within the Lake Simcoe-Rideau Ecoregion (Ecoregion, 6E) (Crins et al. 2009). Ecoregions are defined as parts of an ecozone and are characterized by distinctive regional ecological factors including climate, flora, fauna, physiography, soil, water, and land usage.

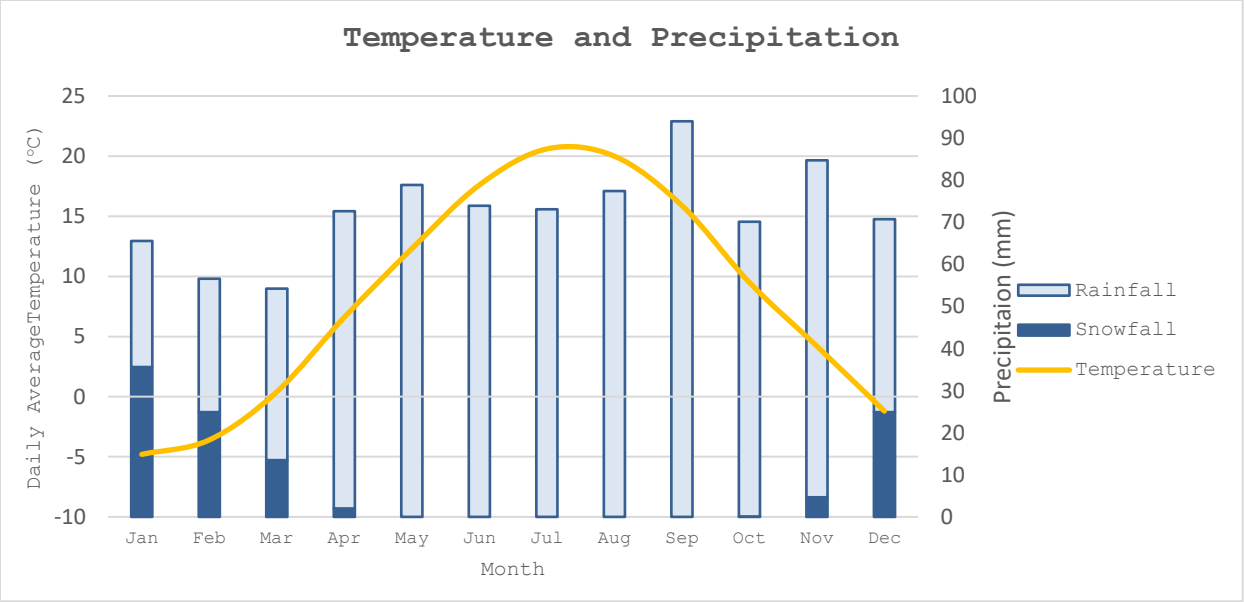
The underlying bedrock is dolomite and limestone of primarily Ordovician and Silurian ages. The bedrock surface is generally covered with ice-laid materials of varying thickness (Ontario Geological Survey, 2010). The land cover is predominantly cropland, pasture and abandoned fields. See Appendix B for more information.

3.6.2 Atmospheric Environment

Climate

The closest Environment Canada weather station to the study area is at Oshawa Airport (Oshawa WPCP). Historical data, available from 1981 to 2010, indicates that the regional climate of the study area is mild and moist, with a mean annual temperature range of -4.8 to 20.6 °C. Mean annual precipitation ranges from 54.2 to 94 mm (see Figure 3-2). The average length of the frost-free period is 168 days. Frozen ground conditions usually occur between early October and the end of April (Environment Canada, 2017).

Based on the Climate Normal data for 1981-2010 at the Toronto Buttonville A station, the closest station with data, prevailing wind direction in January is from the south west, changing to the west in February. Prevailing winds for the period of March – July are from the North West, switching to the north from August until December (Environment Canada, 2017).



Source: http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?stnID=4996&autofwd=1

Figure 3-2: Temperature and Precipitation at Oshawa Airport WPCP (1981-2010)

Noise

MOECC (2012) defines "Point of reception" (POR) as any location on a noise sensitive land use where noise from a stationary source is received. Noise sensitive land uses may have one or more points of reception. Receptors may be a mix of typical single storey, two storey units and multi-storey units.

Receptor heights for first and second storey PORs have been taken as 4.5 metres, representing the second storey window height. A second storey noise impact assessment is a conservative estimate because (i) the line of "sight" of noise sources, all being at a higher level than 4.5 metres is closer to the second storey residences and (ii) the noise ground absorption at 4.5 metres height would be less than at 1.5 metres, representing the first storey residences. There are no multi-storey apartment buildings, in the study area so no receptor has been taken for them.

Four representative receptors on all four directions have been taken on the circumference of a 300 metre radius circle of each site as depicted. Since these represented PORs are expected to be closer to the transformer locations than actual PORs, if it is established that noise compliance is achieved at them, it would mean that the noise compliance can be easily achieved at the actual farther PORs.

3.6.3 Surface Water Resources

The study area is located in the Duffins Creek Watershed. Duffins Creek drains an area of 283 square kilometres. Duffins Creek is in the eastern part of Toronto and Region Conservation's (TRCA) jurisdiction. While a major part of the watershed is in the Regional Municipality of Durham, smaller portions fall within the Regional Municipality of York. From its headwaters to Lake Ontario, this watercourse links the communities of Whitchurch-Stouffville, Markham, Uxbridge, Pickering, and Ajax. Duffins Creek has a number of significant tributaries including Reesor Creek, Stouffville Creek, Wixon Creek, Whitevale Creek, Major Creek, Mitchell Creek, Urfe Creek, Brougham Creek, Ganatsekiagon Creek, and Millers Creek (TRCA 2003).

The headwaters of Duffins Creek rise on the Oak Ridges Moraine. Here, cold-water streams support a diverse aquatic community and large areas of forest, meadow, and wetlands provide high quality

terrestrial habitats. From the Oak Ridges Moraine, Duffins Creek winds its way across the Halton Till Plain, the Lake Iroquois Shoreline, and the Lake Iroquois Plain (TRCA 2003).

The middle reaches of the watershed tend to be rural in nature and are characterized by well-defined valley lands. From Taunton Road south to the Duffins Creek Marsh and Lake Ontario, the southern reaches of the watershed are more urbanized, consisting of mixed uses and commercial corridors.

Potential interactions with surface water flow or water quality on or within 120 m of the sites are as follows:

- Site #1- A waterbody (pond) with associated aquatic habitat is located to the south of the site. The property is within TRCA regulated areas. The > 2km portion of the 230 kV transmission line corridor that will be upgraded for this alternative site option involves construction across two waterbodies (the Ganateskiagon Creek and Urfe Creek), at crossing points south-west of the proposed Site #1 MTS location. Urfe Creek approaches to 101 m from the west boundary of Site #1. The MNRF indicated that Urfe Creek is considered recovery habitat for Redside Dace (*Clinostomus elongatus*). The transmission line upgrade associated with Site #1 crosses) Urfé Creek and Ganateskiagon Creek (See Figure 3-3).
- Site #2- A waterbody (Ganateskiagon Creek) with associated aquatic habitat is located to the north of the site. Parts of the property are within TRCA regulated areas. Ganateskiagon Creek has been identified by MNRF as occupied habitat for Redside Dace. (Figure 3-4). No watercourses are crossed by the transmission upgrade associated with this site. However, small unevaluated wetlands may be present where the proposed line tap intersects the transmission corridor (Figure 3-2).
- Site #3- Duffin's Creek is located to the east of the site. Part of the property is located within TRCA regulated areas. No aquatic habitat was observed on the site, but it is within close proximity to Duffin's Creek. (Figure 3-5). The associated line tap crosses a small unnamed tributary which is presumed to be routed underground south of the study area. The line tap borders a small unevaluated wetland north of Cherrywood Transformer Station.

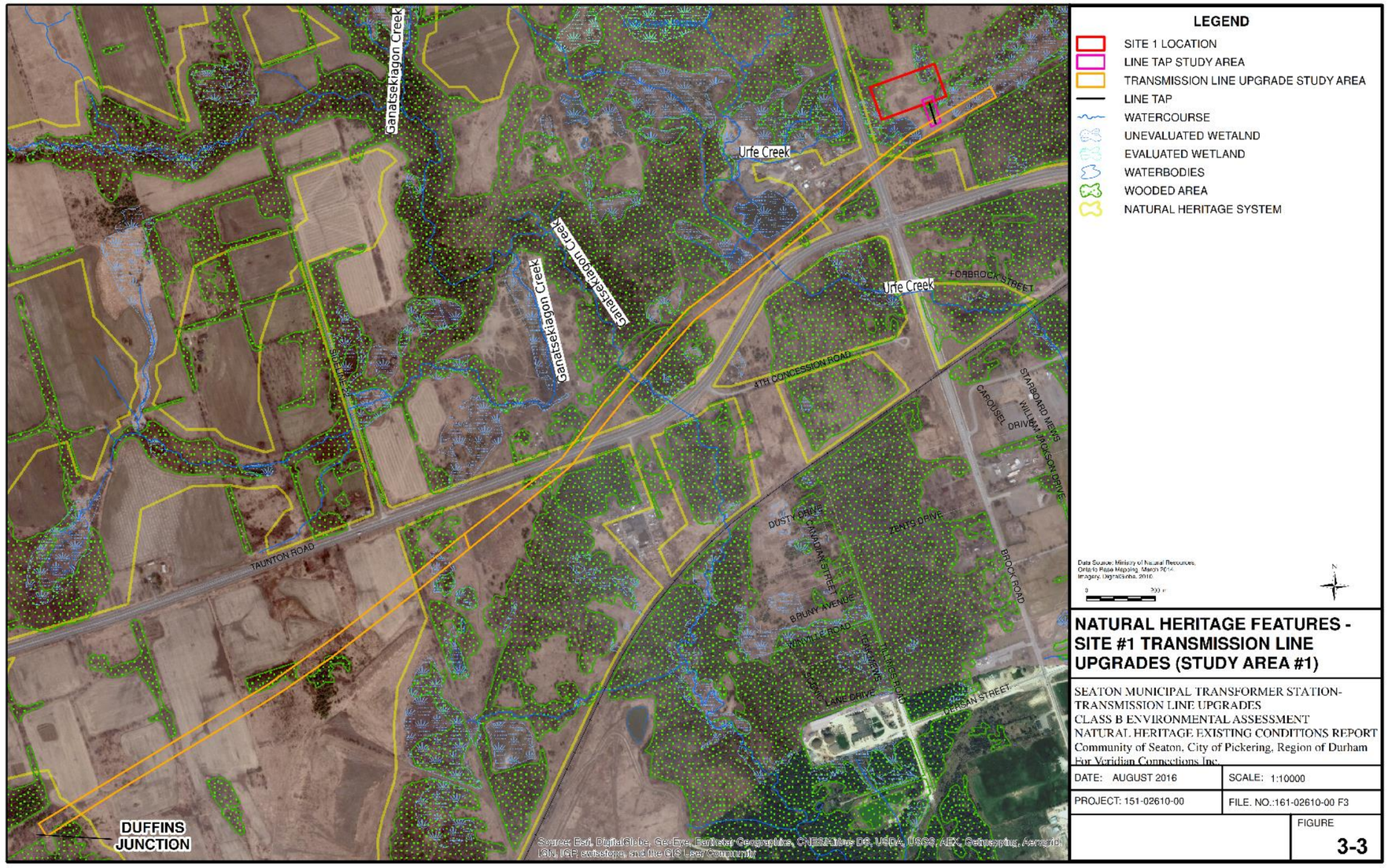


Figure 3-3: Site #1 Natural Heritage Features (Transmission Line Upgrade)

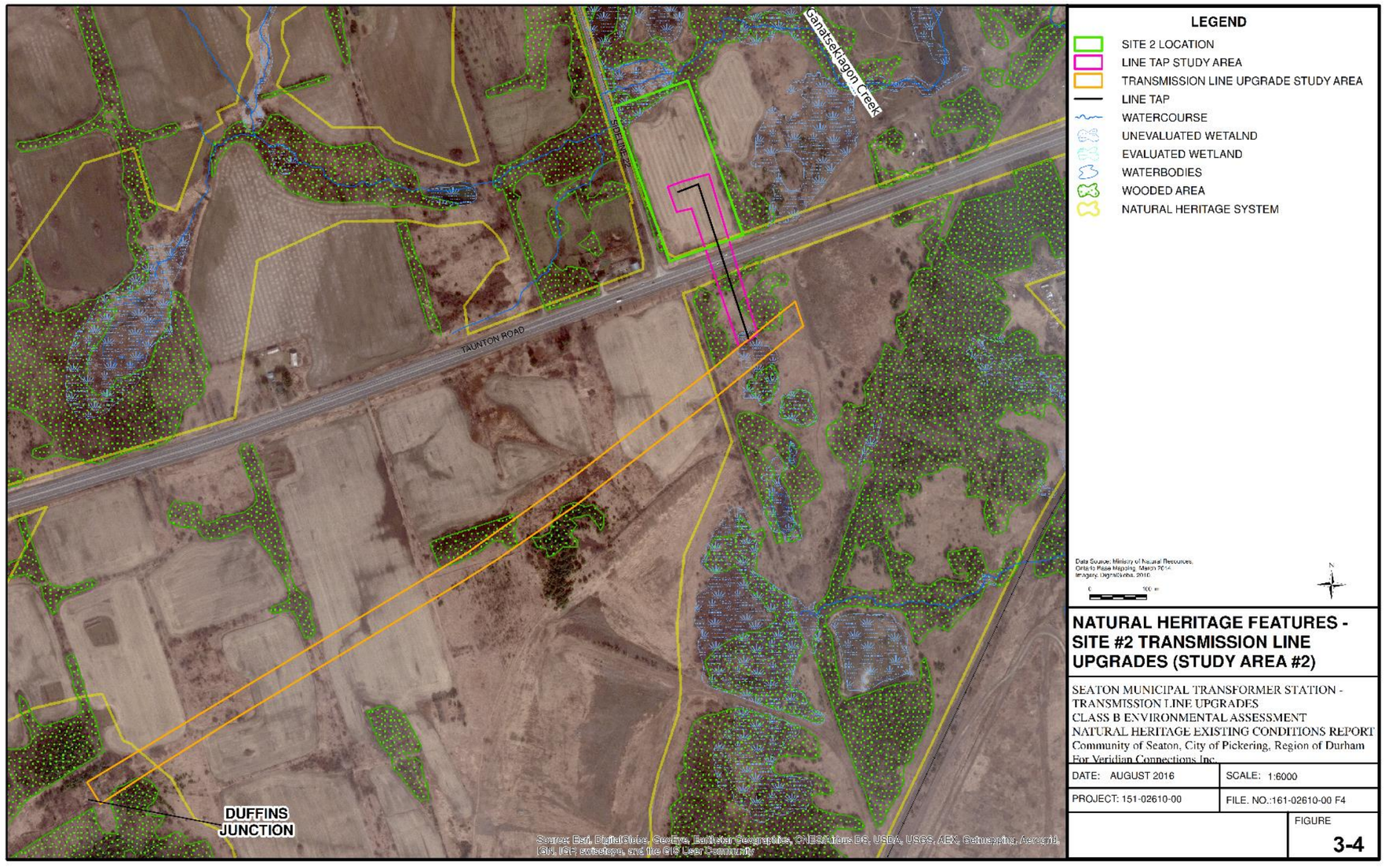


Figure 3-4: Site #2 Natural Heritage Features (Transmission Line Upgrade)

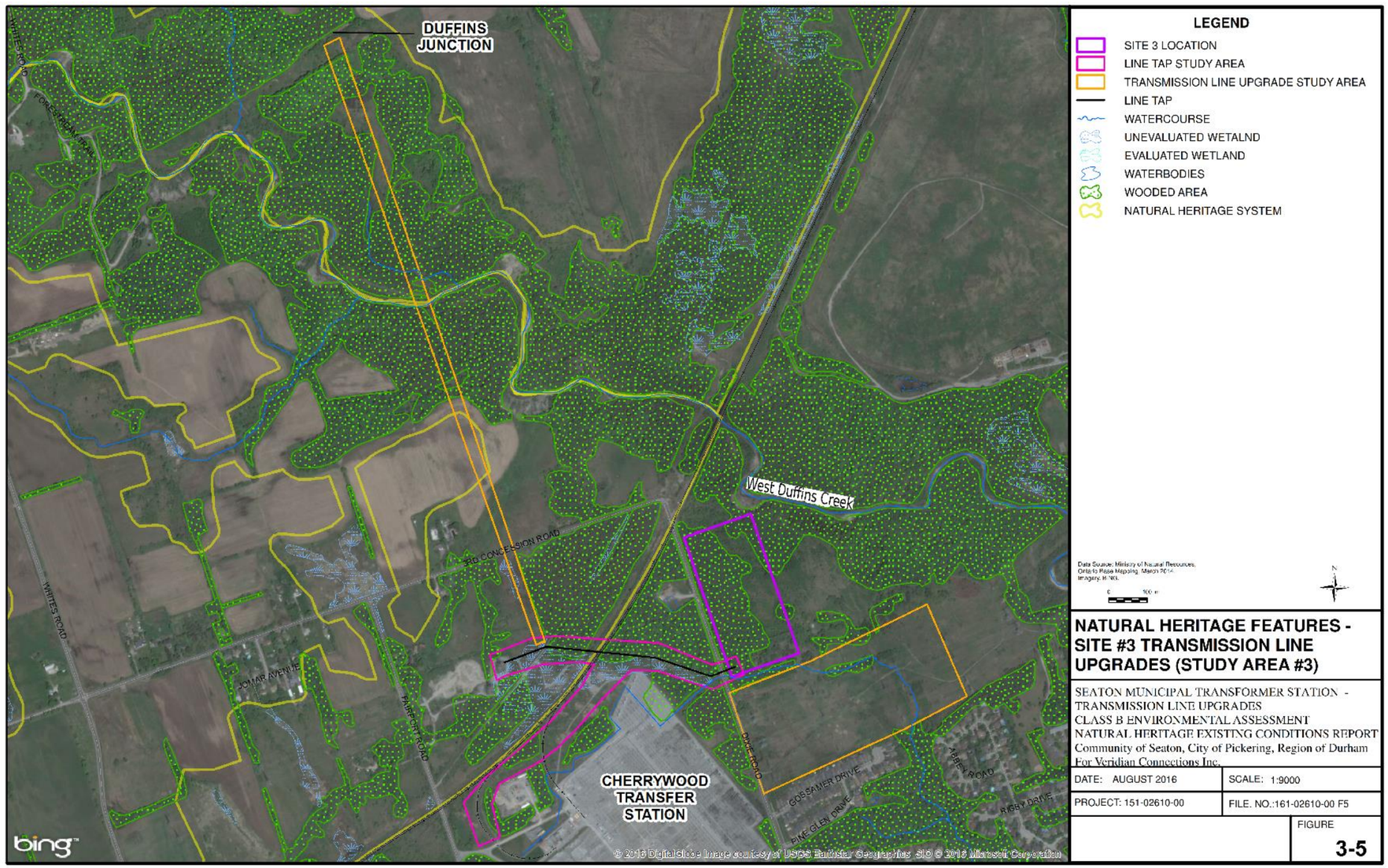


Figure 3-5 : Site #3 Natural Heritage Features (Transmission Line Upgrade)

3.6.4 Groundwater Resources

The study area is located within the Toronto and Region source protection area outlined in the approved source protection plan for the Credit Valley, Toronto and Region, and Central Lake Ontario source protection plan (CTC Source Protection Region, 2015). The plan documents areas that are vulnerable to drinking water threats. The study area is not located in an area with any identified threats, and therefore the policies within the Approved Source Protection Plan do not apply to the proposed Project.

A Highly Vulnerable Aquifer is an aquifer that is particularly susceptible to contamination because of its location near the ground's surface or where the types of materials in the ground around it are highly permeable. For example, clay is more impermeable and typically acts to protect the aquifer below it, compared to sand and fractured bedrock which are both highly permeable (CTC Source Protection Region, 2015). The TRCA provided information regarding highly vulnerable aquifers (HVA) in the study area. HVA were present at all three sites:

- Site #1: 64% of the site area is considered to be HVA;
- Site #2: 34% of the site is considered to be HVA;
- Site #3: 100% of the side is considered to be HVA.

Significant Groundwater Recharge Areas (SRGA) describes areas of the landscape that is characterized by porous soils, such as sand or gravel, which allows water to seep easily into the ground and flow to an aquifer. A recharge area is considered significant when it helps maintain the water level in an aquifer that supplies a community or private residence with drinking water (CTC Source Protection Region, 2015). Based on mapping from TRCA, SRGA were found underneath approximately 4% of the area of Site #3, but were not found at Site #1 or 2.

Intake Protection Zones (IPZ) are areas on the water and land surrounding a municipal surface water intake. While the plan does not indicate any IPZs located in Pickering or the Study Area (CTC Source Protection Region, 2015), TRCA mapping showed an intake location on Duffins Creek that intersects approximately 7% of Site #3. There were no IPZs located on Site #1 or Site #2.

3.6.5 Designated or Special Natural Areas

Designated or special natural areas are identified by federal or provincial agencies, municipalities, and the public, through legislation, policies, or approved management plans. These areas typically have special or unique values that result in conservation land initiatives. Such areas may have a variety of ecological, recreational, and aesthetic features and functions that are highly valued. Designated or Special Natural Areas may include: Provincial Plan Areas (ORMCP, Greenbelt, and Niagara Escarpment), Conservation Authority Areas and Environmentally Sensitive Areas, Important Bird Areas, parks or conservation reserves, communities under the Far North Act, 2010.

The northwest portion of the study area around site #3 is designated as Protected Countryside under the Greenbelt Plan. The designated area includes a CN Railway, transmission corridors, woodlot, and agricultural lands. Subject to Greenbelt Plan policies for Protected Countryside areas, infrastructure development receiving EA approval is permitted if it "serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt" (MMAH, 2017).

Areas of Natural and Scientific Interest (ANSI) are defined as areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education (MMAH, 2014). ANSIs can be ranked as Provincially or Regionally significant.

The MNRF Natural Heritage Areas Mapping (MNRF, 2015c) was searched for the presence of ANSIs within 120 m of the three transmission line upgrade study areas. No ANSIs were recorded within 120 m of the study areas.

As discussed in Sections 3.1 and 3.4.3, part of the study area surrounding site #3 is located within the Duffins Rouge Agricultural Preserve. The Duffins Rouge Agricultural Preserve is classified as a Natural Heritage System in the CPDP. Infrastructure where required to serve the new urban community is permissible within a Natural Heritage System.

As defined in the *PPS* (2014), natural heritage features and areas include "significant wetlands, significant coastal wetlands, fish habitat, significant woodlands south and east of the Canadian Shield, significant valleylands south and east of the Canadian Shield, significant habitat of

endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest", which are important for their environmental and social values as a legacy of the natural landscapes of an area. Furthermore, Section 2.1.8 of the *PPS* (2014) states that development and site alteration shall not be permitted on adjacent lands to natural heritage features "unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions."

The key natural heritage features that are defined in the *PPS* (2014) are considered below. For the purposes of characterizing natural heritage features that may potentially be affected by the proposed Project, a 120 m buffer around the three proposed sites was used to define the study area for natural heritage (Figures 2-2, 2-3, 2-4), referred to as the 'natural heritage study area', consistent with the requirements of the PPS (2014). Key natural heritage features were identified through a desktop review of the following databases, as well as data gathered during field surveys completed within the natural heritage study area (Table 3-1):

- Natural Heritage Information Centre (NHIC) database (NHIC, 2016);
- Atlas of Breeding Birds of Ontario (Cadman et al., 2007);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Ontario's Reptile and Amphibian Atlas (Ontario Nature, 2016);
- Land Information Ontario (LIO) (MNRF, 2016a – 2016i);
- Toronto and Region Conservation Authority (TRCA); and,
- Existing aerial imagery.

Two set of field surveys were completed. Field Survey 1 was limited to the station sites. Field survey details are presented in Table 3-1. Field Survey 2 site visits were conducted on June 28, June 29, July 8, and July 9, 2016 to complete breeding bird surveys and to screen for Species at Risk and their habitat with the potential to be within the study area (Table 3-2).

Table 3-1: Field Survey 1 Details

DATE	TIME/DURATION	WEATHER CONDITIONS	SITE #
September 23, 2015	2:30 pm to 4:45pm	Clear skies, ±26°C. Light air, no trace of precipitation.	1
September 23, 2015	10:45 am to 2:15pm	Clear skies, ±22°C, light air, no trace of precipitation	2
September 28, 2015	10:15 am to 1:30 pm	Cloudy skies, ±22°C, light air, light breeze, occasional light rain	3

Table 3-2: Field Survey 2 Details

DATE	TIME/DURATION	WEATHER CONDITIONS
June 28, 2016	5:49 AM to 10:33 AM	Partly cloudy skies, ±21°C, light air, no trace of precipitation
June 29, 2016	7:35 AM to 10:50 AM	Clear skies, ±18°C, light air, no trace of precipitation
July 8, 2016	6:35 AM to 11:06 AM	Cloudy skies, ±17°C, light air, no trace of precipitation
July 9, 2016	7:15 AM to 1:25 PM	Mostly cloudy skies, ±22°C, light breeze, no trace of precipitation

Vegetation

The following sections describe the existing conditions at the time of the field surveys. Vegetation communities at the three sites have been mapped using the standardized Ecological Land Classification (ELC) for southern Ontario – first approximation (Lee et al., 1998) (Figures E-1, E-2, and E-3). For vegetation communities where the first approximation ELC does not provide an adequate description, the pending 2008 second approximation description has been used. Mapping for the study areas has been completed at a larger scale (1:1,500) than the criteria for ELC (1:10,000) and polygons are therefore often smaller than the two hectare (ha) minimum size criteria. However,

this scale is appropriate for assessing the potential for development of the Sites. Water features within 120 m of the site boundary, including watercourses, water bodies and wetlands, are discussed below.

Site #1 - Station Site Description

Site #1 is an approximately 2.2 ha rectangular-shaped parcel of land located on the east side of Brock Road, approximately 300 m north of Taunton Road in the Seaton Community, City of Pickering. The UTM (NAD 83) coordinates for Site #1, located at the approximate southwest site corner, are 653307 m E /4861402 m N.

The majority of Site #1 was untreed, and consisted of the Dry - Fresh Mixed Meadow (MEMM3) ecotype (Appendix E-3, Appendix E). A variety of broadleaf and graminoid species were present within the mixed meadow, including Canada Goldenrod (*Solidago canadensis*), Philadelphia Fleabane (*Erigeron philadelphicus*), Alfalfa (*Medicago sativa*), Common Milkweed (*Asclepias syriaca*), Cow Vetch (*Vicia cracca*), Common Mullein (*Verbascum thapsus*), New England Aster (*Aster novae-angliae*) and Wild Carrot (*Daucus carota*). Occasional tree saplings and shrubs, such as Black Walnut (*Juglans nigra*), Trembling Aspen (*Populus tremuloides*), Common Buckthorn (*Rhamnus cathartica*) and Pasture Rose (*Rosa carolina*) were also noted in the meadow, particularly along the boundaries of the ecotype. Dog-Strangling Vine (*Vincetoxicum rossicum*) was abundant throughout the meadow, particularly along the shaded edges.

Treed areas within the west 1/5 of Site #1 consisted of young Trembling Aspen, along with small numbers of young Willow (*Salix* species) and Manitoba Maple (*Acer negundo*); however, the ground vegetation was similar to the Dry-Fresh Mixed Meadow ecotype. This treed area was identified as Fresh-Moist Poplar Deciduous Woodland (WODM5-1).

The southeast corner of Site #1 was identified as a Dry-Fresh Scots Pine Naturalized Plantation (FOCM6-3). Mature Scot's Pine (*Pinus sylvestris*) composed the majority of the tree cover, however smaller numbers of Black Walnut, White Birch (*Betula papyrifera*) and Manitoba Maple could also be found along the periphery. A well-developed understorey contained Pasture Rose, Red Raspberry

(*Rubus idaeus*), Fly Honeysuckle (*Lonicera canadensis*), Poison-Ivy (*Rhus radicans*) and Dog-Strangling Vine.

A Willow Mineral Deciduous Swamp (SWDM4-1) was located in the northeast site corner, continuing to the north to areas off-site. Several mature White Willows (*Salix alba*) provided extensive canopy cover, but few other trees were found in the swamp. As might be expected in this ecotype at this time of year, the swamp had dried up at the time of the site investigation (September 23, 2015), though some damp sections of ground remained. Tawny Day-Lily (*Hemerocallis fulva*) and Broad-Leaved Cattail (*Typha latifolia*) were both present in large numbers, making up the majority of the ground vegetation, while Northern Water-Horehound (*Lycopus uniflorus*), Water-Parsnip (*Sium suave*) and various sedges were found in moderate numbers. A pond, approximately 70 m x 80 m in size, was located 13 m south of Site #1. Abundant aquatic vegetation was growing throughout the pond, and its depth appeared to be approximately 1 - 2 m throughout. Various willows and Red-Osier Dogwood (*Cornus stolonifera*) were observed around the perimeter of this pond.

Site #1 - Transmission Corridor and Line Tap Description

The area consists of a 3,500 m stretch from approximately 400 m east of Brock Road to Duffins Junction, a point approximately 1,230 m east of Whites Road. The proposed line tap extends southward from the approximate centre of Site #1 to the transmission corridor approximately 60 m south.

The transmission corridor consisted largely of mixed meadow interspersed with a variety of shrubs and young trees. Within the eastern portion of the study area, on either side of Brock Road, a narrow band of trees existed within the centre of the corridor. This band was largely composed of White Pine (*Pinus strobus*), though other species, including White Spruce (*Picea glauca*) and Red Pine (*Pinus resinosa*), were also present. The proposed location for the tap line traverses a naturalized Scot's Pine plantation between the transmission corridor and proposed MTS Site. Woodlands feature prominently within the landscape on either side of the transmission corridor within the eastern portion of the study area. Natural areas west of Brock Road and north and south of Taunton Road are identified as the Seaton Core Area on Map 7: Natural Systems Plan of the City of Pickering Official Plan (2010). Portions of the transmission corridor overlap with this core area.

Several water features were present within the eastern portion of Site #1 in the lands north and east of Taunton Road. Unevaluated wetlands are identified on existing mapping within and adjacent to the Study Area for Site #1, including two wetland units consisting of meadow marsh and shallow marsh vegetation communities, within the lands east of Brock Road (Figure 3-1). Two watercourses, Urfe Creek and Ganateskiagon Creek, traverse the transmission corridor between Brock Road and Taunton Road.

Land use between Taunton Road and Duffins Junction is largely agricultural with occasional hedgerows, wooded areas and a wetland. At the time of the site visits, much of the agricultural land surrounding the transmission corridor between Taunton Road and Duffins Junction had been cleared of vegetation in preparation for residential development.

Site #2 - Station Site Description

Site #2 is an approximately 3.8 ha rectangular-shaped parcel of land located on the northeast corner of Taunton Road and Sideline 22, approximately 1.5 km west of Brock Road in the Seaton Community, City of Pickering. The UTM (NAD 83) coordinates for Site #2, located at the site entrance near the southwest site corner, are 651854 m E / 4860299 m N.

Much of Site #2 consisted of a field formerly used for agriculture, classified as Annual Row Crops (OAGM1) (Figure E-2, Appendix E). This field had been left unattended for at least one season prior to the site investigation. The ground cover consisted primarily of Red Clover (*Trifolium pratense*) along with smaller constituents of other weedy species found in recently disturbed soil. Dillen's Wood-Sorrel (*Oxalis dillenii*), Horseweed (*Conyza canadensis*), Common Ragweed (*Ambrosia artemisiifolia*), Tall Lettuce (*Lactusa canadensis*) and Sow- Thistle (*Sonchus* sp.) were some of the species noted.

Fencerows (TAGM5) were located along the perimeter of the agricultural field. The trees found in the fencerows were a mix of native and non-native species, likely planted years ago. Basswood (*Tilia americana*), White Ash (*Fraxinus americana*), Manitoba Maple, Common Buckthorn and Staghorn Sumac (*Rhus typhina*) provided the majority of the tree and shrub cover, while Cucumber Vine (*Echinocystis lobata*), Grape (*Vitis* species) and Virginia Creeper (*Parthenocissus quinquefolia*) covered

many of the trees and shrubs. Along the edges of the fencerows, Dog-Strangling Vine, Black Medick (*Medicago lupulina*) and Corn Chamomile (*Anthemis arvensis*) were abundant, while Common Milkweed, New England Aster, Wild Carrot, Philadelphia Fleabane and both Canada Goldenrod and Tall Goldenrod (*Solidago altissima*) were present in moderate numbers.

A wetland identified as a Willow Mineral Deciduous Thicket Swamp (SWT2) associated with Ganateskiagon Creek was located north of the agricultural field on Site #2. Various Willows along with occasional Red-Osier Dogwood and several other shrub species provided the thicket cover. Red Raspberry and Cucumber Vine were common while Canada Goldenrod decreased in abundance approaching Ganateskiagon Creek. Spotted Jewel-weed (*Impatiens capensis*) and Spotted Joe-Pye-Weed (*Eupatorium maculatum*) were common in the wetland, while very small numbers of Common Reed (*Phragmites australis*) could also be found. The wetland was dry at the time of the site investigation. Along the edge of the wetland several tree species were identified, including Manitoba Maple, Ash (*Fraxinus* sp.), American Elm (*Ulmus americana*), White Birch and Eastern White Pine (*Pinus strobus*).

Site #2 - Transmission Corridor and Line Tap Description

Site #2 shares its footprint with the western portion of Site #1 and consists of a 1,500 m stretch of transmission corridor commencing approximately 120 m south of Taunton Road and extending westward to Duffins Junction (Figures 3-2 and 3-4). The proposed tap line is approximately 290 m in length and connects Site #2 on the north side of Taunton Road to the transmission line south of the road.

Land use between Taunton Road and Duffins Junction is largely agricultural with occasional hedgerows, wooded areas and a wetland. At the time of the site visits, much of the agricultural land surrounding the transmission corridor between Taunton Road and Duffins Junction had been cleared of vegetation in preparation for residential development.

An unevaluated wetland exists within the hydro corridor and adjacent lands at a point due south of candidate Site #2. Red-osier dogwood (*Cornus sericea*) and willow species (*Salix* spp.) are abundant within this thicket swamp.

Site #3 - Station Site Description

Site #3 is an approximately 7.5 ha rectangular-shaped parcel of land located on the east side of Dixie Road just south of the intersection with Concession 3 Road. Site #3 is located just outside the southeast boundary of the Seaton Community, City of Pickering. The UTM (NAD 83) coordinates for Site #3 are 651842 m E / 4857715 m N.

Approximately 60% of Site #3 was covered with trees, particularly on the western and northern parts of the site (Figure E-3, Appendix E). Most of the forested parts of Site #3 consisted of Fresh-Moist White Cedar Coniferous Forest (FOCM4-1). Eastern White Cedar (*Thuja occidentalis*) was the dominant tree species within these areas, though Common Buckthorn and Common Apple (*Malus pumila*) could be found along the periphery or where enough sunlight could penetrate the canopy. While the dense canopy prevented most understory growth, Dog-Strangling Vine was identified in a few areas and sparsely distributed throughout the cedar stands, while Violets, Heart-leaved Aster (*Aster cordifolius*) and Blue-stem Goldenrod (*Solidago caesia*) were species noted in clearings. Towards the southwest site corner, the vegetation community was classed as Dry-Fresh White Cedar Mixed Forest (FOMM4) as Trembling Aspen, Sugar Maple (*Acer saccharum*), Basswood, and other tree species increased in proportion alongside Eastern White Cedar.

Dry-Fresh Mixed Meadow (MEMM3) was identified south and east of the wooded areas, predominately in the southeast quadrant of Site #3. A variety of broadleaf and graminoid ground cover species were present within the mixed meadow, including Canada Goldenrod, Philadelphia Fleabane, Canada Anemone (*Anenome canadensis*), Common Milkweed, Brown-eyed Coneflower (*Rudbeckia triloba*), Poison Ivy, New England Aster and Panicled Aster (*Aster lanceolatus*). Buckthorn Deciduous Shrub Thicket (THDM2-6) could be found in the areas between the Fresh-Moist White Cedar Coniferous Forest and Dry-Fresh Mixed Meadow. Common Buckthorn was an abundant shrub species in these areas while the rest of the herbaceous vegetation was similar to the Dry-Fresh Mixed Meadow. Occasional tree saplings and shrubs, such as Eastern White Cedar, Common Apple, White Birch and Trembling Aspen could also be found in this area.

A former driveway that was now overgrown entered the south portion of Site #3 from Dixie Road, travelling east approximately 30 m north of the south site boundary to a former house east of the

southeast site corner. The vegetation in this area was representative of a formerly developed area, containing several landscape trees including Northern Catalpa (*Catalpa speciosa*), Sugar Maple, Eastern White Pine, and a row of White Spruce (*Picea glauca*) and Colorado Spruce (*Picea pungens*). Pioneer and weedy species had become established in the understorey. Some of the common species noted included Dog-Strangling Vine, Common Plantain (*Plantago major*), Curly Dock (*Rumex crispus*), Fragrant Bedstraw (*Galium triflorum*), Panicled Aster and Canada Goldenrod. This area was classed as Rural Property (CVR_4).

West Duffins Creek was located 45 m from the northeast corner of Site #3. A sandy bluff was noted along the south bank of West Duffins Creek, rising up to near the northeast site corner. Some early colonizer species were growing on the sandy bluff, including various grasses, Staghorn Sumac and Coltsfoot (*Tussilago farfara*).

Site #3 - Transmission Line Study Area

A 575 m section of transmission line has been identified for potential upgrades east of Dixie Road. The proposed tap line is approximately 490 m in length and connects Site #3 to the transmission lines at a point north of the Cherrywood Transformer Station.

Wetlands

Wetlands are defined as lands that are seasonally or permanently flooded by shallow water, as well as lands where the water table is close to the surface, causing the formation of saturated soils and dominance of plants that grow in water or are water tolerant (MNRF, 2014)

Wetlands are classified as four types - swamps, marshes, bogs, or fens. A significant wetland is defined as an area identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry (MNRF) using evaluation procedures established by the province, as amended from time to time (MNRF, 2014).

The City of Pickering Official Plan (2010) identifies that wetlands are among the most sensitive features that make up a part of the Natural Heritage System (Policy 4.1), and development should

avoid these sensitive features. In addition to the MNRF mapping, wetlands are mapped on Schedule III: Natural Heritage System of the City of Pickering Official Plan (2010).

No significant wetlands were observed during the 2015 filed surveys, but other wetland features consistent with the TRCA's regulated areas mapping were identified, and are described below:

- **Site #1 -** Three small unevaluated wetland pockets were identified near the southwest, southeast and northeast site corners. The associated line tap and transmission corridor crosses one small unevaluated wetland south of Taunton Rd and west of Sideline 22.
- **Site #2 -** An unevaluated wetland was mapped flanking Ganateskaigon Creek north of Site #2. An additional unevaluated wetland was located 44 m east of the southeast corner of Site #2. The associated line tap and transmission corridor crosses one small wetland south of Taunton Rd and west of Sideline 22.
- **Site #3 -** Wetlands were not identified on Site #3 during the site investigation. An unevaluated wetland pocket was located 53 m west of the west site boundary. The associated line tap crosses a small unevaluated wetland north of Cherrywood TS.

Coastal Wetlands

Significant coastal wetlands were not identified within the study area.

Fish Habitat

Fish habitat as defined by the *Fisheries Act*, includes the spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes. The *Fisheries Act* also uses a broader definition of the term 'fish', including: shellfish, crustaceans, and marine mammals at all stages of their life cycles.

Sites #1 and #2 are located within the Duffins Creek watershed, while Site #3 is located on the boundary of the Duffins Creek and Frenchman's Bay watersheds. Watercourses were not identified on Sites #1, #2 or #3, based on discussion with regulating agencies and through using the MNRF's Natural Heritage Areas Mapping (MNRF, 2015c).

While watercourses were not identified on the subject lands for Sites 1, 2, and 3, watercourses were located within 120 m of each of the Sites.

Urfe Creek runs as close as 101 m from the west boundary of Site #1. The MNRF indicated that Urfe Creek is considered recovery habitat for Redside Dace (*Clinostomus elongatus*). In addition, a pond is located 13 m south of the south boundary of Site #1. While fish were not observed during the site investigation, based on the size and apparent depth of the pond it likely acts as warm-water fish habitat. The pond did not appear to be connected to streams in the area based on the results of the site investigation and consultation with online mapping and aerial photography.

Ganateskiagon Creek runs as close as 18 m from the north boundary and 19 m from the west boundary of Site #2. Ganateskiagon Creek has been identified by MNRF as occupied habitat for Redside Dace. This watercourse likely acts as a coldwater fish habitat.

West Duffins Creek runs as close as 45 m from the northeast corner of Site #3. Additionally, an unnamed tributary flows out of a roadside ditch, as close as 1 m from the south boundary of Site #3. MNRF and TRCA did not identify West Duffins Creek or the unnamed tributary as Redside Dace habitat. The field surveys conducted provided evidence that both of these watercourses may act as coldwater fish habitat.

Site visits were completed, during which the presence of fish habitat on the Sites was determined. Although there are waterbodies nearby to all three proposed sites, there was no fish habitat identified on the properties.

Woodlands

Significant woodlands are defined as treed areas that provide environmental and economic benefits such as erosion prevention, water retention, and provision of habitat, recreation and the sustainable harvest of woodland products (OMMAH, 2014). Woodlands include treed areas, woodlots or forested areas and vary in their level of significance. The identification and assessment of significant

woodlands is the responsibility of the local planning bodies; in this case the City of Pickering and Regional Municipality of Durham, and should be identified using criteria established by the MNRF. Woodland significance is typically determined by evaluating key criteria which relate to woodland size, ecological function, uncommon woodland species, and economic and social value.

Wooded areas within the three candidate sites have been identified on Map B1d (Greenbelt Natural Heritage System and Key Natural Heritage and Hydrologic Features) of the Durham Region Official Plan (2008) as Key Natural Heritage and Hydrologic Features. The extent of the mapped woodlands appears to be consistent with MNRF's Natural Heritage Areas Mapping (MNRF, 2015c).

General guidelines for determining significance of a woodland area are also included in the *Natural Heritage Reference Manual* for Policy 2.3 of the PPS (MNRF, 2010) if the local planning authorities have not provided criteria for significance. The City of Pickering Official Plan (2010) does not define significant woodlands and therefore the evaluation criteria and standards provided in Table 7.2 of the Natural Heritage Reference Manual (MNRF, 2010) apply.

Natural cover mapping for the Duffins Creek Watershed (where Site #1 and 2 are located) indicates woodland covers approximately 24.5 % (70.0 km^2) of the watershed (TRCA, 2002). Where woodland cover falls within this range, the *Natural Heritage Reference Manual* (MNRF, 2010) recommends that woodlands meeting the following criteria be considered significant woodlands[1]:[1]

a) Woodlands that are 20 ha in size or larger; and,

b) Woodlands that contain 2 ha or more of interior habitat, where interior habitat is defined as woodland habitat more than 100 m from the woodland edge.

[1] All of the above criteria (c.) through (h.) must adhere to specified distance and area thresholds outlines in Appendix II of the Pickering Official Plan (2010).

c) Woodlands that overlap or are in close proximity to other significant natural heritage features;

d) Woodlands that provide a connecting link between two other significant habitats, so that they function as "stepping stones" for wildlife movement between habitats.

e) Woodlands that are located within or nearby to sensitive groundwater discharge, recharge, or headwater area, watercourses or fish habitat.

f) Woodlands that have a wide variety of native species, high biodiversity, or species that have declined significantly south and east of the Canadian Shield.

g) Woodlands with uncommon characteristics (e.g.) very rare species compositions, vegetation community with highly at risk species, or an old growth forest.

h) Woodlands that have high economic or social values.

Site #2 does not satisfy any of the above criteria and do not contain any significant woodlands. However, the MRNF did indicate in their correspondence with Hydro One and Verdian that Site #1 contains part of a significant woodland.

Frenchman's Bay was included in TRCA's Waterfront Watershed Report Card (2013) as one of the many lands within this report that only drain directly into Lake Ontario and not any other river system. The report stated only 8 % of these waterfront areas are covered by forest (TRCA, 2013). Frenchman's Bay is the watershed that proposed Site #3 is located in. Where woodland cover falls within this range, the *Natural Heritage Reference Manual* (MNRF, 2010) recommends that woodlands meeting the following criteria be considered significant woodlands[1]:

a) Woodlands that are 4 ha in size or larger;

b) Woodlands that contain any interior habitat, where interior habitat is defined as woodland habitat more than 100 m from the woodland edge;

c) Woodlands that overlap or are in close proximity to other significant natural heritage features;

d) Woodlands that provide a connecting link between two other significant habitats, so that they function as "stepping stones" for wildlife movement between habitats.

e) Woodlands that are located within or nearby to sensitive groundwater discharge, recharge, or headwater area, watercourses or fish habitat.

f) Woodlands that have a wide variety of native species, high biodiversity, or species that have declined significantly south and east of the Canadian Shield.

g) Woodlands with uncommon characteristics (e.g.) very rare species compositions, vegetation community with highly at risk species, or an old growth forest.

h) Woodlands that have high economic or social values.

The proposed Site #3 would seem to satisfy the aforementioned criteria (c) of the *Natural Heritage Reference Manual* (MNRF, 2010). Based on the City of Pickering Official Plan (2010) Appendix II, the proposed Site #3 contains significant woodlands, based on its satisfying the criteria for proximity (<50 m) to the following three different Schedule III significant features:

- Environmentally Significant Area (ESA);
- Shoreline and Stream Corridor (i.e. of West Duffins Creek); and
- Rouge Duffins Wildlife Corridor

Site #3 woodland would therefore be significant, given they are part of an environmentally significant area and also 45 meters from the "shoreline/stream corridor" of West Dufferin Creek (See Map 2 & Map 6 of the City of Pickering Official Plan 2010).

The proposed Site #3 also appears to satisfy criteria (d) of the *Natural Heritage Reference Manual* (MNR, 2010). Based on the Schedule III Resource Management Map (Sheet 1 of 3) in the Pickering Official Plan (2010), the proposed site is located at a critical point in the Rouge Duffins Wildlife Corridor. It is a linkage between West Duffins Creek and the edge of Rouge National Urban Park. Rouge National Urban Park is far west, well outside of our natural heritage study area, but provides critical wildlife habitats and conservation areas for biodiversity in the region. The Rouge Duffins Wildlife Corridor that flanks Rouge National Urban Park on its eastern boundary, is already very fragmented due to urban development and would become even more so with the building of the MTS at Site #3. The MNRF also indicated in their correspondence with Hydro One and Verdian that Site #3 did comprise part of a significant woodland.

Wooded areas within the three study areas have been identified on Map B1d (Greenbelt Natural Heritage System and Key Natural Heritage and Hydrologic Features) of the Durham Region Official Plan (2015) as Key Natural Heritage and Hydrologic Features. The extent of the mapped woodlands appears to be consistent with MNRF's Natural Heritage Areas Mapping (MNRF, 2015a). The mapped woodlands are shown on Figures 3-1 to 3-4. Vegetation removal within woodlands will be avoided where possible.

Detailed assessments of the vegetation within and adjacent to the transmission corridors and tap line areas were beyond the scope of this study. As a result, specific descriptions of the vegetation communities spanning outside the boundaries of the three alternative sites, throughout the study area are not provided in this report. While significant impacts to wooded areas are not anticipated as a result of the proposed line upgrades, there is potential for vegetation removal to be required to facilitate construction of the tap lines. The need for tree protection measures and compensation for vegetation removal should be considered at the detailed design stage for the preferred MTS site. Detailed vegetation surveys could be completed at that time, if required.

Valleylands

The PPS (OMMAH, 2014) refers to significant valleylands as "a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year". The local planning authority is responsible for identifying and evaluating significant valleylands.

A review of the City of Pickering Official Plan (2010) and Durham Regional Plan (2008) was completed to determine if significant valleylands have been identified within the vicinity of the three candidate sites. See details below:

> **Site #1-** Urfe Creek is regulated by the TRCA and is located within a designated Shoreline and Stream Corridor (Schedule III Resource Management Map; Sheet 1 of 3) in the City of Pickering Official Plan (2010). These designated stream corridors are recognized as features of natural significance and have been included in the City's Resource Protection and Enhancement Policy. Urfe Creek is therefore considered to be a significant valleyland for the purpose of this study. As outlined within the Official Plan (2010), the retention of

watercourses and valley and stream corridors in an open and natural state should be promoted and achieved where possible. Urfe Creek approaches to 101 m west of Site #1, however the watercourse and associated stream corridor is not located on Site #1. As such, impacts to the stream corridor are not anticipated.

For the transmission line corridor and line tap, both Urfe Creek and Ganateskiagon Creek traverse the study area between Taunton Road and Brock Road. Both watercourses are regulated by the TRCA and are designated as Shoreline and Stream Corridors (Schedule III Resource Management Map; Sheet 1 of 3) in the City of Pickering Official Plan (2010). Stream corridors are recognized as features of natural significance that have been included in the City's Resource Protection and Enhancement Policy. While a formal assessment of significance has not been completed as part of this report, both valleylands are considered significant given their physical prominence in the landscape and their ecological attributes, including a high degree of natural cover, habitat for species at risk (Redside Dace), and their capacity to function as a movement corridor and linkage between a variety of natural heritage features. As outlined within the Official Plan, the retention of watercourses and valley and stream corridors in an open and natural state should be promoted and achieved where possible.

Site #2- Ganateskiagon Creek is regulated by the TRCA and is also located within a designated Shoreline and Stream Corridor (Schedule III Resource Management Map; Sheet 1 of 3) in the City of Pickering Official Plan (2010). This stream corridor is also considered to be a significant valleyland for the purpose of this study. Ganateskiagon Creek is located 18 m north of Site #2; however, the wooded stream corridor encroaches along the north edge of Site #2.

For the transmission line upgrade section, there were no watercourses or valleylands identified using available mapping (Figure 3-3; Figure E-2, Appendix E). The western most section of the hydro corridor is located within a woodland that is contiguous with the West Duffins Creek valleyland. This contiguous area of natural cover along West Duffins Creek is identified as an Environmentally Sensitive Area and a Shoreline and Stream Corridor in the Schedule III Map (Sheet 1 of 3) in the City of Pickering Official Plan (2010).

Site #3- West Duffins Creek is regulated by the TRCA and is also located within a designated Shoreline and Stream Corridor (Schedule III Resource Management Map; Sheet 1 of 3) in the City of Pickering Official Plan (2010). This stream corridor is also considered to be a significant valleyland for the purpose of this study. West Duffins Creek is located 45 m northeast of Site #3 and the wooded stream corridor does not encroach onto the northeast part of Site #3. As such, impacts to the stream corridor are not anticipated.

For the transmission corridor, West Duffins Creek is part of a significant valleyland that traverses the north-south hydro corridor within the study area for Site #3. West Duffins Creek is regulated by the TRCA and has been designated as an Environmentally Sensitive Area and Shoreline and Stream Corridor in the City of Pickering Official Plan (2010). It is also part of the Whitevale Corridor Life Science Site. It acts as a significant linkage feature within the landscape and provides a range of hydrological and ecological functions.

An unnamed tributary of the Fisherman's Bay watershed occurs within the hydro corridor south of Site #3. The channel appears to be poorly defined within the hydro corridor and the downstream reach terminates within a subdivision approximately 840 m south of Study Area 3. Nevertheless, the corridor is regulated by the TRCA, and appears as a Shoreline and Stream Corridor in the Pickering Official Plan (2010). In the absence of a formal assessment of significance, this valleyland has been considered significant for the purpose of this report.

Habitats of Endangered or Threatened Species

Species at risk designations for species in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of Natural Resources and Forestry, species are added to the *Endangered Species Act*, 2007, which came into effect June 30, 2008. The legislation prohibits the killing or harming of species identified as 'endangered' or 'threatened' in the various schedules to the Act. The *Endangered Species Act*, 2007 also provides habitat protection to all species listed as threatened or endangered. As of June 30, 2008, the Species at Risk in Ontario (SARO) List is contained in O. Reg. 230/08.

Subsection 9(1) of the *Endangered Species Act*, 2007 prohibits the killing, harming or harassing of species identified as 'endangered' or 'threatened' in the various schedules to the Act. Subsection 10(1) (a) of the *Endangered Species Act*, 2007 states that "No person shall damage or destroy the habitat of a species that is listed on the SARO List as an endangered or threatened species".

General habitat protection is provided by the *Endangered Species Act*, 2007 to all threatened and endangered species. Species-specific habitat protection is only afforded to those species for which a habitat regulation has been prepared and passed into law under *the Endangered Species Act*, 2007.

The *Endangered Species Act* defines habitat as an area prescribed by regulation as the habitat of a species, or an area on which a species depends to carry on its life processes, including reproduction, rearing, hibernation, migration, or feeding. A permitting process exists where alterations to the habitat of protected species may be considered, provided a net benefit to the species can be demonstrated (Government of Ontario, 2007).

Sources used to define potential habitat include the MNRF Natural Heritage Information Centre (NHIC) database (MNRF, 2015a), correspondence with the MNRF, and the TRCA.

Based on information provided by the Natural Heritage Information Centre (NHIC) and the MNRF, the following SAR have been identified in the study area:

Site #1- A geographical search for rare or special concern species presence and associated habitat was conducted using the MNRF Natural Heritage Information Centre (NHIC) database (MNRF, 2015c). Six (6) one square kilometre (1 km^2) quadrats (17PJ53_61, 17PJ52_61, 17PJ52_60, 17PJ51_60, 17PJ51_59, 17PJ50_59) surrounding Site #1 were checked to ensure potential species at risk were accounted for during field surveys. Of the seven element occurrences recorded for the area searched, three were species of conservation concern that are tracked by the NHIC, but do not appear on the Species at Risk in Ontario (SARO) or Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Lists and as such are not afforded habitat protection. These species are Eastern Burning Bush (*Euonymus atropurpureus*), Pronghorn Clubtail (*Gomphus graslinellus*), and Lurking Leskea (*Plagiothecium latebricola*). Along with the Endangered and Threatened (Redside Dace,

Acadian Flycatcher, and Butternut), there was an element occurrence for a species of Special Concern, the Eastern Ribbonsnake (*Thamnophis sauritus*).

In addition to a search of the NHIC database, a review of available habitat types in the area, the Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada et al., 2006) and the Ontario Reptile and Amphibian Atlas (Ontario Nature, 2015) was completed to determine potential for additional species of conservation concern. Based on this review there is potential for several additional species of Special Concern in the vicinity of Site #1, including Black Tern (*Chlidonias niger*), Canada Warbler (*Cardellina canadensis*), Common Nighthawk (*Chordeiles minor*), Eastern Wood-Pewee, Golden-winged Warbler (*Vermivora chrysoptera*), Hooded Warbler (*Setophaga citrina*), Louisiana Waterthrush (*Seiurus motacilla*), Olive-sided Flycatcher (*Contopus cooperi*), Peregrine Falcon (*Falco peregrinus*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Short-eared Owl (*Asio flammeus*), Wood Thrush, Snapping Turtle (*Chelydra serpentina*), Monarch (*Danaus plexippus*) and Milksnake (*Lampropeltis triangulum*).

During the 2015 phase of the Project, the Aurora District MNRF and TRCA were contacted for information pertaining to species at risk in the general area of candidate MTS Site #1. The MNRF identified two species of Special Concern, Eastern Wood-Pewee and Wood Thrush, which have records from the vicinity of Site #1. TRCA also had records of Eastern Wood-Pewee within the general area. The 2016 information request for Site #1 had not been filled at the time this report was published.

An assessment of the habitat potential for the above-mentioned species of conservation concern in the vicinity of Site #1 is provided in Table 3-3. Special consideration was given to these species and their habitat during the site investigation.

Table 3-3: Endangered and Threatened Species Habitat Site #1

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
Acadian Flycatcher	END	END	The species is a habitat specialist and requires large tracts of forest interior in mature	Low	This species was not observed. Suitable interior habitat was not identified around

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			deciduous forests with an open understory. Territories are often close to streams, vernal pools or other water features.		Site #1. Interior woodland habitat is present within large woodlands bordering the transmission corridor in the vicinity of Brock Road.
Bank Swallow	THR	THR	Bank Swallows nest in burrows in natural and man-made settings, wherever there are silt or sand deposits. Nests are often along riverbanks and in aggregate pits.	Low	This species was not observed. Suitable habitat was not identified around Site #1.
Barn Swallow	THR	THR	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. This species forages over a wide area.	Low	Suitable nesting structures were not identified around Site #1; however, the species was observed throughout the Study Area. Barn Swallows likely nest in the general area and may use Site #1 and adjacent fields as foraging grounds.
Bobolink	THR	THR	This species builds its nests on the ground in dense grasses, such as those found in hay fields, tallgrass prairies and open meadows.	Low	This species was not observed. Meadows within the Study Area were not consistent with preferred habitat, specifically area / width requirements. Adjacent agricultural land has largely been ploughed for development.
Butternut	END	END	This species is commonly found in riparian habitats, but is	Moderate	Suitable habitat occurs within and adjacent to Site #1, but the

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			also found on rich, moist, well-drained loams, and well-drained gravels, particularly those of limestone origin.		species was not observed.
Cerulean Warbler	THR	THR	The species is found in large, relatively undisturbed patches of mature, semi-open deciduous forest. More commonly found in Carolinian forest types in Ontario.	Low	This species was not observed. Suitable habitat was not identified around Site #1. Mature woodland habitat may be present within large woodlands bordering the transmission corridor in the vicinity of Brock Road.
Chimney Swift	THR	THR	The species feeds in flocks around waterbodies due to the large amount of insects present. Nesting occurs in large, hollow trees or in the chimneys of houses in urban and rural areas.	Low	This species was not observed. Suitable nesting structures were not identified on or adjacent to Site #1.
Eastern Meadowlark	THR	THR	This species prefers native grasslands, pastures and savannahs though will use a variety of other grassland habitats such as hayfields, weedy meadows, etc.	Low	This species was not observed. Meadows within the Study Area were not consistent with preferred habitat, specifically area / width requirements. Adjacent agricultural land has largely been ploughed for development.
Eastern Whip-poor-will	THR	THR	The species breeds in patchy forests with clearings, and generally avoids exposed, open	Low	Preferred habitat was not identified within or adjacent to Site #1.

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			areas, or closed-canopy forests.		
Least Bittern	THR	THR	The species breeds in stable marshes with emergent vegetation, such as cattails, and areas with open water. They are typically found in large, quiet marshes.	Low	The species was not observed during the breeding bird surveys. Large cattail marshes or other preferred habitat is not present on or adjacent to Site #1.
Loggerhead Shrike	END	END	The species inhabits open areas where occasional trees and shrubs provide nesting and perching sites. It is often associated with pastureland where grazing keeps grass short and prevents trees and shrubs from becoming established.	Low	The species was not observed. Preferred habitat was not identified on or adjacent to Site #1.
Redside Dace	END	END	Redside Dace find habitat in pools and slow-moving sections of streams, with a substrate of gravel. They prefer streams with overhanging riparian vegetation.	High	Ganateskiagon Creek traverses Site #1 and was identified by the MNRF as occupied habitat for Redside Dace. Redside Dace have historic records from Urfe Creek, which traverses the eastern portion of Site #1.
Yellow-breasted Chat	END	END	The species breeds in early successional habitats with low, dense vegetation. Such habitat can be found in abandoned agricultural fields, power-line corridors, fencerows, forest edges and	Low	This species was not observed. Suitable habitat was not identified within or adjacent to Site #1. Yellow-breasted Chats may be extirpated from this part of

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			openings.		Ontario.

Protection status: [1] SARO - Species at Risk in Ontario and [2] COSEWIC - Committee on the Status of Endangered Wildlife in Canada: END – Endangered, THR – Threatened, SC – Special concern, "-"– Not listed. [3] Habitat Description Source: COSEWIC reports and/or Species at Risk in Ontario (SARO) List.

Redside Dace is known to occupy Ganateskiagon Creek, and has historic records from Urfe Creek. Both watercourses traverse the eastern portion of Site #1 at Taunton Road and Brock Road. Suitable habitat for Butternut is present within and adjacent to Site #1, however Butternut species were not observed during the site investigation. Barn Swallows were observed; however, nesting habitat was not identified on or adjacent to Site #1. No other Endangered or Threatened species were determined to have moderate or high habitat potential within the study area.

Site #2- A search of the MNRF NHIC database (MNRF, 2015c) was conducted to determine the existence and approximate locations of recorded occurrences of Endangered or Threatened species in the general area. Five (5) one square kilometre (1 km^2) quadrats (17PJ52_61, 17PJ52_60, 17PJ51_60, 17PJ51_59, and 17PJ50_59) surrounding area for Site #2 were checked to ensure potential species at risk were accounted for during field surveys. Redside Dace, Acadian Flycatcher, and Butternut have element occurrences for the quadrats surveyed.

In addition to a search of the NHIC database, the OBBA (Bird Studies Canada et al., 2006) and Ontario Reptile and Amphibian Atlas (Ontario Nature, 2015) were consulted to determine if there were species at risk known to be present within the vicinity of Site #2. The Site #2 area lies in the OBBA squares identified as 17PJ55 and 17PJ56. Acadian Flycatcher, Chimney Swift, Bank Swallow, Barn Swallow, Bobolink, Cerulean Warbler, Eastern Meadowlark, Eastern Whip-poor-will, Least Bittern, Loggerhead Shrike, and Yellow-breasted Chat had element occurrences for the squares surveyed. A copy of the search results from the OBBA is provided in Appendix D.

During the 2015 phase of the Project, the Aurora District MNRF and TRCA were contacted for information pertaining to species at risk in the general area of candidate MTS Site #2. The MNRF identified that Ganateskiagon Creek north of Site #2 is considered occupied habitat for Redside

Dace; and that Eastern Meadowlark and Bobolink have been recorded in the area. The TRCA data received does not overlap with the current study area. The 2016 information request for the Site #2 study area had not been filled at the time this report was published.

An assessment of the habitat potential for the above-mentioned Endangered or Threatened species on or immediately adjacent to Site #2 is provided in Table 3-4, below. Special consideration was given to these species and their habitat during the site investigation.

Table 3-4: Endangered and Threatened Species Habitat Site #2

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
Acadian Flycatcher	END	END	The species is a habitat specialist and requires large tracts of forest interior in mature deciduous forests with an open understory. Territories are often close to streams, vernal pools or other water features.	Low	This species was not observed. Suitable habitat was not identified within 120 m of the study area of Site #2.
Bank Swallow	THR	THR	Bank Swallows nest in burrows in natural and man-made settings, wherever there are silt or sand deposits. Nests are often along riverbanks and in aggregate pits.	Low	This species was not observed. Suitable habitat was not identified within the study area of Site #2.
Barn Swallow	THR	THR	Barn Swallows often live	Low	Suitable nesting

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. This species forages over a wide area.		structures were not identified within Site #2; however, the species was observed. Barn Swallows likely nest in the general area and may use Site #2 and adjacent fields as foraging grounds.
Bobolink	THR	THR	Yellow-breasted Chats find habitat in thickets and scrubby areas, such as overgrown clearings in south-western Ontario.	Low	This species was not observed. Meadows within the Study Area were not consistent with preferred habitat, specifically area / width requirements. Adjacent agricultural land has largely been ploughed for development.
Butternut	END	END	This species is commonly found in riparian habitats, but is also found on rich, moist, well-drained loams, and well-drained gravels, particularly those of limestone origin.	Low-Moderate	This species was not observed. Suitable riparian habitat was not identified within or adjacent to Site #2.
Cerulean Warbler	THR	THR	The species is found in large, relatively	Low	This species was not observed. Suitable

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			undisturbed patches of mature, semi-open deciduous forest. More commonly found in Carolinian forest types in Ontario.		habitat was not identified within Site #2.
Chimney Swift	THR	THR	The species feeds in flocks around waterbodies due to the large amount of insects present. Nesting occurs in large, hollow trees or in the chimneys of houses in urban and rural areas.	Low	This species was not observed. Suitable nesting structures were not identified on or adjacent to Site #2.
Eastern Meadowlark	THR	THR	This species prefers native grasslands, pastures and savannahs though will use a variety of other grassland habitats such as hayfields, weedy meadows, etc.	Low	This species was not observed. Meadows within the Study Area were not consistent with preferred habitat, specifically area / width requirements. Adjacent agricultural land has largely been ploughed for development.
Eastern Whip-poor-will	THR	THR	The species breeds in patchy forests with clearings, and generally avoids exposed, open	Low	Preferred habitat was not identified within or adjacent to Site #2.

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			areas, or closed-canopy forests.		
Least Bittern	THR	THR	The species breeds in stable marshes with emergent vegetation, such as cattails, and areas with open water. They are typically found in large, quiet marshes.	Low	The species was not observed during the breeding bird surveys. Preferred habitat is not present on or adjacent to Site #2.
Loggerhead Shrike	END	END	The species inhabits open areas where occasional trees and shrubs provide nesting and perching sites. It is often associated with pastureland where grazing keeps grass short and prevents trees and shrubs from becoming established.	Low	The species was not observed. Preferred habitat was not identified on or adjacent to Site #2.
Redside Dace	END	END	Redside Dace find habitat in pools and slow-moving sections of streams, with a substrate of gravel. They prefer streams with overhanging riparian vegetation.	High	Watercourse north of site is occupied habitat.
Yellow-breasted	END	END	Yellow-breasted Chats find habitat in thickets	Low	This species was not observed. Suitable

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
Chat			and scrubby areas, such as overgrown clearings in south-western Ontario.		habitat was not identified within or adjacent to Site #3. Yellow-breasted Chats may be extirpated from this part of Ontario.

Protection status: [1] SARO - Species at Risk in Ontario and [2] COSEWIC - Committee on the Status of Endangered Wildlife in Canada: END – Endangered, THR – Threatened, SC – Special concern, "-"– Not listed. [3] Habitat Description Source: COSEWIC reports and/or Species at Risk in Ontario (SARO) List.

Ganateskiagon Creek, a watercourse located 18 m north of the north boundary of Site #2 was identified as occupied habitat for Redside Dace. No other Endangered or Threatened species were determined to have moderate or high habitat potential within 120 m of the site boundaries.

Site #3- A search of the MNRF NHIC database (MNRF, 2015c) was conducted to determine the existence and approximate locations of recorded occurrences of Endangered or Threatened species in the general area. Seven (7) one square kilometre (1 km^2) quadrats (17PJ51_60, 17PJ51_59, 17PJ51_58, 17PJ50_59, 17PJ50_58, 17PJ51_57 and 17PJ52_57) surrounding the study area of Site #3 were checked to ensure potential species at risk were accounted for during field surveys. Acadian Flycatcher, Butternut, Bobolink, and Eastern Meadowlark have element occurrences for the quadrats surveyed.

In addition to a search of the NHIC database, the OBBA (Bird Studies Canada et al., 2006) and Ontario Reptile and Amphibian Atlas (Ontario Nature, 2015) were consulted to determine if there were species at risk known to be present within the vicinity of Site #3. Site #3 lies in the OBBA square identified as 17PJ55. Least Bittern, Chimney Swift, Acadian Flycatcher, Bank Swallow, Barn

Swallow, Cerulean Warbler, Yellow-breasted Chat, Bobolink and Eastern Meadowlark had element occurrences for the square surveyed.

During the 2015 phase of the Project, the Aurora District MNRF and TRCA were contacted for information pertaining to species at risk in the general area of candidate MTS Site #3. The MNRF and TRCA identified that there are records of Butternut in the area. TRCA also had records for Eastern Meadowlark within the transmission corridor east of Dixie Road, and Wood Thrush near to the east end of the proposed tap line. The 2016 information request for Site #3 had not been filled at the time this report was published.

An assessment of the habitat potential for the above-mentioned Endangered or Threatened species on or immediately adjacent to Site #3 is provided in Table 3-5, below. Special consideration was given to these species and their habitat during the site investigation.

Table 3-5: Endangered and Threatened Species Habitat Site #3

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
Acadian Flycatcher	END	END	The species is a habitat specialist and requires large tracts of forest interior in mature deciduous forests with an open understory. Territories are often close to streams, vernal pools or other water features.	Low-Moderate	This species was not observed. Preferred interior habitat is not present within the study area of Site #3; however, marginal habitat may be present within forested sections flanking West Duffins Creek.
Bank Swallow	THR	THR	Bank Swallows nest in burrows in natural and man-made settings,	High	This species was observed in the vicinity of West Duffins Creek.

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			wherever there are silt or sand deposits. Nests are often along riverbanks and in aggregate pits.		Suitable nesting habitat exists on the steep, gravelly slopes along the riverbank.
Barn Swallow	THR	THR	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. This species forages over a wide area.	Low-Moderate	The species was observed in open areas south of West Duffins Creek and north of the Cherrywood Transfer Station. Suitable nesting structures were not identified on or adjacent to Site #3. Barn Swallows likely nest in the general area and may use the study area as foraging grounds.
Bobolink	THR	THR	This species builds its nests on the ground in dense grasses, such as those found in hay fields, tallgrass prairies and open meadows.	High	The species was observed within the meadow on the east side of the transmission line corridor south of West Duffins Creek.
Butternut	END	END	This species is commonly found in riparian habitats, but is also found on rich, moist, well-drained	Moderate	This species was not observed. Suitable habitat is present within and adjacent to Site #3.

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			loams, and well-drained gravels, particularly those of limestone origin.		
Cerulean Warbler	THR	END	The species is found in large, relatively undisturbed patches of mature, semi-open deciduous forest. More commonly found in Carolinian forest types in Ontario.	Low	This species was not observed. Preferred habitat was not identified within or adjacent to Site #3.
Chimney Swift	THR	THR	The species feeds in flocks around waterbodies due to the large amount of insects present. Nesting occurs in large, hollow trees or in the chimneys of houses in urban and rural areas.	Low	This species was not observed. Suitable habitat was not identified within or adjacent to Site #3.
Eastern Meadowlark	THR	THR	This species prefers native grasslands, pastures and savannahs though will use a variety of other grassland habitats such as hayfields, weedy meadows, etc.	High	This species was observed within the transmission corridor south of Site #3.
Least Bittern	THR	THR	The species breeds in stable marshes with	Low	This species was not observed. Suitable

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBERVATIONS
			emergent vegetation, such as cattails, and areas with open water. They are typically found in large, quiet marshes.		habitat was not identified within or adjacent to Site #3.
Yellow-breasted Chat	END	END	Yellow-breasted Chats find habitat in thickets and scrubby areas, such as overgrown clearings in south-western Ontario.	Low	This species was not observed. Preferred habitat was not identified within or adjacent to Site #3. Yellow-breasted Chats may be extirpated from this part of Ontario.

Protection status: [1] SARO - Species at Risk in Ontario and [2] COSEWIC - Committee on the Status of Endangered Wildlife in Canada: END – Endangered, THR – Threatened, SC – Special concern, "-"– Not listed. [3] Habitat Description Source: COSEWIC reports and/or Species at Risk in Ontario (SARO) List.

Three species at risk, including Bank Swallow, Eastern Meadowlark and Bobolink, were observed within or adjacent to Site #3 during the site investigation. Butternuts were not observed within the transmission corridor or line tap areas; however, they are known to be present within the general area. If MTS Site #3 is chosen as the preferred site, more detailed surveys should be completed in the vicinity of the tap line to ensure the species is not present. As Threatened and Endangered species, all receive species and habitat protection under the *Endangered Species Act* (ESA), 2007.

Two Bank Swallows were observed flying over West Duffins Creek on July 9, 2016. While nests were not observed, the very steep sand/gravelly valley slopes along West Duffins Creek provide suitable nesting habitat for this species. It is highly likely that Bank Swallows are nesting within the valley corridor, though not necessarily within Site #3. As disturbance to the banks and associated

nesting structures is unlikely as a result of the proposed transmission line upgrades, impacts to this species are expected to be minimal.

A single Eastern Meadowlark male was observed on June 29 and July 8, 2016 within the transmission corridor east of Dixie Road and is likely nesting in the corridor. Given that the proposed works are unlikely to permanently alter the habitat within the transmission corridor, it is likely that impacts to this species can be mitigated through the use of specific timing windows for vegetation removal, if required.

A pair of Bobolinks were observed on June 29, 2016 within the meadow east of the transmission corridor and south of West Duffins Creek. A single male was observed singing within the same meadow on July 8, 2016. Habitat within this meadow consisted of 75% grasses and 25 % forbs, which is consistent with preferred nesting habitat for Bobolink. Potential impacts to this species can likely be mitigated through the use of specific timing windows for vegetation removal, if required.

There were no other Endangered or Threatened species that were determined to have moderate or high habitat potential within or adjacent to the study area boundaries.

Habitats of Species of Special Concern

Site #1

A geographical search for rare or special concern species presence and associated habitat was conducted using the MNRF Natural Heritage Information Centre (NHIC) database (MNRF, 2015c). Six (6) one square kilometre (1 km^2) quadrats (17PJ53_61, 17PJ52_61, 17PJ52_60, 17PJ51_60, 17PJ51_59, 17PJ50_59) surrounding the study area of Site #1 were checked to ensure potential species at risk were accounted for during field surveys. Of the seven (7) element occurrences recorded for the area searched, three were species of conservation concern that are tracked by the NHIC, but do not appear on the SARO or COSEWIC Lists and as such are not afforded habitat protection. These species are Eastern Burning Bush (*Euonymus atropurpureus*), Pronghorn Clubtail (*Gomphus graslinellus*), and Lurking Leskea (*Plagiothecium latebricola*). Limited information is available on the appearance and habit of these species making an assessment of habitat potential difficult; as such, they will not be discussed further in this report. Should a more detailed vegetation survey be

required at more advance stages of this Project, consideration could be given to these species. Along with the Endangered and Threatened species previously addressed (Redside Dace, Acadian Flycatcher, and Butternut); there was an element occurrence for a species of Special Concern, the Eastern Ribbonsnake (*Thamnophis sauritus*).

In addition to a search of the NHIC database, a review of available habitat types in the area, the OBBA (Bird Studies Canada et al., 2006) and the Ontario Reptile and Amphibian Atlas (Ontario Nature, 2015) was completed to determine potential for additional species of conservation concern. Based on this review there is potential for several additional species of Special Concern in the vicinity of Site #1, including Black Tern (*Chlidonias niger*), Canada Warbler (*Cardellina canadensis*), Common Nighthawk (*Chordeiles minor*), Eastern Wood-Pewee (*Contopus virens*), Golden-winged Warbler (*Vermivora chrysoptera*), Hooded Warbler (*Setophaga citrina*), Louisiana Waterthrush (*Seiurus motacilla*), Olive-sided Flycatcher (*Contopus cooperi*), Peregrine Falcon (*Falco peregrinus*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Short-eared Owl (*Asio flammeus*), Wood Thrush (*Hylocichla mustelina*), Snapping Turtle (*Chelydra serpentina*), Monarch (*Danaus plexippus*) and Milksnake (*Lampropeltis triangulum*).

During the 2015 phase of the Project, the Aurora District MNRF and TRCA were contacted for information pertaining to species at risk in the general area of candidate MTS Site #1 (see Appendix A). The MNRF identified two species of Special Concern, Eastern Wood-Pewee and Wood Thrush, which have been recorded in the vicinity of Site #1. TRCA also had records of Eastern Wood-Pewee within the general area. The 2016 information request for Site #1 had not been filled at the time this report was published.

An assessment of the habitat potential for the above-mentioned species of conservation concern in the vicinity of Site #1 is provided in Table 3-6.

Table 3-6: Species of Conservation Concern Habitat Potential Assessment – Site #1

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Black Tern	SC	NAR	The species requires large, shallow, quiet marshes where their floating nests are not subject to disturbance from humans or boat traffic.	Low	The species was not observed and suitable habitat was not identified within or adjacent to the study area of Site #1.
Canada Warbler	SC	THR	This species is found in a variety of forest types, but is most abundant in wet, mixed deciduous-coniferous forests with a well-developed shrub layer. Also found in riparian shrub forests.	Low-Moderate	This species was not observed. Suitable habitat, such as wet forests or riparian areas with a well-developed shrub layer, may exist in valleylands within and adjacent to the study area.
Common Nighthawk	SC	THR	The species nests in areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings and open rock barrens.	Low	The species was not observed and preferred habitat was not identified within or adjacent to the study area.
Eastern Ribbonsnake	SC	SC	Eastern Ribbonsnakes are predominately found along the edges of large wetlands containing an abundance of shrubby vegetation. They can also be found in open woodlands that are	Low-Moderate	This species was not observed. Marginal habitat may exist at wetland edges within and adjacent to Site #1.

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
			adjacent to these wetlands.		
Eastern Wood-Pewee	SC	SC	Eastern Wood-Pewees prefer deciduous and mixed wood forests. They are often observed sallying to capture flying insects from an exposed perch high in the canopy.	Moderate-High	The species was not observed. Woodlands adjacent to the transmission corridor within the eastern portion of the study area may provide habitat for this species.
Golden-winged Warbler	SC	THR	Golden-winged Warblers are found in shrubby areas surrounded by woodland, such as utility right-of-ways, field edges, and logged areas.	Low-Moderate	This species was not observed. Portions of the transmission corridor may provide suitable habitat for this species.
Hooded Warbler	SC	NAR	Hooded Warblers are found in deciduous forests containing tall trees and a well-closed canopy. They require large tracts of woodland, preferring to breed near small clearings with shrubby vegetation.	Low	This species was not observed. Preferred habitat may exist within large woodlands adjacent to the transmission corridor within the vicinity of Brock Road.
Louisiana Water thrush	SC	THR	The species typically nests along pristine, headwater streams associated with large tracts of mature forest. It may also be found in heavily wooded	Low	The species was not observed and preferred habitat was not identified within the study area.

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
			deciduous swamps with large areas of open water.		
Milksnake	SC	SC	Milksnakes can be found in a range of habitats including deciduous woodland edges, abandoned fields, rocky outcrops and alvars; often near water.	Moderate	The species was not observed. Moderate habitat potential exists throughout Site #1.
Monarch	SC	SC	The species is commonly found in abandoned fields, along roadsides and in other habitats where Milkweed, Goldenrod, Asters and Purple Loosestrife exist.	Moderate-High	A single individual was observed. There is moderate potential for this species to breed in the mixed meadow throughout the transmission corridor.
Olive-sided Flycatcher	SC	THR	The species lives in forest openings and edges, particularly where tall snags and dead trees can be used for foraging perches. Breeding habitat is frequently located along wooded riparian corridors or wetlands.	Low	The species was not observed. Preferred habitat was not identified within or adjacent to the study area.
Peregrine Falcon	SC	SC	The species usually nests on steep cliff ledges adjacent to large waterbodies, but it has been known to nest on	Low	The species was not observed and suitable nesting structures were not identified within or adjacent to

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
			ledge of tall buildings.		the study area.
Red-headed Woodpecker	SC	THR	Red-headed Woodpeckers are found in open deciduous or mixed woodlands, preferring areas with many dead trees including golf courses, cemeteries and parks.	Low	This species was not observed. Suitable habitat was not identified on or adjacent to Site #1.
Short-eared Owl	SC	SC	The species is found in a variety of open areas including grassland, savannah, marsh and tundra where small mammal populations are abundant.	Low-Moderate	The species was not observed. Meadows, meadow marshes and grasslands within the transmission corridor may provide suitable habitat for this species.
Snapping Turtle	SC	SC	The species is generally associated with shallow ponds, shallow lakes and streams with abundant vegetation. Suitable nesting habitat includes gravely or sandy areas along streams, gravel shoulders along roadsides, dams and aggregate pits.	Moderate	The pond located 13 m south of the Site #1 has moderate habitat potential. Snapping Turtles were not observed during the site investigation.
Wood Thrush	SC	THR	This species is strongly associated with woodlands containing tall trees, usually deciduous forests	Low	This species was not observed. Preferred habitat was not identified within or

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
			but occasionally mixed wood forests as well. The presence of a thick understorey is usually a prerequisite for site occupancy.		adjacent to Site #1.

Protection status: [1] SARO - Species at Risk in Ontario and [2] COSEWIC - Committee on the Status of Endangered Wildlife in Canada: END – Endangered, THR – Threatened, SC – Special concern, NAR – Not at Risk, "-"– Not listed. [3] Habitat Description Source: COSEWIC reports and/or Species at Risk in Ontario (SARO) List.

Based on this assessment there is moderate potential for Eastern Wood-Pewee, Milksnake, Monarch and Snapping Turtle within or adjacent to Site #1. As species of Special Concern (formerly Vulnerable) on the SARO list, these species do not receive habitat protection under the *Endangered Species Act* (Government of Ontario, 2007).

Site #2

A geographical search for rare or special concern species presence and associated habitat was conducted using the MNRF Natural Heritage Information Centre (NHIC) database (MNRF, 2015a). Five (5) one square kilometre (1 km^2) quadrats (17PJ52_61, 17PJ52_60, 17PJ51_60, 17PJ51_59, and 17PJ50_59) surrounding Site #2 were checked to ensure potential species at risk were accounted for during field surveys. Of the six element occurrences recorded for the area searched, two are species of conservation concern that are tracked by the NHIC, but do not appear on the SARO or COSEWIC Lists and as such are not afforded habitat protection. These species are Eastern Burning Bush and Lurking Leskea. Should a more detailed vegetation survey be required at a more advanced stage of this Project, consideration could be given to these species. Along with the Endangered and Threatened species addressed in this section (i.e. Redside Dace, Acadian Flycatcher, and Butternut), there was an element occurrence for a species of Special Concern, the Eastern Ribbonsnake.

In addition to a search of the NHIC database, a review of available habitat types in the area, the OBBA (Bird Studies Canada et al., 2006) and the Ontario Reptile and Amphibian Atlas (Ontario

Nature, 2015) was completed to determine potential for additional species of conservation concern. Based on this review there is potential for several species of Special Concern in the vicinity of Study #2, including Black Tern, Canada Warbler, Common Nighthawk, Eastern Wood-Pewee, Golden-winged Warbler, Hooded Warbler, Louisiana Waterthrush, Peregrine Falcon, Olive-sided Flycatcher, Red-headed Woodpecker, Short-eared Owl, Wood Thrush, Snapping Turtle, Monarch and Milksnake.

During the 2015 phase of the Project, the Aurora District MNRF and TRCA were contacted for information pertaining to species at risk in the general area of candidate MTS Site #2 (see Appendix A). The MNRF identified nearby records for several Endangered and Threatened; however, species of conservation concern with the potential to find habitat in the general area of Site #2 were not identified by the MNRF. The TRCA data received does not overlap with the current study area and the 2016 information request for Site #2 had not been filled at the time this report was published.

An assessment of the habitat potential for the above-mentioned species of conservation concern in the vicinity of Site #2 is provided in Table 3-7.

Table 3-7: Species of Conservation Concern Habitat Potential Assessment – Site #2

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Black Tern	SC	NAR	The species requires large, shallow, quiet marshes where their floating nests are not subject to disturbance from humans or boat traffic.	Low	The species was not observed and suitable habitat was not identified within or adjacent to Site #2.
Canada Warbler	SC	THR	This species is found in a variety of forest types, but is most abundant in wet, mixed deciduous-coniferous forests with a well-developed shrub	Low	This species was not observed. Suitable habitat was not identified within or adjacent to the study

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
			layer. Also found in riparian shrub forests.		area.
Common Nighthawk	SC	THR	The species nests in areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings and open rock barrens.	Low	The species was not observed and preferred habitat was not identified within or adjacent to the study area.
Eastern Ribbonsnake	SC	SC	Eastern Ribbonsnakes are predominately found along the edges of large wetlands containing an abundance of shrubby vegetation. They can also be found in open woodlands that are adjacent to these wetlands.	Low-Moderate	This species was not observed. A single small wetland south of Site #2 may provide marginal habitat. Preferred habitat was not identified on or adjacent to the study area.
Eastern Wood-Pewee	SC	SC	Eastern Wood-Pewees prefer deciduous and mixed forests. They are often observed sallying to capture flying insects from an exposed perch high in the canopy.	Low	The species was not observed. Preferred habitat was not identified within or adjacent to the study area.
Golden-winged Warbler	SC	THR	Golden-winged Warblers are found in shrubby areas surrounded by woodland, such as utility right-of-ways, field edges, and logged areas.	Low-Moderate	This species was not observed. Portions of the transmission corridor may provide suitable habitat for this species.

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Hooded Warbler	SC	NAR	Hooded Warblers are found in deciduous forests containing tall trees and a well-closed canopy. They require large tracts of woodland, preferring to breed near small clearings with shrubby vegetation.	Low	This species was not observed. Preferred habitat was not identified within or adjacent to Site #2.
Louisiana Waterthrush	SC	THR	The species typically nests along pristine, headwater streams associated with large tracts of mature forest. It may also be found in heavily wooded deciduous swamps with large areas of open water.	Low	The species was not observed and preferred habitat was not identified within the study area.
Milksnake	SC	SC	Milksnakes can be found in a range of habitats including deciduous woodland edges, abandoned fields, rocky outcrops and alvars; often near water.	Low-Moderate	The species was not observed. Recent construction activities have reduced the availability of habitat adjacent to Site #2.
Monarch	SC	SC	The species is commonly found in abandoned fields, along roadsides and in other habitats where Milkweed, Goldenrod, Asters and Purple Loosestrife exist.	Moderate	The species was not observed. There is moderate potential for this species to breed in the mixed meadows throughout the transmission

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
					corridor.
Red-headed Woodpecker	SC	THR	Red-headed Woodpeckers are found in open deciduous or mixed woodlands, preferring areas with many dead trees including golf courses, cemeteries and parks.	Low	This species was not observed. Suitable habitat was not identified on or adjacent to Site #2.
Olive-sided Flycatcher	SC	THR	The species lives in forest openings and edges, particularly where tall snags and dead trees can be used for foraging perches. Breeding habitat is frequently located along wooded riparian corridors or wetlands.	Low	The species was not observed. Preferred habitat was not identified within or adjacent to the study area.
Peregrine Falcon	SC	SC	The species usually nests on steep cliff ledges adjacent to large waterbodies, but it has been known to nest on ledge of tall buildings.	Low	The species was not observed and suitable nesting structures were not identified within or adjacent to the study area.
Short-eared Owl	SC	SC	The species is found in a variety of open areas including grassland, savannah, marsh and tundra where small mammal populations are abundant.	Low-Moderate	The species was not observed. Meadows, meadow marshes and grasslands within the transmission corridor may provide suitable habitat for this

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
					species.
Snapping Turtle	SC	SC	The species is generally associated with shallow ponds, shallow lakes and streams with abundant vegetation. Suitable nesting habitat includes gravely or sandy areas along streams, gravel shoulders along roadsides, dams and aggregate pits.	Low	The species was not observed. Suitable habitat was not identified within or adjacent to Site #2.
Wood Thrush	SC	THR	This species is strongly associated with woodlands containing tall trees, usually deciduous forests but occasionally mixed wood forests as well. The presence of a thick understorey is usually a prerequisite for site occupancy.	Low	This species was not observed. Preferred habitat was not identified within or adjacent to Site #2.

Protection status: [1] SARO - Species at Risk in Ontario and [2] COSEWIC - Committee on the Status of Endangered Wildlife in Canada: END – Endangered, THR – Threatened, SC – Special concern, NAR – Not at Risk, "-"– Not listed. [3] Habitat Description Source: COSEWIC reports and/or Species at Risk in Ontario (SARO) List.

Based on this assessment there is moderate potential for Monarch within Site #2. As a species of Special Concern (formerly Vulnerable) on the SARO list, this species does not receive habitat protection under the *Endangered Species Act* (Government of Ontario, 2007).

Site #3

A geographical search for rare or special concern species presence and associated habitat was conducted using the MNRF Natural Heritage Information Centre (NHIC) database (MNRF, 2015c). Seven (7) one square kilometre (1 km^2) quadrats (17PJ51_60, 17PJ51_59, 17PJ51_58, 17PJ50_59, 17PJ50_58, 17PJ51_57 and 17PJ52_57) surrounding the study area of Site #3 were checked to ensure potential species at risk were accounted for during field surveys. Of the nine element occurrences recorded for the area searched, three are species of conservation concern that are tracked by the NHIC, but do not appear on the SARO or COSEWIC Lists and as such are not afforded habitat protection. These species are Eastern Burning Bush, Green-striped Darner (*Aeshna verticalis*) and Lurking Leskea. Limited information is available on the appearance and habit of these species making an assessment of habitat potential difficult; as such, they will not be discussed further in this report. Should more detailed wildlife and vegetation surveys be required at a more advanced stage of this Project, consideration could be given to these species. Along with the Endangered and Threatened species addressed in above section (i.e. Acadian Flycatcher, Bobolink, Butternut, and Eastern Meadowlark), there was an element occurrence for a species of Special Concern, the Eastern Ribbonsnake.

In addition to a search of the NHIC database, a review of available habitat types in the area, the OBBA (Bird Studies Canada et al., 2006) and the Ontario Reptile and Amphibian Atlas (Ontario Nature, 2015) was completed to determine potential for additional species of conservation concern. Based on this review, there is potential for several additional species of Special Concern in the vicinity of Site #3, including Black Tern, Canada Warbler, Common Nighthawk, Eastern Wood-Pewee, Golden-winged Warbler, Hooded Warbler, Red-headed Woodpecker, Wood Thrush, Peregrine Falcon, Snapping Turtle, Monarch and Milksnake.

During the 2015 phase of the Project, the Aurora District MNRF and TRCA were contacted for information pertaining to species at risk in the general area of candidate MTS Site #3 (see Appendix A). Species of conservation concern with the potential to find habitat in the general area of Site #3 were identified by the MNRF and include several species of Special Concern, including Eastern Wood-Pewee and Wood Thrush. TRCA had records for Wood Thrush near the east end of the proposed tap line. The 2016 information request for Site #3 had not been filled at the time this report was published.

An assessment of the habitat potential for the above-mentioned species of conservation concern in the vicinity of Site #3 is provided in Table 3-8.

Table 3-8: Species of Conservation Concern Habitat Potential Assessment – Site #3

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
Black Tern	SC	NAR	The species requires large, shallow, quiet marshes where their floating nests are not subject to disturbance from humans or boat traffic.	Low	The species was not observed. Preferred habitat was not identified within or adjacent to the study area.
Canada Warbler	SC	THR	This species is found in a variety of forest types, but is most abundant in wet, mixed deciduous-coniferous forests with a well-developed shrub layer. Also found in riparian shrub forests.	Low	This species was not observed. Suitable habitat, such as wet forests or riparian areas with a well-developed shrub layer, may exist in valleylands within and adjacent to the study area.
Common Nighthawk	SC	THR	The species nests in areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings and open rock barrens.	Low	This species was not observed. Suitable habitat was not identified within or adjacent to Site #3.
Eastern Ribbonsnake	SC	SC	Eastern Ribbonsnakes are predominately found along the edges of large wetlands containing an abundance of shrubby	Low	This species was not observed. Wetlands west of Site #3 may provide marginal habitat. Preferred

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
			vegetation. They can also be found in open woodlands that are adjacent to these wetlands.		habitat was not identified on or adjacent to the study area.
Eastern Wood-Pewee	SC	SC	Eastern Wood-Pewees prefer deciduous and mixed wood forests. They are often observed sallying to capture flying insects from an exposed perch high in the canopy.	Low-Moderate	The species was not observed, but the vegetated valleyland surrounding West Duffins Creek may provide habitat for this species.
Golden-winged Warbler	SC	THR	Golden-winged Warblers are found in shrubby areas surrounded by woodland, such as utility right-of-ways, field edges, and logged areas.	Low	This species was not observed. Portions of the transmission corridor may provide suitable habitat for this species.
Hooded Warbler	SC	NAR	Hooded Warblers are found in deciduous forests containing tall trees and a well-closed canopy. They require large tracts of woodland, preferring to breed near small clearings with shrubby vegetation.	Low-Moderate	The species was not observed, but the vegetated valleyland surrounding West Duffins Creek may provide habitat for this species.
Milksnake	SC	SC	Milksnakes can be found in a range of habitats including deciduous woodland edges, abandoned fields, rocky	Moderate	The species was not observed. Moderate habitat potential exists throughout Site #3.

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
			outcrops and alvars; often near water.		
Monarch	SC	SC	The species is commonly found in abandoned fields, along roadsides and in other habitats where Milkweed, Goldenrod, Asters and Purple Loosestrife exist.	Moderate	The species was not observed. Moderate habitat potential exists within the mixed meadow areas and along the roadsides within Site #3.
Peregrine Falcon	SC	SC	The species usually nests on steep cliff ledges adjacent to large waterbodies, but it has been known to nest on ledge of tall buildings.	Low	The species was not observed and suitable nesting structures were not identified within or adjacent to the study area.
Red-headed Woodpecker	SC	THR	Red-headed Woodpeckers are found in open deciduous or mixed woodlands, preferring areas with many dead trees including golf courses, cemeteries and parks.	Low	This species was not observed. Preferred habitat was not identified within or adjacent to Site #3.
Snapping Turtle	SC	SC	The species is generally associated with shallow ponds, shallow lakes and streams with abundant vegetation. Suitable nesting habitat includes gravely or sandy areas	Low	Water features containing suitable habitat were not identified within or adjacent to Site #3.

SPECIES NAME	SARO[1]	COSEWIC[2]	HABITAT DESCRIPTION[3]	HABITAT POTENTIAL	FIELD ASSESSMENT AND OBSERVATIONS
			along streams, gravel shoulders along roadsides, dams and aggregate pits.		
Wood Thrush	SC	THR	This species is strongly associated with woodlands containing tall trees, usually deciduous forests but occasionally mixed wood forests as well. The presence of a thick understorey is usually a prerequisite for site occupancy.	Moderate – High	This species was observed within the woodland on the south side of West Duffins Creek Suitable habitat is thought to exist within the West Duffins Creek valleyland and wooded areas north of the Cherrywood Transformer Station.

Protection status: [1] SARO - Species at Risk in Ontario and [2] COSEWIC - Committee on the Status of Endangered Wildlife in Canada: END – Endangered, THR – Threatened, SC – Special concern, "-"– Not listed. [3] Habitat Description Source: COSEWIC reports and/or Species at Risk in Ontario (SARO) List.

One species of Special Concern, Wood Thrush, was observed during the breeding bird surveys. A single male Wood Thrush was observed singing within the wooded area south of West Duffins Creek and east of the transmission corridor on June 29, 2016. While not observed during the site investigation, there is moderate habitat potential for Milksnake and Monarch within and adjacent to the study area of Site #3. As species of Special Concern (formerly Vulnerable) on the SARO list, these species do not receive habitat protection under the *Endangered Species Act* (Government of Ontario, 2007).

Seasonal Concentration Areas of Animals

Areas of seasonal concentrations of animals are defined as "areas where animals occur in relatively high densities at specific periods in their life cycle and/or particular seasons." At these times, species are vulnerable to ecological interferences or weather impacts. Areas of seasonal concentration are typically small in comparison to the larger habitat areas used by species at other times of the year. The identification of habitats associated with seasonal concentrations of species is typically based on known occurrences (MNRF, 2000). Examples include: deer yards; amphibian breeding ponds; snake and bat hibernacula; waterfowl staging and moulting areas; raptor nesting habitat; bird nesting colonies; shorebird staging areas; and passerine migration concentration areas. Seasonal concentration areas were searched for at the three alternative sites and are summarized in the following:

Site #1- Vegetation communities identified on Site #1 were not unusual in southern Ontario and did not appear to provide high quality habitat, and no evidence was found suggesting that animals of any species congregated within the area. The pond located 13 m south of the south site boundary may contain turtle wintering habitat. While turtles were not located in or around this pond, it did have a soft muddy substrate in areas and was of sufficient depth to prevent freezing of the entire pond. No other seasonal concentration areas were identified within 120 m of Site #1.

Site #2- This site is comprised largely of agricultural land uses and did not appear to provide high quality habitat; and no evidence was found suggesting that animals of any species congregated within the area. Thus, it is unlikely that Site #2 contains any seasonal concentration areas.

Site #3- This site is composed largely of Eastern White Cedar-dominated forest (FOCM4-1 and FOMM4) and Dry- Fresh Mixed Meadow (MEMM3), and does not appear to provide quality habitat. Mature forest was not present on Site #3, and no evidence was found suggesting that animals of any species congregated within the vicinity. Thus, it is unlikely that Site #3 contains any seasonal concentration areas.

Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare vegetation communities are vegetation communities that are considered rare in the Province of Ontario. It is assumed that these vegetation communities are at risk of disappearing from the landscape due to their current rarity and that they are more likely to support rare species and other features that are considered significant than other more common vegetation communities. Rare vegetation communities include Cliffs and Talus Slopes, Sand Barrens, Alvars, Old Growth Forest, Savannahs and Tallgrass Prairies. Specialized habitats include Waterfowl Nesting Areas, Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat, Woodland Raptor Nesting Habitat, Turtle Nesting Areas, Seeps and Springs, and Amphibian Breeding Habitats. The investigation for rare vegetation communities and specialized wildlife habitats in the three alternative sites are summarized as follows:

Site #1- Rare vegetation communities / specialized habitats are defined previously. Site #1 is comprised largely of Dry-Fresh Mixed Meadow (MEMM3); a common vegetation community in southern Ontario often associated with the regeneration of former agriculture and cleared areas. Treed areas on Site #1 were classed as Fresh-Moist Poplar Deciduous Woodland (WODM5-1) and Dry-Fresh Scots Pine Naturalized Plantation (FOCM6-3), vegetation communities that are not rare in southern Ontario.

Site #1 lacked old growth forest features which, if present, might provide specialized habitats and food sources for other species dependent on those features. Additionally, none of the vegetation communities identified on Site #1 are designated as rare or threatened in this region. Three unevaluated wetland pockets are located on Site #1, including one at the southwest site corner, one at the southeast site corner, and one just west of the northeast site corner (Figure 3-2). While surveys were not completed during the early spring windows to determine presence or absence of breeding amphibian species, it will be assumed for the purpose of this report that these three wetland pockets provide amphibian breeding habitat (woodland). Site #1 does not fit the criteria for any additional specialized habitats.

Site #2- Rare vegetation communities / specialized habitats are defined previously. The majority of Site #2 lacked tree cover, with the exception of hedgerows around the perimeter and some trees in

the riparian corridor surrounding Ganateskiagon Creek located 18 m north of Site #2. Significant old growth forest features were lacking on Site #2 which, if present, might provide specialized habitats and food sources for other species dependent on those features. None of the vegetation communities identified in the vicinity of Site #2 are designated as rare or threatened in this region.

An unevaluated wetland was associated with Ganateskiagon Creek north of Site #2 (Figure 3-3). While surveys were not completed during the early spring windows to determine presence or absence of breeding amphibian species, it will be assumed for the purpose of this report that this wetland provide amphibian breeding habitat (woodland). Site #2 does not fit the criteria for any additional specialized habitats.

Site #3- Rare vegetation communities / specialized habitats are defined previously. The majority of tree cover on Site #3 consisted of Fresh-Moist White Cedar Coniferous Forest (FOCM4-1), while other vegetation communities included Dry-Fresh Mixed Meadow (MEMM-3), Dry-Fresh White Cedar Mixed Forest (FOMM4) and Buckthorn Deciduous Shrub Thicket (THDM2-6). These vegetation communities are common in southern Ontario. Site #3 lacked significant old growth forest features which, if present, might provide specialized habitats and food sources for other species dependent on those features. None of the vegetation communities identified in the vicinity of Site #3 are designated as rare or threatened in this region. In addition, Site #3 does not fit the criteria for any of the specialized habitats as defined previously.

Animal Movement Corridors

The Natural Heritage Reference Manual (MNRF, 2010) describes animal movement corridors as habitats that link two or more wildlife habitats that are critical to the maintenance of a population, species, or group of species, or habitats with a key ecological function to enable wildlife to move, with minimum mortality between areas of Significant Wildlife Habitat (SWH) or core natural areas. The Significant Wildlife Habitat Technical Guide (MNRF, 2000) further describes animal movement corridors as elongated, naturally vegetated parts of the landscapes used by animals to move from one habitat to another. Examples may include riparian zones and shorelines, wetland buffers, stream and river valleys, woodlands, and anthropogenic features including hydro and pipeline corridors, abandoned road and rail allowances, and fencerows and windbreaks.

The presence/absence of animal movement corridors within 120 m of the three alternative sites are provided in Table 3-9, Table 3-10 and Table 3-11 below.

Table 3-9: Animal Movement Corridors - Site #1

HABITAT TYPE	CANDIDATE SWH CRITERIA AND SITE INVESTIGATION RESULTS
Amphibian Movement Corridors	Amphibian movement corridors are only determined if amphibian breeding habitat (wetlands) is confirmed as SWH. As no candidate areas of amphibian breeding habitat (wetlands) were identified on or within 120m of Site #1, amphibian movement corridors do not apply.
Deer Movement Corridors	Candidate deer movement corridors are only determined if deer wintering habitat is confirmed as SWH. Deer wintering habitat was not identified.

Table 3-10: Animal Movement Corridors - Site #2 □

HABITAT TYPE	CANDIDATE SWH CRITERIA AND SITE INVESTIGATION RESULTS
Amphibian Movement Corridors	Amphibian movement corridors are only determined if amphibian breeding habitat (wetlands) is confirmed as SWH. As no candidate areas of amphibian breeding habitat (wetlands) were identified on or within 120m of Site #1, amphibian movement corridors do not apply.
Deer Movement Corridors	Candidate deer movement corridors are only determined if deer wintering habitat is confirmed as SWH. Deer wintering habitat was not identified within 120 m of Site #2, so deer movement corridors do not apply.

	within 120 m of Site #2, so deer movement corridors do not apply.

Table 3-11: Animal Movement Corridors - Site #3

HABITAT TYPE	CANDIDATE SWH CRITERIA AND SITE INVESTIGATION RESULTS
Amphibian Movement Corridors	Amphibian movement corridors are only determined if amphibian breeding habitat (wetlands) is confirmed as SWH. As no candidate areas of amphibian breeding habitat (wetlands) were identified on or within 120m of Site #1, amphibian movement corridors do not apply.
Deer Movement Corridors	Candidate deer movement corridors are only determined if deer wintering habitat is confirmed as SWH. Deer wintering habitat was not identified within 120 m of Site #3, so deer movement corridors do not apply.

While animal movement corridors were not identified based on the criteria in the Significant Wildlife Habitat Technical Guide (MNRF, 2000), the entire area of Site #3 is located within an area designated as the Rouge-Duffins Wildlife Corridor on the Schedule III: Resource Management Map (Sheet 1 of 3) in the City of Pickering Official Plan (2010). This corridor is between 0.5 and 2 km in width, running in a northeast/southwest direction along the north part of Pickering, from West Duffins Creek to the Rouge River.

Significant Natural Features Summary

Summaries of the significant natural heritage features identified on or adjacent to the three transmission line upgrade areas are provided in Tables 3-12, 3-13, and 3-14 below. These summaries are based on the results of the site investigation and a review of available documentation pertaining to the three study areas.

Table 3-12: Significant Feature Assessment Summary - Site #1 Study Area

FEATURE	PRESENT	COMMENT
Fish Habitat	Yes	Urfe Creek and Ganateskiagon Creek traverse the eastern portion of the study area and likely provide cool or cold-water fish habitat. A pond south Site #1 within they transmission corridor may act as warm-water fish habitat, though fish were not observed during the site investigation.
Habitats of Endangered or Threatened Species	Yes	Urfe Creek and Ganateskiagon Creek have been identified by the MNRF as recovery and occupied habitat for Redside Dace, respectively. The study area also provides suitable habitat for Butternut, though none were observed within the transmission corridor.
Areas of Natural and Scientific Interest (ANSI)	No	ANSIs were not identified within 120 m of Site #1.
Significant Wetlands	No	There were no significant wetlands identified within or adjacent to Site #1. Three small unevaluated wetland pockets were located within the transmission corridor and four more about the corridor within the eastern portion of the study area. These wetlands are consistent with TRCA's regulated areas mapping.
Significant Coastal Wetlands	No	N/A
Significant Wildlife Habitat	Yes	Animal movement corridors are thought to exist within the river valleys and transmission corridor within Site #1. In addition, there is moderate habitat potential for species of conservation concern including Eastern Wood-Pewee, Milksnake, Monarch and Snapping Turtle within or adjacent to Site #1. Formal assessments for seasonal concentration areas, rare vegetation communities and specialized habitat for wildlife were beyond the scope of this study.
Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River)	Yes	The wooded areas adjacent to Site #1 have been identified as key natural heritage features in the Durham Region Official Plan (2015).

FEATURE	PRESENT	COMMENT
Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River)	Yes	The vegetated corridor surrounding Urfe Creek and Ganateskiagon Creek have been identified as a significant valleylands. In addition, the West Duffins Creek valleyland adjacent to the western end of the Site #1 study area is considered significant.

Table 3-13: Significant Feature Assessment Summary – Site #2 Study Area

FEATURE	PRESENT	COMMENT
Fish Habitat	No	There are no watercourses or waterbodies located within or adjacent to Site #2.
Habitats of Endangered or Threatened Species	Yes	Habitat for Endangered and Threatened species (Redside Dace) was identified or adjacent to Site #2.
(Areas of Natural and Scientific Interest (ANSI)	No	ANSIs were not identified within or adjacent to Site #2.
Significant Wetlands	No	There were no significant wetlands identified within or adjacent to Site #2. An unevaluated wetland is located within the transmission corridor and adjacent lands approximately 160 m south of Site #2. This wetland is unlikely to be considered significant given its relatively small size and distance from neighbouring wetlands units.
Significant Coastal Wetlands	No	N/A
Significant Wildlife Habitat	Yes	Animal movement corridors are thought to exist within the river valleys and transmission corridor within the study area. In addition, there is moderate habitat potential for Monarch, a species of conservation concern, in meadows and along roadsides within or adjacent to Site #2. Formal assessments for seasonal concentration areas, rare vegetation communities and specialized habitat for wildlife were beyond the scope of this study.
Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River)	Yes	The wooded areas adjacent to Site #2 have been identified as key natural heritage features in the Durham Region Official Plan (2015).
Significant Valleylands in	Yes	There are no significant valleylands identified within the study area

FEATURE	PRESENT	COMMENT
Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River)		of Site #2; however, the West Duffins Creek valleyland adjacent to the western end of Site #2 is considered significant.

Table 3-14: Significant Feature Assessment Summary – Site #3 Study Area

FEATURE	PRESENT	COMMENT
Fish Habitat	Yes	West Duffins Creek traverses the transmission corridor north of the Cherrywood Transformer Station, and an unnamed tributary of the Frenchman's Bay watershed is present within the transmission corridor south of Site #3. These watercourses are thought to provide fish habitat.
Habitats of Endangered or Threatened Species	Yes	Bank Swallow, Eastern Meadowlark, and Bobolink were observed within or adjacent to Site #3. Butternut species were not observed but are known to be present within the general area. There is moderate potential for this species within Site #3.
Areas of Natural and Scientific Interest (ANSI)	No	ANSIs were not identified within 120 m of Site #3.
Significant Wetlands	No	There were no significant wetlands identified within or adjacent to Site #3. Several unevaluated wetlands are present within the study area, including meadow marsh habitat within the proposed tap line location and transmission corridor north of the Cherrywood Transformer Station. These areas are consistent with TRCA regulated areas mapping.
Significant Coastal Wetlands	No	N/A
Significant Wildlife Habitat	Yes	The tap line location and transmission corridor south of Site #3 are within the Rouge-Duffins Wildlife Corridor. Other animal movement corridors are thought to exist within the river valleys and transmission corridors within Site #. In addition, there is moderate habitat potential for species of conservation concern including Milksnake, Monarch and Wood Thrush within or

FEATURE	PRESENT	COMMENT
		adjacent to Site #3. Formal assessments for seasonal concentration areas, rare vegetation communities and specialized habitat for wildlife were beyond the scope of this study.
Significant Woodlands in Ecoregions 6E and 7E	Yes	The wooded areas adjacent to Site #3 have been identified as key natural heritage features in the Durham Region Official Plan (2015).
Significant Valleylands in Ecoregions 6E and 7E	Yes	The vegetated corridors surrounding West Duffins Creek and the unnamed tributary south of Site #3 have been identified as significant valleylands.

Natural Heritage Features Conclusions

The following conclusions are provided based on the study findings presented in this report:

- Several watercourses are present within the general area. Urfe Creek and Ganateskiagon Creek traverse the eastern portion of Site #1 and 2, while West Duffins Creek and an unnamed tributary of the Frenchman's Bay watershed traverse Site #3. These watercourses are assumed to provide cold-water fish habitat and require a minimum 30 m buffer. In addition, the MNRF has identified that Urfe Creek acts as recovery habitat for the Endangered Redside Dace, and Ganateskiagon Creek is occupied habitat of Redside Dace.

- A pond is located within the transmission corridor south of Site #1 within Site #1. While fish were not observed during the site investigation, this pond likely acts as warm-water fish habitat and should be provided a minimum 15 m buffer.

- Habitat for three Threatened species and one Special Concern species is present within the vicinity of Study Area). Two Bank Swallows were observed flying over West Duffins Creek and are likely nesting in the steep sand/gravel banks within the valley. Bobolink were observed within the meadow south of West Duffins Creek and east of the transmission corridor, while Eastern Meadowlark were observed within the eastern portion of the transmission corridor south of Site #3. Wood Thrush was observed within the woodland

flanking West Duffins Creek north of the Cherrywood Transformer Station. While not observed, there is moderate potential for Butternut within Site #3 and eastern portions of Site #1. Barn Swallows were observed throughout the general area, but nesting structures were not observed within or adjacent to the three study areas.

- Significant wildlife habitat in the form of animal movement corridors and habitat for species of conservation concern, including Special Concern species, is present within the three study areas. Valleylands and transmission corridors within the study areas likely act as animal movement corridors between core features and habitats within the landscape. The tap line location for Site #3 and the transmission corridor east of Cherrywood Transformer Station have been formally designated as part of the Rouge-Duffins Wildlife Corridor in the City of Pickering Official Plan (2010). Moderate habitat potential exists for several Special Concern species, including: Eastern Wood-pewee, Monarch, Milksnake and Snapping Turtle within or adjacent to Site #1; Monarch within or adjacent to Site #2; and, Milksnake, Monarch, and Wood Thrush within or adjacent to Site #3.

- There were no significant wetlands identified within or adjacent to the three study areas; however, there were unevaluated wetlands present within and adjacent to each study area.

- Wooded areas within the three study areas have been identified as significant woodlands on the Durham Region Official Plan (2015).

- The valleylands associated with Urfe Creek, Ganateskiagon Creek, and West Duffins Creek are considered significant along with the unnamed tributary of Frenchman's Bay watershed within Site #3.

3.7 Recreational Resources

There were no significant recreational resources identified at any of Sites #1-3.

3.7.1 Parklands

Site #3 is close to Grand Valley Park (a municipal park with leash free dog areas); however the park is outside of the study area.

3.7.2 Trails

The study area, within which Site #3 is located, is used on an informal basis for dog walking and hiking as evidenced by a trail network. Site #3 is in close proximity to the Seaton Hiking Trail.

3.7.3 Community Gardens

The closest community garden is the Valley Plentiful Community garden, located behind the Diana Princess of Wales Park behind the Pickering Recreation Complex approximately 2.6 km south east of the study area (City of Pickering, 2017a). There are no community gardens located in the study area.

3.8 Visual and Aesthetic Resources

Aesthetics, as it relates to this investigation, is the visual impact that a proposed sub-station would have on the surrounding environment and to identify the potential to change the landscape and create a level of compatibility with the surrounding environment.

Schedule 9 of the CPDP establishes Urban Design Guidelines that seek to create developments that are sensitive to the existing natural and built heritage features of the Seaton area.

The proposed station will have aesthetic interactions with the surrounding current and future land use in the area. The visual screening and station esthetics will vary based on the site alternative:

Site #1 -Easily screened from roadways.

Site #2 - Overhead line tap connection may be visually distracting.

Site #3 - Easily screened from roadways.

The resources identified within the study area as discussed in this section will be carried forward and considered in the evaluation and selection of the preferred alternative. Potential effects of the proposed Project on recreational resources are discussed further in Section 7.7.

4. Consultation

Consultation is a critical component of the Class Environmental Assessment process. The purpose of consultation is to provide those who may be interested in, or potentially affected by, the proposed Project with timely and adequate information and opportunities to participate in the planning process. Consultation also allows the proponent to gain information and knowledge related to social, cultural, economic and environmental considerations of direct relevance to the proposed Project and provides the means to inform and explain the approach and value of the proposed Project.

The key principles that guided Veridan and Hydro One's approach as co-proponents to communication and consultation include the following:

- Early, ongoing and timely communications;
- Clear project information and documentation;
- An open, transparent, and flexible consultation process;
- Respectful dialogue with First Nations communities, government officials, and project stakeholders;
- Ongoing opportunities for interested parties to provide meaningful input on the proposed undertaking and;
- Full and fair considerations by the proponents of all input received during the consultation process and incorporation of such input into decision-making and project documentation.

Consultation methods incorporated a two-way communication process involving First Nations communities; federal agencies, provincial and municipal government officials and agencies, potentially affected and interested persons; and interest groups. These methods were selected to promote a comprehensive and transparent approach.

To explain the Project and better understand specific considerations for each different group, the following methods were used:

- Letters, flyers, and newspaper advertisements to announce and provide updates on the Project;
- Three Public Information Centres (PICs), which provided opportunities for interested parties to discuss and pose questions to the project team and provide feedback;
- Individual meetings with local elected officials;
- Dedicated Veridian and Hydro One representatives; and
- Established and maintained a Project website to allow for the sharing of project information (https://www.hydroone.com/about/corporate-information/major-projects/seaton).

A contact list of government ministries and agencies was developed for the proposed project, based on the MOECC Government Review Team (GRT) distribution list. The project-specific GRT provides comments from each agency's mandated areas of responsibility which contributes to the review of a Class EA in addition to other documentation from First Nations and Metis communities, elected officials, interest groups and potentially affected or interested individuals. All of these groups were also included in the contact list for the Project (Appendix A-2).

The results of the consultation program are summarized in the section below. Input was considered by Verdian and Hydro One and incorporated into the proposed Project, where appropriate. A copy of the Project Correspondence Log is provided in Appendix A-2. Copies of consultation materials, such as public notices, notification letters, PIC display panels and correspondences are included in Appendices A-1 through A-8.

4.1 Notifications

The following notifications were issued to keep the community and interested parties updated on the Project and the Class EA process and ensure they were aware of the opportunities for providing input.

4.1.1 Initial Notification and Notice of Commencement

Veridian initiated the Class EA process on June 15, 2015, to evaluate and identify sites for the proposed MTS. Initial contact to First Nations communities, municipal and provincial government officials, federal and provincial agencies, potentially affected and interested persons, and interest groups was made by Veridian e-mail and postal mail on June 12, 2015. Veridian publicly announced the initiation of the Class EA process through their Notice of Commencement and invitation to their PIC #1a (Section 4.1.2).

As part of the revised Class EA process, developed together by Veridian and Hydro One as co-proponents, the Ministry of Energy was contacted on March 31, 2016, to confirm consultation requirements with regard to potentially interested First Nations communities. Details on consultation with First Nations communities are presented in Section 4.2. A pre-consultation meeting with MOECC also took place prior to public notification on March 16, 2016.

Beyond this preliminary outreach, initial contact to provide information on the revised Class EA process to the affected First Nations communities was made by Veridian and Hydro One by e-mail and postal mail on September 26 and 27, 2016.

Initial contact to provide information on the revised Class EA process to one federal agency (Transport Canada), municipal and provincial government officials and agencies, potentially affected and interested persons and interest groups was made by Veridian and Hydro One between October 12 and 14, 2016 through the updated Notice of Commencement and invitation to PIC #1b. First Nations communities were also invited to PIC #1b. The proposed Project's contact lists are provided in Appendix A-1.

The updated Notice of Commencement was issued by Veridian and Hydro One to publicly announce the undertaking of the Class EA process for the proposed Project and associated transmission line work. It also identified the Project need, the route alternatives considered in the proximity of the new Seaton Community, the proposed Project study area and outlined opportunities to provide input and comments.

The updated Notice of Commencement and PIC #1b were delivered by postal mail to residences located within 300m of each station site and 150m on either site of the three associated transmission lines on October 15, 2016. Of the 170 addresses, 163 successful deliveries were made.

In addition, advertisements were published in the *Pickering News Advertiser* on October 20, 2016 and also on October 27, 2016. The notices were delivered by postal mail and email to the affected First Nations communities, and also mailed to nearby local residents (See Section 4.1 for more details). As per the Class EA process, the Final Notification will be sent to the interested public, agencies, and First Nations communities when the Draft ESR is made available for the 30-day review. More information can be found in Section 4.7.

The Notice of Commencement may be viewed at Appendix A-3.

4.1.2 Invitation to Public Information Centre (PIC #1a)

The invitation to the Veridian PIC #1a was published in the Pickering News Advertiser on June 24, 2015. PIC #1a was held on August 4, 2015; please refer to Section 4.6.4 for more information about this PIC. All consultation documentation for PIC #1a can be found in Appendix A-4.

4.1.3 Invitation to Public Information Centre (PIC #1b)

The invitation to the first joint Veridian and Hydro One PIC were distributed via email, postal mail, and newspaper advertisements. The newspaper advertisement was published in the Pickering News Advertiser on October 20, 2016 and also on October 27, 2016. PIC #1b was held on November 2, 2016; please refer to Section 4.6.5 for more information about this PIC. All consultation documentation for PIC #1b can be found in Appendix A-5.

4.1.4 Invitation to Public Information Centre (PIC #2)

The invitation to the second joint Veridian and Hydro One PIC was published in the Pickering News Advertiser on February 16, 2017 and again on February 23, 2017. PIC #2 was held on Thursday November 2, 2017; please refer to Section 4.6.6 for more information about this PIC. All consultation documentation for PIC #2 can be found in Appendix A-6.

4.2 First Nations Communities

The Class EA process requires engaging First Nations communities that may be affected by the Project. In June, 2015 Veridian formally initiated a Class EA for the proposed Project to evaluate three alternative transformer station sites. As part of Veridian's consultation program for Seaton MTS, the following First Nations & Mètis communities were contacted:

- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation (Mnjikaning)
- Curve Lake First Nation
- Hiawatha First Nation
- Métis Nation of Ontario
- Mississaugas of Scugog Island First Nation
- Mississaugas of the New Credit First Nation
- Six Nations of the Grand River First Nation
- Williams Treaties First Nation

Together as co-proponents for the revised Class EA process, Veridian and Hydro One contacted the Ministry of Energy, on March 31, 2016, and provided a description of the characteristics and location of the proposed Project as well as, the status of the Project. Veridian and Hydro One informed the Ministry of Energy that Veridian had notified the above ten First Nations & Mètis communities due to their proximity to the proposed Project. Veridian and Hydro One as co-proponents requested confirmation of the list from the Ministry of Energy in relation to the Project. In the letter to Verdian and Hydro One dated June 3, 2016, the Ministry of Energy stated that the Project has the potential to result in appreciable adverse impact on the asserted or established rights of First Nation communities. The Ministry recommended that based on currently available information the following First Nations communities should be consulted on the basis that they have or may have constitutionally protected Aboriginal or treaty rights that may be adversely impacted by the this Project:

- Alderville First Nation
- Huron Wendat First Nation
- Kawartha Nishnawbe First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation

The Ministry of Energy in its letter recommended that both Veridian and Hydro One as co-proponents maintain record of the interactions with the First Nations communities about the Project. In the event that First Nations communities provide Veridian and Hydro One with information indicating a potential adverse impact of this Project on its Aboriginal or treaty rights, the Ministry of Energy requested to be notified as appropriate.

In addition, the Ministry of Energy asked to be informed which preferred station site and route option will be implemented once the decision has been made.

Throughout the consultation program the First Nation communities, as identified by the Ministry of Energy, were notified about the proposed Project and regularly informed of project updates and given opportunities to provide input related to the proposed Project. On September 26 and 27, 2016, Veridian and Hydro One as co-proponents re-initiated consultation by sending a Project notification letter. This was achieved by way of postal mail of notifications, provision of information, updates about the proposed Project and follow-up phone calls. This preliminary engagement took place prior to all other notifications to give First Nations communities the opportunity to provide early input in the project planning stage.

Follow-up phone calls to the notified communities were made between October 20, 2016 and October 28, 2016.

During the follow-up conversation, the communities expressed the interest to be kept informed about the proposed Project. Some of the First Nations communities were also interested in being informed of any archaeological work. The communities confirmed that they will contact Veridian

and Hydro One if they have any questions. See Table 4-1 below for a summary of the First Nations community interest in this Project.

Table 4-1: Summary of First Nations Community Interest

FIRST NATION COMMUNITY	INTEREST/CONCERNS	PROJECT RESPONSE
Alderville First Nation (AFN)	The community does not have any specific concerns about the Project, but would like to be kept informed of archaeological work.	The Proponent will keep AFN informed of archaeological work done as part of the Project.
Curve Lake First Nation (CLFN)	The community has concerns related to the remains of their ancestors, and would like to be kept informed of any relevant archaeological findings.	The Proponent will keep CLFN informed of the Project.
Hiawatha First Nation (HFN)	The community expressed interest in archaeological work, and would like to provide monitors if any excavation work is to be done.	The Proponent will keep HFN informed regarding archaeological work, including any excavations (i.e. Stage 2 Archaeological Assessment), and engage monitors as requested.
Huron Wendat First Nation (HWFN)	The community expressed interest in archaeological work, and would like to provide input to any Stage 2 work.	The Proponent has informed HWFN of upcoming Stage 2 archaeological work, and will engage monitors as requested.
Kawartha Nishnawbe First Nation (KNFN)	The community has not provided any correspondence for the Project.	The Proponent will continue to provide notifications to KNFN per the requirements of the Class EA.
Mississaugas of Scugog Island First Nation (MSIFN)	The community expressed interest in archaeological work, and would like to provide monitors for Stage 2 work.	The Proponent will keep MSIFN informed regarding archaeological work, including any excavations (i.e. Stage 2 Archaeological Assessment) and engage monitors as requested.

An invitation to attend PIC #1b, along with an update on the proposed Project, was sent via email and registered postal mail to the First Nation communities listed above on October 20, 2016. The invitation also included a copy of the advertisement for the PIC scheduled for November 2, 2016.

Between February 9, 2017 and February 13, 2017, the communities were informed by phone call and email that:

- Veridian and Hydro One have selected the preferred station site and route option from three alternatives initially identified.
- The preferred site and route option (Site #2) was determined based on the analysis of technical, environmental and socio-economic factors, as well as First Nation, public, and stakeholder feedback.
- Veridian and Hydro One project team is available to meet with the communities to provide an update on the Project (e.g., the evaluation criteria, site and route selection process, and the preferred site and route option for the proposed Project.).
- The PIC #2 will be held to provide an update on the Project to public.
- The invitation to PIC #2 will be send to the First Nation communities.

An invitation to attend PIC #2, along with an update on the proposed Project, was sent via email and registered postal mail to the communities listed above on February 14, 2017. The invitation also included a copy of the advertisement for PIC #2 scheduled for March 2, 2017.

None of the First Nations communities expressed interest to meet with the Veridian and Hydro One project team to discuss the Project updates.

However, some of the First Nations communities expressed interest to participate in a Stage 2 Archaeological Assessment for the Project. These First Nations communities are:

- Alderville First Nation
- Hiawatha First Nation
- Huron Wendat First Nation

- Mississaugas of Scugog Island First Nation

A letter to provide an update on the Class EA for the Seaton TS along with the Stage 1 Archaeological Report was sent via email to the communities listed above on August 10, 2017. The letter informed the communities that Veridian and Hydro One are planning to complete the Stage 2 field work in September, 2017.

Huron Wendat First Nation was the only First Nation community that participated in the field component of the Stage 2 Archaeological Assessment.

Huron Wendat First Nation, Hiawatha First Nation, Mississaugas of Scugog Island First Nation, and Curve Lake First Nation were updated on Archaeological Assessment throughout the Project. At the end of each day in the field where there were artifacts located, WSP sent a notification to contacts at the above mentioned First Nations (for details refer to A-2-Consultation Log). When the Draft of the Stage 2 Archaeological Assessment is completed, it will be shared with the First Nation communities for review and input before it is submitted to the MTCS.

For more information on Stage 2 Archaeological Assessment and correspondence with First Nation communities please refer to Section 3.3 of this document and to Appendix A-2 "Correspondence Log" respectively.

4.3 Federal Government & Agencies

As identified through the consultation process Transport Canada was the only federal agency affected by the proposed project.

On October 20, 2016, Transport Canada responded to the Notice of Commencement and Invitation to PIC #1b. The response outlined Transport Canada's Area of Interest and requested that Veridian and Hydro One determine if the proposed Project will potentially interact with federal property, and whether approval and/or authorization under any acts administered by Transport Canada is required. Otherwise, the agency requested to be removed from the distribution list.

Veridian and Hydro One determined that the Project does not interact with federal lands and does not require approval/authorization under any acts administered by Transport Canada.

4.4 Provincial Government Representatives & Agencies

As part of the consultation program, the following provincial government representatives and agencies were contacted:

- Local Members of Provincial Parliament
- Ministry of Energy
- Infrastructure Ontario
- Ministry of the Environment and Climate Change - Environmental Assessment and Approvals Branch
- MOECC - Central Region Office
- Ministry of Natural Resources and Forestry - Aurora District Office
- Toronto Regional Conservation Authority
- Ministry of Tourism, Culture and Sport
- Ministry of Transportation – Central Region

The above provincial government representatives and agencies were initially contacted during Veridian's initiation of the Class EA process in June 2015.

Veridian and Hydro One as co-proponents notified the above provincial government representatives and agencies to inform them of the revised Class EA between October 14 and 20, 2016. The Notice of Commencement and invitation to attend PIC #1b was also shared with them.

Subsequently, an invitation to attend PIC #2 was emailed to the representatives and agencies listed above on February 14, 2017. The invitation included an update on the proposed Project.

Additional details on correspondence with these provincial government agencies are provided in the following sections. The following sub-sections outline correspondence regarding the Class EA process.

4.4.1 Local Member of Provincial Parliament (MPP)

The local member of Provincial Parliament for Ajax – Pickering received the updated notices and invitations for both PIC #1b and PIC #2. There was no additional correspondence with respect to the Project.

4.4.2 Ministry of Energy (MOE)

The Ministry of Energy was initially received notification from Veridian and Hydro One by email on March 31, 2016. The MOE provided a list of First Nations communities that may be affected by the proposed Project, and recommended that Veridian and Hydro One maintain records of consultation throughout the Project. Section 4.2 lists the affected First Nations communities and MOE directives in detail.

4.4.3 Infrastructure Ontario (IO)

The two proposed station sites and associated line taps (Site #1 and #2) in the study area are located on Ministry of Infrastructure (MOI) owned lands, which are managed by Infrastructure Ontario (IO). Veridian and Hydro One met with IO on May 13, 2016 to discuss and provide an overview of the Project. IO was informed that Veridian initiated a Class EA process on June 15, 2015, to evaluate and identify sites for the proposed MTS. However the station must be connected to Hydro One's high-voltage grid.

Veridian and Hydro One explained the joint effort in revising the Class EA together as co-proponents. It was explained that in addition to evaluating the proposed station locations, the revised Class EA also would evaluate the associated connection to Hydro One's 230 kV transmission system.

Veridian provided IO with an overview of their consultation activities undertaken in 2015; including the consultation methods used, a list of First Nations communities notified about the Project as well as a summary of consultation record.

IO requested that Veridian and Hydro One include an evaluation of the potential impacts to MOI land holdings through the Project's *Class EA for Minor Transmission Facilities process*. This evaluation should take into consideration: disposition, grant easements, and other related activities.

On June 29, 2017 the project team was informed that the IO undertaking of granting an easement for the Project could no longer be covered by the Proponent's Class EA, meaning a separate EA process would be required. The EA process is subject to the *Ministry of Infrastructure Public Work Class Environmental Assessment* 2012, and would be considered to be a Category 'B' project, requiring a Consultation and Documentation (C&D) report. Veridian and Hydro One agreed that they would undertake the C&D reporting process for the preferred site (Site # 2).

4.4.4 Ministry of Environment and Climate Change (MOECC)

On March 16, 2016 a meeting took place with the MOECC regional planner. Veridian and Hydro One as co-proponents provided an overview of the proposed Project. The MOECC was informed Veridian initiated the Class EA process on June 15, 2015, to evaluate and identify sites for the proposed MTS.

Veridian provided the MOECC with an overview of their consultation activities previously undertaken in 2015, including the consultation methods used, a list of First Nations communities notified about the Project and a summary of the consultation records.

At this meeting Veridian and Hydro One also explained their plan to work together as co-proponents for the proposed Project's Class EA process and discussed the next steps that are planned for the Project.

On February 7, 2017, the MOECC responded (by letter) to the Notice of Commencement and Invitation to PIC #1b for the proposed Project. The response provided the attached "Areas of Interest" document that provides guidance regarding the MOECC's interest with respect to the

Class EA process. The MOECC letter stated that proponent should identify the Areas of Interest which are applicable to the Project, and ensure these are addressed. The MOECC letter also stated that a copy of the Environmental Study Report (ESR) should be sent to their office for review prior to the public 30-day draft ESR review period.

As per the above request, a pre-release copy of the draft ESR and accompanying appendices were provided to the MOECC on June 14, 2017 and on July 27, 2017 respectively for review. The MOECC provided comments to the project team on July 20, 2017 for the pre-release draft ESR and on August 9, 20 for the accompanying appendices. The project team provided responses to MOECC's comments on the pre-release draft ESR on September 27, 2017. A summary of this correspondence can be viewed in Table 4-2 below and Appendix A-2.

Table 4-2: Key Summary of MOECC Comments on Pre-Release Draft ESR

INTERESTS/CONCERNS	PROJECT RESPONSE
The MOECC indicated that additional permits, licences and approvals should be updated to include Permit to Take Water (PTTW) or registration on the Environmental Activity and Sector Registry (EASR).	The additional EAR and conditions around PTTW/EASR have been included in the draft ESR.
The MOECC requested discussion on known or potential contaminated sites within the context of the Human Settlements section of the draft ESR.	An additional section has been added to the draft ESR to describe known or potential contaminated sites in the Study Area.
The MOECC requested confirmation on applicable policies in the CTC Supply Protection Plan that applies to the project area.	The draft ESR has been revised to indicate that no specific policies in the CTC Source Protection Plan apply to the project, since it is not located in a well-head protection area, significant groundwater quality threat area, modelled significant threat location, or moderate and low threat location for Lake Ontario intakes.
The MOECC requested that lands designated as Protected Countryside in the Greenbelt Plan near Site #3 should be identified and discussed.	The appropriate section has been revised as follows to describe the portion of the study area that is designated as Protected Countryside:

INTERESTS/CONCERNS	PROJECT RESPONSE
	The northwest portion of the study area around site #3 is designated as Protected Countryside under the Greenbelt Plan. The designated area includes a CN Railway, transmission corridors, woodlot, and agricultural lands. Subject to Greenbelt Plan policies for Protected Countryside areas, infrastructure development receiving EA approval is permitted if it "serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt".
The MOECC requested that reference should be made to mitigation measures to manage soils in accordance with the MOECC's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).	The draft ESR has been updated to indicate that the management of excess soil should be in accordance with the guide.
The MOECC expressed concerns regarding the commitment of the Project to mitigate compaction impacts from construction/maintenance on agricultural soils.	An additional mitigation measure has been added as follows: Any compaction that occurs in agricultural areas during construction and operation will be addressed in consultation with the property owner/farmer and will include tilling or sub-soiling where appropriate. No residual effects are expected following application of mitigation measures.
The MOECC requested that a Stage 2 Archaeological Assessment be completed for the preferred alternative, which has not yet been undertaken. The mitigation measure proposed for potential impacts of disturbance/destruction of archaeological resources is avoidance through alternative site and route selection. Should it not be feasible or desirable to implement the undertaking in the way originally planned and documented in the ESR; and significant environmental implications are identified, an addendum to the ESR will be warranted.	An addendum to the ESR will be prepared and submitted should archaeological resources be identified that would result in selection of an alternative site or route.
The MOECC indicated that they recommend non-	Mitigation measures for air quality have been

INTERESTS/CONCERNS	PROJECT RESPONSE
chloride dust suppressants for dust control.	revised to indicate that non-chloride dust suppressants will be used.
The MOECC indicated that the disposal of waste water from dewatering activities must be done in accordance with PTTW or EASR.	The draft ESR has been revised to indicate that an EASR is required.
The MOECC requested clarification of the use of the MOI Public Works Class EA and consultation with Infrastructure Ontario (IO) and Ministry of Infrastructure (MOI).	This has been clarified in the document. A separate EA process will be used for IO's undertaking of granting an easement.

4.4.5 Ministry of Natural Resources and Forestry

The MNRF were initially contacted by WSP on April 29, 2015 to request information on species at risk (SAR) that may occur in the study area. This initial contact was made before the Project was officially announced. The MNRF provided a response on May 12, 2015 documenting a number of SAR that might be present, and that they had an interest in the proposed Project.

The MNRF were sent the official Notice of Commencement Letter on June 15, 2015 including a study area map and a comment form. On July 28, 2015 the MNRF were sent the notice for PIC #1a. There was no further communication at this stage.

On July 25, 2016 the MNRF were again contacted for SAR information that related to the expansion of the Study Area to include the transmission line segments.

The MNRF were formally notified of the proposed Project by Veridian and Hydro One as co-proponents by email on October 14, 2016. The MNRF were sent the notification for PIC #1b on October 20, 2016. On November 16, 2017 the MNRF provided the SAR information that was requested on July 25, 2016.

After providing the notice of PIC #2 on February 14, 2017, the MNRF provided a set of comments from their newly appointed biologist regarding the SAR present on the site. WSP was informed that the biologist did not have prior project correspondence on file. On March 8, 2017 WSP emailed all

correspondence records from April 29, 2015 to date, and offered to meet with the MNRF to discuss these records. No further correspondence was received.

The MNRF correspondence regarding SAR has been documented in Section 3.6.6 Natural Heritage Features and in Appendix A-2.

4.4.6 Ministry of Tourism, Culture and Sport

The MTCS acknowledged receipt of the Notice of Commencement and provided general information on heritage and archaeological study requirements. A Stage 1 archaeological assessment was completed by WSP (Appendix B-1), and was accepted into the Register on May 24, 2017.

At the time of writing, the Stage 2 report has not been completed or submitted to the MTCS for review. However, the presence of indigenous artifacts is an indicator that Stage 3 Archaeological Assessment is required prior to development and disturbance of the site for the Project..

4.4.7 Ministry of Transportation Ontario (MTO)

The Central Region of the MTO received notifications by email. The MTO did not provide any comments regarding the study at any stage of the consultation process.

4.4.1 Toronto Region and Conservation Authority (TRCA)

On November 23, 2016, the TRCA responded (by letter) to the Notice of Commencement and Invitation to PIC #1b for the proposed Project. The response outlined an Area of Interest for the TRCA within the project study area, which includes the TRCA Regulated Area. The TRCA letter stated that a desktop analysis indicated that there will be potential effects to the terrestrial natural heritage system, vegetation, wetlands and watercourses, depending on the station location. The TRCA recommended that a meeting or a site visit be set up with TRCA staff to further discuss station locations and to clarify comments.

On January 27, 2017, Veridian and Hydro One responded in writing to TRCA's concerns, addressing direct questions regarding project location proximity to: Natural Heritage Systems (NHS), wetlands, Environmentally Sensitive Areas (ESA), contiguous vegetation, and Highly Vulnerable Aquifers (HVA). Veridian and Hydro One also agreed to schedule a meeting to address

the station location options and proximity to environmental features, which took place on February 7, 2017.

Subsequent to the meeting, the TRCA provided additional information to Hydro One and Veridian with regard to groundwater resources, which were incorporated into the assessment of the site options. The TRCA also sent a letter with follow-up considerations/ directives to Veridian and Hydro One on February 10, 2017.

On February 27, 2017, Veridian and Hydro One responded in writing to TRCA's concerns, regarding the locations suggested in the Master Environmental Servicing Plan (MESP) due to proximity to NHS's. TRCA also expressed concerns regarding the location of the proposed line tap connection that was shown to be crossing through a wetland under their purview. Veridan and Hydro One confirmed in their response letter that the line tap configuration was changed to avoid this wetland, and they also agreed to coordinate a site visit and future staking when the preferred site has been selected. Veridian and Hydro One agreed to incorporate the following in the Environmental Study Report (ESR): wetland and headwater features and mitigation measures (including Low Impact Development measures); and identification of all natural features and possible mitigation measures (see Section 7). The TRCA requested that a copy of the Environmental Study Report (ESR) be sent to their office for review prior to the 30-day public review period.

As per their request, a pre-release copy of the draft ESR was provided to the TRCA on June 14, 2017. The TRCA provided their comments to the project team on July 12, 2017. The TRCA also requested a site visit be coordinated between TRCA staff and the project team to discuss and clarify a number of requirements for the detailed design phase of the Project.

The project team met on-site with the TRCA on August 25, 2017. It was clarified that additional studies (e.g., geotechnical, stormwater management, hydrogeology, etc.) may be required as part of site plan and other development applications, to be determined during detailed design. While on site, the TRCA reviewed the location for the line tap connection and commented that while it was no longer impacting the wetland to the east of the Site, it was now impacting a woodlot on the south side of Taunton Road. The TRCA recommended moving the line tap location slightly to the east to avoid a woodlot. The Project team reviewed the TRCA proposal based on technical constraints

such as existing utilities, pipelines and the angle at which the line tap would enter the station site. The Project Team concluded that the line tap could feasibly be rerouted to the west of the woodlot. The Project Team responded to TRCA with a letter and a sketch of the proposed new line tap configuration on October 24, 2017 (Appendix A-2).

The Key Interests and Concerns from the TRCA as well as the project team response are summarized below in Table 4-3. For more details of the summary and additional comments resulting from the site visit, refer to Appendix A-2.

Table 4-3: Key Summary of TRCA Comments on the Study and pre-release draft ESR

INTEREST/CONCERNS DURING STUDY	PROJECT RESPONSE
TRCA raised concerns about the MTS locations outlined in MESP. TRCA recommended exploring the option of moving Site #2 south of Taunton Rd.	The project team considered TRCA's concerns in addition to other constraints (e.g., infrastructure in the area such as petroleum pipelines) and determined that locating the station to the south is not feasible.
TRCA recommended exploring the option of moving the tap line connection to Site #2 to avoid the wetland to the east of the site.	To address this, the project team relocated the tap line to avoid the wetland.
Once a site is selected, TRCA staff expressed interest in a site visit to identify closely the natural features.	The project team will coordinate a site visit with TRCA once a site has been selected, prior to any construction activities taking place.
TRCA recommended adding headwater and wetland features to maps.	The project team added these features to the evaluation matrix in this ESR.
TRCA recommended the consideration of Low Impact Development (LID) for stormwater management measures.	The project team will consider LID measures during the detailed design phase.
If natural features are to be impacted, the TRCA recommends discussing compensation and/ or mitigation measures in the ESR.	Mitigation measures are addressed in Section 7 of this ESR.

TRCA recommended that the project team consider the natural features on-site and the regulation mapping.	The project team will coordinate with TRCA once a site has been selected to confirm the regulation mapping in a field visit.
INTERESTS/CONCERNS ON PRE-RELEASE DESR AND SITE MEETING	PROJECT RESPONSE
TRCA requested clarification on MESP Sites versus actual sites with respect to archaeological potential and utilities.	Two separate sites were considered on the South side of Taunton Road. The first site identified in the MESP as Site #2 (immediately to the east of the reservoir site) encroaches on a significant woodlot, and contains an identified archaeological site (rather than archaeological potential as outline in pre-release DESR). The second site is identified as "Disturbed Land" in the attached figure. The size of this site and the presence of easements for reservoir piping and a petroleum pipeline make this area too small to accommodate the Transformer station site, and thus the area was determined not to be technically feasible. As result, the third site located north of Taunton Road was chosen as Site # 2 in this ESR.
TRCA staff requires a site visit to identify features, impacts, stake limits and ensure appropriate buffers are applied. The design should minimize impacts to the Natural Heritage System and efforts made to ensure no negative impacts to the natural features within the Seaton Natural Heritage System or their ecological functions.	Veridan and Hydro One will coordinate site visits during the detailed design phase of the Project to stake the limits as requested.
Please note that Section 7 of the ESR (mitigation) addresses tree compensation. TRCA staff will require that the function of the features within the NHS (wetlands and woodlots) lost be compensated for and not specifically just tree plantings.	Veridian and Hydro One will address this at detailed design phase in the context of site plan approvals.
It is understood that the hydrogeological report will be completed at detailed design. Please refer to the Hydrogeological Assessment Submissions: Conservation Authority Guidelines	Veridian and Hydro One will address this at detailed design phase in the context of site plan approvals.

for Development Application.	
TRCA requested that at detailed design, stormwater management measures that address the stormwater management criteria established through the Seaton MESPA be provided.	Veridian and Hydro One will address this at detailed design phase in the context of site plan approvals and ECA applications.
TRCA requested that at detailed design, detailed erosion and sediment control plans must meet TRCA's guidelines.	Veridian and Hydro One will address this at detailed design phase in the context of site plan approvals.
TRCA requested a geotechnical study including boreholes and all necessary analyses and assessments is required to support the proposed works.	Veridian and Hydro One will address this at detailed design phase in the context of site plan approvals.
TRCA indicated that where any valley slopes exist, a slope stability and erosion hazard assessment is required to ensure that the facilities and transmission line for the proposed undertaking is not undermined by an erosion hazard in the long-term and does not destabilize the slopes.	Veridian and Hydro One will address this, if required, during the detailed design phase in the context of site plan approvals. Valley slopes are not expected to be impacted.
TRCA indicated that if any work is in proximity of a steep slope or valleys, the construction methodology and sequencing should be presented to ensure that the surrounding ground/slope is not adversely impacted during construction.	Veridian and Hydro One will address this, if required, during the detailed design phase in the context of site plan approvals. Steep slopes are not expected to be impacted.
While on site, the TRCA reviewed the location for the tap line connection and commented that while it was no longer impacting the wetland to the east of the Site, it was now impacting a woodlot on the south side of Taunton Road.	The Project team reviewed the TRCA proposal based on technical constrains such as existing utilities, pipelines and the angle at which the line tap would enter the station site. The Project Team concluded that the line tap could feasibly be rerouted to the west of the woodlot.

4.4.2 Summary of Provincial Government Representatives & Agencies

Issues and concerns raised by all other provincial government and various agencies throughout the consultation process have been summarized in Table 4-4 (below). Also included in this table is a summary of all efforts made to address concerns or mitigate potential effects.

Table 4-4: Summary of Interests or Concerns of Provincial Government Representatives & Agencies

AGENCY	INTEREST/CONCERNS	PROJECT RESPONSE
Infrastructure Ontario	IO indicated that the public must be informed that MOI lands are potentially affected. IO reiterated that Project's Class EA process must address all aspects of the MOI Class EA process. Later, IO informed Verdian and Hydro One that this process would no longer apply.	The project team ensured that the Class EA process covers the MOI's requirements. However, as the process no longer apples a separate Class EA will be completed according the Infrastructure Ontario Public Works Class EA. Verdian and Hydro One agreed to complete this process for IO's undertaking.
Ministry of Natural Resources and Forestry (MNRF)	MNRF indicated that Species at Risk may be present in the study area and may require authorizations as necessary.	Field studies undertaken indicated areas where SAR may reside. The site and route selection for the Project considered avoidance of the SAR habitat areas.
Ministry of Tourism, Culture and Sport (MTCS)	MTCS provided guidance on archaeology and heritage processes.	The Stage 1 Report was accepted by MTCS. A Stage 2 Archaeological Assessment field work was completed in September, 2017. A Stage 2 Report will be filed with the MTCS upon completion the Stage 2 Report

4.5 Municipal Government & Agencies

As part of the consultation program for the proposed Project, the following municipal government representatives and agencies were contacted during Veridian's initiation of the Class EA process in June 2015. The same municipal government representatives and agencies were contacted by Veridian and Hydro One as co-proponents on October 12, 2016 and October 17, 2016 to provide an update on the Class EA process:

- Members of Pickering City and Regional Council
- City of Pickering:
    - Chief Administrative Officer
    - Sustainability & Economic Development
    - Principal Planner – Strategic Initiatives
    - Chief Planner
- Regional Municipality of Durham:
    - Project Manager, Transportation Design

Veridian and Hydro One initiated consultation with municipal government representatives and agencies listed above via a project notification letter and invitation to attend the PIC #1b which was held on November 2, 2016. These engagement activities were hosted early in the project planning process to allow these stakeholders to provide early input.

Additional details on correspondence with the following municipal government and agencies can be seen in the sections below:

4.5.1 City of Pickering and Region of Durham

After Veridian formally announced the project in June 15, 2015, a meeting was held on July 24, 2015 between Veridian and representatives from the City of Pickering and the Region of Durham. The project specifics were discussed, including the site options that Veridian had proposed for the assessment. Both levels of municipal government requested additional information as the study progressed.

In addition to the correspondence outlined above, Veridian and Hydro One initiated formal consultation with municipal government representative via a Notice of Commencement on October 12, 2016 and October 17, 2016. These representatives were also sent an invitation to the PICs on October 20, 2016 and February 14, 2017 by e-mail. The PICs were attended by representatives from City of Pickering. However to date, no formal correspondence has been received from City of Pickering or Region of Durham.

4.5.2 City of Pickering Planning Division

The City Planning division was notified about the project. To date, no correspondence has been received from City of Pickering and Region of Durham.

4.6 Potentially Affected and Interested Persons, Businesses, and Interest Groups

Consultation opportunities were provided to potentially affected and interested persons and interest groups throughout the Class EA process. The public was notified about the proposed Project by phone calls, postal mail, email, and newspaper advertisements (see Section 4.1 for newspaper advertisement details).

4.6.1 Utilities

The following utilities were included in the consultation program because of the existing infrastructure in or near the study area:

- Enbridge Gas Distribution Inc.
- Trans Canada Pipelines Ltd.
- Trans Northern Pipeline Inc.

These organizations were notified by e-mail using known contact information or publicly available contact details. No concerns were received to date, but the above mentioned utilities requested to be kept up-to-date on the project.

4.6.2 Potentially Affected & Interested Persons

Property owners within the study area, including residential, commercial and industrial owners that may be potentially affected or adjacent to the proposed Project were contacted directly through postal mail for all consultation activities. Additionally, advertisements pertaining to each of the consultation activities were published in the *Pickering News Advertiser*.

During Veridian's initiation of the Class EA process the potentially affected and interested persons within the project study area (the study area that did not include the transmission line segment) were notified about the project.

Veridian and Hydro One initiated consultation by sending a project notification to the potentially affected and interested person within the study area (the study area that included the transmission line segment), on October 14, 2016. This preliminary engagement activity was hosted early in the project planning process in order to ensure that potentially affected and interested persons could provide input at an important stage in project planning.

An invitation to attend PIC #1b held on November 2, 2016 was sent during the week of October 20, 2016. The invitation included an update on the proposed Project and a copy of the newspaper advertisement for the PIC.

An invitation to attend PIC #2 which was held on March 2, 2017 was sent on February 14, 2017. The invitation included an update on the proposed Project and a copy of the newspaper advertisement for the PIC.

Table 4-5 presents all issues and concerns raised by potentially affected and interested groups throughout the consultation process, and in addition, a summary of all efforts to address concerns or mitigate potential effects is also included.

Table 4-5: Summary of Interests and Concerns Raised by Members of the Public

THEME	INTEREST/CONCERNS	PROJECT RESPONSE
Facility Siting	Members of the public suggested that the transformer station should be located closer to the expected electrical load.	The project team confirmed that the distance to expected load will be used in the evaluation of the alternatives.
Facility Siting	Members of the public indicated that they felt the transformer station should be located where there are no existing houses, and that residents near an existing transformer station should not be burdened with an additional station.	The project team confirmed that proximity to existing residences would be used in the evaluation of alternatives.

THEME	INTEREST/CONCERNS	PROJECT RESPONSE
Spills	Members of the public expressed concern about the potential for leachate from the closed landfill to be disturbed if transmission lines and other works cross them.	The project team confirmed that the Project's study area does not cross the closed landfill.
Noise	Members of the public expressed concern about noise from the existing Cherrywood Station and noise studies for the new station.	The project team provided contact information for who residents could speak to at Hydro One regarding Cherrywood TS.
Natural Environment	Members of the public expressed concern about the previous removal of trees at the existing Cherrywood Station in 2014.	Hydro One's team confirmed that these tree removals were part of a maintenance program, and not associated with the proposed Project. Hydro One explained that the removal of some vegetation may be required.
Wells/Groundwater	Members of the public expressed concern about their private wells going dry.	The project team confirmed they do not anticipate the need for any construction activities that would require water taking. The team will ensure that any water taking complies with the MOECC requirements.

4.6.3 Interest Groups

North Pickering Community Management Inc. was contacted during Veridian's initiation of the Class EA process in June 2015.

As part of Veridian and Hydro One's consultation program for the Project, the following interest groups were contacted:

- North Pickering Community Management Inc. (Arutip Engineering Ltd./Seaton Land Owner Group)
- Friends of the Seaton Trail
- High Perspective Hang Gliding Port/ High Perspective Inc.

Veridian and Hydro One initiated consultation by sending a project notification to the potentially affected and interested person within the study area (the study area that included the transmission line segment), on October 14, 2016. This preliminary engagement activity was hosted early in the project planning process in order to ensure that potentially affected and interested persons could provide input at an important stage in project planning.

An invitation to attend the PIC #1b held on November 2, 2016 was sent during the week of October 20, 2016. The invitation included an update on the proposed Project and a copy of the newspaper advertisement for the PIC.

An invitation to attend PIC #2 which was held on March 2, 2017 was sent on February 14, 2017. The invitation included an update on the proposed Project and a copy of the newspaper advertisement for the PIC.

Veridian and Hydro One received correspondence from only one of the interest groups, North Pickering Community Management Inc. (Seaton Land Owner Group), expressing their concern that the preferred site would interfere with work they were carrying out near Site #2. The project team responded that their work area was not within that of the Project study area.

With the exception of North Pickering Community Management Inc., no other interest groups were previously contacted by Veridian in 2015.

4.6.4 Public Information Centre (PIC #1a)

Veridian held PIC #1a at their offices located at 55 Taunton Road East, Ajax, Ontario on August 4, 2015. Two sessions were held to provide residents the option of attending in the afternoon or evening.

The Notice of the Public Information Centre was sent via postal mail on July 23, 2015 to the individuals on the project mailing list, including municipal, provincial and federal agencies, First Nations communities, and potentially affected and interested persons. An advertisement was also published in the *Pickering News Advertiser* on July 23, 2015.

At the PIC, Veridian project team members presented and discussed topics pertaining to the following areas:

- The purpose and objectives of the PIC;
- An overview of the project including the need for the project;
- The Class EA process;
- The evaluation process and criteria used to determine the preferred location;
- Opportunities for public involvement in the project; and
- Next steps in the study.

At the PIC, display panels were available for review. A comment form was available to allow attendees to record any comments or concerns and to provide feedback. In general, questions and comments raised during this first PIC pertained to site selection and the proximity to existing residential communities. A summary of all comments received at the first PIC can be are summarized in Appendix A-4, and issues and concerns raised are summarized in Table 4-5. The integration of the comments received into project planning as well as all follow-up conducted by Veridian and Hydro One is outlined in the Correspondence Log seen in Appendix A-2.

PIC #1a was attended by eight people.

- One attendee represented one of the developer groups working in the area.
- The remaining attendees had received mail-outs and/or saw the Notice of the PIC in the local newspaper.
- There were no municipal or provincial agency representatives in attendance.

4.6.5 Public Information Centre (PIC #1b)

After Veridian and Hydro One became co-proponents for this proposed Project, an initial PIC was held on November 2, 2016. The PIC was held at 55 Taunton Road East, Ajax, Ontario between 6:30 pm and 9:30 pm. Advertisements for PIC #1b were published in the *Pickering News Advertiser* on October 20, 2016 and October 27, 2016. In addition notices were distributed to all municipal, provincial, and federal government officials, government agencies, First Nations communities, interest groups, and potentially affected and interested persons listed in the Contact Lists (Appendix A-1).

At PIC #1b, Veridian and Hydro One team members presented and discussed topics pertaining to the following areas:

- Project update;
- Reiteration of the Project need and purpose;
- Overview of baseline conditions in the study area;
- A description of the connection to Hydro One's system including transmission line upgrades;

Presentation of the three site options with associated transmission line upgrades;

- Typical construction activities;
- Present draft conceptual designs;
- Next steps.

At the PIC, display panels were available for review. A comment form was available to allow attendees to record any comments or concerns and to provide feedback. In general, questions and comments raised during this PIC #1b pertained to the following topics: facility siting, potential releases to the environment, proximity to existing residential communities, and impacts to wells in the area. A summary of all comments received at this

PIC can be found in Appendix A-5, and issues and concerns raised are summarized in Tables 4-1 to 4-3. The integration of the comments received into project planning as well as all follow-up conducted by Veridian and Hydro One is outlined in the Correspondence Log seen in Appendix A-2.

PIC #1a was attended by 7 people.

- One attendee represented one of the residential developer groups working in the area (Mattamy Corp), please see Appendix A-2 for further detail.
- One attendee was from the City of Pickering.
- The remaining attendees had received mail-outs and/or saw the Notice of the PIC in the local newspaper.

4.6.6 Public Information Centre (PIC #2)

A second PIC was held on March 2, 2017. The PIC was held at 55 Taunton Road East, Ajax, Ontario between 6:30 p.m. and 8:30 p.m. Advertisements for PIC #2 were published in the *Pickering News Advertiser* during the weeks of February 6, 2016 and February 23, 2017. In addition, notices were distributed to all municipal, provincial, and federal government officials, government agencies, First Nations communities, interest groups, and potentially affected and interested persons listed in the Contact Lists (Appendix A-1).

At PIC #2, Veridian and Hydro One project team members presented and discussed topics pertaining to the following areas:

- Project update;
- Preferred station site and route selection;
- Evaluation criteria for station site and route selection
- Approvals process, environmental studies, and considerations and mitigations;
- Presented proposed construction methods; and
- Next steps.

At the PIC, display panels were available for review. A comment form was available to allow attendees to record any comments or concerns and to provide feedback.

The PIC was not attended by any members of the public.

4.7 Final Notification

The Final Notification will be sent to all municipal, provincial, and federal government officials, government agencies, First Nations communities, and potentially affected and interested persons as presented in Section 4.1 to Section 4.6 (see Appendix A-1 for the contact lists). This notification will indicate that the draft ESR is complete and the review period is commencing. A notification will be placed in local newspapers and copies of the draft ESR will be made available for review online and in hardcopy at multiple locations. The Final Notification will also provide instructions on how to fully participate in the Class EA process.

4.8 Draft ESR Review Period

Verdian and Hydro One as co-proponents will provide a 30-day review period for the review and comment of the draft ESR. Comments regarding the draft ESR are to be submitted to WSP Canada Inc. between November 17, 2017 until December 15, 2017 to:

Andrew Roberts
Project Consultant
WSP Canada Inc.,
Email:Andrew.Roberts@wspgroup.com
1-905-882-4111 ext. 6152

If an individual is dissatisfied with the EA process or with Hydro One's project recommendations, he or she is able make a written request within the review period to the Minister of the MOECC asking for a higher level of assessment via a Part II Order request. A proper and completed Part II Order request received up to the end of the review period by the Minister of the MOECC will be recognized and considered. Part II Order requests

must be sent to both the Minister of the MOECC and the Director of the Environmental Approvals Branch, with a copy to the proponent, at the following addresses:

Minister

Ministry of Environment and Climate Change

77 Wellesley Street West

Ferguson Block, 11th Floor

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4.9 Statement of Completion

Upon completion of the draft ESR review period, Hydro One will incorporate all comments received during the review period and finalize the ESR if no Part II Order requests have been received. The final ESR will be placed on the project website and sent to the EAB at the MOECC and the appropriate Regional EA Coordinator for filing. Verdian and Hydro One will complete and submit the Statement of Completion form to the MOECC along with the finalized ESR. At this point the Project is considered acceptable and can proceed as outlined in the final ESR.

5. Site Selection

This section documents the process that was used to select the preferred site for the Project and associated transmission line upgrades. The study area (as described in Section 2.1) was defined by Verdian and Hydro One as co-proponents as the area in which the station would best address the load requirements for the developing Seaton Community, and extends to include the area of potential project effects.

The subsequent process of selecting a preferred site for the proposed Project, as presented in this section, was identified within the previously delineated study area. The selection of the preferred site was done in conjunction with the consultation process, integrating information obtained from municipal, provincial, federal government officials, government agencies, First Nations communities, potentially affected and interested persons.

The preferred site was identified through a two-stage process. In stage one (Section 5.1), technically reasonable and feasible alternatives based on environmental features, technical and cost factors, and following the recommendations of the *PPS* (2014), were identified. In stage two (Section 5.2), the alternative sites were evaluated based on consultation with stakeholders, as well as detailed environmental, technical, and cost factors including potential quantitative and qualitative effects associated with each of the identified alternatives. The site with the greatest advantage was identified as the preferred site.

5.1 Alternative Sites Considered

To identify feasible alternative sites within the study area, site identification criteria were developed based upon technical characteristics including cost as well as environmental features. Additionally, the identification of alternative sites followed the recommendations of the *PPS* (2014) such as the optimization of existing infrastructure and public service facilities (Hydro One, 2015). The Master Environmental Servicing Plan (MESP), produced by SERNAS Group on behalf of Seaton Community Developer's Group (North Pickering Community Management Inc.), was also a useful planning tool used for this project, as it outlined locations for non-municipal utility services; including four potential transformer substation locations (refer to the City of Pickering MESP for details). The table below shows the concordance between the site nomenclature in this draft ESR and the MESP.

Table 5-1: Draft ESR & MESP Site Nomenclature

DRAFT ESR SITE	MESP SITE
1 – (Brock TS)	3
2 - (SL 22 TS)	2
3 – (CW TS)	4

The application of the alternative site identification criteria, presented in Table 5-1 above, resulted in the initial identification of three alternative sites for the proposed Project within the project study area.

Potential sites were selected and assessed on a parcel basis, which allows for investigations based on parcel descriptions. This is particularly helpful for archaeology and built heritage background investigations. Therefore, the parcel sizes differ between Sites, and the areas assessed are larger than required for the station. By assessing larger sites, there is flexibility in the determining the optimal layout and positioning of the station at the detailed design phase of the Project. Note that Veridian intends to develop a transformer substation with a nominal footprint of approximately 200 by 200m to accommodate the required equipment, as described in Section 6 Project Description.

5.1.1 Identification Criteria

Four possible sites were analyzed as potential alternative sites for the proposed Project by the Master Environmental Servicing Plan (MESP), based on the following identification criteria:

- The potential site should be as close as possible to the demand load it will service to reduce electrical losses;

- The potential site should be close to the high-voltage transmission line that will supply the station;
- The transmission facilities that would be required for each of these sites would use an existing right-of-way which is consistent with the planning recommendations of the PPS;
- The potential site should have available road access; and
- The potential site should be accessible to municipal or regional road, to allow for feeders from the substation to be located in those rights-of-way instead of having to construct new feeder rights-of-way.

In addition to these criteria, consideration was given to how reasonable it would be, based on the environmental, technical constraints and constructability requirements, to build a MTS at any of the four proposed locations outlined by the MESP. The following amendments and alteration were made to the MESP Sites (Table 5-1) to fit the project need and scope of this draft ESR:

- Site #1 is consistent with MESP Site 3.
- Site #2 is generally consistent with MESP Site 2. However, it was moved from the south side to the north side of Taunton Road to avoid known archaeological areas, which were identified in the MESP. Furthermore, the size of this site and the presence of easements for reservoir piping and a petroleum pipeline made this area too small to accommodate the Transformer station site, and thus the area was determined not to be technically feasible. As result of these constraints, the site located North of Taunton Road was chosen as Site #2 in this ESR.
- Site #3 (MESP Site 4) was shown to be situated within the existing Hydro One Cherrywood facility in the MESP. This location was shifted to the east of Dixie Road due to insufficient space available on existing Hydro One property.
- The site identified as Site #1 in the MESP was considered not feasible, due to its proximity to planned urban development.

As a result of this general analysis, three feasible alternative sites for the proposed Project were identified within the project study area. The alternative sites are described in Section 2 and Section 3.6.6.

5.1.2 Description of Feasible Alternatives

The three feasible alternative sites have been previously described in Section 3.6.6.

A map of the three alternative sites considered for the proposed Project is shown in Figure 5-1. These three alternative sites were evaluated using the site evaluation criteria to determine which of the alternative sites is most suitable for the Seaton MTS.

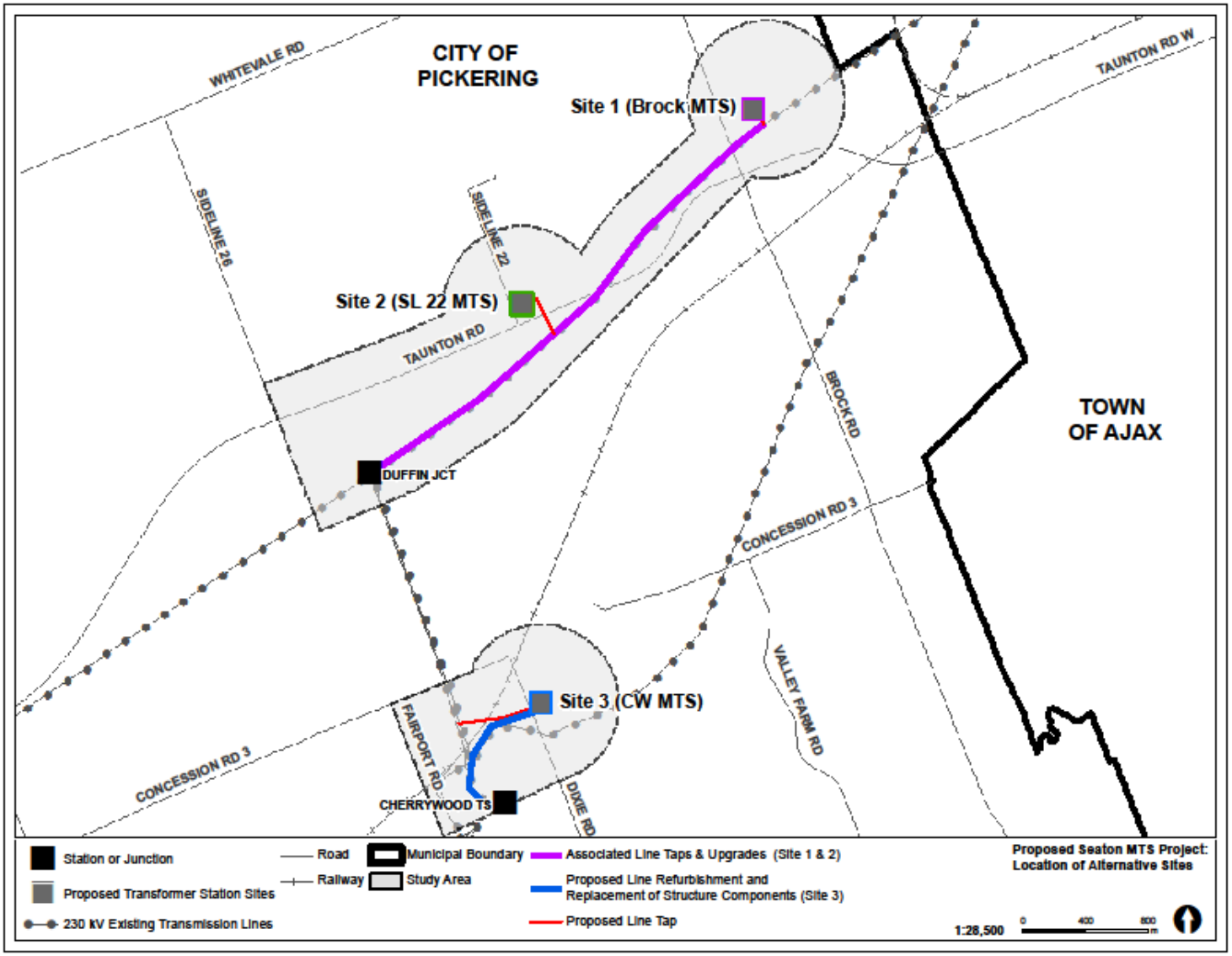

Figure 5-1: Location of Alternative Sites for the Proposed Project

5.2 Evaluation Criteria and Selection of the Preferred Alternative

The three alternative sites that met the preliminary requirements for the proposed Project, as presented in Section 5.1, were compared to one another in an evaluation matrix (Table 5-2). This evaluation matrix was based on further exploration and consideration of the specific characteristics of the alternative sites and the requirements of the Class EA process. These characteristics were used to develop the site evaluation criteria and were obtained from literature review, reports commissioned by Verdian and Hydro One as co-proponents, available public databases, mapping, consultation and field surveys as presented in Section 3. These criteria focused the investigation on the potential effects to environmental features, as well as the technical considerations of constructing the proposed Project, in a given location. These site evaluation criteria were combined with the preliminary site identification criteria (Section 5.1.1) to form individual components that were organized under Criteria Groups, presented in Table 5-2. The Criteria Groups and the site specific characteristics formed the basis for how the evaluation matrix was weighted.

Details of the evaluations for each of the alternative sites are also presented in Table 5-2. Each Criteria Group was given a weighting based on relative importance and presence of environmental features in the respective study area (i.e. Site #1, Site #2, or Site #3). A scoring system was developed that assigned a score, ranging from zero (0) to five (5), to each criterion. A score of 5 represents the maximum value a component may have, whereas a score of 0 represents the minimum value a component may have. Higher scores indicated a lower project effect and higher compatibility with the environmental feature or criterion under consideration. A score for each "Criteria Group" was calculated using the following method:

(Sum score of Components)/ (Maximum Score of all Components) * (Criteria Group Weight)

The score from each "Criteria Group" was summed to provide a total score for each alternative, to a maximum of 100 points. The preferred alternative is the site that has the most advantages and least disadvantages, all factors considered, including technical constraints, and will yield the highest total score.

Results from the evaluation concluded that Site #2 is the preferred site for the proposed Project. Due to the potential effects to natural features along the line tap for the preferred alternative, Site #2, the station and line tap configuration (old configuration, see Figure 5-2) were changed so that the conductors could cross Taunton Road and enter the station directly from the southern edge of Site #2 (new configuration, see Figure 5-3). This was done in order to avoid the wetland features on the east side of Site #2.

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Table 5-2: Details of Site Evaluation by Criteria Group

Components	Scoring System*	Alternative Sites						Comments	Weight (%)
		Site #1 (Brock Road)		Site #2 (Sideline 22)		Site #3 (Cherrywood)			
	*Max Score = 5 Min Score = 0	Measure	Score*	Measure	Score*	Measure	Score *		
Agricultural Resources (Criteria Group Weight = 5%)									**5**
Class 1, 2, and 3 agricultural lands affected by MTS and transmission line upgrades	Yes = 0, No = 5	Yes	0	Yes	0	Yes	0	All three alternative sites would affect Class 1, 2, or 3 agricultural lands.	
Potential to affect actively farmed lands by MTS and transmission line upgrades	High = 1, Moderate = 3, Low = 5	High	1	Moderate	3	Low	5	The longer the transmission line that needs to be upgraded, the greater the effect on active farm field.	
Study areas for the Project within Duffins Rouge Agricultural Preserve	Inside = 0, Outside = 5	Outside	5	Outside	5	Inside	0	The proposed line tap that would need to be constructed for Site #3 is within the Agricultural Preserve area.	
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			***2.0***		***2.7***		***1.7***		
Forest Resources (Criteria Group Weight = 5%)									**5**
Area of forest to be removed (hectares (ha))	Large Area =1, Mid-Sized Area= 3, Small Area= 5	Mid-Sized (Approx. 5.1 ha)	3	Small (Approx. 1.4 ha)	5	Large (Approx. 10.5 ha)	1	Site #3 is covered by contiguous white cedar conifer forest, and would require extensive clearing. Site #1 has a few patches of poplar deciduous woodland and some Scots pine trees. Site #2 has very limited willow tree cover at the north edge of site that will likely not be affected by construction. The line tap to Site #3 will have the largest area of effect to forestry resources. The line tap connection to Site #1 would require removal of a small amount of Scots pine plantation. The tap line connection to Site #2 would require removal of a small amount of hedgerow. No additional tree removal will be required for transmission line upgrades since the existing, maintained transmission corridor will be used.	
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			***3.0***		***5.0***		***1.0***		
Cultural Heritage Resources (Criteria Group Weight = 10%)									**10**
Potential interactions with built heritage features	Yes = 0, No = 5	Yes	0	No	5	No	5	There is an existing building with heritage value on Site #1.	
Archaeological potential following Stage I Assessment		Yes	0	Yes	0	Yes	0	The Stage I archaeological assessment determined there is archaeological potential at all three sites.	

Components	Scoring System*	Alternative Sites						Comments	Weight (%)
		Site #1 (Brock Road)		Site #2 (Sideline 22)		Site #3 (Cherrywood)			
	*Max Score = 5 Min Score = 0	Measure	Score*	Measure	Score*	Measure	Score *		
Agricultural Resources (Criteria Group Weight = 5%)									**5**
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			*0*		*5.0*		*5.0*		

Component	Scoring System*	Alternative Sites						Comments	Weight (%)
		Site #1 (Brock Road)		Site #2 (Sideline 22)		Site #3 (Cherrywood)			
	*Max Score =5 Min Score=0	Measure	Score*	Measure	Score*	Measure	Score *		
Human Settlements (Criteria Group Weight = 15%)									**15**
Potential effects to existing residences or businesses within 300 m of MTS	High = 1, Moderate = 3, Low = 5	Moderate	3	Low	5	High	1	Residential neighborhoods are present south of Site #3. Various residential streets surround Site #1. Very few homes exist near Site #2.	
Nearest Potential Noise Receptors (PORs) to MTS	Multiple receptors nearby=1, Single receptor nearby=3, Receptors far away = 5	Single Dwelling Nearby	3	Single Dwelling Nearby	3	Multiple Receptors Far Away	5	Site #1 and Site #2 each have a single receptor (i.e. residential building) close by. At Site #3 is ~400m from the nearest receptor.	
Conformance with Provincial Policy Statement (PPS), and City of Pickering Master Environmental Servicing Plan (MESP)	Yes = 5, No = 0	Yes	5	Yes	5	Yes	5	The transmission facilities that would be required for each of these three sites would use an existing right-of-way which is consistent with the planning recommendation of the PPS. The MESP was considered and utilized as much as possible during the planning process. The MESP provided a starting point for locating feasible alternative MTS sites.	
Easement required for the MTS and transmission line upgrade (e.g., potential effects on the existing property ownership)	Yes = 0, No = 5	No	5	Yes	0	Yes	0	Sites #2 and #3 would require easements for the line tap connection. Site #1 would directly connect to the adjacent transmission corridor, with no easement required.	
Number of road or railway crossings by transmission line and transmission tap (e.g., potential traffic disruption during construction)	Multiple Crossings = 1, Single Crossing = 3,	Two Crossings	1	One Crossing	3	Two Crossings	1	The portion of the transmission line to be upgraded to connect to Site #1 has two crossings (Brock Rd and Taunton Rd). The transmission tap for Site #2 must cross Taunton Rd once. The transmission line for Site #3 would cross Dixie Road, and the line tap will also be extended across the rail corridor.	

Components	Scoring System*	Alternative Sites						Comments	Weight (%)
		Site #1 (Brock Road)		Site #2 (Sideline 22)		Site #3 (Cherrywood)			
	*Max Score = 5 Min Score = 0	Measure	Score*	Measure	Score*	Measure	Score *		
Agricultural Resources (Criteria Group Weight = 5%)									5
	No Crossings = 5								
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			***10.2***		***9.6***		***7.2***		
First Nations or Métis Communities (Criteria Group Weight = 5%)									5
Presence of First Nations community identified cultural, traditional, or historic resources	Yes= 0, No= 5	No	5	No	5	No	5	No known First Nations community identified cultural, traditional, or historic resources are present. Archaeological potential is addressed under the "Cultural Heritage Resources" category.	
Changes in access to cultural, traditional, or historic resources		No	5	No	5	No	5	No expected changes in access to cultural, traditional, or historic resources.	
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			***5.0***		***5.0***		***5.0***		

Component	Scoring System*	Alternative Sites						Comments	Weight (%)
		Site #1 (Brock Road)		Site #2 (Sideline 22)		Site #3 (Cherrywood)			
	*Max Score =5 Min Score=0	Measure	Score*	Measure	Score*	Measure	Score *		
Mineral Resources (Criteria Group Weight = 0%) N/A									0
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			***N/A***		***N/A***		***N/A***		
Natural Environment Resources (Criteria Group Weight = 30%)									30
Potential impact to wetlands within 120m of MTS and transmission line upgrades	High = 1, Moderate = 3, Low = 5	High	1	Moderate	3	Low	5	Site #1 and Site #2 have on-site wetlands. The Site #2 wetland is located in the north part of the proposed site, and will be avoided to the extent feasible. Construction within wetlands on Site #1 would be unavoidable. There is a small wetland within 15 m of Site #3, but no on-site wetlands.	
Number of transmission line upgrade water crossings	Multiple Crossings = 1, Single Crossing = 3, No Crossings = 5	Three Crossings	1	One Crossing	3	One Crossing	3	The portion of the transmission line to be upgraded to reach Site #1 will cross both Urfe Creek and Ganatsekiagon Creek, as well as a small pond east of Brock Road. The line upgrade to Site #2 will cross a small wetland. A watercourse from Cherrywood TS that follows the transmission RoW to the southern edge of Site #3 would be crossed by the line tap connection.	

Components	Scoring System*	Alternative Sites						Comments	Weight (%)
		Site #1 (Brock Road)		Site #2 (Sideline 22)		Site #3 (Cherrywood)			
	*Max Score = 5 Min Score = 0	Measure	Score*	Measure	Score*	Measure	Score *		
Agricultural Resources (Criteria Group Weight = 5%)									5
Distance to nearest watercourse/waterbody from MTS (metres)	<10m away = 1, Between 15m and 10m away = 3, >15m away = 5,	13m away	3	18 m away	5	1m away	1	A small waterbody is located south of Site #1. A tributary of Ganateskiagon Creek runs parallel to the north edge of Site #2. A small unnamed tributary runs parallel to the southern edge of Site #3.	
Potential to affect Species at Risk (SAR)	Yes = 0, No= 5	No	5	Yes	0	No	5	Suitable habitat for Redside Dace was identified by the MNRF in Ganateskiagon Creek, a tributary of which is 18 m away from the north edge of Site #2.	
Creation of new forest edge habitat	High = 1, Moderate = 3, Low = 5	Moderate	3	Low	5	High	1	Removal of lots of trees at Site #3 will create additional edge forest habitat and loss of interior forest habitat.	
Potential to affect source protection areas (e.g. Highly Vulnerable Aquifer (HVA), Significant Groundwater Discharge Area, Intake Protection Zone)	High % the Site area covered= 1, Moderate % of the Site area covered = 3, Low % of the Site area covered = 5	Moderate	3	Low	5	High	1	Highly Vulnerable Aquifers (HVA) were mapped underneath all three sites. HVAs cover 64% of Site #1, 34% of Site #2, and 100% of Site #3. Significant groundwater recharge areas were mapped underneath approximately 4% of Site #3, and are not present at Site #1 or Site #2. Intake Protection Zones are not present on either Site #1 or Site #2; however an intake protection zone covers approximately 7% of Site #3.	
Potential disturbance to Toronto and Region Conservation Authority (TRCA) regulated areas from MTS construction and transmission line upgrade	High = 1, Moderate = 3, Low = 5	High	1	Moderate	3	Low	5	Longer transmission line upgrades will potentially affect additional TRCA areas.	
Significant woodlands	Present = 0, Not present = 5	Present	0	Not present	5	Present	0	The MNRF indicated Sites #1 and Site #3 contain parts of significant woodlands.	
Proximity of MTS and transmission line upgrade to ANSI, ESA, or other protected areas	Overlaps MTS Site = 1, Borders = 3, None Nearby = 5	Borders MTS Site	3	None	5	Within MTS Site/ Overlap	1	Site #1 is bordered by an unidentified/unevaluated wetland. Site #3 is in an ESA designated in the Official Plan.	

Components	Scoring System*	Alternative Sites						Comments	Weight (%)
		Site #1 (Brock Road)		Site #2 (Sideline 22)		Site #3 (Cherrywood)			
	*Max Score = 5 Min Score = 0	Measure	Score*	Measure	Score*	Measure	Score *		
Agricultural Resources (Criteria Group Weight = 5%)									5
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			***13.3***		***22.7***		***14.7***		
Component	**Scoring System***	**Alternative Sites**						**Comments**	**Weight (%)**
		Site #1 (Brock Road)		**Site #2 (Sideline 22)**		**Site #3 (Cherrywood)**			
	***Max Score =5 Min Score=0**	**Measure**	**Score***	**Measure**	**Score***	**Measure**	**Score ***		
Recreation Resources (Criteria Group Weight = 5%)									5
Potential to affect trails	Present = 0, Not present = 5	Trail present	0	Trail present	0	Not present	5	Sections of transmission line to be upgraded cross the Seaton Hiking Trail.	
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			***0***		***0***		***5.0***		
Visual and Aesthetic Resources (Criteria Group Weight = 5%)									5
Potential to affect views of existing and future residential developments (i.e. do residents have the opportunity to consider purchasing a home where the Seaton MTS is visible?)	Opportunity = 5, No Opportunity = 5	Opportunity	5	Opportunity	5	No Opportunity	0	Future home buyers near Sites #1 and #2, have the opportunity to consider the Seaton MTS in their decision towards purchasing a home. The area around these sites is also currently undeveloped. However, homeowners (existing and future) near Site #3 already include Cherrywood TS and other developed residential areas affecting views/ the visual aesthetics.	
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			***5.0***		***5.0***		***0***		
Technical & Cost Considerations (Criteria Group = 20%)									20
Distance from MTS to expected load	Longest = 1, Medium = 3, Shortest = 5	Medium	3	Shortest	5	Longest	1	Shorter distances from the MTS to demand load reduce electrical losses.	
Length of transmission line upgrades required	Longest = 1, Medium = 3, Shortest = 5	Longest	1	Medium	3	Shortest	5	Shorter lengths of transmission line upgrades reduce the potential for negative environmental effects and reduce cost.	
Length of distribution feeders needed to be extended	Longest = 1, Medium = 3, Shortest = 5	Medium	3	Shortest	5	Longest	1	Close proximity to municipal or regional roads will access and connection to existing feeder egress routes. Shorter lengths of distribution feeders reduce the potential for negative environmental effects and reduce cost.	

Components	Scoring System*	Alternative Sites						Comments	Weight (%)
		Site #1 (Brock Road)		Site #2 (Sideline 22)		Site #3 (Cherrywood)			
	*Max Score = 5 Min Score = 0	Measure	Score*	Measure	Score*	Measure	Score *		
Agricultural Resources (Criteria Group Weight = 5%)									**5**
Duration of construction (months)	Longest = 1, Medium = 3, Shortest = 5	Longest	1	Medium	3	Shortest	5	The longer lengths of transmission line upgrades would increase construction duration.	
Approximate cost of construction	High = 1, Moderate = 3, Low = 5	High	1	Moderate	3	Low	5	Approximate cost is related to length of transmission line upgrade, duration of construction, complexities associated with work, site preparation, and landscaping costs.	
Weighted Score (%) (Sum of components)/(Max Score of all Components) x (Weight)			***7.2***		***15.2***		***13.6***		
TOTAL SCORE (out of a possible 100%)	***Highest score means lowest project impact and least potential to effect the surrounding environment.**		**45.7**		**70.1**		**53.1**		**100**

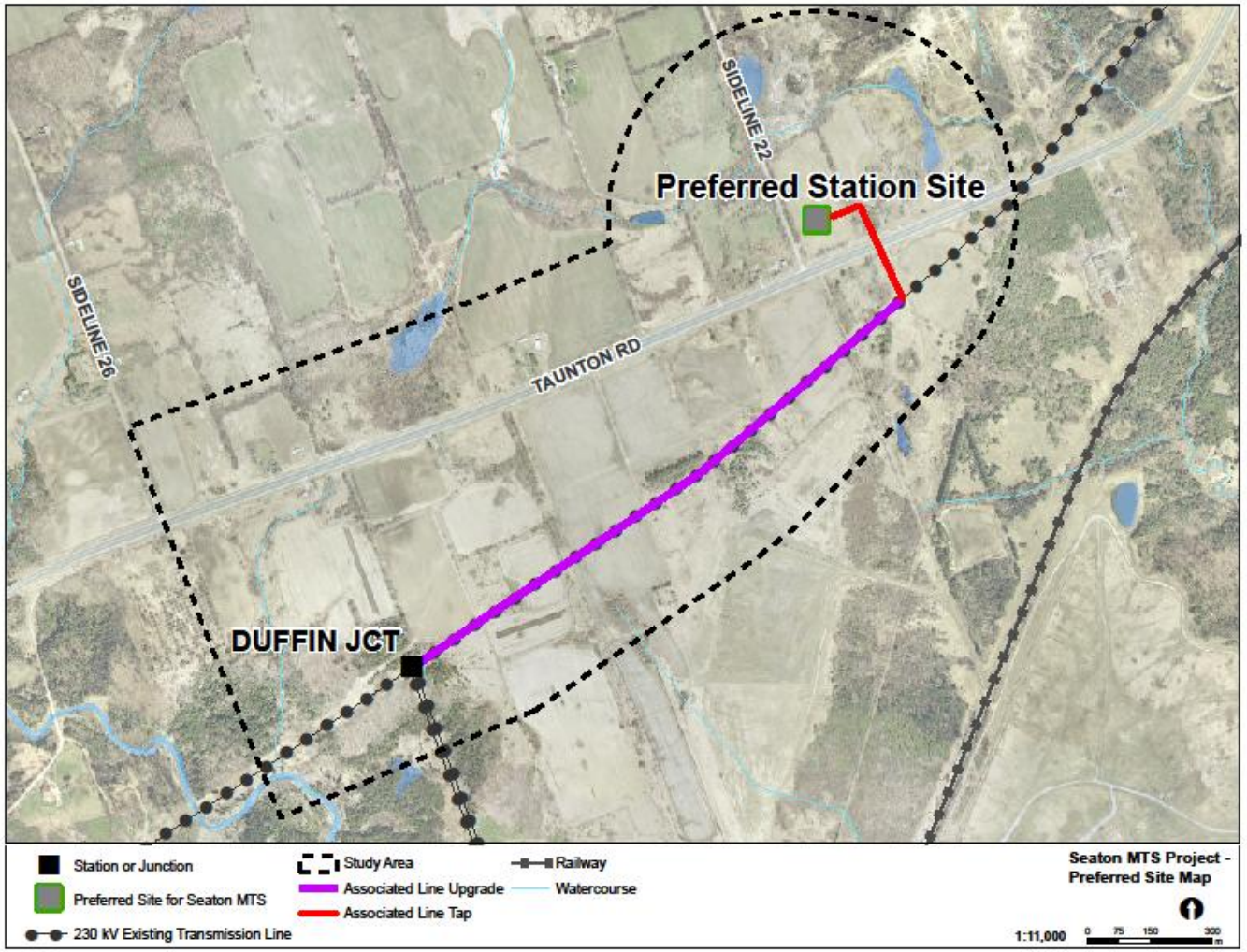

Figure 5-2: Site #2, Station and Old Line Tap Configuration

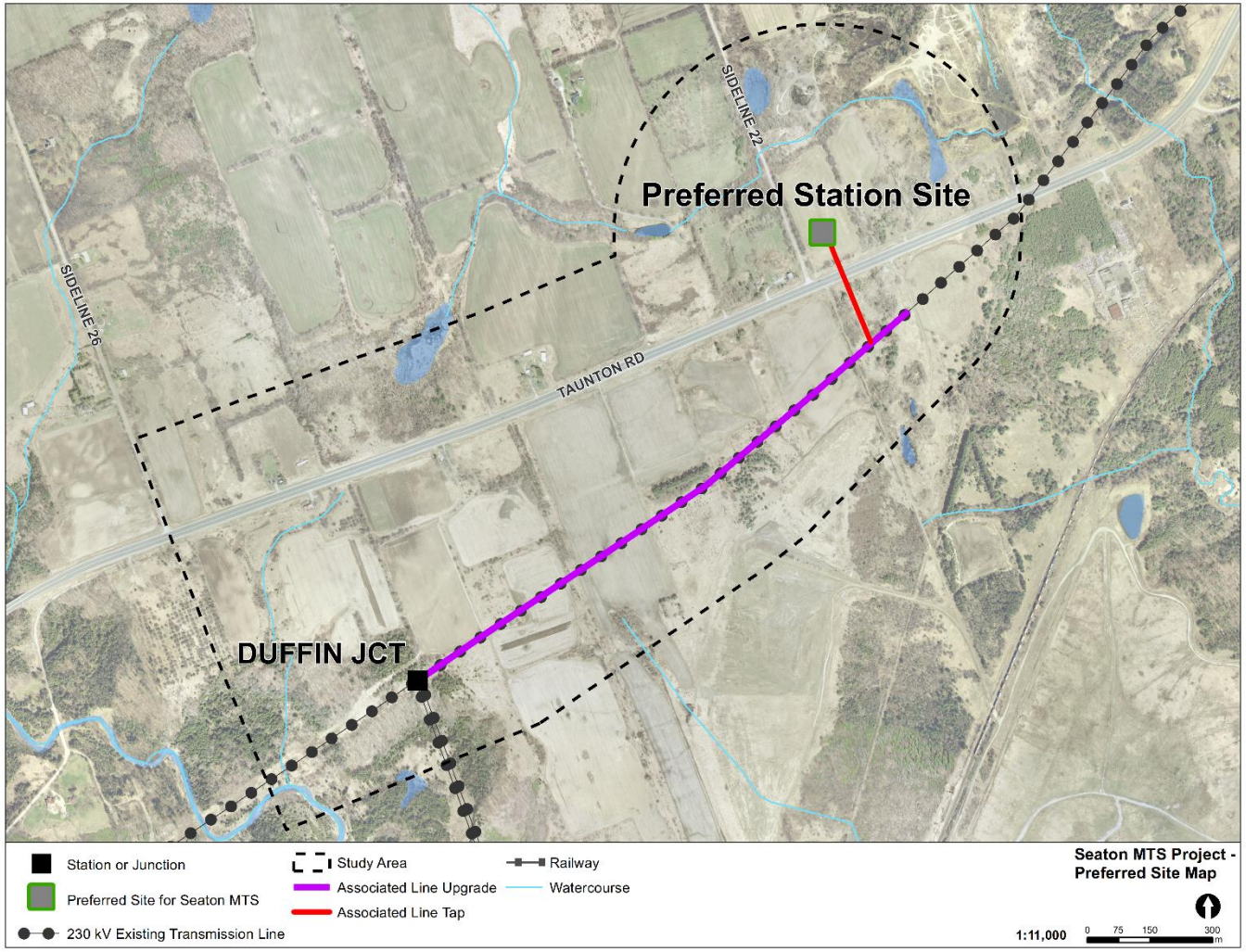

Figure 5-3: Site #2, Station and New Line Tap Configuration

6. Project Description

The proposed Project is similar to other projects completed by Hydro One and other local distribution utilities. The Seaton MTS will occupy a footprint of approximately 200 m by 200 m, and will consist of the following major components:

- Three phases off both the 230 kV transmission circuits to electrically connect the Seaton MTS to the Hydro One grid;
- Supplementary towers at the junction to carry the electrical cables from the 230 kV transmission circuit to the Seaton MTS;
- Electrical cables connected to two 230 kV class motorized disconnects to isolate the Seaton MTS transformers from the Hydro One grid for maintenance and protection purposes;
- Two 125 MVA transformers to reduce the 230 kV to the required distribution voltage to deliver electricity to Veridian customers;
- Outdoor buswork to connect the motor disconnects, transformers, and other outdoor switchyard equipment;
- A control building to house the electrical switch-gear and control system for operating the station; and
- Appropriate fencing, landscaping, grounding, environmental controls (including spill protection and storm water management measures), station service, and communication equipment as required.

Transmission line components that are necessary to supply the Seaton MTS are as follows:

- 1.4 km of double circuit lattice structures to replace existing single circuit structures;
- New conductor , shieldwire, and associated hardware to replace the ageing components (nearing end-of-life);
- Protection and control equipment to connect the Seaton MTS to the provincial grid and to ensure reliable and safe power supply into the future; and
- Installation of a new line tap structure (0.2 km) to provide power from the Hydro One transmission circuit to the Seaton MTS.

6.1 Design Phase

Following completion of the Class EA process, detailed engineering and design for the proposed Project and associated line work will be undertaken. The final design plans will be formed following consultation with the City of Pickering, regulators, and relevant Provincial agencies, and will be based on the results of a geotechnical survey. Concurrent with finalization of the design, all required permits, licences and approvals, as listed in Section 1.5.3 will be obtained. Veridian will also finalize MTS landscaping plans in consultation with the appropriate agencies and local community, as required.

6.2 Construction Phase

Construction and maintenance activities will be guided by Veridian and Hydro One standards and guidelines as well as project-specific documents; these are to be adhered to by all construction personnel including sub-contractors, and their standards and guidelines meet Veridian and Hydro One's commitment to the environment. In addition, a project-specific Environmental Management Plan, outlining specific requirements of the project, including commitments made through the EA process, will be prepared and followed during the construction phase of the proposed Project.

Construction of the Project will involve the following activities:

- Surveying and staking
- Site preparation, including grading;
- Delivery and installation of equipment;
- Installation of station storm water management and drainage facilities;
- Installation of station foundation and steel support structures;
- Installation of buried cabling and ground grid;
- Foundation Construction;
- Installation of two 125 MVA transformers and associated electrical connections to supply from the transmission system to the station to the distribution system;

- Installation of associated switchyard with circuit breakers, disconnect switches, interconnecting buswork as well as equipment such as current and voltage transformers and lightening arrestors;
- Installation of station fencing and security systems;
- Commissioning and testing;
- Clean-up and restorations; and
- Implementation of landscape plans (as needed).

Construction of the associated transmission line work will involve the following activities:

- Vegetation removal as necessary;
- Construction of temporary access roads, assembly, and pulling pads;
- Construction of a by-pass line to isolate the work area;
- De-energization of the work area;
- Removal of conductors and insulators;
- Structure removal;
- Installation of new structure foundations;
- Assembly and installation of new structures;
- Installation of new insulators and conductors;
- Connection to Seaton MTS;
- Removal of by-pass line;
- Removal of temporary access roads, assembly, and pulling pads as required; and
- Restoration of the transmission corridor

6.3 Maintenance and Operation Phase

As per the IRRP, the proposed Project is scheduled to be in-service by end of 2019. To sustain a safe and reliable electricity transmission system, the Seaton MTS will undergo regular maintenance in adherence with Veridian's maintenance standards and regulatory

requirements. The associated transmission line will undergo regular maintenance in adherence with Hydro One's maintenance standards and regulatory requirements.

6.4 Project Schedule

The anticipated schedule for proposed Project activities is provided below in Table 6-1. This schedule shows key steps remaining in the Class EA process and subsequent anticipated timing of the start of construction and commissioning of the proposed facilities.

Table 6-1: Project Schedule

ACTIVITY	PERIOD
30-day review period of draft ESR	November 17, 2017 to December 15, 20171
Comment integration and issue resolution	January, 2017
Filing of final ESR with the MOECC	Q1, 2018
Construction start	Q3-Q4 2018
Planned in-service date	Q2 2019

7. Potential Environmental Effects and Mitigation Measures

This section describes the potential environmental effects and mitigation measures associated with the construction and operation of the Seaton MTS Project and the associated tap connection and transmission line upgrade at the preferred site (Site #2), located in the City of Pickering. The proposed Project location was identified through a site selection process that is documented in Section 1.4 and Section 5 of this ESR. A description of the Project is presented in Section 6.

The assessment of potential environmental effects for the Project considered the baseline information on the environmental features that were collected for the study area as presented in Section 3 and summarized in Section 5.

The potential environmental effects resulting from the construction and operation of the Project and the associated transmission line upgrade are similar to other projects undertaken by Veridian and Hydro One, and are well understood. Both Veridian and Hydro One have strong track records of environmental compliance and stewardship and are committed to the completion of a comprehensive environmental analysis and mitigation of potential environmental effects.

The following sections describe potential environmental effects for both the short-term (construction) and long-term (operation) effects. The selection of mitigation measures is based on the following principles:

- Avoidance of sensitive areas or features, where practical;
- Avoidance of watercourse crossings, where practical, by use of existing nearby crossings, access to structures from either side of the watercourse, or making use of off-corridor access;
- Appropriate timing of construction activities, where practical, to avoid sensitive time periods, such as fish spawning and egg incubation periods, or migratory bird nesting periods;

- Implementation of proven mitigation measures during construction consistent with the criteria set out in Appendix J of the Class EA document, and in accordance with all applicable legislative requirements;
- Proactive communication with affected local residents and business owners regarding the proposed Project timelines and construction activities (including locations and dates);
- Proactive communication with First Nations communities, government agencies, stakeholders, and interest groups regarding the proposed Project.
- Development of environmental enhancement or compensation measures to off-set any unavoidable effects of construction and operation, where such effects exist and where practical.

Based on the project design and implementation of the proposed mitigation measures, no significant adverse or significant residual effects are expected.

Table 7-1 provides a summary of potential effects, associated mitigation, and the residual effects identified for the proposed Project that are further described in the following sections.

Table 7-1: Summary of Potential Effects, Mitigation Measures and Residual Effects

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
AGRICULTURAL RESOURCES			
Soil compaction	• Use of heavy equipment during construction activities may result in compaction of agricultural soils • Access to site for maintenance activities may result in compaction of agricultural soils.	• Construction and maintenance activities are scheduled at times of year when soils are least susceptible to compactions if possible. • Construction and maintenance activities may be stopped when ground conditions are conducive to compaction (i.e. after a large rain event when clay soils are saturated). • Temporary construction roads and pads built with geotextile and crushed rock, which can be easily removed when construction is complete. • Any compaction that occurs in	• Adherence to mitigation measures during construction and operational phases should ensure no residual effects.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		agricultural areas during construction and operation will be addressed in consultation with the property owner/farmer and will include tilling or sub-soiling where appropriate.	
Farm operations	• Disturbance to farm operations during construction and maintenance activities.	• Maintain contact with landowner/tenant regarding scheduling of work, access, tiles, noise, remediation, etc.	• No residual effects are predicted.
Standing crops	• Use of equipment during construction activities may result in loss of standing crops. • Access to site for maintenance activities may result in loss of	• Minimize width of access and size of construction work areas. • Tower placement along fence line where possible in order to minimize interference with agricultural equipment. • Activities are scheduled to	• Adherence to mitigation measures during construction and operational phases should ensure no residual effects.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
	standing crops.	avoid growing season, if possible. • Compensate for crop loss as required.	
Topsoil-subsoil mixing	• Topsoil-subsoil mixing during construction and maintenance activities.	• Segregation of topsoil and subsoil during excavation. • Activities involving the management of excess soil should be completed in accordance with the MOECC's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014)	• No residual effects are predicted.
FORESTRY RESOURCES			
Forested land	• Loss of forested land during construction and maintenance activities.	• Forested land was taken into account when planning the line, station and off-corridor access. • Trees are retained, salvaged or	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		felled as appropriate. • Tree compensation to follow guidelines from agencies such as the City of Pickering, and TRCA. • Hydro One's Reforestation and biodiversity program will ensure no net loss of habitat as a result of the line tap connection.	
CULTURAL AND HERITAGE RESOURCES			
Archaeological resources	• Disturbance or destruction of archaeological resources during construction and maintenance activities.	• Undertake a Stage 2 archaeological assessment to identify and evaluate resources. • Avoidance through alternative route and site selection. If the site cannot be avoided, excavation would occur as per *Standards and Guidelines for Consultant Archaeologists* (MTCS, 2011), or the ESR would be	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		amended.	
HUMAN SETTLEMENTS			
Air Quality	• Exhaust emissions from vehicles during construction and operation. • Dust generation during construction.	• Equipment used on site during construction and operation is maintained to minimize emissions. • Use effective dust suppression techniques, such as on-site watering and road cleaning.	• No residual effects are predicted.
Noise	• Noise may be generated during construction related activities. • Noise emitted by the transformers during station operation.	• Maintain all equipment to ensure that construction and operation conforms to normal noise parameters. • Noise is taken into account when deciding on equipment and construction work methods and schedule. • All construction will conform	• Effects on noise will be temporary and limited to the site preparation and construction periods. • Operational noise will comply with provincial

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		to municipal noise by-laws; local residents and businesses will be informed if activities need to be extended to facilitate their completion. • Noise studies for the MTS will be conducted to implement appropriate mitigation measures during operation. • The MTS will be designed to comply with provincial regulations for operational noise by obtaining an Environmental Compliance Approval (ECA) from the MOECC prior to construction.	regulations; no residual effects are anticipated.
Spills	• Incidental spills of petroleum, oils, lubricants and other liquids during	• A Construction Environmental Management Plan will be developed to govern spill and other emergency response in	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
	construction and operation	the unlikely event of occurrence. • Spill cleanup and response equipment will be located on site and in Hydro One vehicles. • Personnel will be trained on spill management. • Spills will be cleaned up as soon as possible and the site remediated after a spill. • Alarms will be installed on equipment so that early detection of spills can be made. • Refueling of all vehicles and equipment to be undertaken in a designated location away from water courses; spill cleanup equipment to be nearby. • An Emergency Response Plan will provide guidance on spills	

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		and other emergencies during the operations phase of the Project. • Station will be equipped with secondary spill containment facilities around the transformers.	
Waste generation including excess soils.	• Solid and/or liquid waste will be generated during construction and potentially during operation. • Excess soils from construction activities may be generated.	• Minimize waste produced and segregate and recycle where possible. • Test, handle, store, transport and dispose of waste in accordance with all applicable legislation prior to being recycled or disposed at a licensed landfill. • Activities involving the management of excess soil will be completed in accordance	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		with the MOECC's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).	
Appropriate disposal of waste	• Solid and/or liquid waste will be generated during construction and potentially during operation.	• Minimize waste produced, and segregate and recycle where possible. • Test, handle, store, transport, and dispose of waste in accordance with the federal, provincial and municipal legislation as applicable. • Manage wastes in accordance with *Ontario Environmental Protection Act*, Reg. 347.	• No residual effects are predicted.
Public safety	• Public could be potentially exposed to	• Construction areas to be signed, fenced, and locked where	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
	typical construction hazards in the vicinity of the construction areas. • Public could be potentially exposed to typical operational hazards.	necessary. • The location of the construction lay-down and access areas to be carefully selected to minimize any potential effect on public safety. • The construction schedule to be discussed with the City of Pickering's planning staff and provided to the local emergency services. • Nearby residents to be informed prior to construction of transmission line upgrades. • Station to be signed, fenced and locked throughout operation.	
Traffic disruption	• Short-term disruption of traffic in project vicinity due to equipment and materials	• Construction activities will be scheduled where possible to avoid significant inconvenience. • Develop approved traffic	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
	delivery and worker vehicular traffic.	control plan with the City of Pickering and Region of Durham. • As appropriate, erect road signage and provide notification/pre-construction information to area residents on timelines and construction routes related to the transmission line. • Where appropriate, assign traffic control officers to assist construction truck entry and exit.	
Vibration	• Vibration from construction and maintenance equipment.	• Vibration is taken into account when deciding on equipment and work methods.	• No residual effects are predicted.
Existing land use and approved development	• Potential conflict with existing land uses.	• Concurrence with the PPS, municipal Official Plans, and Master Environmental	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		Servicing Plans.	
Mud	• There is a potential for mud accumulation due to site preparation and construction activities. • Mud will be temporary and limited to the site preparation and construction periods.	• Mud will be removed from roads as required • Mud mats may be installed.	• No residual effects are predicted.
FIRST NATION COMMUNITIES			
Traditional land used by First Nations communities	• Disturbance to traditional land used by First Nations communities during construction and maintenance activities.	• Geographically defined areas which support current or past human use as a gathering area, spiritual site, and place of worship or cemetery are identified and avoided to the extent possible. First Nations communities are invited to participate in various	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		stages of the project such as archaeology, project planning, construction, etc.	
EFFECTS TO NATURAL ENVIRONMENTAL RESOURCES			
Physical Environment			
Changes in natural physiography	• Changes in natural physiography during construction and maintenance.	• Where possible, site is returned to the natural grade. • Erosion control measures implemented if required.	• No residual effects are predicted.
Soil Erosion	• Wind/water erosion to soil during to construction and maintenance activities.	• Areas with high erosion potential are avoided, where possible. • Timing activities to the most stable ground conditions. • Mechanical or vegetation erosion control methods will be used for slope stabilization.	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
Atmospheric Environment			
Exhaust emissions from vehicles	• Exhaust emissions from vehicles during construction and maintenance.	• Equipment is maintained to minimize exhaust. • Idling of equipment is to be minimized. • For maintenance of the transmission line, Hydro One will implement their Fleet Services Environmental Program which includes anti-idling and GPS installation in vehicles.	• No residual effects are predicted.
Particulate Emissions (dust)	• Particulate emissions from vehicles during construction and maintenance.	• Use of effective dust suppression techniques, such as on-site watering and street cleaning.	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		• Use of non-chloride dust suppressants.	
Surface Water Resources			
Natural flow of streams and other surface waters	• Impedance of natural flow of streams and other surface waters as a result of construction, maintenance, and/or operation.	• Installation of proper stream crossing devices as the situation warrants.	• No residual effects are predicted.
Ponding or channelization of surface waters	• Ponding or channelization of surface waters caused by rutting.	• Time activities to stable ground conditions. • Use of gravel roads.	• No residual effects are predicted.
Water temperature	• Increase in water temperature due to vegetation removal at stream crossings for transmission line during	• Retain shrubby stream bank vegetation and selectively cut/prune trees. • Planting of compatible shrubs may be done if removals are	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
	construction and maintenance.	significant.	
Stream bank erosion	• Wind/water erosion to stream bank during to construction and maintenance activities near watercourses.	• Mechanical erosion control. • Retain shrubby stream bank vegetation and selectively cut or prune trees. • Activities will be scheduled at times of year during stable ground conditions such as drier conditions or winter seasons. • Where possible, maintain minimum construction buffers to watercourses per TRCA recommendations. • Clearly demarcate work areas near watercourses.	• No residual effects are predicted.
Sedimentation of surface water	• Sedimentation of surface water during construction and maintenance activities.	• Where possible, implement buffers recommended from TRCA are around water. • Equipment operation on slopes	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		adjacent to streams is minimized. • Use of sediment control devices and cover crops. • Develop site-specific erosion and sediment control plan as required (e.g. storm water drainage). • Activities may be scheduled during drier or winter seasons.	
Contamination of surface water	• Contamination of surface water through spills or leaks during construction, maintenance, and/or operation.	• Emergency Preparedness Plans (ERPs) are developed for each project and construction crews will be trained to respond to spills. • Spill kits are on all work sites. • Spills are cleaned up as soon as possible and the site remediated after a spill. • Site selection for stations or	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		construction staging away from surface water, where possible.	
Groundwater Resources			
Temporary or permanent threats to Source Protection Areas (HVA, groundwater recharge areas, intake protection zones)	• Contamination of water during construction, maintenance, and/or operation.	• Comply with all relevant legislation and policies such as: *Clean Water Act*, Provincial Policy Statement, Official Plans, and Source Water Protection Plans. • Provincially/locally designated Vulnerable Areas; Intake Protection Zones; and Highly Vulnerable Aquifers are avoided where possible. • Consult TRCA, City of Pickering and Region of Durham in order to undertake the proper action for managing any potential threats.	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
Disposal of waste water from dewatering activities	• Potential to encounter groundwater during construction.	• Various guidelines and legislation may apply to meet regulatory standards, including Provincial Water Quality Objectives, Ontario Drinking Water Standards or Guidelines and of appropriate, Regulation 153 and Regulation 347. • Discharge of wastewater from dewatering activities will be in compliance with required permits and approvals from the MOECC. • Develop dewatering protection measures during the detailed engineering phase of the project if required, including an EASR if taking between 50,000 L and 400,000 L of water per day, and a PTTW if taking over 400,000	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		L of water per day for the purposes of construction dewatering. • Contain all collected water and conduct testing prior to disposal per EASR or PTTW conditions, as applicable.	
Contamination of groundwater	• Contamination of groundwater due to incidental spills of oil, gasoline and other liquids during construction and operation.	• Refuelling activities are monitored and are done in a designated location away from water. • Fuels, chemicals and lubricants are stored on level ground in properly contained storage areas with secondary containment or double walled tanks, as appropriate. • Secondary spill containments and Oil-Water Separator. • Monitoring equipment and	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		alarms are installed on equipment so that early detection of spills can be made. • ERPs will be developed and available to govern spill and other emergency response in the unlikely event of occurrence. • Spill clean-up and response equipment will be located on site and in Hydro One vehicles. • Construction crews will be trained on spill management. • Spills will be cleaned up as soon as possible and the site remediated after a spill.	
Temporary or permanent drinking water threat	• Contamination of drinking water during construction, maintenance, and/or	• Comply with all relevant legislation and policies such as: *Clean Water Act*, PPS, Official Plans, and Source Water	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
	operation.	Protection Plans. • Provincially/locally designated Vulnerable Areas; Intake Protection Zones; and Highly Vulnerable Aquifers are avoided where possible. • Consult TRCA and City of Pickering as applicable in order to undertake the proper action for managing the threat.	
Effects to storm water	• Change to the ground surface substrate in the proposed Project location may result in changes to storm water drainage.	• Station drainage system which is designed to prevent rainwater or snowmelt from accumulating within the station property. • An Environmental Compliance Approval (ECA) for drainage will be obtained from the MOECC prior to construction.	• No residual effects are predicted.
Designated or Special Natural Areas			

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
Effects to Designated or Special Natural Areas	• No designated or special natural areas exist in the vicinity of the proposed Project	• None required	• No residual effects are predicted
Natural Heritage Features			
Vegetation	• Removal of vegetation within proposed Project laydown and or right-of-way during construction and maintenance activities. • Accumulation of cleared vegetation during construction and maintenance activities.	• Construction activities will be restricted to designated work areas and protective barriers such as fencing are erected as required. • Special treatment areas are designated and tracked for future reference during maintenance activities. • Selective vegetation control methods are used. • Zero tolerance of harassment or harm to wildlife by employees or contractors that	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		may be utilizing vegetated areas. • Prudent alignment of off-corridor access roads to proposed right-of-way to minimize vegetation removal. • Implementation of the Biodiversity Initiative. • Clearly demarcate limits of vegetation removal. • Retention of all compatible vegetation in constraint areas (e.g. road and watercourse crossings, wetlands, valley lands, significant wildlife habitat and other environmentally significant areas). • Seed and fertilize non-cultivated portions of proposed RoW (excluding wetlands) and roadside ditches with native	

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		seed mix. • Disposal of all non-salvable limbs by chipping or removal to designated areas. • Stumps are cut flush with the ground	
Disturbance to wetlands	• Loss of ecological function	• Wetlands will be avoided to the extent possible during construction • Towers and access roads are located to avoid the most sensitive locations. • Construction activities are restricted to designated work areas and protective barriers such as fencing are erected as required • The area is restored to pre-construction drainage patterns. • A 120 m buffer is put around	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		the feature and liquid storage and refueling are not permitted within the buffer. • Temporary geotextile and crushed rock or corduroy roads are constructed to minimize disturbance of wetland soil and allow for easy removal after completion of construction. • If practical, vegetation is cut during firm or frozen soil conditions. • Wetland vegetation is allowed to re-establish naturally or is seeded with native plant species if natural re-generation is unsuccessful.	
Disturbance or destruction of fish habitat including spawning beds	• Disturbance to fish habitat as a result of construction activities	• Watercourse crossings will be avoided where possible by utilizing existing crossings,	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
	(i.e. water crossings, vegetation loss, etc.).	approaching from either side of the watercourse, or using alternative access routes • Construction vehicles will not ford watercourses except as required to install a crossing • Where required, an appropriate crossing type will be selected and all necessary permits and approvals will be acquired prior to crossing construction and adherence to terms and conditions. • Construction of crossings will occur outside of fish spawning season and during low water flow conditions if possible • Equipment will not be refueled within 120 m of watercourses, waterbodies, or wetlands	

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		• Sediment and erosion controls and sediment traps will be installed where necessary • A site specific erosion and sediment control plan will be developed where required. • Stream bank vegetation will be retained where possible • Material is stored or stockpiles away from water. • Disturbed areas will be restored to a pre-construction state or better.	
Habitats of Endangered, Threatened, or Species of Special Concern	• Disturbance or loss of SAR as a result of habitat loss from construction and maintenance activities.	• Avoidance of SAR and their habitat. • If avoidance of SAR is not possible, collaborate with the MNRF to mitigate the impact of transmission facilities. If required, an overall benefit	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		permit will be obtained.	
Animal movement corridors, habitat, breeding grounds and/or food sources for wildlife, as well as fragmentation	• Disturbance (including fragmentation) and loss of habitat, breeding grounds and/or food sources for wildlife due to vegetation removal during construction and maintenance activities.	• Tree clearing is avoided in wooded areas during nesting season, or a breeding bird survey is conducted and nests are protected. • Promotion of wildlife habitat through vegetation control and brush piles. • Natural vegetation is retained, where possible, and native species are used where seeding or planning is done. • Snags are retained for wildlife management, where feasible • Removal of incompatible vegetation may be staged to provide protective cover until compatible species become established in sensitive areas	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		• Environmental mapping to identify sensitive sites. • Avoidance of areas containing SAR. • Consideration of landscape level effects, including habitat fragmentation.	
EFFECTS TO RECREATIONAL RESOURCES			
Tourism and recreation resources	• Disturbance to tourism and recreation resources during construction.	• Disturbance is to be avoided, where possible. • Through site specific design and landscape, attempts are made to make facility less obtrusive or intrusive. • A landscape plan is developed and implemented if warranted. • Safety precautions are utilized to protect the public such as anti-climbing devices.	• No residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		• Work is scheduled, when possible, to avoid peak use periods.	
Opening normally remote areas to recreational activities	• Opening normally remote areas to recreational activities during construction and maintenance.	• No remote areas exist in the study area.	• No residual effects are predicted.
EFFECTS TO VISUAL AND AESTHETIC RESOURCES			
Appearance of the Landscape	• Visual disruption will occur during project construction. • Public views of the station from adjacent properties and transit corridors.	• Visual effects on neighbouring properties can be managed by maintaining a clean and organized workspace. • Screens can be temporarily installed during construction to block view of construction activities. • Project is located in an industrial area to minimize	• Low residual effects are predicted.

ENVIRONMENTAL CONCERN	PROJECT PHASE & POTENTIAL EFFECTS	MITIGATION MEASURES	RESIDUAL EFFECT
		effects to the landscape; the area is highly disturbed and the proposed Project will not significantly alter or reduce landscape. • Feeder lines will be constructed along the existing transmission line corridor. • Landscaping will be done at site; trees may be planted to serve as a permanent screen. • Topsoil and seed may be used to disguise access routes in urban areas.	

7.1 Agricultural Resources

As indicated previously in Section 3.1, the study area is comprised of Class 1 and 2 agricultural lands.

7.2 Forestry Resources

The MTS and transmission line upgrade will primarily be located on former agricultural land and a selectively cut right-of-way. Minor vegetation removal of small trees and brush is required to install the tap line and station access. The limited nature of vegetation removal is unlikely to have an effect on forest resources in the study area. As such, no mitigation or protection measures are required.

7.3 Cultural Heritage Resources

A Stage 1 Archaeological Assessment determined that the preferred substation site, line tap, and portions of the transmission line upgrade have potential for archaeological resources to be present. A Stage 2 Archaeological Assessment will be completed prior to construction. Any recommendations resulting from the Stage 2 Assessment will be followed.

If archaeological material is encountered during the course of the project, all activities with the potential to affect the archaeological material will cease immediately and a licensed archaeologist will be engaged, as well as the MTCS. In the event that human remains are encountered, Hydro One and/or Veridian will immediately stop work in the area and notify the police, the coroner's office, MTCS and the Registrar of Cemeteries.

No built heritage resources have been identified in the vicinity of Site #2. As such, no potential effects have been identified, and no mitigation or protection measures are proposed.

7.4 Human Settlements

7.4.1 Air Quality

Construction activities have the potential to create temporary, localized effects on air quality in the immediate vicinity of the proposed Project. Emissions from construction are primarily comprised of fugitive dust and combustion products from the movement and operation of construction equipment and vehicles. These emissions may create a nuisance or disturbance effect for local residents and land users during the construction phase. Nuisance effects are subjective, and the magnitude of the effect will vary depending on the individual and their location in relation to construction activities. Noticeable effects will occur only during the construction phase and will occur intermittently. Mitigation measures to reduce potential nuisance effects of dust and air emissions include maintenance of equipment used on site to minimize emissions and use of effective dust suppression techniques, such as on-site watering and road sweeping, as necessary.

Emissions from maintenance activities during operation will be variable, are expected to be short in duration, and will occur periodically over the life of the proposed Project. Nuisance effects posed by these brief activities are expected to be negligible and will not result in noticeable or long-term changes to local air quality.

7.4.2 Noise

The proposed Project activities have the potential to affect ambient noise levels during the construction and operation phases; however, noise effects will be most noticeable during the construction phase (these effects on noise and associated mitigation are discussed further in Section 7.7.2). These effects, in turn, may create a nuisance or disturbance effect for local residents and land users during the construction phase, particularly at Points of Reception (PORs), as defined by NPC-300. Nuisance effects are subjective, and the magnitude of the effect will vary depending on the individual and their location in relation to construction activities.

Construction activities will conform to the City of Pickering Noise By-law 6834/08. If exemptions to the noise by-law are necessary, the requirements of applicable approvals processes will be followed. If construction activities need to be extended to facilitate their completion, Hydro One and Veridian will inform local residents and businesses.

7.4.3 Vibration

The proposed Project activities have the potential to affect ambient vibration levels during the construction phase, causing nuisance and disturbance effects to local residents and land users in the vicinity of the proposed Project. Mitigation measures to reduce potential nuisance effects resulting from vibration are discussed in Section 7.5.2.

7.4.4 Mud

Construction activities may result in the accumulation of mud in construction areas. Mud mats will be installed as required near site exits to loosen and shake off mud. Mud related to construction activities will be removed from access roads, and vehicles and equipment will be washed and maintained at work areas as necessary.

7.4.5 Public Safety

Construction sites pose potential safety hazards to local land users and residents due to the operation of heavy construction equipment. Workplace safety and public safety are leading priorities at Verdian and. Hydro One. Veridian and Hydro One mitigate safety issues by implementing safety measures in accordance with their respective Public Safety Policies and company standards during construction. Veridian and Hydro One will undertake a wide range of safety measures, adding signage, fencing and locks to construction laydown areas, installing additional lighting in construction laydown and equipment storage areas, carefully selecting construction laydown areas and access roads, developing the construction schedule in consultation with City of Pickering planning staff (including avoidance of major events where feasible), providing the final construction schedule to emergency and protective services), and providing alternative driveway and/or pedestrian entrances for businesses and municipal facilities where traditional access routes are blocked by construction activities. Barriers will be used where appropriate to maintain public safety and prevent unauthorized access to work areas. During the maintenance and operation phase, Verdian and Hydro One will maintain appropriate signage, fencing and locks at stations and junctions and other visible infrastructure.

7.4.6 Land Use Planning

As indicated in Section 3.4.1, a review of the proposed Project's land use designation compatibility and conformance with the City of Pickering Official Plan and Central

Pickering Development plan confirms that there are no issues regarding conformance. Therefore, no potential effects on land use planning have been identified.

7.4.7 Population and Demographics

The addition of a temporary workforce to the local population during construction as a result of the proposed Project is predicted to be indiscernible. Therefore, no potential effects on population and demographics have been identified.

7.4.8 First Nations Communities

The study area is contained within the boundaries of the Johnson and Butler Williams Treaty of 1923 (Surtees, 1986) (Ministry of Aboriginal Affairs, 2014), therefore some traditional lands have the potential to be disturbed by construction, maintenance and operations of the station and line. Verdian and Hydro One are committed to developing and maintaining relationships of mutual respect with First Nations communities, recognizing that First Nations communities and their lands are unique in Canada, with distinct legal, historical and cultural significance. The project co-proponents are committed to continue to engage with the First Nations communities to provide regular project updates, and actively identify and avoid geographically defined areas which support current or past traditional use for the harvesting of wildlife or fish, the harvesting of traditional plants, or use as sites of spiritual or cultural significance. Verdian and Hydro One will seek to identify community concerns and build appropriate actions into proposed Project plans to address expressed concerns (see Section 4). Veridian and Hydro One have undertaken a Stage 1 Archaeological Assessment and will invite interested communities to participate in additional Stage 2 activities to work to identify and mitigate potential effects to the traditional land use.

7.4.9 Services and Infrastructure

Potential traffic and noise effects are possible during the construction phase of the project, and there may be temporary disruptions/closures of roadways for overhead line construction and moving large equipment, such as power transformers. However, it is important to note that traffic and noise effects will not be constant across the study area for the entirety of the construction phase; rather, noise and transportation infrastructure effects will be introduced to certain areas and diminish depending on where construction is actively

occurring, thereby reducing the duration of nuisance effects to business establishments, local residents and land users. As a result, it is unlikely that the proposed Project will result in adverse effects to the economy of the study area in the medium-to-long term. Verdian and Hydro One will seek to limit potential for effects through project design and the construction schedule, minimizing the time for which access to transportation routes are disrupted.

Economic development associated with construction spending is one of the positive effects of transmission facility projects. Construction activities provide an opportunity for local employment and result in spin-off effects to the local service industry. Direct employment benefits will be realized through the construction phase of the proposed Project. The bulk of the direct employment would take place during the construction phase (which could begin as early as autumn 2017). Indirect employment and/or economic benefits may also be stimulated through direct expenditures on goods and services required for construction sourced from Ontario businesses.

In addition, induced employment and economic benefits may be realized in the service industries, as the construction workforce may purchase local goods and services (e.g., food and beverages).

Together, these demands would result in small but positive labour market and economic benefits to the region for workers and supplying businesses.

7.4.10 Transportation and Traffic

Roadways transected by the Project that have the potential to be affected include but are not limited to Taunton Road, and planned construction access roads being used by residential developers in the study area. Potential traffic and noise effects are possible during the construction phase of the project, and there may be temporary disruptions/closures of roadways for overhead line construction and moving large equipment, such as power transformers.

To minimize disruptions and/or delays to local road traffic and emergency public safety services, construction areas will be carefully designed to avoid existing road infrastructure, to the extent feasible.

There is no air transportation infrastructure in the study area; therefore no potential effects to air transportation are predicted.

There are no operational railway segments in the project study area; therefore no potential effects to trail transportation are predicted.

7.4.11 Water, Wastewater and Waste Services and Infrastructure

During the construction of the proposed Project, the co-proponents will follow stringent provincial policy and legislation to ensure the safety and protection of both ground and surface water, complying with the *Clean Water Act*, 2006, the *PPS* (2014), the CTC Source Protection Plan (2015), and the City of Pickering Official Plan. Verdian and Hydro One will continue to consult with provincial ministries, the City of Pickering and the TRCA on proposed Project design, construction and operation to address concerns related to water services and infrastructure.

The proposed Project has the potential to slightly increase demand on waste infrastructure in the study area during the construction phase. Construction waste will be generated by the proposed Project, and will need to be disposed of in regional landfills and recycling facilities. Waste generated during construction will be handled, stored, transported and disposed of at licensed recycling and waste disposal facilities, as applicable, in accordance with applicable legislation. Waste produced will be minimized, and segregated and recycled where possible.

7.4.12 Education Services and Infrastructure

The proposed Project will not have a discernible effect on educational services or infrastructure in the study area. Therefore, no potential effects on education services and infrastructure have been identified.

7.4.13 Housing

The proposed Project will not have a discernible effect on housing in the study area. Therefore, no potential effects on housing have been identified.

7.4.14 Labour Market and Economy

Economic development associated with construction spending is one of the positive effects of transmission and transformer station projects. Construction activities provide an opportunity for local employment and result in spin-off effects to the local service industry. Direct employment benefits will be realized through the construction phase of the proposed Project. The bulk of the direct employment would take place during the construction phase.

Indirect employment and/or economic benefits may also be stimulated through direct expenditures on goods and services required for construction sourced from Ontario businesses. In addition, induced employment and economic benefits may be realized in the service industries, as the construction workforce may purchase local goods and services (e.g., food and beverages). Together, these demands would result in small but positive labour market and economic benefits to the region for workers and supplying businesses.

7.5 Natural Environment Resources

7.5.1 Physical Environment

Given the relatively shallow anticipated depth of excavation for station components and transmission line work, the proposed Project is not predicted to affect surficial or bedrock geology. With backfill and site restoration following construction, physiography in the vicinity of the proposed Project is not predicted to be affected. Therefore, no net effects on the physical environment have been identified for the proposed Project.

7.5.2 Atmospheric Environment

Air Quality

As noted in Section 7.4.3, construction activities have the potential to temporarily affect local air quality in the immediate vicinity of the proposed Project. Emissions from construction are primarily comprised of fugitive dust and combustion products from the movement and operation of construction equipment and vehicles. Potential effects associated with construction are anticipated to be minimal due to their short and intermittent duration. As a result, construction emissions are unlikely to have a long-term effect on local air quality.

Additionally, potential effect to air quality from construction activities can be mitigated through proper servicing and maintenance of construction equipment and the implementation of best management practices. Proper maintenance of construction vehicles and equipment can assist in reducing combustion emissions and should reduce effects on air quality. Similarly, the implementation of best management practices, such as on-site watering and road sweeping, can reduce the generation of fugitive dust. Therefore, it is likely that the net effects of construction activities on local air quality will be negligible and no additional mitigation is required.

With the exception of periodic maintenance activities, such as inspection from vehicles, no additional emissions are expected as a result of the operation of the proposed Project. Emissions from maintenance activities during operation will be variable depending on activities, expected to be short in duration, and will occur periodically over the life of the proposed Project. These maintenance activities are not expected to result in long-term changes to local air quality. Therefore, net air quality effects associated with maintenance and operation activities are likely to be lower in magnitude than the effects during the construction phase and will be negligible. No additional mitigation is required.

Noise

As noted in Section 7.4.2, the proposed Project has the potential to affect ambient noise levels during the construction and maintenance and operation phases. In Canada, noise can be regulated at a federal, provincial and/or municipal level. If adequate local (i.e., provincial

or municipal) noise requirements exist, federal regulations look to the local requirements for guidance. In Ontario, the MOECC NPC documents NPC-115 –Construction Equipment (MOECC, 1978) and Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning, Publication NPC-300 (MOECC 2013) address environmental noise. NPC-115 sets out maximum noise emission ratings for construction equipment. Construction activities are often also regulated at the municipal level through bylaws, which limit construction activities during certain days of the week and periods of the day. The City of Pickering sets out noise by-law requirements in By-Law 6834/08. NPC-300 specifies an exclusionary noise limit at the POR, which is dependent on the classification of areas containing sensitive PORs in the vicinity of a project.

Based on available data, a small number of PORs, as defined by NPC-300, are located in the vicinity of the proposed Project. As described previously an elevated ambient noise level already exists at the identified PORs. Ambient noise levels can be expected to increase, on occasion, due to construction activities at some of the identified PORs. However, construction noise will be temporary in nature, will only occur during specific activities, will be limited to certain days of the week and periods of the day, and will be limited to the vicinity of the proposed Project. The range in the change to ambient noise levels associated with construction activities will depend primarily on the number and type of noise sources and their proximity to the PORs (i.e., noise levels as a result of the proposed Project in the environment would generally decrease as the distance between the POR and construction activities increase). Potential effects on noise levels during construction of the proposed Project will vary based on the type of construction activities. For the proposed Project, noise effects during construction are expected to occur during site clearing, excavation, trenching, and grading. The primary noise sources associated with construction are expected to be off-road equipment such as dozers, backhoes, excavators, graders, compactors, cranes/booms and trucks, and smaller equipment such as saws, generators, pumps and winches.

The MOECC does not specify particular limits for construction noise levels at PORs; however, the MOECC requires the implementation of good practices to limit noise levels. This includes the use of reasonable noise mitigation measures to reduce the effect of construction noise of new facilities or modifications to existing facilities on nearby PORs.

The variability of noise emission levels, location of equipment and the distance of PORs from the construction activity will result in a range of construction noise levels at PORs, generally decreasing with distance from the proposed Project. General good construction methods are considered inherent to the proposed Project and include maintenance of equipment such that construction activities conform to typical noise parameters, use and maintenance of noise abatement equipment (e.g., muffler systems) to reduce noise emissions (i.e., compliance with NPC-115), considering noise when deciding on equipment and construction work methods and schedule, and taking reasonable measures to control construction related noise near residential areas.

Construction activities will conform to the City of Pickering noise by-law to the extent feasible. While efforts will be made to comply with the City of Pickering noise by-law, there may be instances where noise by-law exemptions are sought (e.g., after-hours or weekend work to alleviate potential traffic disruptions during rush hour, or to complete certain construction works more quickly). If exemptions are necessary, the requirements of applicable approvals processes will be met. These efforts will reduce the potential for noise effects at PORs. Furthermore, as the proposed Project is expected to be linear and construction activities are planned sequentially, the duration of construction at any one location along the proposed Project will be limited and intermittent, thereby reducing the amount of time a given POR would be exposed to noise emissions resulting from the proposed Project.

Noise emissions associated with maintenance and operation activities are expected to be minimal. Noise sources and noise levels from maintenance activities after construction will primarily be Associated with the noise produced by the Transformer. Prior to construction, an Environmental Compliance Approval for the MOECC for this point source of noise will be secured for the project, and mitigation such as noise barriers would be considered where appropriate to meet noise levels at PORs.

Mitigation measures to reduce potential nuisance effects resulting from noise include ensuring that noise abatement equipment on machinery is in good working order, and regularly maintaining equipment such that construction and maintenance activities conform to typical noise parameters. Verdian and Hydro One will consider noise when deciding on

equipment and construction work methods and schedule. Verdian and Hydro One will also take reasonable measures to control construction-related noise near residential areas.

Vibration

The proposed Project has the potential to affect ambient vibration levels during the construction phase. The MOECC NPC documents address vibration. Ambient vibration levels can be expected to increase, on specific occasions, due to construction activities at some of the identified PORs, but construction vibration will be temporary in nature, occur only during specific activities, and limited to the immediate vicinity of the work area. The range in the increased vibration levels associated with construction activities will depend primarily on the number and type of sources and their proximity to the PORs. Potential effects of vibration during construction will vary based on the type of construction activities. For the underground cable installation, vibration effects during construction are expected to be greatest during excavation, compaction, and grading.

Mitigation measures to reduce potential nuisance effects resulting from vibration include the consideration of vibration when selecting equipment and construction work methods and determining work schedules for the proposed Project, and taking reasonable measures to control vibration related to project construction near residential areas These efforts will reduce the potential for vibration effects at PORs. Moreover, vibration associated with maintenance and operation activities are expected to be minimal, and additional mitigation is not required.

7.5.3 Surface Water Resources

Construction Phase

Proposed Project activities during the construction phase that have the potential to influence surface water quantity conditions in nearby watercourses are:

- Site preparation for a new cable route, temporary access roads, temporary laydown areas and site preparation for the transformer station;
- Discharge of construction water from dewatering activities to nearby watercourses.

Site preparation, including activities such as removal of vegetation, locates/daylighting of existing buried utilities, construction of temporary access roads, will be required in relation to the work areas for the transmission line upgrade, line tap connection, as well as the work areas for the transformer station.

The preferred route will use an existing RoW for overhead lines extending from Duffins Junction to the south of the transformer station site. The work area in this location will be approximately 1.5 km in length. Temporary access to each structure will have an approximate total width of 6 m. Approximately 20 m by 20 m crane and laydown pads at each new and existing structure will be created to facilitate existing structure removal and new structure assembly and erection. Temporary puller/tensioner pads (approximately 30 m x 20 m) at each end of the work area will allow for placement of equipment to enable stringing of conductors and skywire. Equalizing culverts will be placed underneath temporary access and pads to prevent water ponding and maintain existing drainage patterns as required.

Site preparation will be required for the MTS site. Due to the clearing, grading, excavating and potential soil and root compaction during construction, stormwater patterns may change throughout the site area. These changes may increase erosion and concomitant effects to surface water in the vicinity of the area. Where grading, excavation, drilling, soil stockpiling or vegetation clearing is to occur within 120 m of natural features or 30 m of water bodies, silt fence will be installed in order to prevent movement of sediment. Where necessary, check dams, catchment areas, or other sediment and erosion controls will be established to supplement silt fences. Areas with temporarily cleared vegetation will have native plants replanted to permanently effect erosion control. Temporarily stockpiled soil will also be surrounded by silt fencing in order to further prevent erosion. Upon the completion of backfilling and the subsequent disposition of excess soil elsewhere replanting with native vegetation will be undertaken in areas that are not going to be used for the substation, in consultation with the City of Pickering and TRCA as appropriate.

Short-term (e.g. silt fencing, catchment areas, and geotextiles) are expected to fully mitigate sedimentation and erosion generated through the construction process. Therefore, no net effects from erosion and sedimentation are anticipated.

Removal and discharge of construction water may be required as a result of dewatering activities at the MTS site. Water will consist of local stormwater runoff and groundwater intercepted during excavation. Dewatering of the foundation excavations will occur through a combination of gravity drainage and/or sump pumps, and possibly perimeter drainage ditches, depending on the time of year and groundwater conditions encountered. The dewatering discharge will be directed into sediment basins or sediment bags placed in vegetated areas, where it will have the opportunity to re-infiltrate soil. Silt and erosion control measures will be employed as necessary. Construction water from dewatering activities will require an Environmental Activity Sector Registration (EASR) if taking between 50,000 L and 400,000 L of water per day, or a Permit to Take Water (PTTW) if taking over 400,000 L of water per day. With the implementation of the mitigation measures described above, and the short duration of the dewatering activities, dewatering activities are not anticipated to have long-term residual effects on surface water quality conditions in the receiving watercourses.

There are no watercourse crossings proposed for the project.

Operations Phase

Project activities during the maintenance and operation phase that have the potential to influence surface water conditions in nearby watercourses are:

- Operation and maintenance for an addition transmission circuit;
- Operation and maintenance of a new transformer station.

Constructing the new station will require the removal of existing vegetation, site grading, and the installation of the station components including some new impermeable surfaces. The station will be designed in accordance with the storm water management guidelines from the

TRCA and the City of Pickering. When construction work is completed, the new station site will be re-vegetated and landscaped.

On the existing overhead transmission line RoW, Hydro One Forestry crews will continue to implement their regular vegetation maintenance program to ensure the safe and reliable operation of the overhead conductors. This program runs on an approximately 6-8 year cycle and is focused on controlling the regeneration and reestablishment vegetation deemed to be non-compatible with overhead transmission lines.

7.5.4 Groundwater Resources

During construction, the potential effects of the proposed Project on groundwater include changes in water quality due to disturbance of pre-existing soil contamination which may exist, changes to existing groundwater quality or quantity due to excavation activities and construction dewatering, and changes in groundwater flow regime due to installation of concrete foundations. Changes in groundwater due to project activities during construction could also affect the amount of groundwater discharged to nearby watercourses and natural environment features.

Limited effects on groundwater during the construction phase may occur in the excavations required for the substation foundations, secondary containment system and building foundations, where construction dewatering may be required. Low permeability materials used in station construction may slightly reduce groundwater recharge. It is anticipated that the effects on groundwater during construction and operation will be neglible.

Potential Effects on Groundwater Quality and Quantity

Soil contamination may be encountered during construction. These areas of soil contamination may contribute to groundwater contamination if disturbed during construction.

Spills will be avoided by maintaining equipment used during construction and operation in good repair. In the unlikely event that a spill occurs, spill kits will be available on site during

construction. The spill source will be rectified immediately, any contaminates will be removed from site promptly. The MOECC will be contacted as required by provincial legislation.

Excess material that needs to be disposed of off-site will be sampled and analyzed to determine specific disposal requirements. Backfill will be tested to ensure that it is acceptable. Soil and groundwater containment and disposal measures will be implemented, if required.

No residual adverse effects have been identified for changes in groundwater quality due to the construction of the proposed Project. If changes in groundwater quality were to occur, it is anticipated that groundwater quality would return to baseline conditions following the implementation of mitigation measures, such as containment and removal of contaminated soils.

7.5.5 Natural Heritage Features

No significant effects on natural heritage features are anticipated during the maintenance and operation phase.

Vegetation

Construction activities will be restricted to designated work areas and protective barriers such as fencing will be erected to protect adjacent features from construction related effects. For example, silt fencing and/or other sediment and erosion control measures will be installed as required to prevent the migration of sediment-laden water from the site, and tree protection boarding will be installed adjacent to vegetation areas to prevent encroachment or damage during construction. In addition, vegetation removal limits will be clearly demarcated. Prior to construction, a detailed construction plan will be developed.

Other measures that will be undertaken to reduce adverse effects resulting from the construction of the proposed Project may include:

- Restricting access and minimizing travel/work areas to maximize retention of compatible vegetation;
- Implementing sediment and erosion controls per TRCA guidelines;
- Selectively cutting and retaining compatible vegetation to promote regeneration;
- Using geotextile and gravel for temporary access, where feasible, to reduce compaction;
- Restoring compacted areas;
- Replanting with compatible native species;
- Retention of compatible vegetation in constraint areas (e.g., watercourse buffers, s, wetlands, valley lands, significant wildlife habitat and other environmentally sensitive areas);
- Implementation of the biodiversity initiative; and,
- Installing barriers (e.g., silt fences) at the appropriate buffer distance to promote protection of watercourses.

Most wildlife species that occur in the study area are habituated to human activities and are mobile. Any sensitive resident animals can relocate temporarily to avoid noise and disturbance associated with construction activities and return after construction completion. Construction disturbance will be sufficiently local and transitory that little displacement of wildlife is anticipated. Therefore, the effect of the proposed Project on wildlife will be minimal. Wildlife will not be harassed or harmed during construction.

Removal of vegetation has the potential to disturb nesting migratory birds. The *Migratory Birds Convention Act,* 1994 (MBCA) prohibits the disturbance, destruction or removal of a nest, egg or nest shelter of a migratory bird. In order to avoid contravention of the MBCA, vegetation removal should not be conducted during the migratory bird breeding season (April 5 to August 31 in nesting zone C2; Environment and Climate Change Canada [ECCC], 2016b) where feasible. If vegetation removal occurs during the breeding season, a non-intrusive breeding bird nest survey will be undertaken by a qualified avian biologist and

nests found will not be disturbed until the young have fledged. Where active nests are found, a buffer zone reflective of the species will be established to restrict construction activities.

Removed vegetation will be carefully cleaned up and disposed of. Specifically, non-salvageable limbs will be chipped or removed to designated areas. Stumps will be cut flush with the ground where feasible.

Wetlands

No PSWs were identified in or adjacent to the natural heritage study area. Therefore, there is no potential for the proposed Project to affect PSWs.

An unevaluated wetland is adjacent to the MTS site. Disturbance of this wetland is not anticipated through the selection of a line tap connection that avoids the area. Potential erosion and sedimentation will be mitigated by limiting the construction to designated areas, by demarcating the boundaries of the wetland and instructing workers on the importance of avoiding entrance to the demarcated area. Silt barriers will be erected 30 m from the boundary of the wetland's western edge. . Erosion and sediment fencing will be maintained and monitored, especially after a rain event. Construction will only be permitted outside of the wetland feature and the 30 m buffer.

Fish Habitat

Ganateskiagon Creek to the north of the substation site has been identified as occupied SAR habitat for Redside Dace. The site disturbance for the station has been limited to a 200 x 200 m area outside of the habitat identified as the meander belt, plus a 30 m buffer.

Potential disturbances to fish habitat resulting from construction activities have been minimized by observing the appropriate 30m buffer. Further mitigation includes the erection of sedimentation and control fencing, the prohibition of fueling of vehicles and/or equipment within 100 m of a watercourse to avoid potential spills (e.g., fuel, oil, lubricant) from migrating and entering aquatic features or riparian areas. Spill kits will also be located at work areas to mitigate the effects of accidental spills or releases, should they occur during construction.

Woodlands

Significant woodlands have not been identified in the study area.

In general, removal of woody vegetation will be minimized during construction to the extent feasible. The site was selected in part to minimize disturbance to forested areas during construction and will be situated mostly in and cultural meadow vegetation communities with a fencerow.

Verdian and Hydro One have consulted with, and will continue to work with, the City of Pickering and the TRCA to identify in the field which trees will be removed and which will be retained on an individual basis, as well as development of a replacement plan for compensation of any lost trees.

Species at Risk

Occurrences or habitat for the following species at risk (SAR) are noted in the approximately five square kilometre area surrounding the proposed Project (see Section 3.7.6.). Based on field assessments, the potential for these species or their habitat to be present has been determined to be low to low-moderate.

- Redside Dace (Endangered)
- Acadian Flycatcher (Endangered)
- Butternut (Endangered)
- Eastern Ribbonsnake (Special Concern)
- Milksnake (Special Concern)

All construction personnel will be aware of the potential presence of, and be able to identify these species. Staff will ensure that no Butternut trees are within the immediate vicinity when removing vegetation.

Should SAR or their habitat be encountered during construction activities, work in the vicinity of the species will immediately stop until the species has left the area. Future work will be assessed to determine the potential for modification of the work, schedule or

mitigation measures to avoid potential effects on SAR and their habitat. Any SAR sightings will be reported to the MNRF District Office as soon as possible. If avoidance of SAR or habitat is not possible, Verdian and Hydro One will communicate with the MNRF, and if required, an overall benefit permit will be obtained.

Wildlife Habitat

Several forms of wildlife habitat or candidate significant wildlife habitat were identified in the natural heritage study area during 2015-2016 desktop work and field surveys. However, significant wildlife habitat is only a constraint if there is appreciable alteration or loss as a result of development, which is not anticipated to be the case with respect to the proposed Project.

Route selection considered environmental sensitivities including wildlife habitat features, and vegetation removal will be limited. Other measures that will be undertaken to reduce adverse effects on wildlife habitat (including significant wildlife habitat) resulting from the proposed Project include:

- The retention of snags and cavity trees where feasible;
- General avoidance of wetlands;
- Retain natural vegetation, to the extent possible;
- The use of native plant species where seeding or planting is completed; and,
- Implementation of the biodiversity initiative.

Significant Areas of Natural and Scientific Interest

There are no ANSIs in the study area; therefore, no effects on significant areas of natural and scientific interest as a result of the proposed Project are anticipated.

Seaton MTS Habitat Restoration and Enhancement Initiatives

While Verdian and Hydro One always strive to avoid and mitigate potential effects to the natural environment, and restore areas that are temporarily affected during construction, Verdian and Hydro One also acknowledge that there may be adverse effects that cannot be avoided, or that occur even when appropriate mitigation and restoration measures are

employed. Examples include the removal of mature trees which can only be replaces by much younger saplings, or the permanent conversion of a woodlot into a shrub or meadow community. Verdian and Hydro One refer to these as "residual net effects" to the natural environment. Because residual net effects cannot be further avoided or mitigated, they are typically compensated for by undertaking positive environmental activities (e.g. the creation of new natural communities, or the enhancement of new ones) at other locations.

Verdian and Hydro One have committed to undertaking a habitat restoration and enhancement initiative specific to this project to compensate for any potential residual net effects to natural communities or resources that may occur. Verdian and Hydro One will implement this initiative is to ensure that no net loss of habitat occurs in the area of the preferred site for the proposed Project.

Specifically, Hydro One and Veridan are committed to developing appropriate habitat restoration and enhancement plans for required vegetation removal by working closely with the Toronto Region Conservation Authority (TRCA), the City of Pickering, and Infrastructure Ontario (IO). The plan will be developed by Verdian and Hydro One as the proposed Project moves towards construction phase.

7.6 Recreational Resources

As indicated in Section 3.8, the study area has recreational uses, including hiking trails within the study area. No trails or other recreational resources are located within the vicinity of the MTS or line tap.

A portion of the Seaton Trail is located on the transmission corridor near Duffin Jct. This trail portion may be temporarily disturbed during construction of the transmission line upgrade due to the establishment of laydown areas, activities in existing RoWs and the presence of construction equipment and project workers.

Any loss of access is expected to be short-term in nature due to the duration of the construction phase. However, some loss of enjoyment may continue temporarily through

the operation phase as wooded areas affected by construction and laydown areas revegetate and return to baseline conditions. To reduce effects on recreational resources and their users, Hydro One will plan construction areas to avoid recreational resources to the extent feasible, and be as unobtrusive as possible. Hydro One will engage with the TRCA and Friends of Seaton Trail to coordinate continued safe recreational use where feasible. Clear signage will be erected in the relevant areas, and Hydro One will provide notification/pre-construction information to area residents detailing construction schedules and routes.

7.7 Visual and Aesthetic Resources

Construction of the proposed Project will require selective removal of vegetation, the construction of a substation and associated components, construction of new transmission towers, the presence of construction workers, and the operation of equipment. The proposed Project is located primarily within a rural landscape, and where possible, is aligned with other linear disturbances (i.e., roadways, existing power infrastructure). However, removal of vegetation during construction and installation of activities in the area will result in an alteration of viewscapes and visual aesthetics. Verdian and Hydro One contractors will minimize visual impacts on properties adjacent to the proposed Project by maintaining a clean and organized workspace.

Where feasible, efforts will be made to preserve mature trees along the proposed Project work areas, leaving vegetation screens. Temporary screens will be installed during construction to block views of construction activities, where feasible. Tree removals will be followed by appropriate compensatory plantings, as necessary. This collaborative effort will continue throughout the proposed Project to ensure that the loss of trees is minimized, particularly in areas used for recreational purposes. Site restoration (including restoration planting and seeding) will be implemented post-construction.

Veridian will consider a range of screening options for the MTS in including landscaping and plantings to reduce the visual impact to existing and planned uses. The goal is to make the station as unobtrusive as possible. It is expected that this will be addressed with City of Pickering permits and approvals.

7.8 Noise

Construction may be a potential source of short-term, intermittent local environmental noise. All work is expected to be completed using common construction methods. The noise associated with the construction would most likely be a result of activities, such as general site grading, foundation work and construction traffic. All of these activities will require the use of various pieces of heavy equipment such as bulldozers, front-end loaders, small trucks, backhoes, bobcats, dump trucks, compactors, cement trucks and/or cranes. Other construction activities, such as those related to the placement of the facility components are expected to generate less noise. The movement of delivery and worker vehicles will also add to the noise levels during the construction period.

During operation, the proposed Project will produce a humming sound. Noise levels at Seaton MTS must meet environmental requirements, as substation design is subject to an ECA for noise under the *Environmental Protection Act*.

An Acoustic Assessment was completed by WSP, using hypothetical transformers for modeling purposes, for the preferred location. The Acoustic Assessment Report concludes that operational noise impact from the proposed station would meet the sound level limits defined by the MOECC. The station will be located in an acoustical Class 1 Area, as defined by NPC-300 (MOE, 2013), which is determined by the background sound level dominated by road traffic and industrial operations. The receptors presented above, including the nearby residential home were evaluated in the assessment and it was determined that no special noise control measures are warranted. Once the station is nearing final design, the model will be re-run using the details of the transformers that will be used and any modifications to the station will be made to ensure that the required sound level limits are met.

7.9 Spills

During construction there is the possibility of spills from the release of oils and fuels from construction vehicles and other equipment. A number of mitigation measures are proposed to reduce the risk of spills and to minimize the effect in the unlikely event that a spill occurs. These measures include:

- Ensuring that a Construction Environmental Management Plan is developed and available;
- Equipping the station with a spill kit;
- Training construction crews on spill management;
- Ensuring that spills are cleaned up as soon as possible and that the site is remediated after a spill;
- Installing alarms on the equipment so that early spill detections are made; and
- Equipping the station with spill containment facilities.

During operation, the proposed Project will use mineral oil as an insulating fluid in the transformers. As mentioned above, the station will be fully equipped with spill containment and oil/water separator facilities. An Environmental Response Plan (ERP) will govern spill response, and spill clean-up and response equipment will be located on site.

During any phase of the project, any spills of potentially hazardous materials such as fuels and insulating oils will be reported, managed and cleaned up in accordance with all pertinent legislation, Veridian, and Hydro One procedures.

7.10 Electric and Magnetic Fields

Verdian and Hydro One as co-proponents are committed to meet safe electric and magnetic field (EMF) exposure levels for all of our facilities. This commitment ensures that both our own employees working within our stations as well as members of the public in the vicinity are not exposed to elevated EMF levels.

Regarding research on EMF, Health Canada's conclusion is that there is no convincing evidence that EMF are the source of health effects because research on EMF is inconclusive; there is no cause-effect relationship between exposure and adverse health effects. Exposure limit numbers are not meaningful in the absence of a clear causal relationship. Health Canada's Fact Sheet that addresses issues related to EMF is available in Appendix C.

EMF levels fluctuate at stations depending on many factors including loading, station layout and network configuration. Consequently modeling EMF at proposed stations has low accuracy and predictability. In the past however, Hydro One has taken measurements of EMF within stations and at the fence line and compared results to baseline conditions. Since the levels have marginal increases following facility installation and are always significantly below guidelines, it is not typical to conduct modeling studies for new stations.

Verdian and Hydro One facilities are designed and operated in accordance with all regulatory requirements, including international exposure limits of EMF. Consequently there is no mitigation required, nor need for additional studies.

8. Effects Monitoring

The purpose of effects monitoring is to confirm the extent of the project's environmental effects, by comparing the actual effects with the predicted effects, to verify the effectiveness of implemented mitigation measures, and to determine whether additional measures are warranted. Monitoring also confirms that the commitments, conditions of approval, where applicable, and compliance with other environmental legislation are met. An Environmental Specialist will be assigned to the project for the duration of construction to monitor construction activities and provide guidance on needed field changes.

As previously noted in Section 6, a project-specific Environmental Management Plan (EMP) will be prepared following the completion of the Class EA process. The EMP will:

- Summarize legislative requirements;
- Summarize environmental commitments set out in the final ESR, and terms and conditions of approval, if any; and
- Provide specific directions to construction crews.

At the end of construction, an as-constructed plan will be prepared to guide ongoing operation and maintenance activities. The plan will document as constructed conditions as well as any ongoing monitoring requirements.

9. Conclusions

Verdian and Hydro One as co-proponents are seeking approval under the *EA Act* for the construction of a new transformer station, associated line tap and transmission line upgrades. The purpose of the proposed Project is to:

- Accommodate anticipated electrical load growth in the City of Pickering in the coming years.
- Maintain an adequate and reliable supply of electricity to people in the area.

This ESR describes the Class EA process that has been carried out for this proposed Project.

The proposed Project would step down voltage from a transmission voltage at 230 kV to distribution voltage at 27.6 kV. The upgrade of the existing Hydro One 230 kV transmission line and the construction of a line tap are required to connect the proposed MTS to the Hydro One Grid. The proposed undertaking is described in Section 6 including the design, construction, maintenance and operation as well as project schedule.

As part of the site selection process, environmental, technical and cost criteria were established to identify and evaluate alternatives sites. Based on the analysis undertaken, Site #2 was selected as the preferred site for the proposed Project. This location is situated in the City of Pickering, Ontario in the Seaton Community.

Verdian and Hydro One have conducted a consultation program to inform municipal, provincial, federal government officials, government agencies, First Nations communities, potentially affected and interested persons about the proposed Project, identify issues and concerns, and resolve or propose appropriate mitigation measures.

Potential short- and long-term environmental effects were identified and corresponding mitigation measures were developed to address these effects. No significant adverse residual effects due to construction and operation activities were identified.

This draft ESR will be made available for municipal, provincial, federal government officials, government agencies, First Nations communities, potentially affected and interested persons for 30 days between November 17, 2017 and December 15, 2017. Veridian and Hydro One will respond to and make best efforts to resolve any issues raised by concerned parties during the review period. The comments and issues raised will been documented in this final ESR as required by the Class EA process.

Construction of the proposed Project is subject to necessary permits, licenses and approvals.

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