

PUC TRANSMISSION LP

THE 230 KV TRANSMISSION PROJECT  
CLASS ENVIRONMENTAL ASSESSMENT  
DRAFT ENVIRONMENTAL STUDY REPORT





# THE 230 KV TRANSMISSION PROJECT

## CLASS ENVIRONMENTAL ASSESSMENT

### DRAFT ENVIRONMENTAL STUDY REPORT

PUC TRANSMISSION LP

DRAFT

PROJECT NO.: 221-01502-00  
CLIENT REF:  
DATE: AUGUST 02, 2022

WSP

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# REVISION HISTORY

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August 02, 2022

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# EXECUTIVE SUMMARY

PUC Transmission LP (PUC) has identified the need for a double-circuit 230 kilovolt (kV) transmission line and a new transformer station in the city of Sault Ste. Marie, in northern Ontario (the Project). The Project is proposed to serve the immediate need for increased power supply to Algoma Steel for its new electric arc furnaces (EAFs) project and to provide PUC Distribution Inc. with a new source of power that will support its long-term asset management needs.

The proposed double-circuit 230 kV transmission line, which will be approximately 12 kilometres (km) long, will convey electricity from Hydro One's Third Line Station in the City's north end to a new PUC transformer station in the west end, and then a 115 kV line will convey electricity to a future Algoma Steel EAF Station. With two circuits on one set of poles, PUC will be providing redundancy that will carry the full Algoma load on one circuit alone, while the other is down for maintenance or due to potential contingency situations, such as weather events. The new transformer station will also provide power to PUC Distribution Inc.'s distribution circuits for future distribution system infrastructure renewal.

PUC has initiated work on development activities, including seeking relevant environmental approvals to construct the 230 kV transmission line and transformer station. This Project requires undertaking a Class Environmental Assessment (Class EA), which began in 2021.

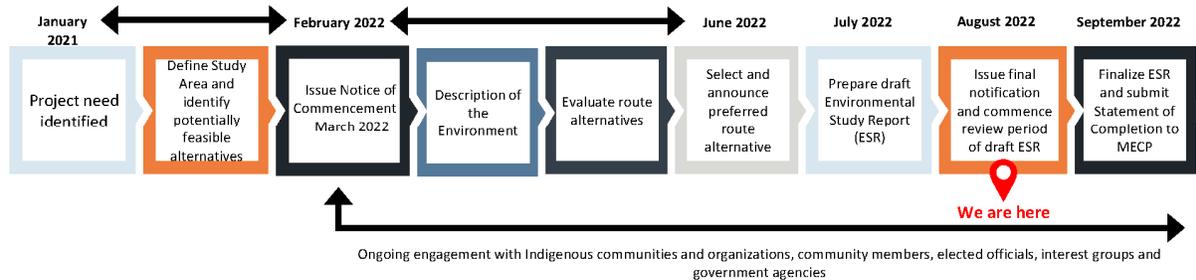
PUC has retained the services of WSP Canada Inc. (WSP) to undertake the Class EA study for the Project. The Class EA study process followed a number of milestones, as shown in **Figure ES-1**. The Study evaluated, from socio-economic, biophysical, and technical perspectives, the route and station options for the Project, recommended preferred route and station options, and then assessed the potential effects of the construction and operation of the preferred transmission line route and station location. The results are documented in this draft Environmental Study Report (ESR) in accordance with the Class Environmental Assessment for Minor Transmission Facilities (Category 'B' projects) (Hydro One Networks Inc., 2022).

The Project will require the construction of a transmission line and transformer station located near the Algoma Steel Plant. Four transmission line route options (Route Options A, B, C and D), and a three station options (Station Options 1, 1-A and 2) were considered in the environmental study for the Project. These are described below.

- **Route Option A:** Starting from the west end of the northern Common Elements Route segment, Route Option A would originate about 230 m south of Third Line West. The route would then extend west, parallel to Third Line West, to Allen's Side Road. Route Option A would then extend south along Allen's Side Road and then east on Wallace Terrace. The route would terminate west of the intersection of Brookfield Avenue and Wallace Terrace, where it would connect to the southern Common Elements Route segment. This route option is approximately 12 km in length.
- **Route Option B:** Starting from the west end of the northern Common Elements Route segment, Route Option B would originate at approximately 230 m south of Third Line West and extend south approximately 820 m to just west of Arden Street, then extend west 785 m to Allen's Side Road, where the route would turn south parallel to Allen's Side Road until it turned east at the intersection of Allen's Side Road and Wallace Terrace. It would then terminate at the intersection of Brookfield Avenue and Wallace Terrace, where it would connect to the southern Common Elements Route segment. This route option is approximately 12 km in length.
- **Route Option C:** Starting from the west end of the northern Common Elements Route segment, Route Option C would originate approximately 230 m south of Third Line West and extend south approximately 820 m to just west of Arden Street, then extend west approximately 350 m until it turned south again, terminating west of the intersection of Brookfield Avenue and Wallace Terrace, where it would connect to the southern Common Elements Route segment. This route option is approximately 11.9 km in length.

- **Route Option D:** Starting from the west end of the northern Common Elements Route segment, Route Option D would originate about 230 m south of Third Line West, then extend south approximately 370 m to just northwest of Chippewa Street where it would extend south-west approximately 400 m, turning west south until it terminated west of the intersection of Brookfield Avenue and Wallace Terrace, where it would connect to the southern Common Elements Route segment. This route option is approximately 11.9 km in length.
- **Station Option 1:** is located at 46°31'37.50"N and 84°23'17.99"W about 138 m from Yates Avenue and 240 m from Glasgow Avenue, on land owned by the City of Sault Ste. Marie.
- **Station Option 1-A:** is located directly south of Station Option 1, on land owned by Algoma Steel.
- **Station Options 2:** is located approximately at 46°31'24.65"N and 84°22'36.09"W, about 600 m away from the proposed Algoma Steel EAFs Station, on land owned by Algoma Steel.

No other viable alternatives were identified for the transformer station, due to the configuration of equipment within and around the future EAFs station and the existing Hydro One Third Line Station. Thus, these three station options were carried forward to the evaluation of alternatives.



**Figure ES-1 Class Environmental Study Process**

Consultation and engagement with stakeholders and Indigenous communities was an important part of the Class EA study process, both for the development and evaluation of the route and station options and for the assessment of effects.

Four groups for consultation and engagement were identified:

- **Group 1** – Indigenous communities with traditional territory, Aboriginal rights or Treaty rights within the study area.
- **Group 2** – Government officials and public agencies.
- **Group 3** – Community interest groups and local organizations.
- **Group 4** – Directly affected and adjacent property owners and residents (residential, commercial/business, or industrial property owners, and/or residents in the study area).

Two Public Information Centre (PIC) events (one in-person and one virtual) were held in May 2022 and feedback was received through submission of an online comment form, telephone, written comment forms as well as through emails and phone calls to the Project Team. A second round of PICs will be held in August 2022 during the draft Environmental Study Report (ESR) public review period.

The Class EA study involved undertaking an inventory of existing socio-economic and biophysical features within the study area of each route and station option. This information was used to identify features that could interact with the construction and operation of the Project.

An evaluation of the route and station options was conducted, comparing the route and station options from a socio-economic, biophysical, and technical perspectives based on objective criteria. Based on the findings of the route and station options evaluation, the **Route Option D** and **Station Option 1-A** were recommended and ultimately selected to be the preferred route and station options.

An effects assessment of the preferred route and station options was then conducted. This involved assessing the potential effects of the Project on each socio-economic and biophysical component and identifying appropriate mitigation measures. Taking the mitigation measures into consideration, a determination about expected net (i.e., residual) effects was then made. The implementation of on-going monitoring and adherence to applicable permits, conditions, and by-laws will help to minimize the potential adverse effects to the socio-economic and biophysical environments. On-going consultation and engagement with local residents, the city, Indigenous communities, and other stakeholders will also be important for the successful completion of the Project.

Based on the effects assessment of the preferred route and station options, some effects are anticipated where interactions with the socio-economic and biophysical environments cannot be completely avoided. However, taking into consideration the implementation of the mitigation identified, these effects are overall predicted range from short to long term, but will be of low magnitude and localized to the construction footprint and local proximity. As a result, no significant effects are predicted as a result of the Project.

Following the completion of the draft ESR public review period, anticipated completion date of August 31, 2022, the Project Team will work on developing the final ESR and submitting the Statement of Completion to the Ministry of the Environment, Conservation, and Parks (MECP). Following the completion of the final ESR, the receipt of required permits and approvals from applicable agencies and local authorities, the Project is expected to commence construction in late 2023 and end in late 2024.



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# ABBREVIATIONS

ABBREVIATION	DEFINITION
AAQC	Ambient Air Quality Criteria
ANSI	Areas of Natural and Scientific Interest
ATRIS	Aboriginal and Treaty Rights Information System
ASI	Algoma Steel Inc.
BHR	Built Heritage Resources
CHL	Cultural Heritage Landscape
Class EA	Class Environmental Assessment
CLI	Canada Land Inventory
CN Rail	Canadian National Railway
CP Rail	Canadian Pacific Railway
DBH	Diameter at Breast Height
DFO	Fisheries and Oceans Canada
EA Act	<i>Environmental Assessment Act</i>
EAB	Environmental Assessment Branch
EAF	Electric Arc Furnace
EASR	Environmental Activity and Sector Registry
EMF	Electromagnetic Fields
EMP	Environmental Management Plan
ESA	<i>Endangered Species Act, 2007</i>
ESC	Erosion and Sediment Control
ESR	Environmental Study Report
FRI	Forest Resources Inventory
HADD	Harmful Alternation, Disruption, or Destruction
kV	Kilo volt
MBCA	<i>Migratory Birds Convention Act, 1994</i>
MECP	Ministry of the Environment, Conservation, and Parks
MENDM	Ministry of Energy, Northern Development and Mines
MTCS	Ministry of Tourism, Culture and Sport
MMAH	Ministry of Municipal Affairs and Housing
MNRF	Ministry of Natural Resources and Forestry
MNO	Métis Nation of Ontario
MTO	Ministry of Transportation (Ontario)

ABBREVIATION	DEFINITION
MW	Mega watts
NHIC	Natural Heritage Information Centre
OASD	Ontario Archeological Sites Database
OEB	Ontario Energy Board
OHA	<i>Ontario Heritage Act</i>
OMAFRA	Ontario Ministry of Agriculture, Food and Rural Affairs
OPP	Ontario Provincial Police
PIC	Public Information Centre
PPS	Provincial Policy Statement
PR	Parks and Recreation Zone
PTTW	Permit to Take Water
PUC	PUC Transmission LP
RA	Rural Area Zone
SAR	Species at Risk
SARA	<i>Species at Risk Act</i>
SC	Species of Special Concern
SCC	Species of Conservation Concern
SSMRCA	Sault Ste. Marie Region Conservation Authority
SWH	Significant Wildlife Habitat
WHPA	Wellhead Protection Areas
WWR	Well Water Records

# 1 INTRODUCTION

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## 1.1 DESCRIPTION OF THE UNDERTAKING

PUC Transmission LP (PUC) has initiated planning activities, including seeking relevant environmental approvals to construct a double-circuit 230 kilovolt (kV) line and an associated transformer station in the city of Sault Ste. Marie, in northern Ontario (the Project). This Project requires undertaking a Class Environmental Assessment (Class EA) for Minor Transmission Facilities, which began in 2021.

The proposed double-circuit 230 kV transmission line, which will be approximately 12 kilometres (km) long, will convey electricity from Hydro One's Third Line Station in the City's north end to a new PUC transformer station in the west end, and then a 115 kV line will convey electricity to two future Algoma Steel electric arc furnaces (EAFs) Station<sup>1</sup>. The double-circuit configuration provides redundancy of supply to accommodate future maintenance or service interruptions. With two circuits on one set of poles, PUC will be providing redundancy that will carry the full Algoma load on one circuit alone, while the other is down for maintenance or due to potential contingency situations, such as weather events. The new transformer station will also provide power to PUC Distribution Inc.'s distribution circuits for future distribution system infrastructure renewal.

Where possible, the proposed transmission line right-of-way (ROW) will be located within an existing PUC easement and existing road allowances. Within the 12 km stretch, there are segments identified as "Common Elements Route", which are common to all of the route options (i.e., these segments have no alternatives). The Common Elements Route is a line that extends approximately 260 metres (m) north of the Hydro One Third Line Station, then extends west to approximately 830 m west of Goulais Avenue, then south, past Third Line West. From there, several alternative route segments are considered. These are described in **Section 1.4**. The alternative route segments terminate at a point at the south end of the line where a second portion of the Common Elements Route would connect the transmission line to the new station and then onto the Algoma Steel EAFs station. The northern segment of the Common Elements Route extends within existing PUC easements, while the alternative route and southern segment of the Common Elements Route would extend within new easements.

Existing PUC easements are approximately 30 m wide, while proposed easements will be approximately 20 m wide (**Figure 1-1**). Temporary working space and laydown areas may be required adjacent to the ROW to facilitate the movement of vehicles and storage of equipment necessary for construction. Permanent easements will be required as well. PUC will work with regulators and landowners to identify and secure appropriate working space and easements as required.

The proposed double-circuit transmission line will operate at 230 kV and will terminate at the new transformer station. A 115 kV line will then extend to the Algoma EAFs station. The powerline will utilize single steel poles with side-post insulators with the poles being approximately 40 m tall, spaced approximately 200 m apart. The poles will be positioned at the approximate centre of the easement width (i.e., with approximately 10 m on either side of the proposed easements). They will carry eight conductors, three on each side and two at the top of each pole. The poles will be similar to that shown in **Figure 1-2**.

Three alternative sites for the transformer station were evaluated. The station will be approximately 200 m x 300 m and will be initially built with two 230 kV/115 kV transformers with provision to expand to five transformers.

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<sup>1</sup> The Algoma Steel EAFs project, including the future station on its property, is being proposed by Algoma Steel and therefore is not part of this Class EA or the approvals being sought by PUC.

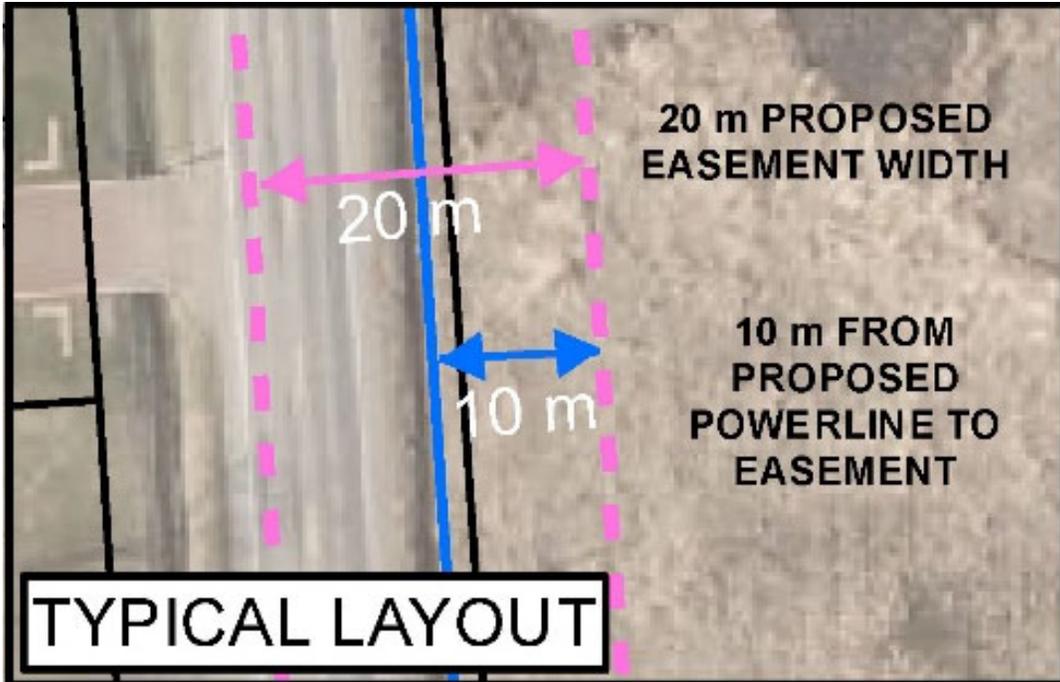


Figure 1-1 Typical Easement Layout



Figure 1-2 Example PUC Single Steel Poles

Detailed design of the proposed Project will take place following submission of the final Environmental Study Report (ESR), as discussed in **Section 6.1**. Upon the successful completion of the approval process, construction could begin as early as autumn 2023, with a proposed in-service date of late 2024. Construction activities are described in **Section 6.2**.

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## 1.2 NEED FOR THE UNDERTAKING

In early 2021, PUC was incorporated. In October 2021, PUC was approved for a transmission license by the Ontario Energy Board (OEB).

The EAFs will replace Algoma's existing charcoal blast furnace and basic oxygen steelmaking operations. The transformation is expected to reduce Algoma's carbon emissions by approximately 70%. The development of the Algoma Steel EAF project will require a new electrical load of 300 mega watts (MW). As a result, PUC has identified the need for a double-circuit 230 kV transmission line and a new transformer station in the city of Sault Ste. Marie, in northern Ontario. This will serve the immediate need for increased power supply to Algoma Steel for its new EAF project, as well as potentially connecting to PUC Distribution Inc.'s distribution circuits, resulting in another source of power into the city's west end distribution system.

The double-circuit configuration will provide redundancy of supply to accommodate future maintenance or service interruptions. With two circuits on one set of poles, PUC will be providing redundancy that will carry the full Algoma load on one circuit alone, while the other is down for maintenance or due to potential contingency situations, such as weather events.

Currently, the 115 kV lines supplying the Algoma Steel site do not have adequate capacity to supply the additional new load required for the new EAFs station. Furthermore, the existing 115 kV supply cannot be upgraded. As a result, a new 230 kV connection between Hydro One's Third Line Station and Algoma Steel's EAFs station needs to be established through a new transmission line and an associated transformer station.

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## 1.3 ALTERNATIVES TO THE UNDERTAKING

Under the Class EA Process, once the need is established, technically viable alternatives to the undertaking, which are capable of addressing that need, must be identified. Each alternative may have different technical, economic, and environmental advantages and disadvantages, but must be reasonable from a technical, economic, and environmental perspective and must fall within the mandate of the proponent to implement. The Class EA process then requires an evaluation of the alternatives to the undertaking.

Alternatives to the undertaking that were explored by PUC included:

**Alternative 1** – Do Nothing

**Alternative 2** – Other Power Sources

**Alternative 3** – Underground Transmission

**Alternative 4** – Aboveground Transmission

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### 1.3.1. ALTERNATIVE 1 – “DO NOTHING”

The “Do Nothing” alternative would not meet the need for the undertaking, which is primarily to provide a new electrical load of 300 MW to the Algoma Steel EAFs project. As a result, the “do nothing” alternative is not a feasible alternative and was not carried forward as an alternative for further consideration.

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### 1.3.2. ALTERNATIVE 2 – OTHER POWER SOURCES

The new EAFs being proposed by Algoma Steel represent an additional electrical load of 300 MW. While PUC recognizes that Algoma Steel could generate the additional electric power using on-site gas-fired generation, PUC also recognizes that this is not a feasible option for two reasons; first, there is not an adequate supply of natural gas in the Sault Ste. Marie area to supply such generation; and second, generating electricity from natural gas is not environmentally acceptable. Furthermore, there is no alternative to generate the additional required electricity from green sources in the area.

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### 1.3.3. ALTERNATIVE 3 – UNDERGROUND TRANSMISSION

PUC considered whether an underground transmission line would be a feasible alternative to deliver the additional 300 MW of power to Algoma Steel.

Based on a preliminary analysis, the underground option was determined to not be reasonable from a technical, economic, and environmental perspective. This was due to several factors, including greater disturbance along the ROW due to the need for excavation of an open trench for the buried line which would have to be installed in concrete duct banks and vaults, resulting in significant impacts to abutting properties and the natural environment during construction. As well, there would be substantially higher initial capital costs, higher long-term maintenance costs and longer durations for repairs, when compared to an aboveground transmission line. In addition, underground transmission facilities would have a significantly shorter usable life compared to overhead construction.

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### 1.3.4. ALTERNATIVE 4 – ABOVEGROUND TRANSMISSION

PUC considered whether an aboveground transmission line would be a feasible alternative to deliver the additional 300 MW of power to Algoma Steel.

Based on a preliminary analysis, and in accordance with typical industry practice, the aboveground option was determined to be both feasible and the most reasonable alternative from a technical, economic, and environmental perspective due to several factors. These include: compatibility with existing infrastructure, such as existing above-ground and below-ground utilities including gas pipelines, etc., technical viability with reasonable construction costs, and mitigable disturbance to existing natural environment features and infrastructure, such as nearby residences.

As a result, the aboveground transmission alternative was pursued for further assessment, and several alternative methods for implementing this approach have been considered, as discussed in **Section 1.4**.

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## 1.4 ALTERNATIVE METHODS FOR THE UNDERTAKING

PUC conducted a preliminary assessment to identify feasible routes and station locations (the “Route and Station Options”) for the new aboveground 230 kV transmission line and transformer station in the city of Sault Ste. Marie.

Several alternative route options and station location options are described below and depicted on **Figure 1-3** to **Figure 1-5**.

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### 1.4.1. ALTERNATIVE ROUTE OPTIONS

For the preliminary assessment, the PUC Project Team considered the use of existing easements, researched and mapped technical, social, and environmental constraints, and identified potential opportunities for the transmission line to parallel linear infrastructure, such as existing transmission lines, roads and highways, where possible. Based on the preliminary assessment, four feasible route segments and two station locations were identified, see **Figure 1-3**.

Following the preliminary assessment of the proposed alternative route segments, a detailed technical and costing analysis was conducted to ensure the technical feasibility of the proposed route option segments. Based on this analysis, and public feedback collected (**Section 3.2**), further refinements to the route option segments were made to ensure a secure and safe connection to the proposed Common Elements Route.

Specifically, in April 2022, after issuing a Notice of Commencement, PUC made one refinement to Route Option 5 and introduced a new Route Option 4 based on advancement of preliminary engineering work, information acquired through the Class EA process, and consultation with stakeholders and the public. The refined route option segments are shown in **Figure 1-4**.

While additional route alternatives were also proposed and considered based on input provided during the public consultation process, no other viable alternatives were identified for the proposed 230 kV transmission line. In most cases, the proposed alternatives were not reasonable from a technical, economic, and environmental perspective due to technical and social constraints, including new residential developments where the routes were proposed.

In July 2022, the route option segments were combined so that each proposed route option forms part of a continuous line between the northern and southern Common Elements Route segments. This created four final route options, which are described below and shown in **Figure 1-5**.

- **Route Option A:** comprises Route Options 1 and 2. Starting from the west end of the northern Common Elements Route segment, Route Option A would originate about 230 m south of Third Line West. The route would then extend west, parallel to Third Line West, to Allen’s Side Road. Route Option A would then extend south along Allen’s Side Road and then east on Wallace Terrace. The route would terminate west of the intersection of Brookfield Avenue and Wallace Terrace, where it would connect to the southern Common Elements Route segment. This route option is approximately 12 km in length.

- **Route Option B:** comprises Route Options 2 and 5. Starting from the west end of the northern Common Elements Route segment, Route Option B would originate at approximately 230 m south of Third Line West and extend south approximately 820 m to just west of Arden Street, then extend west 785 m to Allen's Side Road, where the route would turn south parallel to Allen's Side Road until it turned east at the intersection of Allen's Side Road and Wallace Terrace. It would then terminate at the intersection of Brookfield Avenue and Wallace Terrace, where it would connect to the southern Common Elements Route segment. This route option is approximately 12 km in length.
- **Route Option C:** comprises Route Options 4 and 5. Starting from the west end of the northern Common Elements Route segment, Route Option C would originate approximately 230 m south of Third Line West and extend south approximately 820 m to just west of Arden Street, then extend west approximately 350 m until it turned south again, terminating west of the intersection of Brookfield Avenue and Wallace Terrace, where it would connect to the southern Common Elements Route segment. This route option is approximately 11.9 km in length.
- **Route Option D:** comprises Route Options 3 and 4. Starting from the west end of the northern Common Elements Route segment, Route Option D would originate about 230 m south of Third Line West, then extend south approximately 370 m to just north west of Chippewa Street where it would extend south-west approximately 400 m, turning south until it terminated west of the intersection of Brookfield Avenue and Wallace Terrace, where it would connect to the southern Common Elements Route segment. This route option is approximately 11.9 km in length.

These four viable route options were carried forward to the evaluation of alternatives, as described in **Section 5.4.1**.

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### 1.4.2. ALTERNATIVE STATION OPTIONS

Based on the preliminary assessment, two station options (Station Options 1 and 2) were originally identified, see **Figure 1-3**.

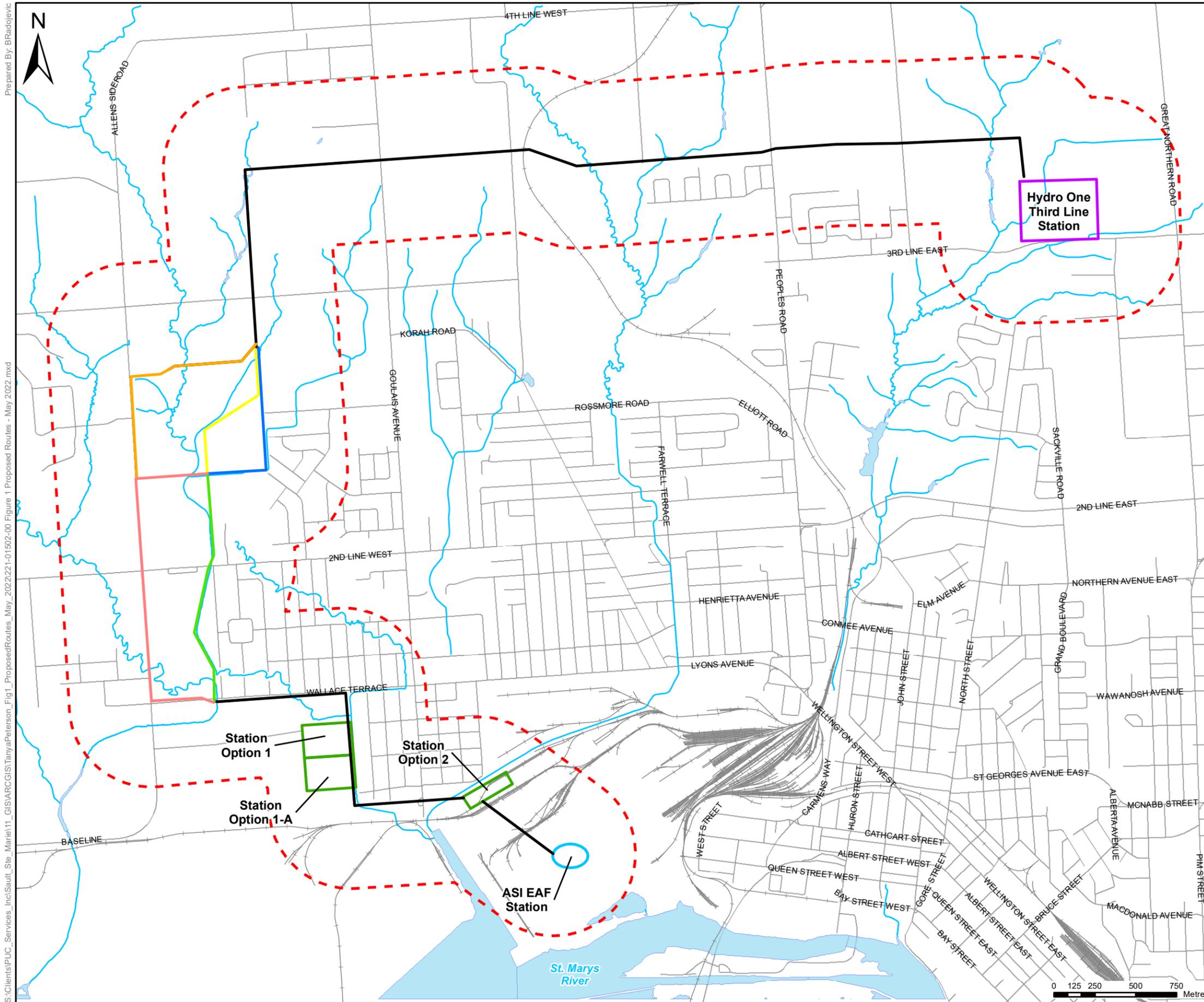
Following the preliminary assessment of the two proposed station options, a detailed technical and costing analysis was conducted to ensure the technical feasibility of the proposed options. In June 2022, as part of the overall Project planning process, the Project Team further evaluated the feasibility and merits of the two locations proposed.

Based on a preliminary analysis, a number of technical and environmental constraints were identified for Station Options 1 and 2, resulting in a proposal for a new Station Option 1-A to be considered as part of the Class EA. The proposed station options are described below and shown in **Figure 1-5**.

- **Station Option 1:** is located at 46°31'37.50"N and 84°23'17.99"W about 138 m from Yates Avenue and 240 m from Glasgow Avenue, on land owned by the City of Sault Ste. Marie.
- **Station Option 1-A:** is located directly south of Station Option 1, on land owned by Algoma Steel.
- **Station Option 2:** is located approximately at 46°31'24.65"N and 84°22'36.09"W, about 600 m away from the proposed Algoma Steel EAFs Station, on land owned by Algoma Steel.

No other viable alternatives were identified for the transformer station, due to the configuration of equipment within and around the future EAFs station and the existing Hydro One Third Line Station. Thus, these three station options were carried forward to the evaluation of alternatives, as described in **Section 5.4.2**.



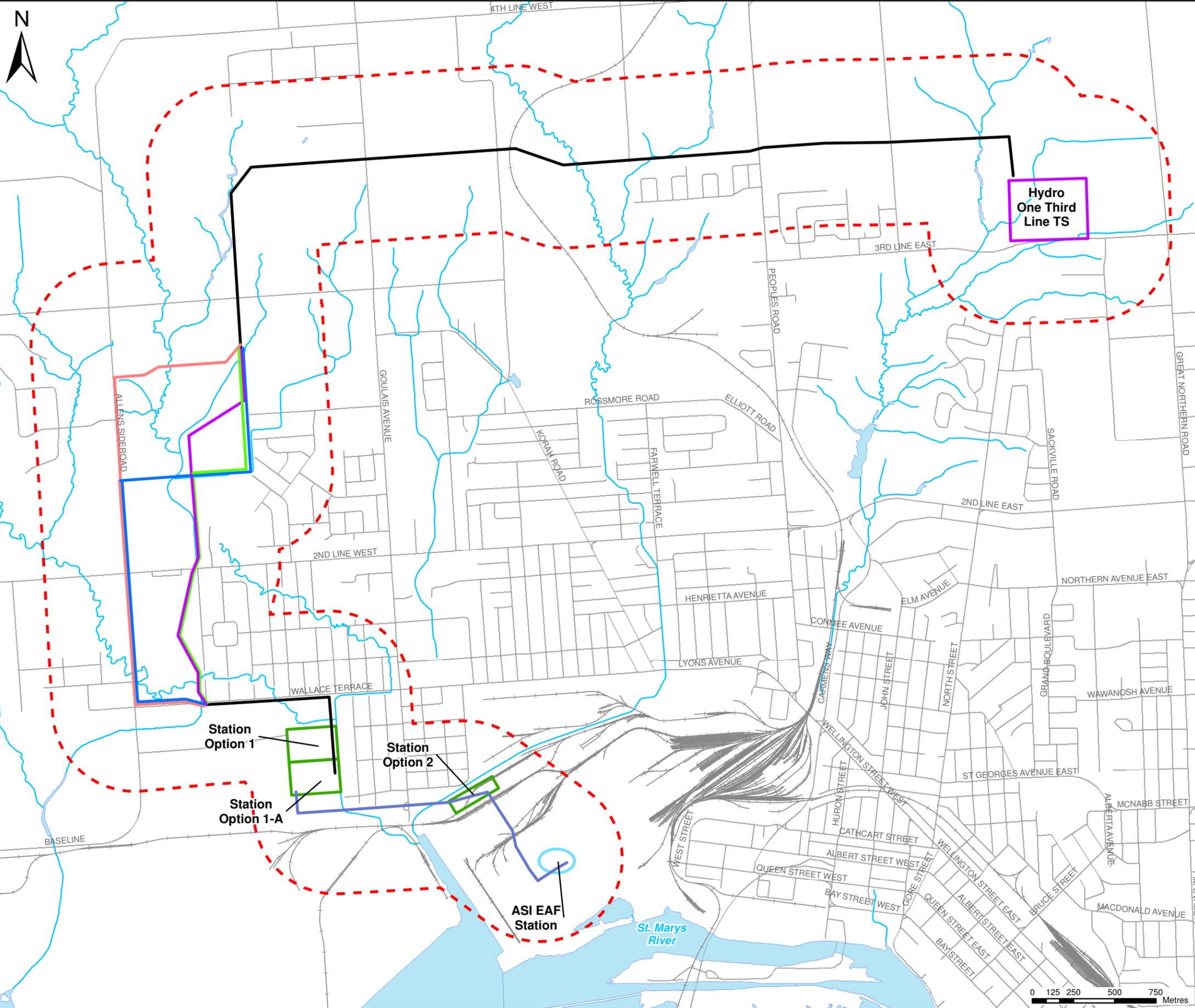


**LEGEND:**

- ROUTE OPTION 1
- ROUTE OPTION 2
- ROUTE OPTION 3
- ROUTE OPTION 4
- ROUTE OPTION 5
- COMMON ELEMENTS TO ALL OPTIONS
- LOCAL STUDY AREA – 500 m RADIUS
- NEW PUC STATION OPTIONS
- ALGOMA STEEL INC. (ASI) ELECTRIC ARC FURANCE (EAF) STATION
- HYDRO ONE THIRD LINE STATION

<b>TITLE:</b> PROPOSED STUDY AREA AND ROUTE OPTIONS		
<b>PROJECT:</b> SAULT STE. MARIE 230 KV TRANSMISSION PROJECT: CLASS EA SAULT STE MARIE, ONTARIO		
<b>CLIENT:</b> PUC TRANSMISSION LP		
 <b>GOLDER</b>	<b>PROJECT NO.:</b> 221-01502-00	<b>REVIEWED BY:</b> CS
	<b>DATE:</b> JUNE 2022	<b>FIGURE:</b> 1-4





- LEGEND:**
- ROUTE OPTION A
  - ROUTE OPTION B
  - ROUTE OPTION C
  - ROUTE OPTION D
  - 230 kV COMMON ELEMENT ROUTE
  - 115 kV COMMON ELEMENT ROUTE
  - - - LOCAL STUDY AREA – 500 m RADIUS
  - NEW PUC STATION OPTION
  - ALGOMA STEEL INC. (ASI) ELECTRIC ARC FURANCE (EAF) STATION
  - HYDRO ONE THIRD LINE TRANSFORMER STATION (TS)

TITLE: <b>FINAL ROUTE AND STATION OPTIONS</b>		
PROJECT: <b>SAULT STE. MARIE 230 KV TRANSMISSION PROJECT: CLASS EA SAULT STE MARIE, ONTARIO</b>		
CLIENT: <b>PUC TRANSMISSION LP</b>		
 <b>GOLDER</b>	PROJECT NO.: 221-01502-00	REVIEWED BY: LE
	DATE: JULY 2022	FIGURE: 1-5



# 1.5 APPROVAL PROCESS AND REGULATORY REQUIREMENTS

This section outlines the approval process as required under the Class EA for Minor Transmission Facilities (Hydro One Networks Inc., 2022). Other anticipated regulatory requirements are also identified.

## 1.5.1. CLASS ENVIRONMENTAL ASSESSMENT PROCESS

A Class EA describes the process that must be followed for a defined class of projects/undertakings in order to meet the requirements of the Ontario *Environmental Assessment Act* (EA Act).

The Class EA for Minor Transmission Facilities 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” means all transmission lines that:

- i. *Are capable of operating at a nominal voltage of equal to or greater than 115 kilovolts (kV) and less than 345 kV and are greater than 2 kilometres (km) in length; or*
- ii. *Are capable of operating at a nominal voltage of equal to or greater than 345 kV and are greater than 2 km and less than 75 km in length.*

In addition to reviewing the Class EA process, the Project Team also reviewed the Class EA Screening Process (Section 3.3.3 of the Class EA document) and could not exempt the Project from the Class EA process based on the review.

As a result, this ESR has been prepared in accordance with the Class EA for Minor Transmission Facilities (Hydro One Networks Inc., 2022) which was approved under the EA Act. The Class EA defines an environmental planning process that meets the requirements of the EA Act. This Class EA process is illustrated in **Figure 1-6**.

The following table summarizes the requirements of the Class EA process, and where they are addressed in this ESR.

CLASS EA REQUIREMENT	WHERE IT IS ADDRESSED IN THIS ESR
Name and description of the proposed project	<b>Section 1.1</b>
A description of the need (justification) for the proposed project	<b>Section 1.2</b>
A description of the alternatives for the project, including maps	<b>Section 1.3 and Section 1.3</b>
A description of a study area for the project and the existing environment	<b>Section 2 and Section 4</b>

CLASS EA REQUIREMENT

WHERE IT IS ADDRESSED IN THIS ESR

A description of the potential environmental effects (positive and negative)	<b>Section 7</b>
A description of the preferred alternative	<b>Sections 5.4.2 and 6</b>
A description of the consultation that was undertaken	<b>Section 3</b>
A description of other applicable permits and approvals required for the project	<b>Section 1.5</b>
A description of mitigation measures and predicted net effects	<b>Section 7</b>
A description of any required environmental monitoring	<b>Section 0</b>

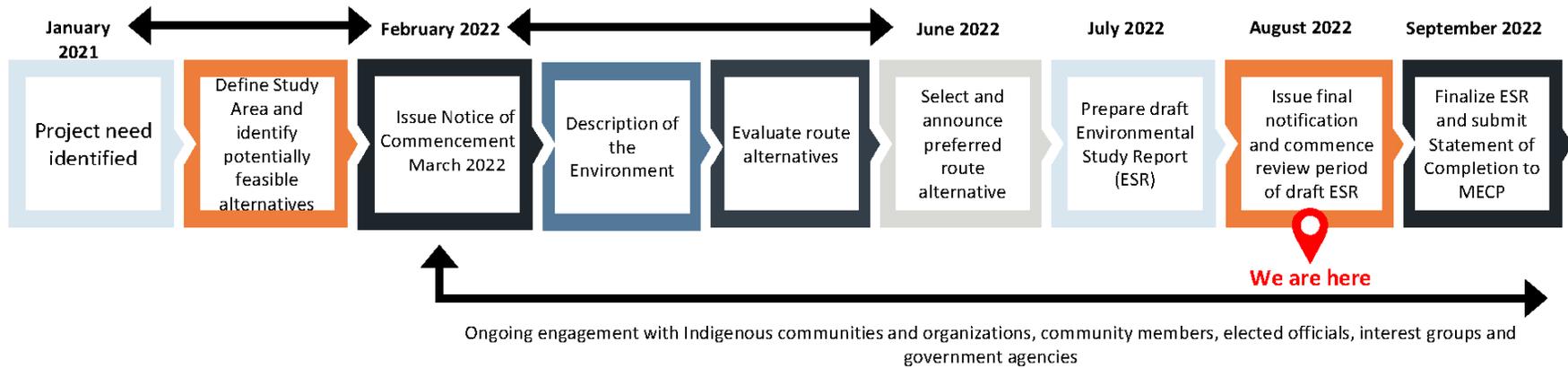
The Project Team completed the steps outlined in the Class EA and documented the assessment in this draft ESR document. Upon completion of this draft ESR, PUC issued a Notice of Completion to all stakeholders including municipal, provincial, federal government officials, government agencies, First Nation communities, potentially affected and interested persons, and interest groups. The draft ESR is being made available for public review and comment for a period of 30 calendar days from August 2, 2022, until August 31, 2022.

If there is no expressed opposition, the proposed project will be considered acceptable and approval of the proposed project under the EA Act is granted in accordance with the approved Class EA Document.

If there is expressed opposition or concerns about the proposed project, PUC will make best efforts to respond to and resolve the issues raised by concerned parties during the draft ESR review period. If the expressed issues and concerns are subsequently resolved, then the proposed project will be considered acceptable. Any issues, and their respective resolutions, will be documented and summarized in the final ESR.

Once the comment period is over and comments (if any) are addressed, a copy of the final ESR will be placed on PUC’s Project website and provided to the Ministry of the Environment, Conservation and Parks’ (MECP’s) Environmental Assessment Branch (EAB) and the appropriate Regional EA Coordinator, for filing. Once the final ESR and the Class EA Statement of Completion have been filed with the MECP, the proposed Project will be considered acceptable and may proceed as outlined in the final ESR, though other regulatory approvals will be required prior to construction.

Per section 3.4.3 of the Class EA document, if all expressed concerns cannot be satisfied, PUC will advise the MECP about the issue raised, action taken, why the concerns cannot be resolved, and recommended next steps.



**Figure 1-6 Class Environmental Assessment Process and Timeline**

## 1.5.2. 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, provincial and municipal legislation for the proposed Project, as presented in **Table 1-1**. PUC will contact relevant regulatory agencies to ensure that the proposed Project meets applicable requirements and approvals are obtained, as necessary.

This Project does not trigger a federal environmental assessment under the *Impact Assessment Act*.

In addition to the necessary permits and approvals, PUC will consult with the City of Sault Ste. Marie and Sault Ste Marie Region Conservation Authority (SSMRCA) to finalize site restoration plans as appropriate.

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

PERMIT, LICENSE, OR APPROVAL	PRIMARY AGENCY	DESCRIPTION
Section 92 Leave to Construct	Ontario Energy Board (OEB)	Required for the construction of the new transmission line
Environmental Activity and Sector Registry (EASR) / Permit to Take Water (PTTW)	MECP	May be required for construction dewatering or other water taking.
Industrial Sewage Works Environmental Compliance Approval (ECA)	MECP	May be required for changes to the drainage system at the preferred station location.
Approvals and/or Permits under the <i>Endangered Species Act, 2007</i>	MNRF	On provincial land, all species listed as Threatened and Endangered under the ESA (MNRF, 2007) have protection from being killed, harmed, or harassed and also receive habitat protection. It is recommended that once the final width of cleared area and tower locations are known that consultation with MECP be undertaken to determine if removing potential bat roosting tree habitat / SAR grassland bird habitat for Bobolink can simply occur within the appropriate timing window and no further studies / compensation is required. As of April 2022, the SAR Conservation Fund can be used for impacts to Bobolink habitat.
Archaeological Acceptance Letter	Ministry of Tourism, Culture and Sport (MTCS)	No ground disturbance can take place prior to the Stage 1-2 Archeological Assessment being accepted into the MTCS register. The Ministry will issue an acceptance letter once the assessment is accepted.
Noise by-law Exemption	City of Sault Ste. Marie	An exemption may be required if the operation of construction equipment occurs outside of the noise by-law curfew

PERMIT, LICENSE, OR

APPROVAL

PRIMARY AGENCY

DESCRIPTION

Road Entrance Permits	City of Sault Ste. Marie	Required to construct potential new entrances for access to a construction site from existing municipal roads.
Municipal Consent	City of Sault Ste. Marie	Will be required if a pole is to be placed on a municipal right-of-way. May also be required for permission to cross a municipal road way.
Permits under <i>Ontario Regulation 176/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (Conservation Authorities Act)</i>	Sault Ste. Marie Region Conservation Authority (SSMRCA)	Portions of the lands in the study area are regulated by the SSMRCA. The regulation applies to the wetlands and watercourse plus a defined buffer. To ensure that development has regard for natural hazard features and the natural environment while conforming to watershed development policies, the SSMRCA is authorized to implement and enforce its regulation. A permit to undertake development within the regulated area may be required by the governing Conservation Authority (e.g., for a watercourse crossing).
<i>Fisheries Act</i> Authorization or Letter of Advice	Fisheries and Oceans Canada (DFO)	May be required for in-water construction works or works with potential releases that have potential to adversely affect fish or fish habitat.  If the proposed works fall within fish habitat (below the ordinary high-water mark), a review under the FA is required.
Clearance Letter	Utility Companies	Required to cross utilities (e.g., natural gas or oil pipelines).
Railway Crossing Agreement	Railway Companies	Required to cross a railway.
Approvals and/or Permits under the <i>Migratory Bird Convention Act, 1994</i>	Government of Canada	It is anticipated that vegetation removal or disturbance to vegetation may occur as part of the works. Works must not impact nesting birds or active nests, and authorization is generally not granted unless deemed as emergency works.
Approvals and/or Permits under the <i>Species at Risk Act</i>	Government of Canada	In most cases, watercourses are considered federal lands and therefore species designated as Threatened or Endangered which inhabit watercourses are regulated under SARA. It is not anticipated that SARA permit is required for aquatic species.

In the event that other permits or approvals are required, PUC will work with the regulator to ensure compliance.

## 2 STUDY AREA DESCRIPTION

At the onset of the Class EA, two study areas, identified as the Existing Conditions Study Area and the EA Study Area, were identified to consider potential socio-economic and biophysical environmental features and potential for interactions between these features and each of the Route and Station Options.

As further described in **Section 1.3.4**, at the beginning of the Class EA process, the Project Team completed a preliminary assessment to identify the technical specifications, constraints and system requirements for the proposed double-circuit 230 kV transmission line and station. This preliminary assessment mapped several route and station options for the proposed Project.

The boundaries of the Existing Conditions Study Area were established by setting a 1 km (500 m radius) buffer around the proposed route and station options to identify existing socio-economic, biophysical, and technical features, as well as constraints associated with relevant legislation and land use policies. The Existing Conditions Study Area is shown in **Figure 1-5** and the existing conditions within the study area are described in **Section 4**.

For the purposes of assessing potential effects as a result of the construction and operation of the proposed route and station options, an EA Study Area consisting of a buffer ranging between 50 m to 125 m (depending on the environmental discipline), around each of the preferred route and station options was used. Refer to **Section 7** for a description of the potential socio-economic and biophysical effects within the EA Study Area.

# 3 CONSULTATION

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## 3.1 NOTICE OF COMMENCEMENT

The Notice of Commencement, which introduced the Project and provided details about the need, description, Existing Conditions Study Area, route alternatives and associated regulatory process, was published in the Sault Star, SooToday, Sault Online, and Sault This Week news media between March 31, 2022, and April 9, 2022. The Notice of Commencement referred to the Project website and solicited questions and comments to be provided to PUC. A copy of the notice was mailed to property owners and residents within the Existing Conditions Study Area as regular mail by Canada Post beginning on March 31, 2022. Copies of the Notice of Commencement were emailed to the following stakeholders on March 31, 2022:

- Ministry of the Environment, Conservation, and Parks (MECP)
- Ministry of Agriculture, Food, and Rural Affairs (OMAFRA)
- Ministry of Energy
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Tourism, Culture and Sport (MTCS) Ministry of Indigenous Affairs
- Ministry of Municipal Affairs and Housing (MMAH)
- Ministry of Transportation (MTO)
- Ministry of Economic Development, Job Creation and Trade
- Infrastructure Ontario
- Sault Ste. Marie Region Conservation Authority (SSMRCA)
- Ontario Provincial Police (OPP)
- Emergency services
  - City of Sault Ste. Marie Paramedic Services
  - City of Sault Ste. Marie Fire Services.
- City of Sault Ste. Marie Police Service
- Enbridge
- City of Sault Ste. Marie
- Elected officials, including local and regional councillors, MPs, MPPs
- Indigenous communities and organizations (see **Section 3.4**)
- The general public, specifically including individuals that signed up on the Project mailing list via the project website and residents within the 500 m study area.

Refer to **Appendix B-3** for a copy of the Notice of Commencement.

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### 3.1.1. SUMMARY OF FEEDBACK

Feedback was received following the distribution of the Notice of Commencement online via the Project website comment form, telephone and by email. The following table summarizes the number of comments received between March 31, 2022, and May 11, 2022, and how they were received.

METHOD	NUMBER OF COMMENTS
Phone calls	9

METHOD NUMBER OF COMMENTS

Email	22
Project Website Comment Form	15

The following summarizes the main concerns expressed in the comments received. Several comments received were not related to the Class EA study (e.g., impacts to air quality due to the EAFs project, consideration of switching the Algoma Steel plant to natural gas, and potential effects related to the proposed ferrochrome processing facility); therefore, were not included in the summary below. General concerns, comments, and/or inquiries related to the Class EA study and design, and implementation of the Project included:

- A request for information about potential public engagement events and when they are anticipated to take place;
- Questions about whether an underground option was proposed;
- Questions about the anticipated construction schedule;
- Questions about how the Project may impact property values and whether property taxes will increase due to this Project;
- Questions about how environmental effects of the Project will be identified and assessed;
- Concerns about potential impacts due to construction; and
- Concerns about potential electromagnetic field impacts.

A table detailing the issues and concerns raised during the comment period between March 31, 2022, and May 12, 2022, and responses from the Project Team is presented in **Appendix B-3**.

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## 3.2 PUBLIC INFORMATION CENTRE #1

Two rounds of Public Information Centres (PICs) were planned for the Project, each round with one in-person event and one virtual event to provide flexibility to interested participants.

The first round of PICs was held on May 26, 2022, in person, and on May 31, 2022, virtually via Zoom Webinar. The same content was presented at the in-person and virtual PICs.

The Notice of PIC #1, inviting the general public and stakeholders to attend the events, was published in SooToday, Sault Online, and Sault Star on May 12, 2022, in print in Sault Star and online in SooToday, Sault Online and Sault Star, with online ads running between May 12, 2022, to May 25, 2022. A copy of the notice was mailed to property owners and residents within the Existing Conditions Study Area as regular mail by Canada Post beginning on May 12, 2022. A copy of the Notice was emailed to the following stakeholders:

- Ministry of Environment, Conservation, and Parks (MECP)
- Ministry of Agriculture, Food, and Rural Affairs (OMAFRA)
- Ministry of Energy
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Tourism, Culture and Sport (MTCS) Ministry of Indigenous Affairs
- Ministry of Municipal Affairs and Housing (MMAH)
- Ministry of Transportation (MTO)
- Ministry of Economic Development, Job Creation and Trade
- Infrastructure Ontario

- Sault Ste. Marie Region Conservation Authority (SSMRCA)
- Ontario Provincial Police (OPP)
- Emergency Services
  - City of Sault Ste. Marie Paramedic Services
  - City of Sault Ste. Marie Fire Services.
- City of Sault Ste. Marie Police Services
- Enbridge
- City of Sault Ste. Marie
- Elected Officials include local and regional councillors, MPs, MPPs
- Indigenous communities and Organizations (see **Section 3.4**)
- The general public, specifically including individuals that signed up on the Project mailing list via the project website as well as residents within the 500 m study area.

Prior to the PICs being held, the public health restrictions related to the COVID-19 pandemic was announced allowing in-person gatherings. As a result, PIC #1 was held both in-person and virtually via Zoom. Masks were required for attendance of the in-person PIC.

### 3.2.1. OVERVIEW OF PIC #1

To provide flexibility in schedule, PIC #1 was held over two days (same content) on May 26, 2022, and May 31, 2022 (**Table 3-1**). Prior to the PICs being held, the public health restrictions related to the COVID-19 pandemic were lifted, allowing in-person gatherings. As a result, PIC #1 was held both in-person and virtually via Zoom. Masks were required for attendance of the in-person PIC.

The two sessions were scheduled to provide stakeholders and the general public with an opportunity to gain knowledge about the Project, the Class EA process, the proposed Route and Station Options, the route and station selection process, key milestones, and next steps.

**Table 3-1 PIC #1 Overview**

Format:	In Person	Virtual
Date:	Thursday, May 26, 2022	Tuesday, May 31, 2022
Location:	Northern Community Centre (556 Goulais Ave, Sault Ste. Marie, ON, P6C 5A7)	Virtually via Zoom Webinar
Time:	4:30PM to 7:30PM	6:00PM to 7:30PM

The in-person PIC was held as a drop-in style, open house format. Project Team members were available to discuss the Project one-on-one with the attendees. Attendees were asked to register at the reception desk and were provided with comment forms to provide written feedback.

During the consultation period for PIC #1, website visitors could provide comments or questions to the Project Team via the Project website or by phone or email until June 9, 2022. Questions received after this date were responded to, but not included in the PIC #1 Summary Report (**Appendix B-3**). Materials for the PIC were posted online on the Project website at <https://puctransmissionlp.com>.

The information for the Class EA study was presented to the public on display boards at the in-person PIC and through an online presentation at the virtual PIC.

The following exhibits were presented at the PIC:

IN-PERSON

VIRTUAL

<ul style="list-style-type: none"> <li>– Welcome Sign (in-person sign-in)</li> <li>– Project Overview</li> <li>– Project Description (How the Project will support the region)</li> <li>– Class EA Process (text and graphic)</li> <li>– Study Purpose</li> <li>– Route and Station Options Map</li> <li>– Project Technical Description</li> <li>– Route and Station Options Roll Plans</li> <li>– Route and Station Options Evaluation Process</li> <li>– Example of Evaluation Criteria</li> <li>– Frequently Asked Questions</li> <li>– Next Steps and Contact Information</li> </ul>	<ul style="list-style-type: none"> <li>– Virtual PIC Zoom Webinar pre-registration</li> <li>– Project Overview</li> <li>– Project Description (How the Project will support the region)</li> <li>– Class EA Process (text and graphic)</li> <li>– Study Purpose</li> <li>– Route and Station Options Map</li> <li>– Route and Station Options Evaluation Process</li> <li>– Example of Evaluation Criteria</li> <li>– Frequently Asked Questions</li> <li>– Next Steps and Contact Information</li> </ul>
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Printed large size table maps were made available at the in-person PIC. Attendees could attach notes to specific locations on the maps to provide comments related to those locations. A total of six comments were attached to the table maps by attendees and have been included in the summary of feedback in **Appendix B-3**.

A copy of the PIC #1 display materials can be found in **Appendix B-3**.

The PIC materials were also published on the PUC website for review as noted below:

Date Published	May 26, 2022
Formal Viewing and Comment Period	May 26 to June 9, 2022
Project Webpage	<a href="http://www.PUCTransmissionLP.com">www.PUCTransmissionLP.com</a>
Display Panels Publication (URL Address)	<a href="https://puctransmissionlp.com/documents/?id=1">https://puctransmissionlp.com/documents/?id=1</a>

### 3.2.2. SUMMARY OF FEEDBACK

Twenty-three (23) members of the public attended the in-person PIC event. Six members of the public and one member of the media attended the virtual PIC. These events were not attended by any elected officials, self-identified members of Indigenous communities or agency representatives.

During the in-person PIC, participants discussed the Project one-on-one with members of the Project Team and had opportunity to provide written comments. Four written comments were received during the in-person PIC. Six additional comments were received by email following the PIC during the comment period.

During the virtual PIC #1 event, attendees participated using the Q&A function in Zoom. Four comments were received during the virtual PIC via the Q&A. A copy of the chat and comment forms can be found in **Appendix B-3**.

The formal comment period was from May 26, 2022, to June 9, 2022. The correspondence record is included in **Appendix B-3**.

### 3.2.2.1 FEEDBACK RECEIVED

Feedback was received following the Notice of PIC #1, during the virtual PIC #1 event, online via the Project website comment form and subsequently by email.

The following summarizes the main concerns and interests expressed in the comments received from the general public via email and the Project website comment form, the in-person PIC Comment Forms, the verbal discussions during the in-person PIC, and in the Q&A function during the virtual PIC event.

#### 3.2.2.1.1 GENERAL COMMENTS OR INQUIRIES

The following summarizes the main comments received from the public. Several comments received were not related to the Class EA study, including comments/questions regarding the Algoma Steel EAFs project and the proposed ferrochrome processing facility; therefore, were not included in the following summary. General concerns, comments, and/or inquiries related to the Class EA study and design, and implementation of the Project were received including:

- Several comments related to potential impacts to specific properties within the study area.
- Requests for property expropriation/acquisition compensation discussions to happen as soon as possible.
- Suggestion for an alternate Common Elements Route and request for more information regarding how potential power losses and extra costs of the Common Elements Route were assessed.
- Requests to protect existing mature Eastern Cottonwood tree (*Populus deltoides*) along Allen's Side Road.
- Note that the forest adjacent to Allen's Side Road contains much wildlife and a fish sanctuary in the creek.
- Request for the southern section of the Common Elements Route along Wallace Terrace to move further north.
- Request for the proposed pole at the Peoples Road crossing to move closer to the road at the northern section of the Common Elements Route due to visibility from an existing residence.
- Questions regarding potential capacity and usage of the proposed transmission line beyond meeting Algoma Steel's needs for the future Electric Arc Furnace Station.
- Question about whether commercial/industrial companies other than PUC and Algoma Steel will require access to the proposed transmission line.
- Question about whether underground lines have been considered.
- Concerns related to potential decrease in property value as a result of the Project.
- Concerns about visual impacts due to the proposed transmission line, even for residents not directly affected.
- Concerns about potential impacts resulting in decreased all-terrain vehicle (ATV) and snowmobile access once the transmission line is built.
- Concerns about potential impacts to the natural environment (i.e., wildlife and watercourse protection).
- Concerns about potential noise emission from the proposed transmission line.
- Concerns about potential impacts of electromagnetic fields (EMF) to human health.
- Residents along Allen's Side Road submitted a petition to PUC calling for Route Options 1 and 2, which now make up Route Option A, to not be selected as the preferred route due to presence of mature and historic trees that hold value within the community and will need to be protected .

### 3.2.2.1.2 SUPPORT FOR THE STUDY

The following summarizes comments supporting the study received during and following PIC #1:

- Support for Route Option 4, as depicted in Figure 1-4.
- General comments of support for the Project as a whole.

A table detailing the comments and concerns raised during the PIC #1 consultation period, and responses from the Project Team, is presented in **Appendix B-3**.

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## 3.3 PUBLIC INFORMATION CENTRE #2

[NTD: This section will be available in the Final ESR document].

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### 3.3.1. OVERVIEW OF PIC #2

[NTD: This section will be available in the Final ESR document].

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### 3.3.2. SUMMARY OF FEEDBACK

[NTD: This section will be available in the Final ESR document].

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## 3.4 INDIGENOUS COMMUNITIES

The Indigenous engagement and consultation program commenced with the submission of a Project description to the Ministry of Energy on May 10, 2022, to confirm the duty to consult requirements for the Project. An interim list of communities that may be interested in the Project was received by PUC from the Ministry on May 18, 2022. The Ministry's interim list included the following the following communities:

- Batchewana First Nation
- Garden River First Nation
- Michipicoten First Nation
- Métis Nation of Ontario (MNO) Historic Sault Ste. Marie Métis Council
- MNO Region 4

The interim list was then followed by the formal letter of delegation dated May 30, 2022, which indicated that the Ministry was delegating the procedural aspects of consultation in respect of the Project to PUC. The following Indigenous communities were included in the Ministry's Letter of Delegation and were notified about the Project:

- Batchewana First Nation
- Garden River First Nation
- Michipicoten First Nation

Copies of the Ministry of Energy letter of Delegation and the letters notifying Indigenous communities can be found in **Appendix B-1**.

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### 3.4.1. MEETINGS WITH INDIGENOUS COMMUNITIES

[NTD: This section will be available in the Final ESR document].

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## 3.5 NOTICE OF COMPLETION AND DRAFT ESR REVIEW PERIOD

[NTD: This section will be available in the Final ESR document].

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### 3.5.1. INPUT RECEIVED ON THE DRAFT ESR

[NTD: This section will be available in the Final ESR document].

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## 3.6 STATEMENT OF COMPLETION

[NTD: This section will be available in the Final ESR document].

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## 3.7 SUMMARY OF STAKEHOLDER AND PUBLIC CONCERNS AND COMMENTS

**Table 3-2** provides a consolidated summary of the frequently asked questions and comments raised by interested parties throughout the Class EA consultation process. Refer to **Appendix B-7** for a complete list of comments and questions received.

**Table 3-2 Summary of Stakeholder and Public Comments and Concerns**

QUESTION/COMMENT	RESPONSE
<p>What engagement events will take place as part of this Project?</p>	<p>As part of this Project, PUC hosted one round of Public Information Session (PIC), with one in-person event and one online event in May 2022. PIC #2 is the second and final round of consultation for the Class EA process.</p> <p>Consultation with property owners will continue through the design and construction phases of the Project.</p>
<p>Why wasn't an underground option considered for this Project?</p>	<p>An underground option was explored; however, it was determined that this option would not be feasible due to several factors, including higher initial capital costs, higher long-term maintenance costs, longer durations for repairs, and greater disturbance to abutting properties during construction.</p>
<p>How impactful will easements caused by this Project be?</p>	<p>In most cases, easements will be over a portion of the affected properties that are already restricted in relation to building purposes, i.e., land not reserved for future industrial, residential, or commercial development and land on existing municipal or PUC ROW. For example, in most cases, the powerline easements will not restrict the use of land further than current restrictions under the Zoning Bylaw. In all cases, buildings subject to the Ontario Building Code are not permitted within the easement limits.</p>
<p>Will electricity bills go up as a result of the Project?</p>	<p>The Project is expected to have little to no impact to the rates of PUC Distribution customers.</p>
<p>When will construction commence?</p>	<p>Construction is anticipated to begin in Fall 2023 and is expected to be completed by end of 2024.</p>
<p>How will this Project impact property values, will property taxes increase due to this Project, and will I be compensated for easements?</p>	<p>PUC's real estate representatives will work closely with directly impacted property owners to acquire easements that would affect their property. The goal is to secure voluntary property settlements, utilizing independent third-party property appraisers. Each affected property owner will be presented with a formal offer based upon the information contained in a property-specific, third-party appraisal report.</p>
<p>How will the environmental effects of the Project be identified and assessed?</p>	<p>Environmental studies were conducted during Spring/Summer 2022 to identify existing features, potential effects and proposed mitigation measures for the Project. Results of these studies are included in the draft Environmental Study Report (ESR), which is now available for public review and comment until August 31, 2022.</p>

**QUESTION/COMMENT****RESPONSE**

<p>What will PUC do to mitigate impacts from construction?</p>	<p>Mitigation measures are identified in the draft ESR. Implementing the mitigation measures and commitments recommended through the Class EA is a condition of the Project approval. Prior to the commencement of construction, the construction contractor will be required to develop and submit a detailed Construction Management Plan, which includes the mitigation measures, to PUC.</p> <p>As well, a Communications and Complaints Protocol will be developed by the contractor, which will indicate how and when surrounding local businesses and property owners/tenants will be informed of anticipated upcoming construction works (including work at night), and who they can contact should they have any concerns.</p> <p>When possible, construction will be limited to the time periods allowed by the applicable local bylaws (generally during the daytime hours and during weekdays). However, certain types of construction work can only be completed outside of business hours. Further information can be found here.</p>
<p>Should the public be worried about electromagnetic fields?</p>	<p>On a daily basis, we are exposed to electromagnetic fields (EMFs) generated by household wiring, lighting, and electrical appliances. EMFs are invisible forces that surround electrical equipment, power cords, and power lines. You cannot see or feel EMFs. Every time you use electricity and electrical appliances, you are exposed to EMFs at extremely low frequencies. These appliances include: electric shavers; hair straighteners; blow-dryers; printers; computers; TVs; coffeemakers; ovens; microwaves; refrigerators; toasters; washers; dryers; and more. EMFs are strongest when closest to the source. As you move away from the source, the strength of the fields fades rapidly. When you are inside your home, the electric fields from transformer boxes and high voltage power lines are often weaker than the fields from household electrical appliances. Further information can be found here: <a href="https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/everyday-things-emit-radiation/power-lines-electrical-appliances.html">https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/everyday-things-emit-radiation/power-lines-electrical-appliances.html</a>.</p>
<p>The total potential load (600 MW) vastly exceeds what's required for Algoma Steel Inc. (ASI). Als the surplus load on these lines (in excess of what's required by ASI) considered potential infrastructure for the proposed ferrochrome processing facility in the eyes of the PUC and City of SSM? If no, what's the rationale for the additional load? If yes, why hasn't this been explicitly mentioned in public communications thus far?</p>	<p>The new transmission line is not being built for the proposed ferrochrome processing facility. The new transmission line is being constructed to support Algoma Steel's new Electric Arc Furnace station. The line is being built to meet the immediate need of Algoma Steel, as well as potentially connecting to PUC distribution, resulting in another source of power into the west end's distribution system. The double-circuit configuration provides redundancy of supply to accommodate future maintenance or service interruptions. With two circuits on one set of poles, we are providing redundancy that will carry the full Algoma load on one circuit alone, while the other is down for maintenance or due to potential contingency situations, such as weather events.</p>

**QUESTION/COMMENT****RESPONSE**

How much will the Project cost? Will our electricity bills go up as a result of the Project?	An application will be made for this Project to obtain a Leave to Construct from the Ontario Energy Board (OEB). Through this regulatory process, the OEB will make a ruling on the viability of proceeding with this Project at the presented costs. Every few years, PUC provides details on our plans for the transmission system via a rate application to the OEB. Through the rigorous application process, the OEB will then make a decision on our rate application, ensuring that customers are protected from any undue costs.
What will this Project resemble locally?	PUC is proposing to install single, steel poles that will look similar to the steel poles along Lyons Avenue between Patrick Street and Korah Road or Second Line west of North Street.
Why have I been notified about the Project?	As part of the notification of the Project, PUC contacted Indigenous communities and peoples, nearby residents and community members, businesses, associations and all other potentially interested stakeholders to learn more about the Project.
Will the lines hum?	The level of noise emitted by transmission lines is related to a number of different factors, including weather conditions. During regular weather, the lines are typically silent; however, during certain weather conditions, such as wet or high humidity weather, those levels may increase.
Will construction affect the water table?	The construction of the new transmission line and station is not anticipated to cause any adverse effects to groundwater quality or quantity.
Will there be any expected power outages or surges during the construction of the new line?	There are no anticipated power surges or outages expected for customers as a result of this Project.
When will residents be notified of the pole locations?	PUC is completing the design planning for the new line, where we will confirm details such as the transmission corridor width, as well as pole design and location.
Can land around the poles be farmed?	Farming is a compatible use within the transmission corridor.
Will the line have any impacts to animals and/or their habitat?	Within the Class EA, effects to natural environment and wildlife habitats were considered in the evaluation of the route and station options. This included the identification of environmental effects and potential mitigation measures.

# 4 DESCRIPTION OF THE ENVIRONMENT

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## 4.1 SOCIO-ECONOMIC ENVIRONMENT

To gather socio-economic information about the study areas for the route and station options, existing features were identified using secondary sources, including mapping tools (i.e., aerial, satellite imagery), municipal and community websites (i.e., planning, guidance documents) and government databases (i.e., Statistics Canada).

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### 4.1.1. HUMAN SETTLEMENTS

The human settlement factor primarily focusses on population, demographics and residential development.

Each of the proposed route options shown in **Figure 1-5** is located wholly within the city of Sault Ste. Marie. The city of Sault Ste. Marie in Ontario is located on the northern side of the St. Mary's River, which connects Lake Superior to Lake Huron. Sault Ste. Marie is the third largest city in northern Ontario and is approximately 250 km west of Sudbury, Ontario and 420 km southeast of Thunder Bay, Ontario (Statistics Canada, 2022a).

The city of Sault Ste. Marie has a population of 72,051, which is currently experiencing a decline, with a decrease in population of 1.8% from 2016 to 2021 and a decrease of 2.4% from 2011 to 2016 (Statistics Canada, 2022b; Statistics Canada, 2021a). The total number of private dwellings occupied within the Sault Ste. Marie census subdivision is 34,818, while population density within the city is approximately 324.6 people per square km (Statistics Canada, 2021a). The population is 48.6% male, and 51.4% female and average age of the population is 45.4 years old, which is older than the average age of Ontario as a whole (41.8 years old) (Statistics Canada, 2022b; Statistics Canada, 2022c).

Forecasts indicate that the proportion of senior citizens is increasing whereas the employed labour force is decreasing, largely due to the city's aging population and the lack of workers to fill future job vacancies created by retirements. The population of citizens residing within Sault Ste. Marie aged 65 and older was approximately 19.73% in 2011, 22.34% in 2016 and was closer to 24.89% in 2021 (Statistics Canada, 2012; Statistics Canada, 2021a; Statistics Canada, 2022b). Given the relatively low birth rates and high death rates, population growth in Sault Ste. Marie is expected to be dependant on the community's ability to attract migrants to fill job vacancies (City of Sault Ste. Marie, 2015) .

Residential areas in the Existing Conditions Study Area are mainly located within the southwestern portion of the Existing Conditions Study Area in the communities of Broadview Gardens, Brookfield, and Bayview. Smaller pockets of residential areas are also found south of the intersection at Third Line West/Allen's Side Road (near the community of Korah) and at the northern end of Peoples Road near Green Acres Park.

Based on City of Sault Ste. Marie Zoning Maps (City of Sault Ste. Marie, 2022), there are approximately 154 residences (or residential properties) along the proposed Route Options B and C, whereas there are approximately 84 residences (or residential properties) in proximity to Route Option A and 72 in proximity to Route Option D. No residences were identified within 125 m of the Station Options.

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### 4.1.2. ECONOMY AND EMPLOYMENT

**Table 4-1** below provides a summary of the employment rate, labour force participation (over the age of 15) and median total family income for households in Sault Ste. Marie compared to the rest of Ontario (Statistics Canada, 2021a; Statistics Canada, 2021b). The unemployment rate is 10.3%, which is 2.9% higher than the Ontario provincial rate of 7.4%. The labour force participation rate is 57.4% which is 7.3%

lower than the Ontario provincial rate of 64.7%. The median total family income in Sault Ste. Marie is lower than the median for Ontario as a whole (\$61,020 compared to \$74,287) (Statistics Canada, 2021a; Statistics Canada, 2021b).

**Table 4-1 Employment and Income in the Existing Conditions Study Area**

LOCATION	UNEMPLOYMENT RATE	LABOUR FORCE PARTICIPATION	MEDIAN HOUSEHOLD INCOME
Sault Ste. Marie	10.3%	57.4%	\$61,020
Ontario	7.4%	64.7%	\$74,287

The Project will provide power to Sault Ste. Marie’s largest employer – Algoma Steel, which has a workforce of approximately 3,500 employees. The new transmission facilities will support Algoma Steel’s project to build and operate two new state-of-the-art electric arc furnaces, while also building capacity for future industrial customers in the region. The City has a large forestry industry with a number of pulp, paper and wood-processing companies as well as an industrial base to support the forestry sector with various capabilities such as fabricating, machining, metalworking, tool and die, light metal stamping, research and development, engineering, and technical services.

Other key industries within the city include trucking and transportation due to the close proximity to the International Bridge/international border with the United States and power generation as the city has a number of power generation facilities which include wind, solar, hydroelectric, cogeneration, etc. (City of Sault Ste. Marie, 2015).

Project activities are required in areas where both commercial and industrial operations are present. Business operations tend to be concentrated near the northeast end of the Existing Conditions Study Area at Industrial Park Crescent and near the southeastern portion of the Existing Conditions Study Area, where the preferred route option is proposed, within the communities of Broadview Gardens, Brookfield, and Bayview. Businesses near the northeast portion of the Existing Conditions Study Area are within proximity of the existing Hydro One Third Line Station at Industrial Park Crescent, and include various car dealerships, auto body and truck centres, while the southwest extent of the Project study area includes local contractors and few food establishments.

Based on municipal zoning maps (City of Sault Ste. Marie, 2022) there are three commercial or institutional land uses within 125 m of the proposed Route Options B and C, whereas two are within 125 m of Route Option A and one is within 125 m of Route Option D. No commercial or institutional land uses were identified within 125 m of the Station Options.

### 4.1.3. LAND USE PLANNING AND POLICIES

Information presented through the following section related to land use planning and policies, was identified predominantly using secondary sources, which included mapping tools (i.e., aerial, satellite imagery) and municipal/community websites (i.e., official plans, zoning by-laws). **Table 4-2** provides a breakdown of land use within the Existing Conditions Study Area based on municipal zoning maps (City of Sault Ste. Marie, 2022).

**Table 4-2 Land Use in the Existing Conditions Study Area**

LAND USE CLASSIFICATION	PERCENTAGE OF LAND USE WITHIN THE STUDY AREA
Rural/Natural	55.26%

LAND USE CLASSIFICATION	PERCENTAGE OF LAND USE WITHIN THE STUDY AREA
Residential	19.75%
Industrial	22.44%
Transportation	1.46%
Institutional	1.02%
Commercial	<1%
<b>Total</b>	<b>100%</b>

#### 4.1.3.1 RURAL/NATURAL

The city's rural area designation includes the land that falls outside of the municipal urban settlement area. It mainly includes agricultural uses related to the harvest of hay along Third Line West between Goulais Road and Allen's Side Road, and a riding academy (Woodland Springs) located along Hood Street (City of Sault Ste. Marie, 2015). Multiple parks and natural areas are also located within the Project area, some of which are zoned as rural land and are further described in **Section 4.1.5**

#### 4.1.3.2 RESIDENTIAL

Residential areas are mainly located within the southwestern portion of the Existing Conditions Study Area in the communities of Broadview Gardens, Brookfield, and Bayview. Smaller pockets of residential areas are also found south the intersection at Third Line West/Allen's Side Road (near the community of Korah) and at the northern end of Peoples Road near Green Acres Park.

#### 4.1.3.3 INDUSTRIAL

The majority of industrial lands in the city of Sault Ste. Marie are concentrated in the southwestern and northern outskirts of the city's urban settlement area. Industrial land use within Sault Ste. Marie includes manufacturing, construction, power generation/utility, and other trade industries. Industrial land located within the Existing Conditions Study Area is concentrated within the areas south of Wallace Terrace/east of Allen's Side Road in the southern extent of the Existing Conditions Study Area, and to the north near the intersection of Great Northern Road and Third Line East. Industrial use within the Existing Conditions Study Area mainly consists of activities related to the following businesses/facilities:

- Automobile and transport:
  - All North Truck Centre, Flying J Travel Centre, Northern Powertrain, Northland Autobody, Petro Canada, Power Fuels and Lubricants, Prouse Chevrolet Buick GMC Cadillac, Rush Truck Centres of Canada, Shell, TMS Truck Centre and Traction Truck Accessories.
- Construction, manufacturing, and equipment:
  - Algoma Steel, Argo Industrial Svc, Avery Construction, Cofra Furniture & Cabinets, EACOM Timber Cooperation, Equipment World, Franco Masonry, GFL Infrastructure Group, Inter-Ontario Equipment, Johnson's Power Wash & Sand, Mike Moore Construction, OCP Construction Supplies Inc, Traders Steel Warehouse, Trio Contracting, Triple M Metal LP and Weston Wood Solutions.
- Environmental services:
  - Ellsin Environmental, Envirotek Commercial & Industrial Services and Heliene Inc.
- Utility and power:

- Brookfield Renewable Power and Enbridge:
- Other services/businesses related to delivery and waste management:
  - Canpar, Fedex, Pepsi Co. Beverages Canada, Purolator, UPS and WM (Waste Management Company).

#### 4.1.3.4 TRANSPORTATION

The Existing Conditions Study Area is comprised of multiple road networks located within the city of Sault Ste. Marie. The city's existing road network is composed of urban and rural arterial, collector, and local streets, which are further described in **Section 4.1.4.2** (Infrastructure and Services).

#### 4.1.3.5 INSTITUTIONAL

The majority of institutional land uses are located in the eastern half of the city of Sault Ste. Marie within proximity to the intersection at Great Northern Road and Second Line East. Institutional land use related to the Existing Conditions Study Area tends to be concentrated within the southeastern portion of the Project area near the community of Brookfield and Along Second Line West/Allen's Side Road.

Based on desktop studies and field observations, there are several institutions that may be sensitive receptors within the Existing Conditions Study Area including residences, schools (HM Robbins Public School, St. Francis French Immersion Catholic School, Holy Family Catholic School), and places of worship (Bethany Baptist Church, Christ Church, and New Apostolic Church) (City of Sault Ste. Marie, 2022).

There are no hospitals, healthcare facilities or emergency services located in the Existing Conditions Study Area.

#### 4.1.3.6 COMMERCIAL

The majority of commercial areas within the city of Sault Ste. Marie are located in the downtown area and along Pim Street, Great North Road, Trunk Road, and Second Line. However, commercial land use within the Existing Conditions Study Area mainly includes food, beverage services and retail services located near the intersection of Goulais Avenue and Wallace Terrace. The area located within the vicinity of this intersection is zoned for general commercial use under the city's municipal plan and includes businesses such as Hard Times Bar and Grill, Deluca's Pizza, and Minnie's Mini Mart. (City of Sault Ste. Marie, 2015).

#### 4.1.3.7 ONTARIO PROVINCIAL POLICY STATEMENT

The Provincial Policy Statement is issued under Section 3 of the Ontario *Planning Act*, which came into effect on May 1, 2020. Section 3 of the *Planning Act* states that decisions affecting planning matters "shall be consistent with" the Provincial Policy Statement (Government of Ontario, 2020). The consistency of the proposed Project (defined as "infrastructure" in the Provincial Policy Statement) with the relevant infrastructure and Public Service Facilities policies included in Section 1.6.8 of the Provincial Policy Statement is summarized as follows:

- Planning and protecting corridors and Right-of-Ways for infrastructure to meet current and projected needs;
- Preserving and reusing abandoned corridors for purposes that maintain the corridor's integrity and continuous linear characteristics wherever feasible; and
- Co-locating linear infrastructure is promoted where appropriate.

Based on a review of municipal zoning information (City of Sault Ste. Marie, 2022), the Route Options and Station Options proposed are all "consistent with" existing land use designations as defined by the Provincial Policy Statement.

Section 1.6.8.6 of the Provincial Policy Statement requires that, when planning for corridors and Right-of-Ways for significant electricity transmission and infrastructure facilities, consideration will be given to the

significant resources protected by Section 2 of the Provincial Policy Statement, Wise Use and Management of Resources (Government of Ontario, 2020).

#### 4.1.3.8 SAULT STE. MARIE MUNICIPAL OFFICIAL PLAN (1996)

The City of Sault Ste. Marie Official Plan provides a guide to managing and directing the physical change of the city's community landscape and related effects on the social, economic, and biophysical environment. The Official Plan is designed to ensure that future growth of the city occurs in a logical and sustainable manner. The city adopted the Official Plan in 1996 which confirms with the "Provincial Policy Statements," which are guidelines that provide the policy foundation for regulating the development and use of land (City of Sault Ste. Marie, 1996).

The Official Plan is adopted by Sault Ste. Marie city council pursuant to the *Planning Act* and is approved by the Minister of Municipal Affairs and Housing. The Official Plan requires that no public work be undertaken, and no municipal by-law passed which does not conform to the Plan. The Official Plan is intended to be used by city council as the basis for decisions and actions on municipal projects, facilities, and programs and by other government agencies and departments, businesses, industry, and citizens preparing various plans/programs (City of Sault Ste. Marie, 1996).

The continued support for the restructuring and expansion of local steel and forestry industries is included within the Official Plan's policy directions related to manufacturing and transportation, along with additional opportunities for restructuring and expansion of related secondary manufacturing industries.

Part V (1) of the Official Plan outlines goals and policies related to the management of the city's natural physical environment including:

- Identification, protection, conservation, restoration, and development of provincial, regional, and local significant natural environmental features/resources;
- Maximization of environmental, social, and economic benefits derived from protecting, maintaining, enhancing, and developing these features and protection of features located on both public and private lands;
- Maintenance and development of natural corridors between environmental features in order to sustain/improve the existing environment;
- Utilization of the best available information when managing development affecting the natural physical environment, as well as making use of ecologically-based planning methods and procedures;
- Watershed planning;
- Documentation of significant environmental features as identified by the MNRF, local conservation authorities and other interested groups/agencies; and
- Where required, appropriately conducting an Environmental Impact Study (EIS) for proposed development.

Part VI of the Official Plan outlines goals and policies related to the physical development of the community and associated responses to economic, social, and natural environmental challenges and opportunities that may arise as a result including:

- Assurance that physical resources, facilities, and services remain available in order to accommodate citizen activities/quality of life;
- Continued development of a community which is environmentally sustainable, functionally efficient, aesthetically pleasing and meets the working, living and recreational needs of its inhabitants;
- Encouraged reuse, rehabilitation and redevelopment of the existing built environment;
- Development of new facilities to improve/diversify the local resource-based economy and expansion of tourism; and
- Development of flexible land use plans in order to ensure adaptability to new opportunities.

Under 4.5.1 of the Official Zoning By-Law (2005-150), utilities including electrical transmission, sewage, underground pipelines, natural gas, telephone, cable television are permitted in all land use designations.

Structures such as transmission wires are exempt from yard and building regulations of the zone in which they are located. However, buildings associated with such uses must conform to yard and building regulations of the zone in which they are situated (City of Sault Ste. Marie, 2019)

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#### 4.1.4. INFRASTRUCTURE AND SERVICES

Information presented through the following sections relating to infrastructure and services was identified predominantly using secondary sources that included mapping tools (i.e., aerial, satellite imagery) and municipal/community websites, planning, and guidance documents.

There are no hospitals, healthcare facilities or emergency services (fire/police stations) located in the Existing Conditions Study Area. The nearest hospital (Sault Area Hospital) is located 1.2 km southeast of Third Line Transformer Station.

##### 4.1.4.1 TRANSPORTATION

The Existing Conditions Study Area is comprised of multiple road networks within the city of Sault Ste. Marie. According to the Sault Ste. Marie Transportation Master Plan (TMP) (City of Sault Ste. Marie, 2015), roadways within the city are classified as local, collector or arterial streets and are identified as either rural or local. The rural street designation is applied to streets in the outskirts of the city, typically north of Third Line, west of Allen's Side Road, and east of Queensgate Boulevard and Great Northern Road in the northern part of the city.

In the southern portion of the Existing Conditions Study Area, all routes follow Wallace Road to the west of Glasgow Avenue. Route Options A and B follow Wallace Road to the West and extend north along Allen's Side Road, while Route Options C and D cross Wallace Road just west of Brookfield Avenue behind St. Francis French Immersion Catholic School. Route Options A and B extend north alongside Allen's Side Road for 2.1 km and 1.3 km respectively, while Route Options C and D intersect Second Line West, west of Jefferson Avenue. In the northern portion of the Existing Conditions Study Area, all routes intersect Third Line West 0.7 km east of the intersection located at Allen's Side Road and Third Line West. Four more road crossings exist along the 230 kV Common Route Element; one intersecting Goulais Avenue south of Warden Road, a second at Moss Road, a fourth at Peoples Road north of Kent Crescent and the fifth at Old Goulais Bay Road.

Crossings situated within both the southern and northern portions of the Existing Conditions Study Area are either zoned as rural, as park/recreational space, environmental management zone or industrial.

Station Options 1 and 1-A are accessible via an unnamed trail located east of Yates Avenue and west of the Bayview neighbourhood – behind Glasgow Park. Station Options 1 and 1-A are also both located in an area currently zoned for industrial use. Station Option 2 is also zoned for industrial use and is located within property owned by Algoma Steel, slightly northeast of the No. 7 Blast Furnace.

(City of Sault Ste. Marie, 2022) Official city maps also identify the existence of private driveways and unopened road allowances.

Roadways that exist within the Existing Conditions Study Area and intersect Project components are mainly composed of local and collector roads such as Peoples Road, Moss Road and Goulais Avenue to the north, Allen's Side Road, and Wallace Terrace to the south/southwest and the southern end of Goulais Avenue. Third Line East is located within the Existing Conditions Study Area to the northeast and is classified as an arterial road (City of Sault Ste. Marie, 2022).

Some areas along the proposed route options are not directly connected to the existing road network; thus, additional access may be required. The station options generally have access to the road networks.

Sault Ste. Marie currently operates 10 bus routes with the Downtown Terminal operating as its only hub. Current annual ridership is approximately two million. The proposed Existing Conditions Study Area has the potential to intersect with the following bus routes:

- Great Northern Road;

- Korah Road;
- Riverside/McNabb; and
- Steelton/Second Line (City of Sault Ste. Marie, 2015; City of Sault Ste. Marie, 2022)

Railway lines for Canadian National Railway (CN) beginning at the Algoma Steel plant run north towards Third Line and Fourth Line. This section of the CN rail line extends north to Batchawana Bay and the White River area, which provides connection to the remainder of northern Ontario and western Canada. The CN line intersects the Project area at two points; the first is located within the railyard at the Algoma Steel plant and the second is at a pedestrian pathway, which provides connection from Moss Road to Tallack Boulevard along the north portion of the Common Elements Route (CP Rail, 2020; Government of Canada, 2016).

Rail lines for Canadian Pacific Railway (CP Rail) extend across the international border with the United States to the South and also eastward away from the Existing Conditions Study Area. The eastward line provides principal shoreline connection to CP's main rail corridor, which provides connection to Sudbury in the east and eventually, Toronto to the south. The CP rail line intersects the Existing Conditions Study Area within the railyard at the Algoma Steel plant (CP Rail, 2020; Government of Canada, 2016).

There are no aerodromes/airports located within the Project area. The closest aerodrome/airport is located approximately 10 km southwest and is the Sault Ste. Marie international airport.

#### **4.1.4.2 GENERAL WASTE MANAGEMENT**

A desktop search of active and historical waste disposal sites within the Existing Conditions Study Area was completed to identify if waste disposal sites are located within 500 m of any of the route and station options. The closest municipal landfill site (City of Sault Ste. Marie Landfill) is located approximately 2.5 km north of the Existing Conditions Study Area at 402 Fifth Line East.

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#### **4.1.5. RECREATIONAL RESOURCES**

Various recreational resources were identified within the proposed Existing Conditions Study Area through a desktop study conducted using aerial/satellite imagery (i.e., Google Earth) and are described in **Table 4-3**.

**Table 4-3 Recreational Resources in the Study Area.**

RECREATIONAL RESOURCE	DESCRIPTION
Parks and Trails	<ul style="list-style-type: none"> <li>– Hub Trail</li> <li>– Brookfield Park</li> <li>– Green Acres Park</li> <li>– Greenfield Park</li> <li>– Mike Zuke Park</li> <li>– Monroe Park (a small portion of Monroe Park is located within the southeast portion of the Existing Conditions Study Area).</li> <li>– Rosita Park</li> <li>– Westwood Park (the western portion of Westwood Park is located within the Existing Conditions Study Area, approximately 0.49 km away from Route Option C).</li> <li>– Winfield Park</li> </ul>
Recreational Facilities	<ul style="list-style-type: none"> <li>– Crimson Ridge Community Centre</li> <li>– Sault Theatre Workshop</li> </ul>
Watercourses	<ul style="list-style-type: none"> <li>– East Avignon Creek</li> <li>– West Davignon Creek</li> <li>– Central Creek</li> <li>– Bennett Creek</li> <li>– Fort Creek</li> </ul>

There are no significant valley lands or areas of natural or scientific interest located within the Project area; however, other natural areas such as woodlots and wetlands are present and could potentially be used for recreational purposes by residents, see **Section 4.2.8**.

It is also understood that the existing PUC easement (i.e., the northern segment of the Common Elements Route) is used recreationally for ATV use.

#### **4.1.6. VISUAL AND AESTHETIC RESOURCES**

The proposed Project is located in an area which is mixed-use, consisting of residential, commercial, and industrial development. Natural elements that exist within the Existing Conditions Study Area include isolated woodlots, tree canopies of rural and residential communities, as well as forest cover and other successional riparian vegetation adjacent to waterways such as East Davignon Creek. No sensitive visual or aesthetic resources were identified in the Existing Conditions Study Area (e.g., designated viewsapes).

Existing vertical elements include traffic/light standards and existing transmission lines located near populated residential areas and along transportation corridors. Many of the existing properties have existing tree-lined wind breaks and hedgerows, which may offer potential localized privacy from adjacent visual elements (Google Earth, 2015; City of Sault Ste. Marie, 2022).

#### **4.1.7. INDIGENOUS LAND USE**

The proposed route option crosses private and municipal lands, but no federal or provincial Crown land. There are no First Nation reserve lands located within the Existing Conditions Study Area.

A review of applicable mapping, including the Aboriginal and Treaty Rights Information System (ATRIS), and mapping from the Ministry of Energy, Northern Development and Mines (MENDM) showed that the Project may have potential to affect the Interests of Indigenous communities that may have established or asserted Indigenous and/or Aboriginal Treaty Rights in the Existing Conditions Study Area.

The Project is located within the traditional territory of the Anishinaabeg within the Robinson-Huron Treaty Territory. Sault Ste. Marie is traditionally known as Bawating (“the place of the rapids”) and holds cultural significance due to the settlement being situated between Lake Huron and Lake Superior (CIRNAC, 2022; City of Sault Ste. Marie, 2021). The Government of Canada and Government of Ontario have acknowledged the pre-existing Indigenous and Treaty Rights of the nations that fall under the Robinson-Huron Treaty and recognize the rights of Indigenous people in the region in relation to the right to hunt, trap, fish and harvest for food, social and ceremonial purposes (Anishinabek Nation, 2016).

The following Indigenous groups were identified as having lands located within the greater Project area and may potentially have an interest in the Project.

- Batchewana First Nation
  - Rankin Location 15D Reserve (5.5 km east)
  - Whitefish Island Reserve (0.5 km southeast)
- Garden River First Nation
  - Garden River No. 14 (7 km east)
- Michipicoten First Nation
  - Chapleau No. 61 (160 km northeast)
  - Gros Cap No. 49 (165 km northwest)
  - Gros Cap Indian Village No. 49A (160 km northwest)
  - Missanabie No. 62 (195 km north)

(CIRNAC, 2022) To date, no Indigenous communities have identified Indigenous land use in the Project area.

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#### **4.1.8. BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES**

The MTCS Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes (2016) checklist has been completed for all route options to determine if a property within the Cultural Heritage Study Area<sup>2</sup> is a recognized heritage property and/or may be of cultural heritage value. A copy of the Cultural Heritage Checklist can be found in **Appendix C-2**.

A review of the city’s Designated Cultural Heritage Resources in the Official Plan determined that there are no identified, designated or otherwise protected built heritage resources and cultural heritage landscapes within the study areas. However, a field investigation was conducted on June 20, 2022, and June 21, 2022 that determined that there are four non-designated built heritage resources (BHRs) within the study area that have potential cultural heritage value or interest (CHVI). **Table 4-4** and **Figure 4-1** details the potential BHRs identified within the study areas for each route.

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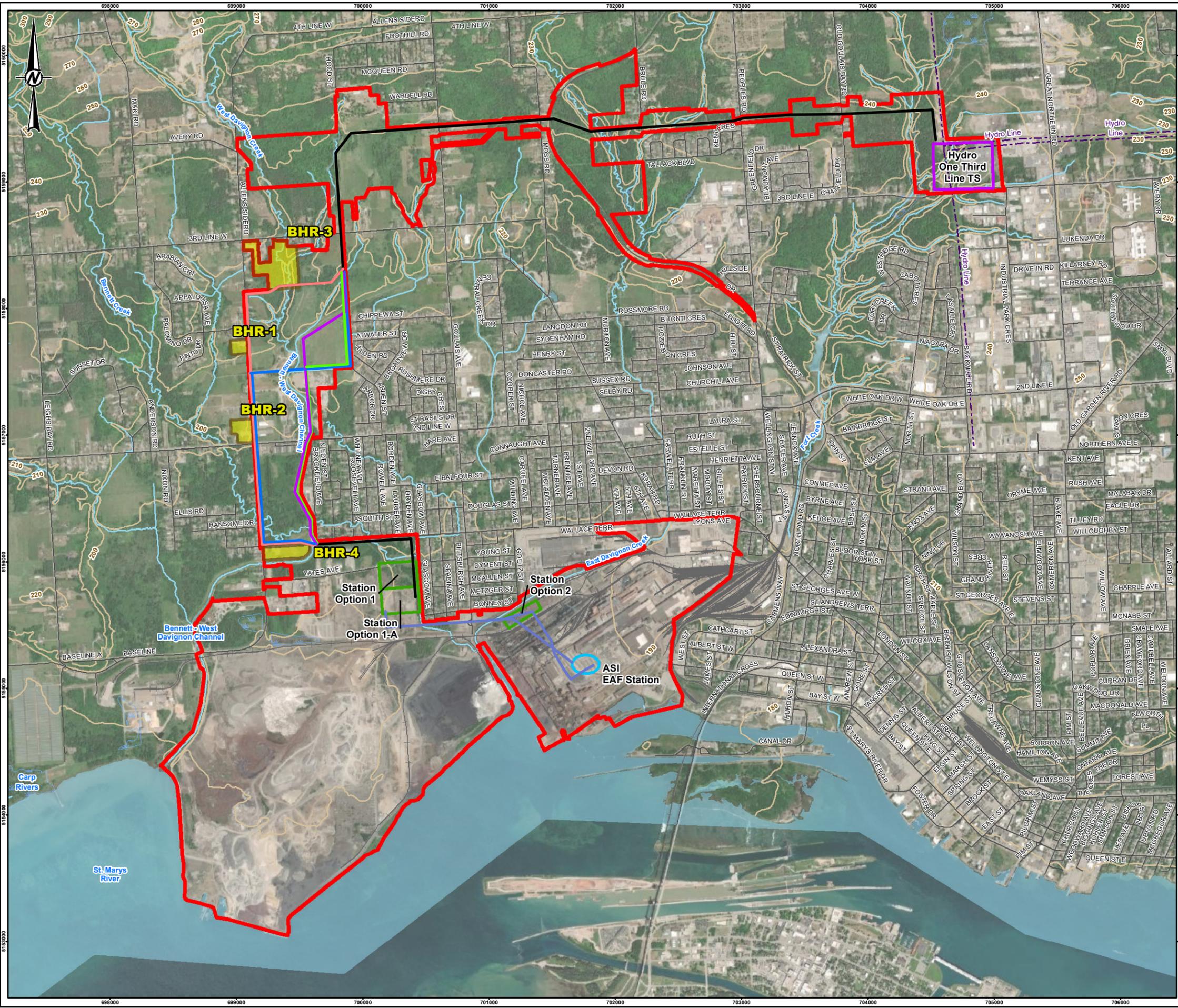
<sup>2</sup> The Cultural Heritage study area, as depicted on **Figure 4-1** included whole property boundaries and therefore does not align with the study areas defined in **Section 2**. of this report.

**Table 4-4 Potential Built Heritage Resources in the Cultural Heritage Study Area**

BHR #	RESOURCE TYPE	LOCATION	RELEVANT ROUTE/STATION OPTION	HERITAGE RECOGNITION	DESCRIPTION OF KNOWN OR POTENTIAL CHVI	PHOTOGRAPH
BHR-1	Place of Worship / residence	585 Allen's Side Road	Adjacent to Route Option A	Identified during field review	<p>The church on the property appears to have been constructed in two phases. The rear portion of the church has a cross-shaped plan with north and south facing transepts. The front portion of the church appears to be a later addition, it features a combination roof with a spire. The façade is symmetrical, with three bays. The church is sited on a raised concrete foundation and is clad in a combination of horizontal siding and stone.</p> <p>The dwelling on the property is located south of the Christ Church. It consists of a one-and-a-half storey dwelling, clad in brick and horizontal siding. The dwelling features an end-gable roof with a gambrel roof and a large, front-facing shed roof dormer. The three-bay façade is symmetrical, with a centrally placed door flanked by two rectangular windows.</p> <p>The house and church are located on the west side of Allen's Side Road, south of Palomino Drive.</p>	

BHR #	RESOURCE TYPE	RELEVANT ROUTE/STATION LOCATION OPTION	HERITAGE RECOGNITION	DESCRIPTION OF KNOWN OR POTENTIAL CHVI	PHOTOGRAPH	
BHR-2	Place of Worship	1074 Second Line West	Adjacent to Route Options A and B	Identified during field review	The Bethany Baptist Church is located north of Second Line West and west of Allen's Side Road. The church has an irregular plan and ranges in height from one to two-storeys. The church is clad in brick.	
BHR-3	Barn	1015 Third Line West	~ 200 m away from Route Option A	Identified during field review	The barn on the subject property appears to be a vernacular Central Ontario bank barn. It is clad in board and batten with a raised foundation. The barn, built to a rectangular plan with a medium pitched side gable roof, is built into the natural slope of the lot.	

BHR #	RESOURCE TYPE	RELEVANT ROUTE/STATION LOCATION OPTION	HERITAGE RECOGNITION	DESCRIPTION OF KNOWN OR POTENTIAL CHVI	PHOTOGRAPH	
BHR-4	Residence	202 Allen's Side Road	Adjacent to the southern end of route options A, B, C, and D and the southern portion of the Common Elements Route.	Identified during field review	A one-and-a-half storey Suburban Villa or Farmhouse located on a large lot, south of Wallace Terrace and east of Allen's Side Rad. The house has an L-shaped plan with an intersecting roof. The house has a relatively deep setback with its main façade oriented towards Allen's Side Road. The house is clad in stucco; the roof is clad in metal.	

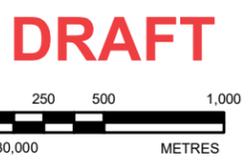


**LEGEND**

- IDENTIFIED DURING FIELD REVIEW
- BHR - LOCATION**
- BHR-1 - 585 ALLENS SIDE ROAD
- BHR-2 - 1074 SECOND LINE WEST
- BHR-3 - 1015 THIRD LINE WEST
- BHR-4 - 202 ALLENS SIDE ROAD
- ROUTE OPTION A
- ROUTE OPTION B
- ROUTE OPTION C
- ROUTE OPTION D
- 230 kV COMMON ELEMENT ROUTE
- 115 kV COMMON ELEMENT ROUTE
- NEW PUC STATION OPTION
- ALGOMA STEEL INC. (ASI) ELECTRIC ARC FURANCE (EAF) STATION
- HYDRO ONE THIRD LINE TRANSFORMER STATION (TS)
- STUDY AREA
- ROADWAY
- RAILROAD
- UTILITY LINE
- TOPOGRAPHIC CONTOUR, METRES
- WATERCOURSE
- WATERBODY
- WETLAND

**NOTE(S)**  
 1. ALL LOCATIONS ARE APPROXIMATE

**REFERENCE(S)**  
 1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES. © QUEENS PRINTER 2022  
 2. SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY  
 3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 16, VERTICAL DATUM: CGVD28



CLIENT  
**PUC TRANSMISSION LP**

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PROJECT  
**CULTURAL HERITAGE REPORT: EXISTING CONDITIONS AND PRELIMINARY IMPACT ASSESSMENT, 230 KV TRANSMISSION PROJECT CLASS ENVIRONMENTAL ASSESSMENT**

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TITLE  
**LOCATION OF BUILT HERITAGE RESOURCES**

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CONSULTANT	YYYY-MM-DD	2022-07-26
	DESIGNED	EG
	PREPARED	BR
	REVIEWED	---
	APPROVED	---

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PROJECT No. 221-01502-00    CONTROL 0003    REV. A    FIGURE 5

Path: S:\Client\B\C\_Services\_Inv\Site\_Shr\_Maps\BHR\_Proj\221\_01502\_00\_B\C\_Services\_Inv\_2024\Transmittal\_Protocol\_2024\_07\_26.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 28mm

#### 4.1.9. ARCHAEOLOGICAL RESOURCES

A Stage 1 Archaeological Assessment was conducted and included a review of available archaeological and environmental literature relevant to the Existing Conditions Study Area, consultation with the Ministry of Tourism, Culture and Sport (MTCS) database of registered archaeological sites, and a review of primary historic documentation including historic maps.

A search of the *Ontario Archaeological Sites Database* (OASD) indicates that there are two registered archaeological sites within 1 km of the study area (MTCS, 2022). The paucity of registered sites is not necessarily reflective of a lack of past use of the landscape or an absence of archaeological sites, but more likely a result of a lack of archaeological assessments being completed in this area. Details about the sites identified are provided **Table 4-5**.

**Table 4-5 Registered Archaeological Sites within 1 km of the Existing Conditions Study Area**

BORDEN	SITE NAME	TIME PERIOD	CULTURAL AFFINITY	SITE TYPE	CURRENT DEVELOPMENT STATUS
Cdlc-8	Korah School	Post-Contact	Euro-Canadian	School	-
Cdlc-6	Korah	Late Archaic	Indigenous	Camp/campsite	-

- Denotes no information listed

\* Denotes inferences made by author

The Korah School site (Cdlc-8) is a Euro-Canadian school site that was identified in 1984 along Allen's Side Road approximately 80 m outside of the western portion of the current study area boundaries. An associated report for this site could not be located for review and no further information could be found in the OASD. The site's current development status is unknown.

The Korah site (Cdlc-6) is a pre-contact Indigenous site that was identified in 1930 along Second Line, approximately 230 m west of the western boundaries of the current Existing Conditions Study Area. The Korah Site was dated to the Late Archaic period and was identified as part of the Mark's Bay complex, which is a complex of small sized Late Archaic sites along the St. Mary's River. No further information was available in the OASD, and its current development status is unknown.

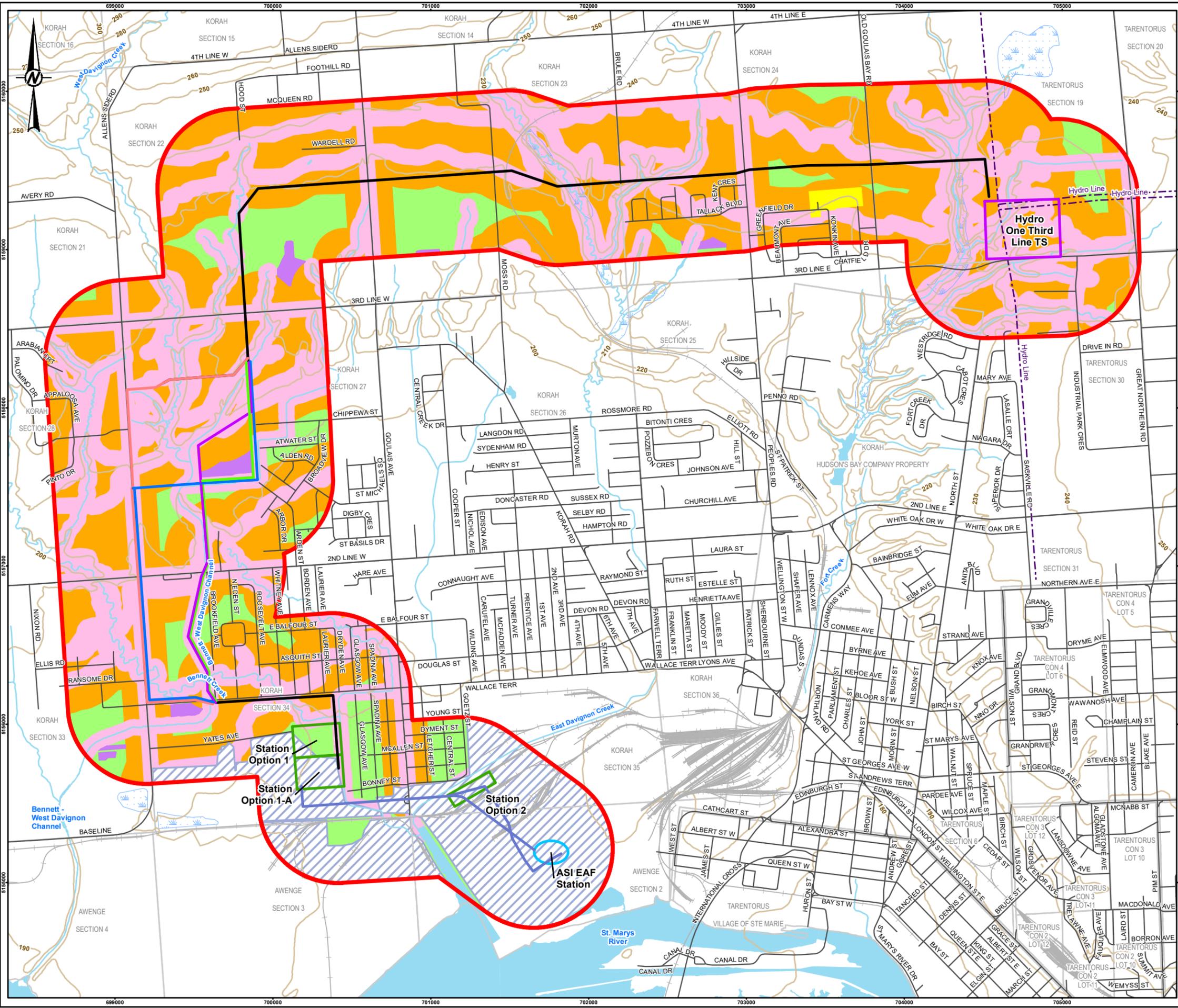
Per the results of the Stage 1 Archaeological Assessment (**Appendix C-3**), portions of the study areas exhibit signs of previous disturbance due to previously constructed driveways, municipal roads, service roads, ditching, existing infrastructure (i.e., underground utilities) and building footprints. However, other portions of the study areas have archaeological potential due to the proximity of water sources, registered archaeological sites, proximity to listed cultural heritage resources, historical settlements and routes, and soils conducive to past human settlement.

There is potential for the presence of pre-contact archaeological resources within portions of the Existing Conditions Study Area given the proximity to St. Mary's River, as well as Bennett Creek, West Davignon Creek, East Davignon Creek, and Fort Creek, all of which pass through the Existing Conditions Study Area. Several smaller tributaries of these creeks also flow through the Existing Conditions Study Area. In addition to these water sources, there are several glacial strandlines that fall within the Existing Conditions Study Area boundaries, which may have been utilized during the pre-contact period. These water sources would have made the area ideal for pre-contact settlement given the readily available terrestrial and marine resources. Additionally, one pre-contact archaeological site (Cdlc-6) is located approximately 230 m west of the Existing Conditions Study Area, further supporting the use of the area during the period.

There is also potential for the presence of historic Euro-Canadian archaeological resources based on the presence of numerous historical transportation routes within, or adjacent to the Existing Conditions Study Area, a Euro-Canadian archaeological site (Cdlc-8) within 80 m of the Existing Conditions Study Area, and the proximity of the early settlement of Sault Ste. Marie and Hudson's Bay trading post. The largely agricultural and rural land has been occupied since the mid-nineteenth century.

As such, a Stage 2 Archaeological Assessment was recommended by WSP for the preferred route and station option prior to construction.

The Stage 1 Archaeological Assessment report can be found in **Appendix C-3**. Additional archaeological studies, as required, will be completed prior to construction.



**LEGEND**

- ROUTE OPTION A
- ROUTE OPTION B
- ROUTE OPTION C
- ROUTE OPTION D
- 230 kV COMMON ELEMENT ROUTE
- 115 kV COMMON ELEMENT ROUTE
- NEW PUC STATION OPTION
- ALGOMA STEEL INC. (ASI) ELECTRIC ARC FURNACE (EAF) STATION
- HYDRO ONE THIRD LINE TRANSFORMER STATION (TS)

**RECOMMENDATIONS**

- STAGE 2 TEST PIT SURVEY AT 5 M REQUIRED
- STAGE 2 TEST PIT SURVEY AT 10 M REQUIRED
- STAGE 2 PEDESTRIAN SURVEY REQUIRED
- LOW ARCHAEOLOGICAL POTENTIAL, NO FURTHER ASSESSMENT REQUIRED
- DISTURBED, NO FURTHER ASSESSMENT REQUIRED
- PREVIOUSLY ASSESSED, NO FURTHER WORK REQUIRED

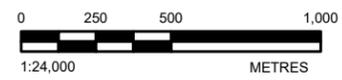
**NOTE(S)**

1. ALL LOCATIONS ARE APPROXIMATE

**REFERENCE(S)**

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD, UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2022  
 2. SERVICE LAYER CREDITS:  
 3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 16, VERTICAL DATUM: CGVD28

**DRAFT**



CLIENT  
PUC TRANSMISSION LP

PROJECT  
STAGE 1 ARCHAEOLOGICAL ASSESSMENT 230 KV TRANSMISSION PROJECT CLASS ENVIRONMENTAL ASSESSMENT

TITLE  
**RECOMMENDATIONS**

CONSULTANT	YYYY-MM-DD	2022-07-26
DESIGNED	---	---
PREPARED	BR	---
REVIEWED	---	---
APPROVED	---	---

PROJECT No. 221-01502-00 CONTROL 0001 REV. A FIGURE 4-2

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## 4.2 BIOPHYSICAL ENVIRONMENT

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### 4.2.1. PHYSIOGRAPHY

The Existing Conditions Study Area is situated in the Georgian Bay Ecozone of the Ontario Shield Ecozone (i.e., on the Canadian Shield) (Crins, Gray, Wester, & Uhlig, 2009). The Ecozone is predominantly underlain by granite and other hard Precambrian rocks, covering an area of 15,500 square miles (9,934,000 acres).

This Ecozone is typified by humid and cool-temperate weather, with a mean annual temperature ranging from 2.8 °C to 6.2 °C. Mean annual precipitation ranges between 771 mm and 1,134 mm, with the mean summer rainfall between 204 mm and 304 mm (Crins, Gray, Wester, & Uhlig, 2009).

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### 4.2.2. AGRICULTURAL RESOURCES AND SOILS

There are no existing farms or agricultural areas crossed by the Existing Conditions Study Area and the proposed work is not expected to interfere with any surrounding farming or agricultural activities (City of Sault Ste. Marie, 2022).

Canada Land Inventory (CLI) mapping illustrates soil capability for agriculture, categorized by soil classes according to the Soil Capability Classification of Agriculture (Agriculture and Agri-Food Canada [AAFC], 2022). 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. According to the CLI mapping, most of the soils in the Existing Conditions Study Area are shallow. They have developed on stony, sandy tills and contain volcanic and intrusive rocks. These soils are generally less than two feet deep and the underlying bedrock is often exposed. Surficial geology in the Existing Conditions Study Area is classified as primarily sandy and clay loam soils underlain by Precambrian bedrock.

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### 4.2.3. FORESTRY RESOURCES

Based on a review of the MNR Land Information Ontario (LIO) datasets, the Existing Conditions Study Area is within the Algoma Forest Management Unit and the Sault Ste. Marie Forest Resources Inventory (FRI) area, though there is no active extraction of forest resources within the study area.

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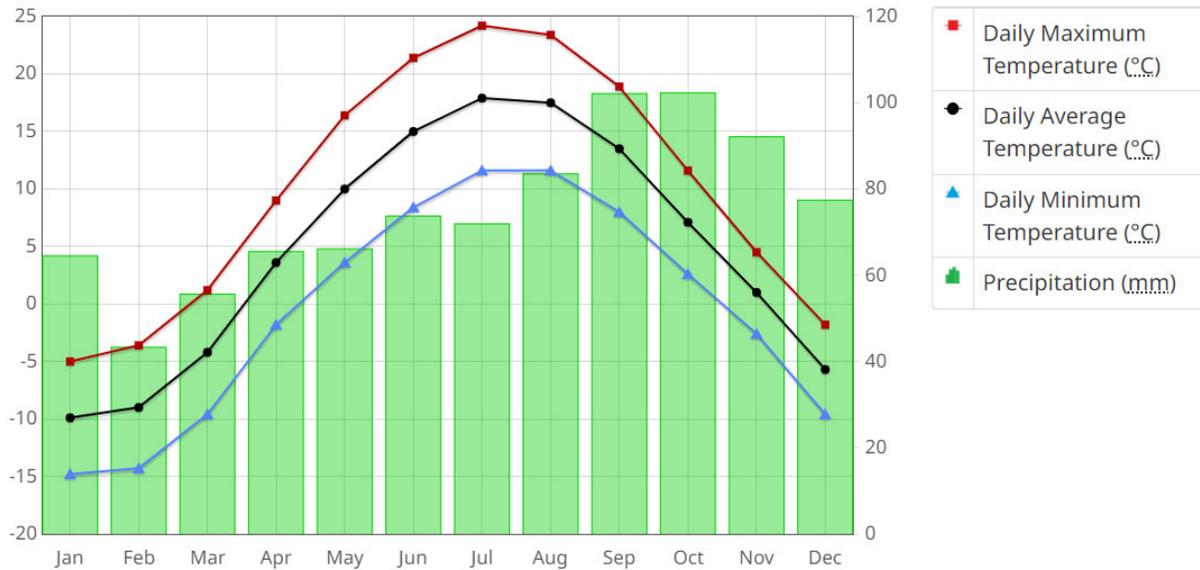
### 4.2.4. MINERAL RESOURCES

There are no mining claims or leases, aggregate resources, or petroleum wells located within the Existing Conditions Study Area. Likewise, there are no mining-related property owners or other natural resources within the Existing Conditions Study Area; thus, the proposed work is not expected to interfere with mining exploration activities.

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### 4.2.5. ATMOSPHERIC ENVIRONMENT

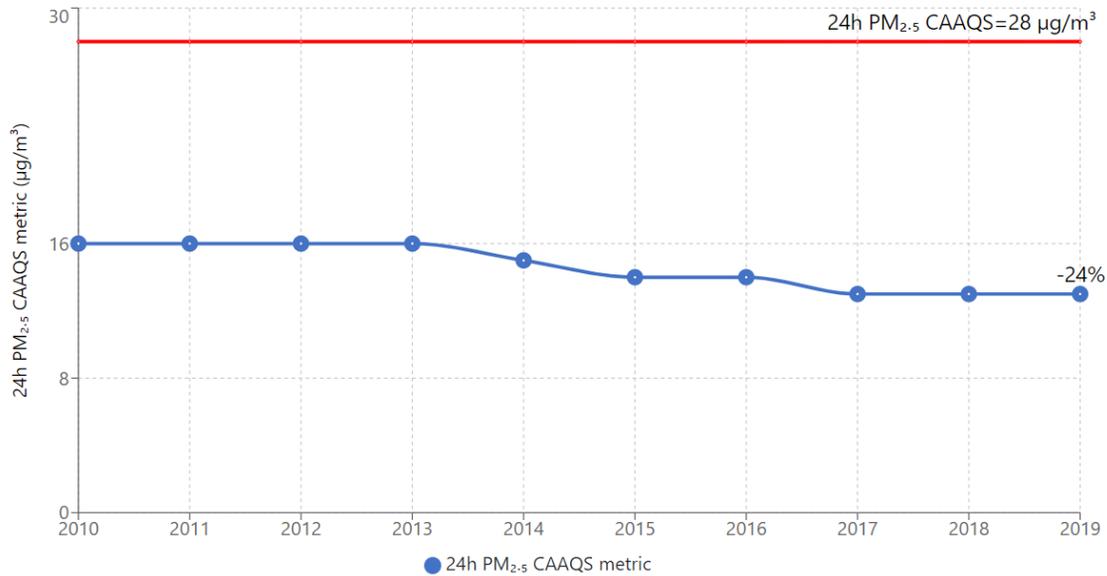
The closest meteorological station to the Existing Conditions Study Area for which climate normal data are available is called Sault Ste. Marie A (Meteorological Station ID: CA006057592), located approximately 9 km southwest of the Existing Conditions Study Area. Climate normals and averages are used to describe the average climatic conditions of a particular location. The most recent climate normal data available are from 1981-2010 and are presented in **Figure 4-3**, below.



**Figure 4-3 Temperature and Precipitation Graph for 1981 to 2010 Canadian Climate Normals (Environment and Climate Change Canada 2022)**

There were 39 Air Quality Health Index monitoring stations across Ontario that in operation during 2019, one of which is the Sault Ste. Marie station located at Sault College. In 2019, MECP reporting indicated that air quality in Ontario has improved significantly over the past decade due to substantial decreases in harmful pollutants such as nitrogen dioxide and sulphur dioxide emitted by vehicles and industry. In addition, there has also been a significant decrease in fine particulate matter, which is emitted directly into the atmosphere as a by-product of fuel combustion or formed indirectly in the atmosphere through a series of complex chemical reactions (MECP 2019).

The provincial Ambient Air Quality Criteria (AAQC) for nitrogen dioxide, sulphur dioxide and carbon monoxide were not exceeded at any of Ontario's Air Quality Health Index ambient monitoring stations in the most recent year for which data that have gone through quality assurance/quality control were available (2019). As in previous years, ozone and fine particulate matter, the main components of smog, remain a concern as some areas of Ontario continued to exceed the provincial AAQCs (MECP 2019). Five of Ontario's designated reporting sites exceeded the 24-hour AAQC for fine particulate matter during 2017 (MECP 2019); however, none of these five sites is located close to the Project. The line graph below (**Figure 4-4**) shows the trend of the 24-hour fine particulate matter Canadian Ambient Air Quality Standard metrics from 2010 to 2019 in Sault Ste. Marie. This trend shows the City's decrease of 24% over this 10-year period.



**Figure 4-4 10-year trend of 24-hour PM<sub>2.5</sub> CAAQS metrics in Sault Ste. Marie (MECP 2019)**

#### 4.2.6. ACOUSTIC ENVIRONMENT

The Existing Conditions Study Area is located within the municipal boundaries of the city of Sault Ste. Marie. Ambient sound levels along the route and station options are characteristic of a residential and open space areas influenced with sounds of human activities, which include vehicles and equipment, in addition to private residences. The northern portions of the Existing Conditions Study Area are more rural and less influenced with sounds of human activities. The southern portions are more likely to be influenced by industrial activities and transportation, including rail.

There is no known road or development related construction work being completed within the Existing Conditions Study Area.

Based on desktop studies and field observations, there are several potentially sensitive receptors located within the Existing Conditions Study Area including residences, schools, and places of worship (Bethany Baptist Church, Christ Church, and New Apostolic Church). There are no hospitals, healthcare facilities or emergency services located in the study areas.

#### 4.2.7. GROUNDWATER

##### 4.2.7.1 GROUNDWATER WELLS

The MECP Water Well Information System (MECP, 2021) was searched for water well records (WWR) located within the Existing Conditions Study Area around each route and station option. A map showing the water well locations are shown in **Figure 4-5**.

There are 335 WWR within the Existing Conditions Study Area. Of these, 264 are listed as wells used as a water supply (domestic use or livestock), and 51 are listed as abandoned wells or monitoring/test wells that are unlikely to be used to supply water. Nine (9) of the WWR have no status or use listed. Ninety-seven (97) of the WWR report reaching bedrock at depths of 8.8 m to 128.6 m and the reported depths of all wells also range from 1.2 m to 135.9 m with an average depth of 41.6 m. Reported static groundwater levels range from 0.3 m to 45.7 m and average 10.5 m depth. There are no WWR crossed by any of the station options.

There is one active permit to take water (PTTW) and no active water takings registered in the Environmental Activity and Sector Registry (EASR) identified within the Existing Conditions Study Area based on online mapping provided by MECP (Land Information Ontario 2021).

#### **4.2.7.2 SOURCE WATER PROTECTION**

Source protection plans contain policies that either recommend or require that actions be taken to address activities identified as threats to drinking water. The four route options are located within the Sault Ste. Marie Source Water Protection Area, within the Sault Ste. Marie Source Protection Region.

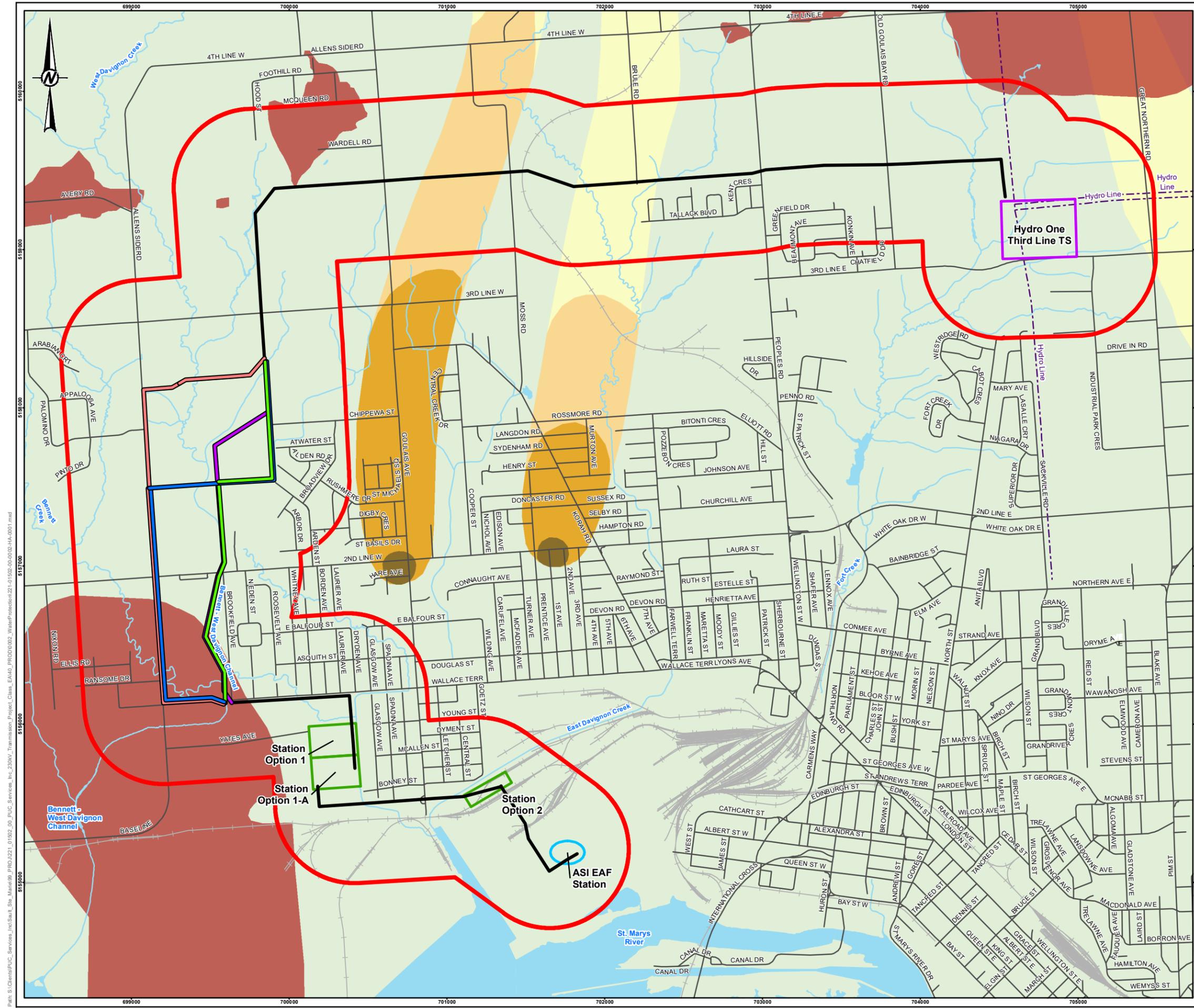
Source water protection mapping indicates that the study areas for the route and station options do not cross any Wellhead Protection Areas (WHPA). The closest WHPA to the Existing Conditions Study Area is the Sault Ste. Marie Water Supply System WHPA, which is located at least 1 km away from the east boundary of the Existing Conditions Study Area (Land Information Ontario 2021).

Significant groundwater recharge areas are areas where a relatively large percentage of water at ground surface infiltrates and recharges the aquifer. These areas are considered regionally important for groundwater recharge. Source water protection mapping indicates that no significant groundwater recharge area overlaps with the route and station options (Land Information Ontario 2021).

A highly vulnerable aquifer is an aquifer that has been assessed to be susceptible to contamination from ground surface due to the properties (thickness and permeability) of the soil and/or bedrock between the water table and the ground surface. The four routes cross a highly vulnerable aquifer area at the southern end of the routes starting at Second Line West and south to Wallace Terrace. No highly vulnerable aquifer area is encountered by the station options.

The location of vulnerable areas in the vicinity of the Project is shown in the source water protection mapping provided in **Figure 4-6** (Land Information Ontario 2021).





- LEGEND**
- ROUTE OPTION A
  - ROUTE OPTION B
  - ROUTE OPTION C
  - ROUTE OPTION D
  - COMMON ELEMENTS TO ALL OPTIONS
  - NEW PUC STATION OPTION
  - ALGOMA STEEL INC. (ASI) ELECTRIC ARC FURANCE (EAF) STATION
  - HYDRO ONE THIRD LINE TRANSFORMER STATION (TS)
  - STUDY AREA
  - ROADWAY
  - RAILROAD
  - UTILITY LINE
  - WATERCOURSE
  - WATERBODY
  - HIGHLY VULNERABLE AQUIFER
  - SOURCE WATER PROTECTION AREA (CITY-WIDE)
- WELLHEAD PROTECTION AREA**
- WHPA-A (100 m BUFFER)
  - WHPA-B (2 YEAR OF TRAVEL)
  - WHPA-C (5 YEAR OF TRAVEL)
  - WHPA-D (25 YEAR OF TRAVEL)

**NOTE(S)**  
 1. ALL LOCATIONS ARE APPROXIMATE

**REFERENCE(S)**  
 1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2022  
 2. SOURCE WATER PROTECTION FEATURE DATA FROM SAULT STE. MARIE REGION CONSERVATION AUTHORITY  
 3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 16, VERTICAL DATUM: NAD83

**DRAFT**



CLIENT  
**PUC TRANSMISSION LP**

PROJECT  
**PUC 230 KV TRANSMISSION CLASS EA SAULT STE MARIE, ONTARIO**

TITLE  
**SOURCE WATER PROTECTION FEATURES**

CONSULTANT	YYYY-MM-DD	2022-07-26
DESIGNED	---	---
PREPARED	DB	---
REVIEWED	---	---
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## 4.2.8. DESIGNATED OR SPECIAL NATURAL AREAS

### 4.2.8.1 AREAS OF NATURAL AND SCIENTIFIC INTEREST

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 (OMMAH, 2020). ANSIs can be ranked as provincially or regionally significant.

The Natural Heritage Information Centre (NHIC) (MNR, 2021) mapping was searched for the presence of ANSIs within the Natural Heritage Assessment Study Area<sup>3</sup> and no ANSIs were identified.

### 4.2.8.2 WOODLANDS

The Natural Heritage Assessment Study Area generally overlaps the periphery of the concentrated developed area of the city. Woodlands (coniferous, deciduous, and mixed forest types) are present throughout the Natural Heritage Assessment Study Area but are primarily found in the northern limits of the existing PUC easement proposed to be used as the Common Elements Route (MNR online database and observed in 2021 field investigations). There are two (2) notable large, forested areas along Route Options C and D, including deciduous forests both east of Allen's Side Road and south of Second Line West, and south of Wallace Terrace.

Natural heritage features as defined by the PPS (OMMAH, 2020) include Significant Woodlands in specific Ecoregions of Ontario, including Ecoregions 6E and 7E. The Study Area occurs within Ecoregion 5E, therefore designation as it relates to Significant Woodlands does not apply.

### 4.2.8.3 VALLEY LANDS

No significant Valley Lands were identified in the Natural Heritage Assessment Study Area. Natural heritage features as defined by the PPS (OMMAH, 2020) include Significant Valleylands in specific Ecoregions of Ontario, including Ecoregions 6E and 7E. The Natural Heritage Assessment Study Area occurs within Ecoregion 5E, therefore designation as it relates to Significant Valley Lands does not apply.

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## 4.2.9. VEGETATION AND WETLANDS

Vegetation field investigations were conducted by WSP from May 23 to 28, 2021 and from June 21 to 25, 2021. Of the species recorded, 132 (64%) are native and 52 (25%) are non-native.

The following sections describe the existing conditions of natural environment features within the study area as interpreted from desktop resources and results of field surveys.

The study area generally occurs among the periphery of the concentrated development cluster of the city. The existing ROW easement held by PUC extends from the Third Line TS westerly through a narrow cleared opening of coniferous, deciduous and mixed forest types. Rural and subdivision properties occur within the study area along the local road intersections and subdivisions extending from Peoples Road south of the alignment. This alignment transverses approximately five (5) watercourses of Fort Creek,

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<sup>3</sup> The 'Natural Heritage Study Area' represents a 200 m radius surrounding the outermost limit of all transmission line and transformer station site options, and the greater area of the anticipated connection line to the Algoma Steel Plant. The 200 m radius has been selected with the intention to provide a broad screening area for the Project, particularly to allow for minor refinements to the alignment, and also account for natural heritage features (NHF) occurring adjacent to the alignments.

East Davigon Creek, and West Davigon Creek. Two wetland communities in 5 distinct units occur either on or adjacent (i.e., less than 30 m) to the alignment.

Where the alignment changes direction from east-west to north-south, the natural area begins to include more open habitats, including agricultural fields. Route Options A and B generally occur within Allen's Side Road and Wallace Terrace ROW, which is comprised of rural and small residential clusters and agricultural fields. The northern extent of Route Options B, C and D occur along the perimeter of Mineral Meadow Marsh (Option D traverses through this open section). Route Option C and D then parallels a tributary to the Bennett-West Davignon Creek Flood Control Channel. There are two (2) notable larger forested areas along this alignment, including deciduous forests both east of Allen's Side Road and south of Second Line West, and south of Wallace Terrace. Route Option B and C (and part of D) extends along the perimeter of a Mineral Meadow Marsh, parallels the Bennett-West Davignon Creek Flood Control Channel for the majority of its length, then skirts through a segmented portion of an Aspen - Birch Hardwood. Route Option B separates from C and D and connected with Allen's Side Road through an existing private access road.

#### 4.2.9.1 ECOLOGICAL LAND CLASSIFICATIONS

Vegetation communities were approximated using satellite imagery then field-checked during the investigations to confirm the vegetation type, where possible. In total, 206 plant species were recorded throughout the Natural Heritage Assessment Study Area. Vegetation units have been described using either the Ecological Land Classification (ELC) System for Ecoregion 5E – Great Lakes – St. Lawrence Region (Ecological Land Classification Working Group 2009), or the ELC System for Southern Ontario: First Approximation and Its Application (Lee et al., 1998) where the communities did not correspond to the Ecoregion 5E – Great Lakes – St. Lawrence Region system.

ELC information gathered included vegetation community type, species associations, abundances, and condition or level of disturbance. Natural vegetated area types within the Natural Heritage Assessment Study Area include: Conifer Forest, Hardwood Forest, Shrub, Field, Meadow, Thicket Swamp, and Meadow Marsh. Cultural vegetation types are primarily composed of introduced species or non-native weed species that are often associated with recently disturbed sites (e.g., residential areas, industrial sites, fallow agricultural lands, road, and existing transmission line ROWs). Areas with species that demonstrate anthropogenic influence are generally found within the road and existing transmission line ROWs and in areas that are used recreationally for off-road vehicle usage and pedestrian trails.

**Appendix C-1** provides a detailed summary of the vegetation ELC units identified.

Further information about vegetation species at risk or species of special concern is provided in **Section 4.2.12**.

#### 4.2.9.2 WETLANDS

Wetlands are defined in the PPS (OMMAH, 2020) as lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. There are four major wetland types; which are classified as swamps, marshes, bogs, and fens. A significant wetland is defined as an area identified as provincially significant by the Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time (OMMAH, 2020) significant in Ontario.

Of the 17 vegetation communities identified during the field program, only two were classified as wetlands. These wetland communities were identified in five units through the study area and for the most part, small in size and located within the existing PUC easement in the northern sections of the Common Elements Route, and along very narrow portions of riparian habitat of watercourses.

A review of the NHIC mapping (MNR, 2021) did not reveal any Significant Wetlands or Significant Coastal Wetlands within the study area.

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#### 4.2.10. SURFACE WATER AND AQUATIC HABITAT

The current and potential watercourse crossings along the existing Common Elements Route and route options were assessed and mapped, including specific habitat information. Watercourses were assessed 100 m upstream and downstream of the crossings. WSP ecologists completed aquatic surveys between August 31, 2021, and September 2, 2021.

The Natural Heritage Assessment Study Area encompasses six (6) sub-watersheds, including:

- Lake Superior sub-watershed (Fort Creek);
- East Davignon Creek sub-watershed (East Davignon Creek);
- Big Carp River sub-watershed (Central Creek);
- West Davignon Creek sub-watershed (West Davignon Creek);
- Fort Creek sub-watershed (Bennett Creek); and
- Leigh Bay Creek sub-watershed (southern extent of Bennett Creek).

Portions of the Natural Heritage Assessment Study Area are located directly adjacent to the St. Mary's River, and several smaller tributaries of the St. Mary's flow through the Natural Heritage Assessment Study Area, including Bennett Creek, West Davignon Creek, East Davignon Creek, and Fort Creek. Additionally, numerous unnamed tributaries of these creeks flow within, or directly adjacent to, the Natural Heritage Assessment Study Area. The St. Mary's River connects Lake Huron and Lake Superior, with strong rapids where the river drains into Lake Superior. The Natural Heritage Assessment Study Area is located approximately 14.5 kilometers (km) east of Lake Superior.

Five (5) watercourses occur within the Natural Heritage Assessment Study Area (some with more than one crossing location). The watercourses are cold-water with the exception of Fort Creek which is identified as a cool-water system (MNRF, Ontario GeoHub, Aquatic Resource Areas Line Segment, 2021). They flow southerly and outlet into St. Mary's River. Review of imagery suggests that watercourses occurring within the Natural Heritage Assessment Study Area are of moderate size, with approximate wetted widths ranging between approximately 1 m and 15 m, and wetted widths of headwater reaches indistinguishable through tree canopy (Google Earth, 2017). These ranges were field verified and are provided in detail in the following sections. The watercourses are identified as permanent, with only a single tributary to Fort Creek located north of the Third Line Transformer Station, identified as intermittent (MNRF, 2021)

Alterations to watercourses have taken place throughout the city as either historical alteration to facilitate industry, or as an effort to manage flood control. Three documented flood control channels occur downstream of the Natural Heritage Assessment Study Area, including that of Fort Creek, East Davignon Creek and Central Creek, and one flood diversion channel crosses through the Natural Heritage Assessment Study Area: Bennet-West Davignon Creek. These channels are regularly maintained through grass cutting and vegetation management to maintain flow (SSMRCA, 2021). The linear nature of other watercourse reaches that occur around fields, through subdivisions, or paralleling roadways, suggests additional realignment or flood management measures have taken place; however, were not specifically identified during background review.

Fort Creek has undergone many alterations, from the dam construction just north of Second Line between 1968 and 1970, to its flood control realignment north of Wellington Street, and underground aqueduct diversion through to Queen Street West (Tulloch Engineering, 2016). An EA was completed in 2016 to document a preferred option to address the deteriorating aqueduct; therefore, is anticipated it will undergo further modification.

##### 4.2.10.1 FORT CREEK (EXISTING PUC EASEMENT, COMMON ELEMENT ROUTE)

Fort Creek is a cool-water, permanent, small-sized meandering watercourse that originates as headwater drainage and seepage at the southwest corner of Great Northern Road and Fourth Line East. The

watercourse flows southwest for approximately 1 km through wetland and woodland before entering the north limit of the Natural Heritage Assessment Study Area. The creek initiates as several branches before converging at Third Line East. There are two branches within the Natural Heritage Assessment Study Area.

The aquatic habitat of the eastern most branch consists of a mix of runs (90%) and pools (10%). Run sections have a mean wetted depth of 0.06 m, a mean wetted width of 0.4 m, a mean bankfull depth of 0.5 m and a mean bankfull width of 5.2 m. Substrate consists of clay (65%), silt (25%) and sand (10%). Pool sections have a mean wetted depth of 0.2 m, a mean wetted width of 1.3 m, a mean bankfull depth of 0.4 m and a mean bankfull width of 6.0 m. Substrate consists of clay (90%) and silt (10%). The banks are natural and have a steep/vertical slope with minor erosion. The height of the left upstream bank is 0.8 m, and the right upstream bank is 0.5 m. Flow levels were low and the gradient was low. The instream cover consists of sparse undercut banks, moderate overhanging vegetation, moderate instream vegetation and sparse woody / organic debris. Riparian vegetation consists of grasses, sedges, and cattail species (*Typha* sp.). Instream vegetation consisted of watercress and cattail species (*Typha* sp.). There was no forest cover. Groundwater indicators included the presence of watercress, iron staining and seepage. Schools of minnow were visually observed.

The aquatic habitat of the western branches consists of a mix of runs (50%), pools (40%) and flats (10%). Run sections have a mean wetted depth of 0.2 m, a mean wetted width of 1.6 m, a mean bankfull depth of 0.7 m and a mean bankfull width of 3.9 m. Substrate consists of sand (70%), gravel (25%) and silt (5%). Pool sections have a mean wetted depth of 0.4 m, a mean wetted width of 2.7 m, a mean bankfull depth of 1.0 m and a mean bankfull width of 3.9 m. Substrate consists of sand (70%), silt (27%) and clay (3%). Flat sections have a mean wetted depth of 0.2 m, a mean wetted width of 1.4 m, a mean bankfull depth of 0.7 m and a mean bankfull width of 3.4 m. Substrate consists of sand (60%) and silt (40%). The banks are natural and have a steep slope with moderate erosion. The height of the left upstream bank is 1.3 m, and the right upstream bank is 1.6 m. Flow levels were low and the gradient was low. The instream cover consists of moderate undercut banks, moderate overhanging vegetation, sparse instream vegetation and moderate woody / organic debris. Riparian vegetation consists of grasses, riparian trees, and cattail species (*Typha* sp.). Instream vegetation consisted of watercress and cattail species (*Typha* sp.). There was no forest cover. Groundwater indicators included the presence of watercress and seepage. Schools of minnows and lamprey were observed.

#### **4.2.10.2 EAST DAVIGNON CREEK (EXISTING PUC EASEMENT, COMMON ELEMENT ROUTE, STATION OPTION 2)**

East Davignon Creek is a cold-water, permanent, small-sized meandering watercourse that originates as headwater drainage and seepage approximately 6 km northwest of the Natural Heritage Assessment Study Area. The watercourse flows southeast through wetland and woodland before entering the north limit of the Natural Heritage Assessment Study Area. Within the Natural Heritage Assessment Study Area, the creek has two branches that crosses the existing PUC easement.

The aquatic habitat of the eastern branch consists of a mix of runs (80%), pools (10%) and flats (10%). Run sections have a mean wetted depth of 0.2 m, a mean wetted width of 0.7 m, a mean bankfull depth of 0.4 m and a mean bankfull width of 8.0 m. Substrate consists of silt (48%), clay (37%) and sand (15%). Pool sections have a mean wetted depth of 0.3 m, a mean wetted width of 0.9 m, a mean bankfull depth of 0.6 m and a mean bankfull width of 3.0 m. Substrate consists of clay (90%) and silt (10%). Flat sections have a mean wetted depth of 0.05 m, a mean wetted width of 2.5 m, a mean bankfull depth of 0.3 m and a mean bankfull width of 11.0 m. Substrate consists of silt (90%) and sand (10%). The banks are natural and have a gradual slope with moderate erosion. The height of the left upstream bank is 0.6 m, and the right upstream bank is 1.0 m. Flow levels were low and the gradient was moderate, with one section with a steep gradient. The instream cover consists of sparse undercut banks, moderate overhanging vegetation and moderate instream vegetation. Riparian vegetation consists of grasses, sedges, and cattail species (*Typha* sp.). Instream vegetation consisted of watercress and cattail species (*Typha* sp.). There was no forest cover. Groundwater indicators included the presence of watercress, iron staining and seepage. No fish were visually observed. Drops in the channel caused by erosion (~ 0.3 m), as well as a section with a steep gradient may be barriers to fish migration.

The aquatic habitat of the western branch consists of a mix of runs (80%) and pools (20%). Run sections have a mean wetted depth of 0.02 m, a mean wetted width of 0.3 m, a mean bankfull depth of 0.3 m and a mean bankfull width of 3.0 m. Substrate consists of sand (88%), silt (8%) and clay (4%). Pool sections have a mean wetted depth of 0.2 m, a mean wetted width of 0.8 m, a mean bankfull depth of 0.8 m and a mean bankfull width of 2.8 m. Substrate consists of sand (70%), clay (25%) and silt (5%). The banks are natural and have a gradual slope with moderate erosion. The height of the left upstream bank is 8.0 m, and the right upstream bank is 8.8 m. Flow levels were low and the gradient was steep. The instream cover consists of sparse undercut banks, moderate overhanging vegetation and moderate instream vegetation. Riparian vegetation consists of grasses, ferns, and cattail species (*Typha* sp.). Instream vegetation consisted of cattail species (*Typha* sp.). Forest cover is 60%. Groundwater indicators included the presence of iron staining and seepage. No fish were visually observed. Drops in the channel caused by erosion (0.5 m to 1.5 m), as well as the steep gradient may be barriers to fish migration. However, there is confirmed fish in a lake upstream of the Natural Heritage Assessment Study Area.

#### **4.2.10.3 WEST DAVIGNON CREEK (EXISTING PUC EASEMENT, COMMON ELEMENT & OPTION ROUTES A, B & STATION OPTION 1/1-A)**

West Davignon Creek is a cold-water, permanent, medium-sized meandering watercourse that originates as a series of lakes and headwater drainage approximately 4 km northwest of the Natural Heritage Assessment Study Area. The watercourse flows southeast through wetland and woodland before entering the north limit of the Natural Heritage Assessment Study Area. At the north end of the Natural Heritage Assessment Study Area, the creek has three sections of branches that crosses the existing PUC easement, Route Options A & B. Northwest of Allen's Side Road and Second Line West, the watercourse crosses the Flood Control Channel and then continues flowing southeast alongside Station 1/1-A.

The aquatic habitat of the northeastern branch consists of runs (100%). Run sections have a mean wetted depth of 0.3 m, a mean wetted width of 1.1 m, a mean bankfull depth of 0.6 m and a mean bankfull width of 1.9 m. Substrate consists of sand (50%), gravel (30%) and cobble (20%). The banks are natural and have a gradual slope with minor erosion. The height of the left upstream bank is 1.5 m, and the right upstream bank is 1.9 m. Flow levels were low and the gradient was low. The instream cover consists of moderate overhanging vegetation and sparse woody / organic debris. Riparian vegetation consists of grasses and sedges. There was no instream vegetation. There was no forest cover. There was no evidence of groundwater contributions. Schools of minnows were observed. There were no notable barriers to fish migration.

The aquatic habitat of the central branches consists of a mix of runs (40%), riffles (40%) and pools (20%). Run sections have a mean wetted depth of 0.07 m, a mean wetted width of 1.5 m, a mean bankfull depth of 0.6 m and a mean bankfull width of 6.0 m. Substrate consists of cobble (90%), gravel (5%) and sand (5%). Riffle sections have a mean wetted depth of 0.06 m, a mean wetted width of 3.4 m, a mean bankfull depth of 1.0 m and a mean bankfull width of 7.6 m. Substrate consists of cobble (85%), gravel (10%) and sand (5%). Pool sections have a mean wetted depth of 0.4 m, a mean wetted width of 2.4 m, a mean bankfull depth of 1.0 m and a mean bankfull width of 6.0 m. Substrate consists of sand (70%), gravel (20%) and cobble (10%). The banks are natural and have a steep slope with moderate erosion. The height of the left upstream bank is 1.6 m, and the right upstream bank is 1.3 m. Flow levels were moderate and the gradient was low. The instream cover consists of sparse undercut banks, moderate overhanging vegetation and moderate woody / organic debris. Riparian vegetation consists of grasses. There was no instream vegetation. Forest cover is 50%. There was no evidence of groundwater contributions. Schools of minnows were observed. There were no notable barriers to fish migration.

The aquatic habitat of the northwestern branches consists of undefined flow (100%) traversing agricultural fields. Flow levels were low, and the gradient was low. The instream cover consists of moderate overhanging vegetation and dense instream vegetation. Riparian vegetation consists of grasses and cattail species (*Typha* sp.). The instream vegetation consists primarily of dense cattail species. There was no forest cover. Groundwater indicators included iron staining and seepage. No fish were observed. Seasonal barriers to fish migration included low flow for much of the year.

The aquatic habitat of the Flood Control Channel consists of runs (40%), flats (40%), riffles (20%). Run sections have a mean wetted depth of 0.1 m, a mean wetted width of 2.9 m, a mean bankfull depth of 0.8 m and a mean bankfull width of 5.8 m. Substrate consists of cobble (60%) and sand (40%). Flat sections have a mean wetted depth of 0.2 m, a mean wetted width of 3.5 m, a mean bankfull depth of 1.0 m and a mean bankfull width of 5.7 m. Substrate consists of sand (80%), cobble (15%) and gravel (5%). Riffle sections have a mean wetted depth of 0.1 m, a mean wetted width of 3.0 m, a mean bankfull depth of 0.7 m and a mean bankfull width of 5.2 m. Substrate consists of boulder (50%), cobble (30%), gravel (10%) and sand (10%). The banks are manufactured and have a steep slope with no erosion due to stabilization. The height of the left upstream bank is 1.3 m, and the right upstream bank is 1.7 m. Flow levels were moderate and the gradient was low. The instream cover consists of sparse instream vegetation, sparse woody / organic debris, and sparse rocks / boulders. Riparian vegetation consists of grasses and cut lawn. There was no instream vegetation. There was no forest cover. There was no evidence of groundwater contributions. Schools of minnows were observed. 200 m north of Second Line West, there is a weir with a 1.2 m drop potentially causing a permanent fish barrier.

The aquatic habitat of the West Davignon Creek flowing next to Site 4 consists of a mix of flats (90%) and pools (10%). Flat sections have a mean wetted depth of 0.2 m, a mean wetted width of 4.6 m, a mean bankfull depth of 0.8 m and a mean bankfull width of 6.6 m. Substrate consists of sand (90%) and silt (10%). Pool sections have a mean wetted depth of 0.3 m, a mean wetted width of 5.7 m, a mean bankfull depth of 0.7 m and a mean bankfull width of 7.2 m. Substrate consists of sand (70%) and silt (30%). The banks are straightened and have a steep slope with minor erosion. The height of the left upstream bank is 1.8 m, and the right upstream bank is 2.0 m. Flow levels were moderate and the gradient was low. The instream cover consists of sparse undercut banks and moderate woody / organic debris. Riparian vegetation consists of grasses. There was no instream vegetation. Forest cover is 80%. There was no evidence of groundwater contributions. Schools of minnows were observed. There were no notable barriers to fish migration.

#### **4.2.10.4 BENNETT CREEK (EXISTING PUC EASEMENT, COMMON ELEMENT & OPTION ROUTES A, B & STATION OPTION 1/1-A)**

Bennett Creek is the most westerly watercourse in the Natural Heritage Assessment Study Area and is a permanent, medium-sized meandering watercourse that originates as a series of lakes and headwater drainage approximately 7 km northwest of the Natural Heritage Assessment Study Area. The watercourse flows southeast through wetland and woodland before entering the north limit of the Natural Heritage Assessment Study Area. Just upstream of the Natural Heritage Assessment Study Area, the creek has two branches that converge at Second Line West, which then crosses Route Option A and B in two locations.

The aquatic habitat of the eastern branch consists of runs (90%) and pools (10%). Run sections have a mean wetted depth of 0.05 m, a mean wetted width of 1.1 m, a mean bankfull depth of 0.4 m and a mean bankfull width of 2.3 m. Substrate consists of sand (80%), gravel (10%) and cobble (10%). Pool sections have a mean wetted depth of 0.5 m, a mean wetted width of 1.5 m, a mean bankfull depth of 0.4 m and a mean bankfull width of 2.3 m. Substrate consists of sand (80%), gravel (10%) and cobble (10%). The banks are straightened and have a steep slope with no erosion. The height of the left upstream bank is 0.8 m, and the right upstream bank is 0.9 m. Flow levels were low and the gradient was low. The instream cover consists of moderate overhanging vegetation and dense instream vegetation. Riparian vegetation consists of grasses and cattail species. There was no forest cover. Groundwater indicators included the presence of watercress. Schools of minnows were observed. There were no notable barriers to fish migration.

The aquatic habitat of the western branch consists of flats (60%), run (20%), riffles (10%) and pools (10%). Flat sections have a mean wetted depth of 0.3 m, a mean wetted width of 3.8 m, a mean bankfull depth of 0.7 m and a mean bankfull width of 6.3 m. Substrate consists of sand (40%), gravel (40%), silt (15%) and boulder (5%). Run sections have a mean wetted depth of 0.1 m, a mean wetted width of 2.0 m, a mean bankfull depth of 0.8 m and a mean bankfull width of 5.8 m. Substrate consists of clay (70%), gravel (20%) and sand (10%). Riffle sections have a mean wetted depth of 0.2 m, a mean wetted width of 1.8 m, a mean bankfull depth of 0.9 m and a mean bankfull width of 5.8 m. Substrate consists of gravel

(30%), sand (20%), cobble (20%), clay (20%) and boulder (10%). Pool sections have a mean wetted depth of 0.4 m, a mean wetted width of 3.9 m, a mean bankfull depth of 1.1 m and a mean bankfull width of 9.3 m. Substrate consists of clay (60%) and sand (40%). The banks are natural and have a steep slope with high erosion. The height of the left upstream bank is 2.9 m, and the right upstream bank is 1.8 m. Flow levels were moderate and the gradient was low. The instream cover consists of moderate undercut banks, moderate woody / organic debris, and sparse rocks / boulders. Riparian vegetation consists of grasses. There was 70% forest cover. There was no evidence of groundwater contributions. Schools of minnows and a lamprey were observed. There were no notable barriers to fish migration.

The MNRF manages Aquatic Resource Areas (ARA) spatial data (MNRF, Ontario GeoHub, Aquatic Resource Areas Line Segment, 2021), which is regularly updated with fish collection record data. This resource revealed records from 2017 for the various watercourses throughout the city. This information has been summarized in the table below.

Fish community sampling was completed by WSP Ecologists between August 31, 2021, and September 2, 2021, using a backpack electrofisher, dip netting and minnow traps. Prior to sampling, a Licence to Collect Fish for Scientific Purposes was obtained on August 10, 2021. The fish collection data has been included in Table 4-6.

**Table 4-6 Aquatic Resource Areas Fish Survey Records for the Natural Heritage Assessment Study Area**

Common Name	Scientific Name	WATERCOURSES (CREEKS)				FLOOD DIVERSION CHANNELS			
		Fort	East Davignon	West Davignon	Bennett	Fort	East Davignon	Central	Bennet-West Davignon
American Brook Lamprey	<i>Lampetra appendix</i>	x,o							
Bluntnose Minnow	<i>Pimephales notatus</i>								
Blacknose Dace	<i>Rhinichthys atratulus</i>	x,o			x,o				x,o
Blacknose Shiner	<i>Notropis heterolepis</i>								
Brassy Minnow	<i>Hybognathus hankinsoni</i>								
Brook (Speckled) Trout	<i>Salvelinus fontinalis</i>			x,o					x,o
Brook Stickleback	<i>Culaea inconstans</i>	x,o		x,o	x,o				

Brown Trout	<i>Salmo trutta</i>								
Central Mudminnow	<i>Umbra limi</i>								x,o
Coho Salmon	<i>Oncorhynchus kisutch</i>								
Common Shiner	<i>Luxilus cornutus</i>								
Creek Chub	<i>Semotilus atromaculatus</i>	x,o		x,o	x,o				x,o
Fathead Minnow	<i>Pimephales promelas</i>								
Johnny Darter	<i>Etheostoma nigrum</i>								x,o
Longnose Dace	<i>Rhinichthys cataractae</i>								
Mottled Sculpin	<i>Cottus bairdii</i>								
Rainbow Trout (steelhead)	<i>Oncorhynchus mykiss</i>								
White Sucker	<i>Catostomus commersonii</i>								

x : ARA fish records

o : WSP fish records

Large predatory salmonid species, including Brook Trout, Brown Trout, Rainbow Trout and Coho Salmon are dependent on cold-water habitats and are generally sensitive to anthropogenic stressors, whereas species like Bluntnose Minnow and White Sucker are more tolerant to stressors (Eakins, 2022). It is anticipated that many of the headwater reaches have potential to function as nursery habitat for these species and more common generalists.

#### 4.2.11. WILDLIFE AND SIGNIFICANT HABITAT

Incidental wildlife observations were recorded during all field visits (May, June and August 2021). Species observed should provide a good representation of the area as the existing PUC ROW and all options were walked twice and observed during different times of the day (dawn, afternoon, night). The observations made during the field surveys were recorded, including sightings of species, as well as evidence of use (e.g., browse, carcasses, tracks / trails, scat, burrows, and vocalizations).

A total of 93 wildlife species were observed from the PUC easement or roadside visits, 74% of which are birds. The majority of species observed are common and expected species. The PUC easement and partial segment of Route Option A (within the existing PUC easement) recorded the most species with 82 individuals. It is expected that the PUC easement would have the most species observed as it is the

longest area and covers large areas of natural features. A portion of Route Options A, B and C overlap the existing PUC easement and thus have many of the same species and habitat.

#### 4.2.11.1 BREEDING BIRD SURVEYS

Breeding bird surveys (2 visits) were completed to target grassland habitat areas based on desktop screening. Grassland habitat areas are specifically associated with two SAR birds: Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*). Since the intent of these breeding bird surveys were to capture the potential presence and habitats for these two SAR, the methodology generally followed the Ministry of Natural Resources' proposed Bobolink survey methodology under the Endangered Species Act, 2007. Refer to Section 4.2.12.3 for targeted Eastern Whip-Poor-will SAR bird surveys.

A total of 63 birds were recorded within the PUC easement (Common Elements Route), 36 within Route Option A / B (along Allen's Side Road), 17 within Route Options A/B and C, 26 within Route Options A/B/C & D, and 41 within Route Options A / B and part of the Common Elements Route along Wallace Terrace. The majority of species observed are common and expected species. Diverse and variable wildlife habitat is present including forests, edge, urban dwellings, open country, and meadow habitats. Bird call stations were only done at areas where background data indicated possible grassland habitat.

Nine (9) avifauna SCC (including SAR) were recorded during the breeding bird surveys:

- **Species at Risk.** Three SAR were recorded:
  - Barn Swallow (*Threatened* in Ontario and Canada) – individuals observed foraging within the existing PUC easement. No nesting habitat is present.
  - Bobolink (*Threatened* in Ontario and Canada) – eleven (11) individuals observed with either possible or probable breeding evidence within meadow habitat along all options.
  - Chimney Swift (*Chaetura pelagica*; *Threatened* in Ontario and Canada) – one (1) individual observed foraging within the existing PUC easement (Common Elements Route, northern segment).
- **Area Sensitive** (MNR, 2015): Six (6) of the recorded species is considered “Area Sensitive” according to the Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (MNR 2015), though no *Significant Wildlife Habitat* is present for this criterion:
  - Barred Owl (*Strix varia*) – one (1) individual heard near Station 18 during evening Eastern Whip-poor-will along the existing PUC easement;
  - Broad-winged Hawk (*Buteo platypterus*) – two (2) individuals observed as fly-bys within the existing PUC easement;
  - Merlin (*Falco columbarius*) – two (2) individuals calling within the existing PUC easement and along Wallace Terrace;
  - Northern Harrier (*Circus cyaneus*) – two (2) individuals observed foraging meadows within the existing PUC easement and along Allen's Side Road;
  - Red-tailed Hawk (*Buteo jamaicensis*) – one (1) individual observed as a fly-by within the existing PUC easement; and
  - Savannah Sparrow (*Passerculus sandwichensis*) – multiple individuals recorded singing within the existing PUC easement and all options.

#### 4.2.11.2 HERPETOFAUNA

A total of four (4) common anuran species, American Toad (*Anaxyrus americanus*), Gray Tree Frog (*Hyla versicolor*), Green Frog (*Lithobates clamitans*), and Spring Peeper (*Pseudacris crucifer*) and one (1) reptile species, Eastern Gartersnake (*Thamnophis sirtalis sirtalis*) were observed as incidentals during the 2021 field surveys.

Although not recorded during the 2021 field surveys, the general area likely also supports the following additional common amphibian and reptile species (Ontario Nature, 2019): Blanding's Turtle (*Emydoidea blandingii*), Blue-spotted Salamander (*Ambystoma laterale*), Midland Painted Turtle (*Chrysemys picta marginata*), Northern Leopard Frog (*Lithobates pipiens*) and Snapping Turtle (*Chelydra serpentina*).

#### 4.2.11.3 INSECTS

A total of nine (9) insect species were observed as incidentals during the 2021 field surveys. Observations include Cabbage White (*Pieris rapae*), Canadian Tiger Swallowtail (*Papilio canadensis*), Common Whitetail (*Plathemis lydia*), Eastern Pondhawk (*Erythemis simplicicollis*), Four-spotted Skimmer (*Libellula quadrimaculata*), Harris's Checkerspot (*Chlosyne harrisii*), Monarch (*Danaus plexippus*), Mourning Cloak (*Nymphalis antiopa*) and Red-spotted Purple (*Limenitis arthemis astyanax*).

One SAR, Monarch *Special Concern* in Ontario and Canada was observed foraging and flying over meadow and ditch habitat within the PUC easement.

No additional provincially or federally designated SAR or provincially rare (S-Rank) insect species were observed within the Project limits during the field surveys.

#### 4.2.11.4 MAMMALS

A total of 10 mammal species were observed as incidentals during the 2021 field surveys through visual observation or through evidence such as tracks, including: Beaver (*Castor canadensis*), Black Bear (*Ursus americanus*), Eastern Chipmunk (*Tamias striatus*), Eastern Cottontail (*Sylvilagus floridanus*), Grey Squirrel (*Sciurus carolinensis*), Porcupine (*Erethizon dorsatum*), Red Squirrel (*Tamiasciurus hudsonicus*), Striped Skunk (*Mephitis mephitis*), White-tailed Deer (*Odocoileus virginianus*) and Woodland Jumping Mouse (*Napaeozapus insignis*).

Although not confirmed during field surveys, the general area supports several other common mammal species which are likely to occur within the Project limits, such as Coyote (*Canis latrans*), Raccoon (*Procyon lotor*), Red Fox (*Vulpes vulpes*), Virginia Opossum (*Didelphis virginiana*) and a number of small mammals that often go undetected (e.g., shrews, moles, voles, mice, bats).

No provincially or federally designated species at risk or provincially rare (S-Rank) mammal species were observed within the Project limits during the field surveys.

#### 4.2.11.5 SIGNIFICANT WILDLIFE HABITAT

Wildlife habitat is defined as areas where plants, animals, and other organisms live and find adequate amounts of food, water, shelter, and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual life cycle; and areas which are important to migratory or non-migratory species (OMMAH, 2020).

Wildlife habitat is referred to as significant if it is ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System (OMMAH, 2020).

Guidelines and criteria for the identification of SWH are detailed in the Significant Wildlife Habitat: Technical Guide (OMNR, 2000), and the Significant Wildlife Habitat Criterion Schedule for Ecoregion 5E (MNRF, Ecoregion 5E Significant Wildlife Habitat Criterion Schedule, 2015). SWH is described under four main categories:

- 1 Seasonal concentrations of animals;
- 2 Rare vegetation communities or specialized habitats for wildlife;
- 3 Wildlife movement corridors; and,
- 4 Habitats of Species of Conservation Concern (SCC).

The MNRF did not reveal SWH within the Natural Heritage Assessment Study Area and available spatial data obtained from Land Information Ontario also did not identify the presence of any SWH.

The presence of potential candidate SWH within the Natural Heritage Assessment Study Area was determined based on the Significant Wildlife Habitat Criteria Schedule for Ecoregion 5E (MNR 2015). These potential candidate SWHs include:

- Bat Maternity Colonies,
- Bald Eagle, and Osprey Nesting, Foraging and Perching Habitat,
- Woodland Raptor Nesting Habitat,
- Turtle and Lizard Nesting Areas,
- Amphibian Breed Habitat (Woodland and Wetland),
- Open Country Bird Breeding Habitat, and
- Special Concern and Rare Wildlife Species.

The NHIC / MNR indicated that the Natural Heritage Assessment Study Area is adjacent to a Colonial Waterbird Nesting Area. Although this is not prescribed as SWH afforded protection under the PPS, it has been included as an area of consideration.

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#### 4.2.12. SPECIES AT RISK AND SPECIES OF SPECIAL CONCERN

The provincial *Endangered Species Act, 2007* (Ontario, 2007) and federal *Species at Risk Act* (SARA; (Canada, 2002) were created to protect Species at Risk (SAR) from being extirpated or becoming extinct. SAR, as defined by the *Endangered Species Act, 2007* includes management of species with the following designations:

- *Extirpated*: occurs in the wild, but no longer in Ontario;
- *Endangered*: occurs in Ontario but is facing imminent extinction or extirpation;
- *Threatened*: occurs in Ontario and is likely to become Endangered if threats are not managed;
- *Species Concern*: occurs in Ontario but may become Threatened or Endangered due to biology and threats.

As it relates to protection of SAR, species designated as Extirpated, Endangered and Threatened receive protection under the *Endangered Species Act, 2007* from killing and harassment, but also receive general habitat protection. Species designated as *Special Concern* are not afforded the same protection; however, do receive protection under the PPS (OMMAH, 2020) as SWH. Both SAR and SWH, as they relate to this Project, are discussed further herein.

The SARA applies primarily to federal lands, such as oceans and waterways, national parks, military training areas and First Nation reserve lands, but in some circumstances, applies also to both crown and private lands.

WSP Ecologists compiled, and reviewed information gathered as part of this study, which included responses from agency consultation and online databases. A comprehensive preliminary list of SAR and rare species were generated from these resources in order to review for their potential to occur within the Natural Heritage Assessment Study Area based on habitat conditions inferred from available imagery and then field verified (**Table 4-7**).

##### 4.2.12.1 VEGETATION SPECIES

During the desktop research and vegetation surveys discussed in Section 4.2.9, observed SAR or provincially / regionally rare vegetation species were also noted.

#### **Butternut**

Butternuts (*Juglans cinerea*) are listed as Endangered and as such, are protected under Ontario's *Endangered Species Act, 2007*. Therefore, in accordance with the regulations of Ontario's *Species at Risk Act, 2007, O.Reg 230/08A*, any potential Butternuts observed must be assessed to determine whether the trees are hybrids or pure Butternuts. The MNR's scoring system can be used to evaluate hybridity in the field (MNR, 2015).

Three (3) potential Butternuts, B01, B02 and B03, were identified during the field surveys within Unit 4B: Dry to Fresh, Coarse: Meadow (G045N). To confirm hybridity test results, leaf samples were collected on June 24, 2021, and submitted to the Precision Biomonitoring Inc. (PBI) lab in Guelph, Ontario for DNA analysis. Results of the lab analyses received on July 12, 2021, confirmed that the tissue samples were not representative of pure Butternuts. Since hybrid trees are exempt from protection under the *Endangered Species Act, 2007*, a full BHA and submission to the MECP is not required for these trees.

### **Black Ash**

One plant SAR, Black Ash (*Fraxinus nigra*), was recorded south of Third Line along the existing transmission line ROW (Route Option A). Black Ash was designated as Threatened by COSEWIC (federal) in 2018. It has not yet been added to the federal SAR List. Black Ash was also anticipated for consideration by COSSARO (provincial) in 2019 and may be added to the provincial SAR List. Therefore, Black Ash is not subject to the provisions of the *Endangered Species Act, 2007* or the *Species at Risk Act* (SARA, 2002).

### **Canada Cinquefoil**

One provincially rare species (i.e., S-rank S1 – S3) was recorded within along the slope west of Peoples Road along the existing transmission line ROW in Vegetation Unit 4C (G047S) and Unit 6 (G061N): Canada Cinquefoil (*Potentilla canadensis*). Provincial (or Subnational, or ‘S’) ranks are used by the NHIC to set protection priorities for rare species and natural communities.

The other recorded native species have a provincial ranking of S4 or S5 [apparently secure (S4) or secure (S5) in Ontario]. No globally rare species (i.e., G-rank G1 - G3) were recorded.

#### **4.2.12.2 FISH SPECIES**

American Brook Lamprey has a provincial rank of S3 (rare to uncommon), is designated as Special Concern (SC) federally, and was documented in three of the watercourses (MNR, 2021). Additionally, two (2) species, including Silver Lamprey (federally SC; *Ichthyomyzon unicuspis*) and Lake Sturgeon (provincially END; *Acipenser fulvescens*) have potential occurrences within the Sault Ste. Marie area, as identified by DFO SAR mapping (accessed 2021) and NHIC database (MNR, 2021), respectively. DFO SAR mapping identifies the lower reaches of Fort Creek, approximately 2 km downstream of the Natural Heritage Assessment Study Area as possible habitat for Silver Lamprey (**Appendix C-1, Figure 1**).

Agency consultation also revealed potential for other aquatic SAR fish to occur within the Natural Heritage Assessment Study Area, including: Redside Dace (*Clinostomus elongatus*), Shortjaw Cisco (*Coregonus zenithicus*), Threespine Stickleback (*Gasterosteus aculeatus*) and Northern Brook Lamprey (*Ichthyomyzon fossor*).

#### **4.2.12.3 WILDLIFE SPECIES**

### **Eastern Whip-poor-will**

Eastern Whip-poor-will is designated as Threatened under SARA and subject to the provisions of the *Endangered Species Act, 2007*. As part of the field work, targeted surveys for Eastern Whip-poor-will were completed in potentially suitable habitat based on desktop screening. Eastern Whip-poor-will surveys were carried out in the Natural Heritage Assessment Study Area in accordance with the MNR's proposed survey methodology under the *Endangered Species Act, 2007*. Three (3) rounds of surveys were conducted on May 23-24, 2021, May 26-27, 2021, and June 21 and 23, 2021. Twenty-point count stations were established throughout the Project limits in areas along the proposed alignment options and existing PUC easement with at least 500 m between stations.

No Eastern Whip-poor-will individuals were recorded. Suitable habitat is limited within the Natural Heritage Assessment Study Area and there are no species records on eBird within 4 km of the Natural Heritage Assessment Study Area.

### **Bobolink and Eastern Meadowlark**

Breeding bird surveys (2 visits) were completed to target grassland habitat areas based on desktop screening. Grassland habitat areas are specifically associated with two SAR birds: Bobolink and Eastern Meadowlark. Bobolink and Eastern Meadowlark are designated as Threatened under SARO and subject to the provisions of the *Endangered Species Act, 2007*. Since the intent of these breeding bird surveys were to capture the potential presence and habitats for these two SAR, the methodology generally followed the MNRF's proposed Bobolink survey methodology under the *Endangered Species Act, 2007*. Two surveys were conducted on May 26, 2021, and June 23, 2021. Thirteen-point count stations were established throughout the Project limits in areas along the proposed alignment options and existing PUC easement. Surveyed areas ranged in size from <1 ha to >14 ha and were bordered by roads, therefore each survey unit had areas of good visibility occurring along or within close proximity to the roadside.

The ideal survey conditions were met each survey and variation in starting location to observed stations at different times. No Eastern Meadowlark were recorded on site.

For Bobolink, only one point count location, Station 1 (along Route Option A & B), recorded one (1) individual with 'possible' breeding evidence within suitable meadow habitat.

Bobolink were observed during the appropriate breeding bird window at five-point count locations, (Stations 2, 4, 8, 9 and 11). At five of these locations, more than one individual were observed with 'probable' breeding habitat on both of the survey dates. No confirmed breeding was recorded. These observations suggest that individuals are likely using the habitat for breeding and as such, these habitats are regulated under the *Endangered Species Act, 2007*.

### Other Species

The table below provides a summary and ranking for each Threatened and Endangered wildlife species as either having None, Low, Moderate or High potential for presence in the Natural Heritage Assessment Study Area. Of the twenty-four (24) species evaluated, nine (9) were determined to have Low Potential, four (4) was determined to have Low to Moderate Potential, two (2) with Moderate Potential, and nine (9) with Moderate to High Potential for occurrence within the Natural Heritage Assessment Study Area. These species are summarized in the table below.

**Table 4-7 Potential for Threatened and Endangered Species in the Natural Heritage Assessment Study Area**

THREATENED SPECIES	ENDANGERED SPECIES
<p><i>Low</i></p> <ul style="list-style-type: none"> <li>– Least Bittern (<i>Ixobrychus exilis</i>)</li> <li>– Lake Sturgeon (<i>Acipenser fulvescens</i>)</li> <li>– Shortjaw Cisco (<i>Coregonus zenithicus</i>)</li> <li>– Eastern Whip-poor-will (<i>Caprimulgus vociferus</i>)</li> <li>– Hill's Thistle (<i>Cirsium hillii</i>)</li> <li>– Houghton's Goldenrod (<i>Solidago houghtonii</i>)</li> </ul> <p><i>Low-Moderate Potential</i></p> <ul style="list-style-type: none"> <li>– Chimney Swift (<i>Chaetura pelagica</i>)</li> <li>– Eastern Meadowlark (<i>Sturnella magna</i>)</li> <li>– Bank Swallow (<i>Riparia riparia</i>)</li> <li>– Barn Swallow (<i>Hirundo rustica</i>)</li> </ul>	<p><i>Low</i></p> <ul style="list-style-type: none"> <li>- Golden Eagle (<i>Aquila chrysaetos</i>)</li> <li>– Gattinger's False Foxglove (<i>Agalinis gattingeri</i>)</li> <li>– Redside Dace (<i>Clinostomus elongatus</i>)</li> </ul> <p><b>Moderate Potential</b></p> <ul style="list-style-type: none"> <li>– Wood Turtle (<i>Glyptemys insculpta</i>)</li> </ul> <p><b>Moderate to High Potential</b></p> <ul style="list-style-type: none"> <li>– Gypsy Cuckoo Bumble Bee (<i>Bombus bohemicus</i>)</li> <li>– Rusty-patched Bumble Bee (<i>Bombus affinis</i>)</li> <li>– Nine-spotted Lady Beetle (<i>Coccinella novemnotata</i>)</li> </ul>

THREATENED SPECIES

ENDANGERED SPECIES

<p><b>Moderate Potential</b></p> <ul style="list-style-type: none"><li>– Blanding's Turtle (<i>Emydoidea blandingii</i>)</li></ul> <p><b>Moderate to High Potential</b></p> <ul style="list-style-type: none"><li>– Bobolink (<i>Dolichonyx oryzivorus</i>)</li></ul>	<ul style="list-style-type: none"><li>– Little Brown Bat (<i>Myotis lucifugus</i>)</li><li>– Northern Long-eared Bat (<i>Myotis septentrionalis</i>)</li><li>– Small-footed Bat (<i>Myotis leibii</i>)</li><li>– Tri-colored Bat (<i>Perimyotis subflavus</i>)</li><li>– Black Ash (<i>Fraxinus nigra</i>)</li></ul>
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Habitat use has not been confirmed for these species in the Natural Heritage Assessment Study Area. It is noted that although a species may have potential to occur within the Natural Heritage Assessment Study Area, the reasonable likelihood and magnitude of effects to the species are generally considered to be Low.

# 5 EVALUATION OF ALTERNATIVE ROUTES AND STATION OPTIONS

## 5.1 STEP 1: ESTABLISH NEED

Please refer to **Section 1.2**.

## 5.2 STEP 2: IDENTIFY ALTERNATIVES

Please refer to **Sections 1.4** for a description of the alternative route and station options that were carried forward to the alternatives evaluation.

## 5.3 STEP 3: DEFINE CRITERIA

Following identification of the Route and Station Options, criteria were established to compare and evaluate the Route and Station Options against each other.

The development of the evaluation criteria was based on the Guide to Environmental Assessment Requirements for Electricity Projects, Appendix C – Screening Criteria (2015) and experience of the Project Team, and influence by the comments provided by other interested parties.

Criteria for the Project were grouped into the following three Evaluation Categories:

1. Socio-economic Criteria
2. Biophysical Criteria
3. Technical Criteria

### 5.3.1. SOCIO-ECONOMIC CRITERIA

Seven socio-economic criteria were considered, as shown in **Table 5-1**.

**Table 5-1 Socio-economic Criteria**

#	CRITERION	CONSIDERATION	METRIC	DATA SOURCE
1.1	<b>Human Settlements</b>	Effects on residential land uses within 125 m of the proposed route or station option.	Approximate number of residences (or residential properties) within 125 m of the proposed route or station location.	– City of Sault Ste. Marie Zoning Maps
1.2	<b>Land Use Planning and Policies</b>			
1.2.1	Land Uses	Effects on residential, commercial, or institutional land uses within 125 m of the proposed route or station option.	Approximate number of commercial or institutional land uses within 125 m of the proposed route or station option.	– City of Sault Ste. Marie Zoning Maps

#	CRITERION	CONSIDERATION	METRIC	DATA SOURCE
1.2.2	Provincial Policy	Alignment with existing land use designations as defined by the Provincial Policy Statement.	Conformance with Provincial Policy Statement (yes/no).	– Provincial Policy Statement
1.3	<b>Recreational Resources</b>	Effects on existing recreation, cottaging or tourism facilities.	Area (hectares) of parks, golf courses or other recreational land within 125 m of the proposed route or station option.	– City of Sault Ste. Marie Zoning Maps
1.4	<b>Visual and Aesthetic Resources</b>	Effects on scenic or aesthetically pleasing landscapes or views.	Potential to affect views of existing scenic or aesthetically pleasing landscapes or views identified within the 125 m of the proposed route or station option (high to low).	– City of Sault Ste. Marie Zoning Maps – Soo Maps Website
1.5	<b>Indigenous Land Use</b>	Effects on Indigenous communities' areas that support traditional land uses and resources, native habitats/ecosystems, etc.	Area (hectares) of First Nation reserve land and/or Indigenous community-identified cultural, traditional, or historic resources within the by the proposed route or station option.	– Soo Maps Website
1.6	<b>Built Heritage Resources</b>	Effects on heritage buildings, structures or sites, or cultural heritage landscapes.	Number of potential or confirmed heritage features within 125 m of the proposed route or station option.	– Site Investigation and field observations
1.7	<b>Archaeological Resources</b>	Effects on archaeological resources.	Area (hectares) of archaeological potential within 125 m of the proposed route or station option.	– Stage I Archaeological Assessment

### 5.3.2. BIOPHYSICAL CRITERIA

Eight biophysical criteria were considered, as shown in **Table 5-2**.

**Table 5-2 Biophysical Criteria**

#	CRITERION	CONSIDERATION	METRIC	DATA SOURCE
2.1	<b>Surface Water</b>	Effects to surface water resources, including surface water quality, quantities, or flow.	Number of watercourses within 120 m of the proposed route or station option.	– MNRF Maps
2.2	<b>Groundwater</b>			
2.2.1	Source Protection Area	Effects on groundwater quality, quantity, or movement.	Area (hectares) of drinking water Source Protection Area crossed by the proposed route or station option.	– Sault Ste. Marie Region Conservation Authority (SSMRCA), – MECP Maps

#	CRITERION	CONSIDERATION	METRIC	DATA SOURCE
2.2.2	Highly Vulnerable Aquifer		Total area of Highly Vulnerable Aquifer (HVA) crossed by the proposed route or station option.	– Sault Ste. Marie Region Conservation Authority (SSMRCA), – MECP Maps
2.2.3	Potential Discharge Area		Potential Groundwater Discharge Area (hectares) crossed by the proposed route or station option.	– Sault Ste. Marie Region Conservation Authority (SSMRCA), – MECP Maps
2.2.4	Potential Recharge Area		Potential Groundwater Recharge Area (hectares) crossed by the proposed route or station option.	– Sault Ste. Marie Region Conservation Authority (SSMRCA), – MECP Maps
2.2.5	Groundwater Wells		Number of reported groundwater wells (water supply) within 125 m of the proposed route or station option.	– MECP Maps
2.3	<b>Designated or Special Natural Areas</b>			
2.3.1	Protected Natural Areas	Effects on protected natural areas or other special natural areas.	Area (hectares) of woodlands within 125 m of the proposed route or station option.	– MNRF Maps
2.3.2	Regulated Areas		Length (metres) of conservation authority regulated area crossed by the proposed route or station option.	– SSMRCA Maps
2.4	<b>Vegetation</b>	Effects on locally important or valued ecosystems or vegetation.	Area (hectares) of vegetation to be cleared within 15 m on either sides of the route or within the station option to accommodate for construction.	– MNRF Maps
2.5	<b>Wetlands and Floodplain Areas</b>	Effects on floodplain areas, wetlands, and areas of erosion concern.	Area (hectares) of wetlands and floodplain areas within 125 m of the proposed route or station option.	– SSMRCA Maps
2.6	<b>Fish and Fish Habitat</b>	Effects to fish or their habitat.	Length (metres) of existing aquatic habitat within 125 m of the proposed route or station option.	– City of Sault Ste. Marie – Soo Maps Website
2.7	<b>Wildlife and Significant Habitat</b>	Effects to wildlife and significant habitat.	Area (hectares) of existing wildlife habitat crossed by the proposed route or station option.	– MNRF Candidate Grassland Habitat shapefile

#	CRITERION	CONSIDERATION	METRIC	DATA SOURCE
2.8	<b>Species at Risk (SAR)</b>	Effects to SAR or their habitat.	Number of SAR (provincially listed as endangered or threatened) with moderate or high potential to occur within 125 m of the proposed route or station option.	<ul style="list-style-type: none"> <li>– MNRF Maps</li> <li>– Field Observations and habitat suitability</li> <li>– NHIC Data</li> </ul>

### 5.3.3. TECHNICAL CRITERIA

Five technical criteria were considered, as shown in **Table 5-3**.

**Table 5-3 Technical Criteria**

#	CRITERION	CONSIDERATION	METRIC	DATA SOURCE
3.1	<b>Route Length / Station Footprint Minimum Requirement</b>	<ul style="list-style-type: none"> <li>– The length of each route option as an indicator of overall technical feasibility and costs.</li> <li>– Meeting minimum sizing requirement for station footprint of 6 ha.</li> </ul>	<ul style="list-style-type: none"> <li>– Route length (kilometres).</li> <li>– Minimum station footprint of 6 ha (yes/no).</li> </ul>	<ul style="list-style-type: none"> <li>– Preliminary Engineering Design</li> </ul>
3.2	<b>Number of Steel Poles</b>	<p>Expected number of proposed electrical structures at each route option.</p> <p><i>This criterion is applicable to the route alternatives only.</i></p>	Total number of steel poles.	<ul style="list-style-type: none"> <li>– Preliminary Engineering Design</li> </ul>
3.3	<b>Contiguous Right of Way</b>	<p>The length of each route option that follows within or parallel to existing contiguous ROWs.</p> <p><i>This criterion is applicable to the route alternatives only.</i></p>	Length of each route option (metres) that extends within or parallel to existing contiguous ROWs.	<ul style="list-style-type: none"> <li>– City of Sault Ste. Marie Land Use and Zoning Mapping</li> </ul>
3.4	<b>Infrastructure Crossings</b>	Crossings increase technical difficulty and there is the potential for the Project to interfere with the operation or use of such infrastructure by stakeholders during construction or maintenance.	Number of infrastructure crossings (roads and utilities) crossed by the proposed route or station option.	<ul style="list-style-type: none"> <li>– City of Sault Ste. Marie Land Use and Zoning Mapping</li> </ul>
3.5	<b>Constraints on future municipal capital works</b>	Effects on future municipal capital works in the area.	Ranking based on whether each route/station option offers the fewest additional constraints relative to the other route/station option. (0 to 4; fewer constraints to greater constraints).	<ul style="list-style-type: none"> <li>– City of Sault Ste. Marie Development Plans</li> </ul>

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### 5.3.4. CRITERIA WEIGHTING METHODOLOGY

The evaluation criteria were applied to complete a comparative evaluation of the four route options and three station options based on technical requirements and the understanding of the socio-economic and biophysical features within each study area (see **Section 5.3**). The route and station evaluation was completed using desktop background information collected and described in **Section 4** (i.e., baseline socio-economic and biophysical conditions), primarily from publicly available databases and reports, as well as observations from the natural environment and cultural heritage site visits and input from the consultation program (**Section 3**).

Based on the socio-economic and biophysical information collected, together with the technical requirements for construction, the setting of each of the potential route and station options was evaluated and each route and station option was compared based on a quantitative technical metric or a metric representing the likely extent of interactions with environmental or socio-economic feature. The evaluation considered the key socio-economic and biophysical constraints and potential adverse environmental effects associated with the construction and operation of each of the routes or station options identified. The goal was to determine which route or station option is preferred from a socio-economic and biophysical perspective. For the purpose of completing this evaluation, mitigation or impact management measures were not considered. They are considered at the subsequent step when determining potential effects (see **Section 7**).

The route and station option evaluation was conducted in accordance with the Class EA process (Hydro One Networks Inc., 2022) and included the following steps:

#### **Evaluate based on Criteria:**

- Establish applicable criteria for evaluation (**Section 5.3**).
- Apply the criteria to each different route and station option to determine which has the lowest overall potential socio-economic or biophysical interaction (**Sections 5.3.1** and **5.3.2**, respectively).
- Apply criteria to each different route and station option to confirm that they meet minimum technical requirements as outlined in (**Section 5.3.3**).

#### **Scoring based on Criteria:**

- Apply a scoring of 0 to 4 to each route or station option for each criterion (with 0 being the best score for the option(s), meaning the fewest likely adverse interactions or most benefits, and 4 being the worst score for the option(s), meaning the greatest likely adverse interactions or fewest benefits).
  - To avoid skewing of the ratings, the scoring was based on a relative comparison of the metrics for each criterion, so that routes with similar metrics would receive similar scores.
  - For criteria that have no interactions (i.e., no metrics were identified through the analysis), or the metrics were the same for all routes, a note of “not applicable” (N/A) was applied and the criterion was not considered to be a differentiator for the purpose of the evaluation.

#### **Ranking by Category:**

- A subtotal score for each category (i.e., socio-economic, biophysical and technical) was then calculated by summing the scores for the criteria in the category to establish the ranking of preference for each route and station option within that category.
  - The route option with the lowest subtotal score was the most preferred for the category and given a ranking of 1. Ranks were assigned to the remaining routes from 2 through 4 based on the relative subtotal scores, with 4 being least preferred for the category.
  - The station option with the lowest subtotal score was the most preferred for the category and given a ranking of 1. Ranks were assigned to the remaining stations from 2 to 3 based on the relative subtotal scores, with 3 being least preferred for the category.

### **Ranking by Overall Score:**

- Each route option was then given a final ranking based on the overall score from the three categories (i.e., the sum of the subtotals for social, biophysical and technical), ranging from 1 to 4, with 1 being the most preferred route option with the lowest score and fewest interactions or constraints, and 4 being the least preferred route option with the highest score and most interactions or constraints.
- The same process was applied for the station options, but with the ranking ranging from 1 to 3 with 1 identifying the most preferred station option with the lowest score and fewest interactions or constraints, and 3 identifying the least preferred station option with the highest score and most interactions.

## 5.4 STEP 4: EVALUATE AND SELECT PREFERRED ALTERNATIVE

### 5.4.1. EVALUATION AND SELECTION OF PREFERRED ROUTE OPTIONS

NO.	EVALUATION CRITERIA	ROUTE OPTION A		ROUTE OPTION B		ROUTE OPTION C		ROUTE OPTION D	
		METRIC	SCORING	METRIC	SCORING	METRIC	SCORING	METRIC	SCORING
<b>Socio-Economic Criteria</b>									
<b>1.1</b>	<b>Human Settlements</b> Approximate number of residences (or residential properties) within 125 m of the proposed route option.	84	0.6	154	4.0	154	4.0	72	<b>0.0</b>
<b>1.2</b>	<b>Land Use Planning and Policies</b>		2.0		4.0		4.0		<b>0.0</b>
<b>1.2.1</b>	<i>Approximate number of commercial or institutional land uses within 125 m of the proposed route option.</i>	2	2.0	3	4.0	3	4.0	1	0.0
<b>1.2.2</b>	<i>Conformance with Provincial Policy Statement (yes/no)</i>	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A
<b>1.3</b>	<b>Recreational Resources</b> Area (hectares) of parks, golf courses or other recreational land within 125 m of the proposed route option.	1.0 ha	4.0	0	<b>0.0</b>	0	<b>0.0</b>	0	<b>0.0</b>
<b>1.4</b>	<b>Visual and Aesthetic Resources</b> Potential to affect views from existing scenic or aesthetically pleasing landscapes or views identified within the 125 m of the proposed route option (high to low).	Low	N/A	Low	N/A	Low	N/A	Low	N/A
<b>1.5</b>	<b>Indigenous Land Use</b>	0	N/A	0	N/A	0	N/A	0	N/A

NO.	EVALUATION CRITERIA	ROUTE OPTION A		ROUTE OPTION B		ROUTE OPTION C		ROUTE OPTION D	
		METRIC	SCORING	METRIC	SCORING	METRIC	SCORING	METRIC	SCORING
	Area (hectares) of First Nation reserve land and/or and community identified cultural, traditional, or historic resources within the by the proposed route option.								
<b>1.6</b>	<b>Built Heritage Resources</b> Number of potential or confirmed heritage features within 125 m of the proposed route option.	4	4.0	2	1.3	1	<b>0.0</b>	1	<b>0.0</b>
<b>1.7</b>	<b>Archaeological Resources</b> Area (hectares) of archaeological potential within 125 m of the proposed route option.	84.1 ha	4.0	82.2 ha	3.7	62 ha	0.4	59.5 ha	<b>0.0</b>
<b>Socio-economic Score Subtotals</b>			14.6		13.0		8.4		<b>0.0</b>
<b>Biophysical Criteria</b>									
<b>2.1</b>	<b>Surface Water (number of watercourse crossings)</b> Number of watercourses within 120 m of the proposed route option.	6	4.0	5	<b>0.0</b>	5	<b>0.0</b>	5	<b>0.0</b>
<b>2.2</b>	<b>Groundwater (GW)</b>		3.7		4.0		0.8		<b>0.0</b>
<b>2.2.1</b>	<i>Area (hectares) of drinking water Source Protection Area crossed by the proposed route option.</i>	84.2 ha	3.8	85.3 ha	4.0	67.4 ha	0.6	64.1 ha	0.0
<b>2.2.2</b>	<i>Area (hectares) of Highly Vulnerable Aquifer (HVA) crossed by the proposed route option.</i>	28.0 ha	4.0	27.2 ha	3.8	12.8 ha	0.0	13.6 ha	0.2
<b>2.2.3</b>	<i>Potential GW Discharge Area (hectares) crossed by the proposed route option.</i>	7.4 ha	0.0	18.6 ha	3.9	18.9 ha	3.4.0	10.4 ha	0.70

NO.	EVALUATION CRITERIA	ROUTE OPTION A		ROUTE OPTION B		ROUTE OPTION C		ROUTE OPTION D	
		METRIC	SCORING	METRIC	SCORING	METRIC	SCORING	METRIC	SCORING
2.2.4	Potential GW Recharge Area (hectares) crossed by the proposed route option.	76.8 ha	4.0	66.7 ha	2.6	48.5 ha	0.0	53.8 ha	0.7
2.2.5	Number of reported groundwater wells (water supply) within 125 m of the proposed route.	34	4.0	22	2.5	4	0.3	2	0.0
2.3	<b>Designated or Special Natural Areas</b>		4.0		1.8		3.6		<b>0.0</b>
2.3.1	Area (hectares) of woodlands within 125 m of the proposed route option.	27.2 ha	4	19.2 ha	1.9	12.0 ha	0.0	13.3 ha	0.3
2.3.2	Length(metres) of conservation authority regulated area crossed by the proposed route option.	1394.01 m	0.4	1381.7 m	0.3	2029.0 m	4.0	1332.6 m	0.0
2.4	<b>Vegetation</b> Area (hectares) of vegetation to be cleared within 15 m on either sides of the route option to accommodate for construction.	5.5 ha	<b>0.0</b>	7.3 ha	4.0	7.1 ha	3.6	6.6 ha	2.4
2.5	<b>Wetlands and Floodplain Areas</b> Area (hectares) of wetlands and floodplain areas within 125 m of the proposed route option.	12.3 ha	<b>0.0</b>	22.4 ha	3.4	24.2 ha	4.0	21.9 ha	3.2
2.6	<b>Fish and Fish Habitat</b> Length (metres) of existing aquatic habitat within 125 m of the proposed route option.	0.31	2.3	0.37	4.0	0.23	<b>0.0</b>	0.26	0.9
2.7	<b>Wildlife and Significant Habitat</b> Area (hectares) of existing wildlife habitat crossed by the proposed route option.	12.5 ha	<b>0.0</b>	19.5 ha	4.0	15.5 ha	1.7	15.8 ha	1.9

NO.	EVALUATION CRITERIA	ROUTE OPTION A		ROUTE OPTION B		ROUTE OPTION C		ROUTE OPTION D	
		METRIC	SCORING	METRIC	SCORING	METRIC	SCORING	METRIC	SCORING
<b>2.8</b>	<b>Species at Risk</b> Number of SAR (provincially listed as endangered or threatened) with moderate or high potential to occur within 125 m of the proposed route option.	11	4.0	10	0.0	10	0.0	10	0.0
<b>Biophysical Score Subtotals</b>			18.0		21.2		13.7		8.4
<b>Technical Criteria</b>									
<b>3.1</b>	<b>Route Length (km)</b>	12.7 km	3.5	12.8 km	4.0	12 km	0.0	12 km	0.0
<b>3.2</b>	<b>Number of steel poles</b>	87	0.7	85	2.7	81	0.0	81	0.0
<b>3.3</b>	<b>Contiguous Right of Way</b> Length of each route option (metres) that extends within or parallel to existing contiguous ROWs.	1745.3 m	0.0	1720.1 m	0.1	0	4.0	0	4.0
<b>3.4</b>	<b>Infrastructure Crossings</b> Number of infrastructure crossings (roads and utilities) crossed by the proposed route option.	39	4.0	20	1.0	17	0.50	14	0.0
<b>3.5</b>	<b>Constraints on future municipal capital works</b> Ranking based on whether each route option offers the fewest additional constraints relative to the other routes. (3 to 1; fewer constraints to greater constraints).	No	N/A	No	N/A	No	N/A	No	N/A
<b>Technical Score Subtotals</b>			8.2		7.7		4.5		4.0
<b>Overall Score Totals</b>			40.8		41.9		26.6		12.4

NO.	EVALUATION CRITERIA	ROUTE OPTION A		ROUTE OPTION B		ROUTE OPTION C		ROUTE OPTION D	
		METRIC	SCORING	METRIC	SCORING	METRIC	SCORING	METRIC	SCORING
	<b>Route Preference Ranking</b>		3		4		2		1

## 5.4.2. EVALUATION AND SELECTION OF PREFERRED STATION OPTIONS

EVALUATION CRITERIA		STATION OPTION 1		STATION OPTION 1-A		STATION OPTION 2	
		METRIC	SCORING	METRIC	SCORING	METRIC	SCORING
<b>Socio-economic Criteria</b>							
<b>1.1</b>	<b>Human Settlements</b> Approximate number of residences (or residential properties) within 125 m of the proposed station option.	0	N/A	0	N/A	0	N/A
<b>1.2</b>	<b>Land Use Planning and Policies</b>		N/A		N/A		N/A
<b>1.2.1</b>	<i>Approximate number of commercial or institutional land uses within 125 m of the proposed station option.</i>	0	N/A	0	N/A	0	N/A
<b>1.2.2</b>	<i>Conformance with Provincial Policy Statement (yes/no).</i>	Yes	N/A	Yes	N/A	Yes	N/A
<b>1.3</b>	<b>Recreational Resources</b> Area (hectares) of parks, golf courses or other recreational land within 125 m of the proposed station option.	0	N/A	0	N/A	0	N/A
<b>1.4</b>	<b>Visual and Aesthetic Resources</b> Potential to affect views from existing scenic or aesthetically pleasing landscapes or views identified within the 125 m of the proposed station option (high to low).	Low	N/A	Low	N/A	Low	N/A
<b>1.5</b>	<b>Indigenous Land Use</b> Area (hectares) of First Nation reserve land and/or and community identified cultural, traditional, or historic resources within the by the proposed station option.	0	N/A	0	N/A	0	N/A

EVALUATION CRITERIA		STATION OPTION 1		STATION OPTION 1-A		STATION OPTION 2	
		METRIC	SCORING	METRIC	SCORING	METRIC	SCORING
<b>1.6</b>	<b>Built Heritage Resources</b> Number of potential or confirmed heritage features within 125 m of the proposed station option.	0	N/A	0	N/A	0	N/A
<b>1.7</b>	<b>Archaeological Resources</b> Area (hectares) of archaeological potential within 125 m of the proposed station option.	1.26 ha	6.0	0.62 ha	3.0	0	<b>0.0</b>
<b>Socio-economic Score Subtotals</b>			6.0		3.0		<b>0.0</b>
<b>Biophysical Criteria</b>							
<b>2.1</b>	<b>Surface Water (number of watercourse crossings)</b> Number of watercourses within 120 m of the proposed station option.	2	2.0	1	1.5	0	<b>0.0</b>
<b>2.2</b>	<b>Groundwater</b>		3.0		3.0		<b>0.0</b>
<b>2.2.1</b>	<i>Drinking water Source Protection Area (hectares) crossed by the proposed station option.</i>	8.12 ha	3.0	8.12 ha	3.0	2.52	0.0
<b>2.2.2</b>	<i>Area (hectares) of Highly Vulnerable Aquifer (HVA) crossed by the proposed station option.</i>	8.12 ha	3.0	8.12 ha	3.0	2.52	0.0
<b>2.2.3</b>	<i>Potential GW Recharge Area (hectares) crossed by the proposed station option.</i>	1.33 ha	3.0	1.32 ha	3.0	0	0.0
<b>2.2.4</b>	<i>Area (hectares) of drinking water Source Protection Area crossed by the proposed station option.</i>	6.8 ha	3.0	6.8 ha	3.0	2.5 ha	0.0

EVALUATION CRITERIA		STATION OPTION 1		STATION OPTION 1-A		STATION OPTION 2	
		METRIC	SCORING	METRIC	SCORING	METRIC	SCORING
<b>2.2.5</b>	<i>Number of reported groundwater wells (water supply) within 125 m of the proposed station option.</i>	0	N/A	0	N/A	0	N/A
<b>2.3</b>	<b>Designated or Special Natural Areas</b>		3.0		3.0		<b>0.0</b>
<b>2.3.1</b>	<i>Area (hectares) of woodlands within 125 m of the proposed station option.</i>	0.37 ha	3.0	0.37 ha	3.0	0	<b>0.0</b>
<b>2.3.2</b>	<i>Length (metres) of conservation authority regulated area crossed by the proposed station option.</i>	379.6	3.0	200	0.7	149.7	<b>0.0</b>
<b>2.4</b>	<b>Vegetation</b> Area (hectares) of vegetation to be cleared within 15 m within the proposed station option to accommodate for construction.	5.7 ha	3.0	0.5 ha	0.3	0	<b>0.0</b>
<b>2.5</b>	<b>Wetlands and Floodplain Areas</b> Area (hectares) of wetlands and floodplain areas within 125 m of the proposed station option.	0.49 ha	3.0	0.46 ha	2.8	0.0	<b>0.0</b>
<b>2.6</b>	<b>Fish and Fish Habitat</b> Length (metres) of existing aquatic habitat within 125 m of the proposed station option.	252.3 m	3.0	55.4 m	0.7	0	<b>0.0</b>
<b>2.7</b>	<b>Wildlife and Significant Habitat</b> Area (hectares) of existing wildlife habitat crossed by the proposed station option.	0	N/A	0	N/A	0	N/A

EVALUATION CRITERIA		STATION OPTION 1		STATION OPTION 1-A		STATION OPTION 2	
		METRIC	SCORING	METRIC	SCORING	METRIC	SCORING
<b>2.8</b>	<b>Species at Risk</b> Number of SAR (provincially listed as endangered or threatened) with moderate or high potential to occur within 125 m of the proposed station option.	0	<b>0.0</b>	0	<b>0.0</b>	2	3.0
<b>Biophysical Score Subtotals</b>			17.0		11.2		<b>3.0</b>
<b>Technical Criteria</b>							
<b>3.1</b>	<b>Station Study Footprint</b> Meet minimum requirement of 6 ha (yes/no)	Yes	<b>0.0</b>	Yes	<b>0.0</b>	No	N/A
<b>3.2</b>	<b>Infrastructure Crossings</b> Number of infrastructure crossings (roads and utilities) crossed by the proposed station option.	0	N/A	0	N/A	0	N/A
<b>3.3</b>	<b>Constraints on future municipal capital works</b> Ranking based on whether each station option offers the fewest additional constraints relative to the other routes. (3 to 1; fewer constraints to greater constraints).	Yes	1	No	<b>0.0</b>	No	<b>0.0</b>
<b>Technical Score Subtotals</b>			1.0		<b>0.0</b>		N/A
<b>Overall Score Totals</b>			24.0		<b>14.2</b>		N/A
<b>Station Preference Ranking</b>			2 Less Preferred		<b>1</b> <b>Most Preferred</b>		N/A (Failed to meet minimum technical criteria requirements)

## 5.5 SUMMARY OF COMPARATIVE EVALUATION

### 5.5.1. PREFERRED ROUTE SELECTION AND RATIONALE

A review of the alternative route options was conducted based on the route evaluation criteria. Based on the evaluation methodology, the route with the overall fewest constraints and fewest potential interactions with social and environmental criteria was recommended as the preferred route.

The summary of the rankings is provided in **Table 5-4**.

**Table 5-4 Summary of Route Evaluation Scoring and Ranking**

EVALUATION CATEGORIES	ROUTE OPTION A	ROUTE OPTION B	ROUTE OPTION C	ROUTE OPTION D
	Total Score	Total Score	Total Score	Total Score
<b>Socio-economic Score Subtotals</b>	14.6	13.0	8.4	<b>0.0</b>
<b>Biophysical Score Subtotals</b>	18.0	21.2	13.7	<b>8.4</b>
<b>Technical Score Subtotals</b>	8.2	7.7	4.5	<b>4.0</b>
<b>Route Preference Total Score</b>	40.8	41.9	26.6	<b>12.4</b>
<b>Overall Route Preference Ranking</b>	3 (Less Preferred)	4 (Least Preferred)	2 (Somewhat Preferred)	<b>1 (Most Preferred)</b>

**Socio-economic Evaluation:** From a socio-economic perspective, based on the criteria used, Route Option D is the most preferred route.

Route Option D has the fewest residential properties within 125 m, and the fewest commercial or institutional land uses compared to the other routes. No recreational resources, aesthetic resources, Indigenous land uses or built heritage resources were identified in proximity to Route Option D. As well, Route Option D has the least archaeological potential, and the lowest number of water wells reported as water supply in the MECP database.

Comparatively, based on the evaluation, Route Option A is the least preferred from a socio-economic perspective, and Route Option B followed it closely. Route Option A has the largest area of recreational resources in proximity to it, and also the most potential or confirmed heritage features and archaeological potential. In addition, residents along Allen's Side Road submitted a petition to PUC calling for Route Options 1 and 2, which now make up Route Option A, to not be selected as the preferred route due to presence of mature and historic trees that hold value within the community and will need to be protected.

**Biophysical Evaluation:** From a biophysical environment perspective, Route Option D is the most preferred route.

Route Option D crosses the fewest existing natural features, such as groundwater protection areas, designated natural areas such as woodlands, and SSMRCA regulated areas. It also had the least number of known SAR with moderate or high potential to occur in the study area.

Comparatively, Route Options A and B were the least preferred from an environmental perspective as they have the highest number of recorded water wells and cross large groundwater protection areas, creating the greatest potential to impact sensitive groundwater resources. They also have the most sensitive biophysical features within their study areas, including the largest areas of woodlots, which would also provide potential wildlife habitat. Thus, they would be anticipated to result in relatively greater overall environmental effects compared to Route Options C and D.

**Technical Evaluation:** From a technical perspective, the Route Option D is the most preferred route.

Although Route Options C and D have the same length, number of structures and cost, Route Option D has the fewest number of existing infrastructure crossings, which lessens the opportunity for technical challenges. In addition, Route Option D has no identified impact on future municipal capital works.

Comparatively Route Options A and B are the least preferred from a technical perspective because they have slightly longer lengths, which are typically associated with the more opportunities for technical challenges, as well as more opportunities for environmental and socio-economic interactions. They also have the highest number of poles, and the highest number of existing infrastructure crossings.

**Route Selection:** Based on these findings, although the Route Option C scored comparatively well from an overall social, environmental and technical perspective when considering the quantitative evaluation criteria, Route Option D scored higher in all categories. Thus, Route Option D was selected to be carried forward for further environmental assessment.

## 5.5.2. PREFERRED STATION LOCATION SELECTION AND RATIONALE

A review of the alternative station options was conducted based on the station evaluation criteria. Based on the evaluation methodology, the station option with the overall fewest constraints and fewest potential interactions with social and environmental criteria was recommended as the preferred station location.

The summary of the rankings is provided in **Table 5-5**.

**Table 5-5 Summary of Station Evaluation Scoring and Ranking**

	STATION OPTION 1	STATION OPTION 1-A	STATION OPTION 2
EVALUATION CATEGORIES	Total Score	Total Score	Total Score
<b>Socio-economic Criteria</b>	6.0	3.0	<b>0.0</b>
<b>Biophysical Criteria</b>	16.1	9.1	<b>3.0</b>
<b>Technical Criteria</b>	1.0	<b>0.0</b>	N/A
<b>Station Preference Score and Ranking Total</b>	23.1	<b>12.1</b>	N/A

	STATION OPTION 1	STATION OPTION 1-A	STATION OPTION 2
EVALUATION CATEGORIES	Total Score	Total Score	Total Score
<b>Overall Station Preference Ranking</b>	2 (Least Preferred)	<b>1</b> <b>(Most Preferred)</b>	N/A (Failure to meet minimum technical requirements)

**Socio-economic Evaluation:** From a socio-economic perspective, based on the criteria used, Station Option 2 would be the most preferred location; however, it failed to meet the minimum technical requirements, meaning that it is not a technically viable option; thus, Station Option 1-A has been identified as the next most preferred.

While most of the socio-economic criteria did not greatly differentiate the station options, Station Option 1-A location is preferred over Station Option 1 because it holds the least archaeological potential. As well, similar to the other options, it is not within proximity of existing residences, commercial or institutional land uses, recreational or aesthetic resources, First Nation reserve lands, or potential or confirmed heritage resources. Furthermore, the station area is already quite disturbed as it is currently owned and utilized by Algoma Steel for industrial uses.

**Biophysical Evaluation:** From a biophysical environment perspective, Station Option 2 would be the most preferred location; however, it failed to meet the minimum technical requirements, meaning that it is not a technically viable option; thus, Station Option 1-A has been identified as the next most preferred location.

Current use of the Station Option 1-A site is industrial and has been previously cleared, with limited natural features on site. There are no groundwater wells in proximity, very little vegetation and no significant wildlife habitat and in addition, there are no species at risk recorded at this site. As well, Station Option 1-A crosses the shortest area of conservation authority regulated area when compared to Station Option 1.

As for Station Option 1, the proposed station location has the largest area of archaeological potential; largest area of wetlands and floodplain areas; largest area of existing aquatic habitat, and largest GW recharge area.

For the Station Option 2 location, the west side and north side of the proposed site are adjacent to a municipal flood diversion canal that is regulated by the SSMRCA. PUC understands that the minimum setback required by the SSMRCA is 15 m from the flood line. The station would not fit within those boundaries; thus, this location would not be compliant with the environmental requirements. Additionally, two SAR with moderate or high potential to occur were recorded within 125 m of the proposed station location.

**Technical Evaluation:** From a technical perspective, Station Option 1-A is the most preferred location.

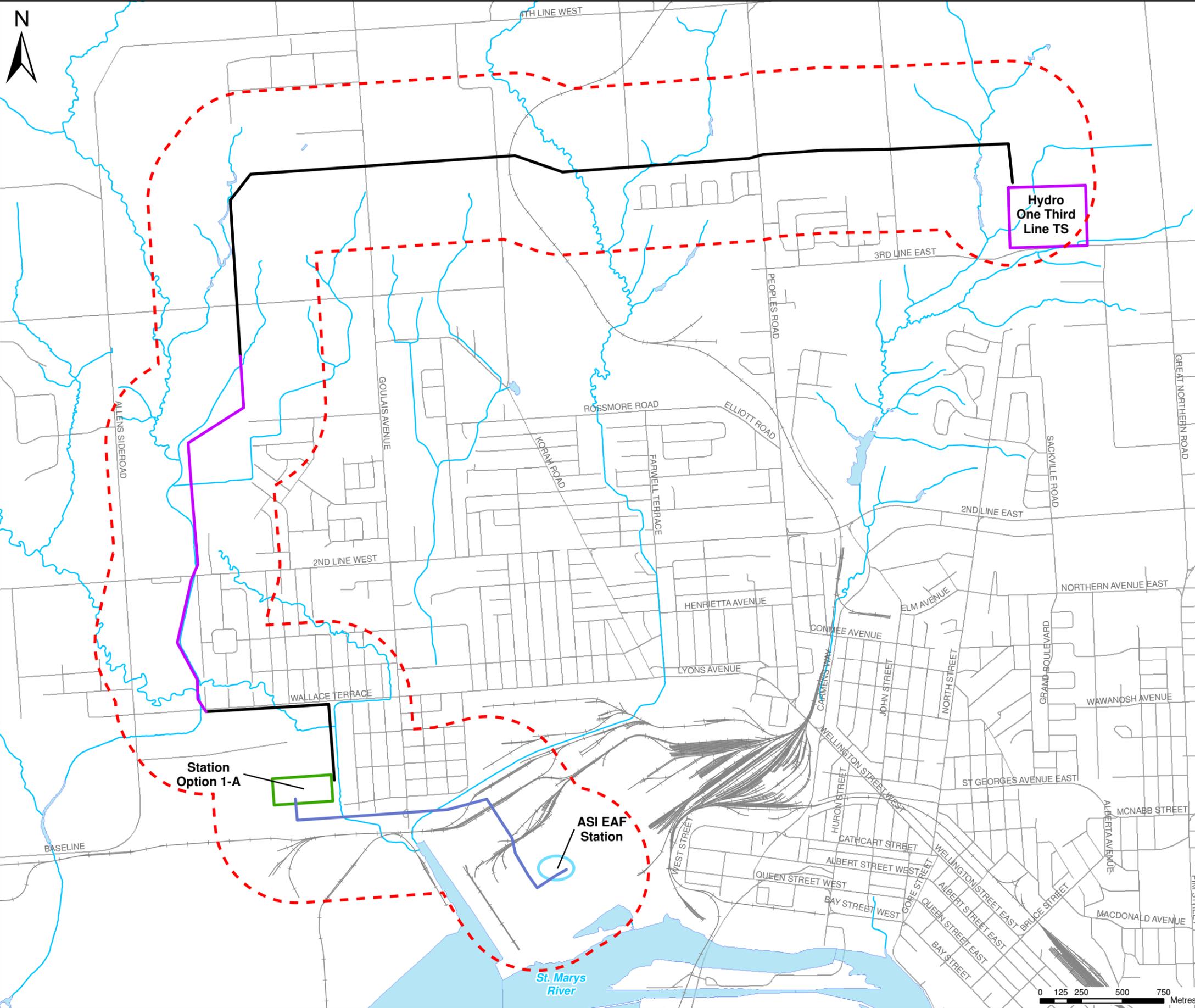
Station Option 1-A meets the overall station dimension requirements of approximately 200 m by 300 m (i.e., 6 hectares in area); the property is currently owned by Algoma Steel; and poses no constraints to future municipal capital works.

As for Station Option 1, the property on which it is proposed is owned by the city of Sault Ste. Marie and is currently zoned as industrial. The City has designated this site for potential future industrial uses to allow for future municipal capital works. Requesting the land for a PUC station would remove the land from the City's inventory for future industrial land use; thus, this option poses constraints to future municipal capital works by potentially limiting industrial expansion within appropriately zoned areas. Thus, while it is feasible to use the site, it was less preferred than Station Option 2.

For the Station Option 2 location, as mentioned above, PUC understands that the minimum setback required by the SSMRCA is 15 m from the flood line. Furthermore, the site is constrained by existing

infrastructure, such that it would not be feasible to accommodate the footprint needed for the new transformer station, even if the required setback were reduced to zero. Thus, Station Option 2 is simply not large enough and therefore not feasible from a technical perspective.

**Station Selection:** Based on the above constraints, Station Option 1-A, located immediately south of Station Option 1 was determined to be the most preferred location option.



**TITLE:** PREFERRED ROUTE OPTION D AND STATION OPTION 1-A

**PROJECT:** SAULT STE. MARIE 230 KV TRANSMISSION PROJECT: CLASS EA SAULT STE MARIE, ONTARIO

**CLIENT:** PUC TRANSMISSION LP

 <b>GOLDER</b>	PROJECT NO.: 221-01502-00	REVIEWED BY: LE
	DATE: JULY 2022	FIGURE: 5-1

# 6 PROJECT DESCRIPTION

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## 6.1 DESIGN PHASE

Following completion of the Class EA process, detailed engineering and design for the proposed Project will be undertaken. The final design plans will be formed considering consultation with the City of Sault Ste. Marie, landowners, regulators, and other stakeholders, and will be based on the results of a geotechnical survey and other inputs such as the need to avoid sensitive features. Minor refinements and decisions regarding pole placements, access, and temporary workspaces within the approved study area will be completed in this phase. Concurrent with finalization of the design, the required permits, licences and approvals, as listed in **Section 1.5.2** will be obtained.

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## 6.2 CONSTRUCTION PHASE

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

### **Transmission Line**

Construction of the proposed 230 kV transmission line will involve the following activities:

- Where needed, acquire new easement for ROW in accordance with applicable legislation, policies and landowner agreements;
- Locates to identify third-party infrastructure and utilities;
- Surveying and staking;
- Vegetation removal and grading, as necessary for temporary workspaces and access roads;
- Establish construction access roads, including watercourse crossings, where needed;
- Delivery of equipment and tower sections to the sites for assembly;
- Installation of pole foundations at the new structure locations;
- Assembly and erection of new tower structures;
- Stringing new transmission conductors (wires) on the structures and installation of associated equipment such as counterpoise;
- Connection to Hydro One Transformer Station, new transformer station, and the Algoma Steel EAFs Station; and
- Clean up to remove all construction materials
- Restoration of the transmission corridor and any temporary workspaces and access roads, if applicable.

### **Transformer Station**

Construction of the proposed transformer station will involve the following activities:

- Surveying and staking;
- Site preparation, including clearing and 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 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 bus work as well as equipment such as current and voltage transformers and lightning arrestors;
- Installation of station fencing and security systems;
- Commissioning and testing; and
- Clean-up and site restoration.

Equipment such as augers, backhoes, concrete trucks and compressors may be used in foundation construction, while cranes and other equipment may be used for the tower installation and stringing of conductors. Excavated material will either be removed from the site or spread in a suitable location. Soil sampling will be undertaken to ensure proper deposition of excavated materials.

Temporary facilities will be required prior to and during the construction period. These facilities may include access roads, laydown and staging areas, temporary stockpile areas, temporary rider poles during conductor stringing, and temporary structures near the existing Hydro One Station, the proposed station and Algoma’s EAFs station. The location of the temporary facilities will be determined by the Project Team and PUC’s contractor during detailed design and construction planning.

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## 6.3 OPERATION, MAINTENANCE, AND DECOMMISSIONING PHASE

Pending the required regulatory approvals, the proposed Project is scheduled to be in-service by end of 2024.

To sustain a safe and reliable electricity transmission system, the proposed transformer station and transmission line will undergo regular maintenance in adherence with PUC’s maintenance standards and regulatory requirements.

### **Transmission Line Maintenance**

Typical maintenance and operation activities include:

- Periodic checking of all automatic systems to ensure they are functioning properly.
- Route inspection every three years to spot any potential hazards to the overhead wires and inspection of the supporting steel poles.
- Planned repairs of a localized nature, as and when required.
- There are also major maintenance items such as conductor, shieldwire, pole, insulator replacement, etc. These items are usually of such a nature as to permit long-range planning, and they can usually be scheduled to minimize inconvenience to property owners.

Emergency maintenance activities include:

- Emergency repairs must be carried out as quickly as possible. It may take one-half to one day to replace a string of broken insulators or several days to replace structures damaged by ice storms or tornadoes. Heavy equipment and materials are usually required to replace structures during emergency situations and mitigating measures will be taken as soon as possible to repair any damage.

## ROW Management

Typical maintenance and operation activities include:

- Patrols: Inspections done at regular intervals to identify and correct situations that cannot be left until the next regular maintenance operation.
- Vegetation Control: Control of woody vegetation to ensure that circuits are not interrupted, and public safety is maintained. Methods currently used are hand cutting, and machine mowing. Selective removal of incompatible woody vegetation is practiced promoting the development of low growing stable plant communities.
- Stabilizing or Restoring the Environment: Erosion sites are identified and controlled by vegetative or mechanical methods.

## Station Maintenance

Typical maintenance and operation activities include:

- Operation: The station will be unattended and are operated remotely from a district/provincial control centre.
- Maintenance: Personnel will make periodic inspections and can be dispatched to the station in the case of an emergency.
- Grounds Maintenance: Activities such as grass cutting, weed spraying and snow ploughing to keep properties in a visually acceptable and safe condition.

## Decommissioning

Decommissioning is not planned at this time; however, if a station site is suspected to be environmentally contaminated, the decommissioning of facilities will follow the guidance provided by *O. Reg. 153/04* of the *Environmental Protection Act*.

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## 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	August 2, 2022, to August 31, 2022
Comment integration and issue resolution	September 1, 2022, to September 30, 2022
Filing of final ESR and Statement of Completion with the MECP	September 31, 2022
Construction start	Q3 2023
Planned in-service date	Q4 2024

# 7 POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

This section describes the potential environmental effects and mitigation measures for both the socio-economic and biophysical environments associated with the footprint impacts of the selected preferred route and station, i.e., **Route Option D** and **Station Option 1-A**. A summary of baseline conditions from which effects are assessed can be found in **Section 4**.

The following subsections detail the effects assessment and identify mitigation and monitoring commitments required for the proposed Project.

## 7.1 INTERACTIONS SCREENING

The likely Project-environment interactions were identified at a screening level using an interaction matrix. The screening approach allowed the assessment to focus on the issues of key importance. The relevant Project components or activities were considered individually to determine if there is a plausible mechanism for an effect on each socio-economic and biophysical component during normal Project conditions. The analysis was based on professional judgement and experience of the assessment team with regard to the physical and operational features of the Project and their potential for interaction with the socio-economic and biophysical components of the environment.

The results are summarized in **Table 7-1**. This table illustrates whether the preferred route (Route Option D), including the Common Elements Route, and station option (Station Option 1-A) may potentially interact with the socio-economic and biophysical component, either during construction or operation activities detailed in **Section 6**. The interactions identified in the table were used to focus the assessment and mitigation of potential effects in **Sections 7.2** and **7.3**. Where **Table 7-1** identifies that an interaction is not expected, the rationale for that prediction is included. No further analysis is necessary where interactions between the Project component socio-economic and biophysical components are not predicted.

**Table 7-1 Interaction Screening Matrix**

SOCIO-ECONOMIC/ BIOPHYSICAL COMPONENT	POTENTIAL INTERACTION (Y/N)		DESCRIPTION OF INTERACTION(S) (IF NO INTERACTION, JUSTIFICATION IS PROVIDED)
	CONSTRUCTION	OPERATIONS	
<b>Socio-economic Environment</b>			
Human Settlements	Y	Y	– Construction activities have the potential to interact with land use directly or as a result of indirect effects such as noise, odour, dust, vibration, access/egress, or changes to water supply wells, and may have long-term changes to directly affected landowners.

SOCIO-ECONOMIC/ BIOPHYSICAL COMPONENT	POTENTIAL INTERACTION (Y/N) CONSTRUCTION OPERATIONS		DESCRIPTION OF INTERACTION(S) (IF NO INTERACTION, JUSTIFICATION IS PROVIDED)
Land Use Planning and Policies	N	N	– Construction and operation activities will add new infrastructure in an existing and new right of way; however, the overall land uses, and designations will not change.
Recreational Resources	Y	N	– Construction activities may have the potential to result in effects to recreational resources within the preferred route option.
Visual and Aesthetic Resources	Y	Y	– While no significant visual aesthetic resources were identified in the Study Area, construction and operation activities may impact individual's enjoyment of the visible / natural landscape.
Indigenous Land Use	N	N	– No Indigenous land use has been identified within the Study Area.
Built Heritage Resources	Y	N	– One Built cultural heritage resource was identified within the preferred route study area.
Cultural Heritage Landscapes	N	N	– No cultural heritage landscapes were identified in the study area.
Archaeological resources	Y	N	– There is potential for archeological finds during construction involving ground disturbance.
<b>Biophysical Environment</b>			
Physiography	N	N	– The project is not expected to change unique geological features, topography, or slopes.
Agricultural Resources and Soils	N	N	– There are no existing farms/agricultural areas crossed by the preferred route and station options.
Forestry Resources	N	N	– No potential effects to timber resources or operations are expected. It is anticipated that there will be sufficient capacity on access roads for construction and forestry traffic.
Mineral Resources	N	N	– There are no mineral resources within the preferred route or station option.
Atmospheric Environment	Y	Y	– Air emissions in the form of dust and exhaust may be released during construction and operation.

SOCIO-ECONOMIC/ BIOPHYSICAL COMPONENT	POTENTIAL INTERACTION (Y/N) CONSTRUCTION OPERATIONS		DESCRIPTION OF INTERACTION(S) (IF NO INTERACTION, JUSTIFICATION IS PROVIDED)
Acoustic Environment	Y	Y	– Noise emissions may be released during construction and operation.
Groundwater	Y	N	– There is potential for the groundwater table to be encountered during construction.
Designated or Special natural Areas	N	N	– There are no designated natural protected areas within the Study Areas.
Vegetation	Y	Y	– Clearing of vegetation for construction will be required. – Vegetation on the ROW will be maintained during operation.
Wetlands and Floodplain Areas	Y	Y	– Crossing of wetlands may be required if complete avoidance along the ROW is not possible.
Surface Water	Y	N	– Crossing of one or more watercourse with fish habitat may be required for access during construction and operation.
Fish and Fish Habitat	Y	N	– Crossing of watercourses with fish habitat may be required for access during construction and operation.
Wildlife and Wildlife Habitat	Y	Y	– Construction or maintenance activities may disturb or remove wildlife or their habitats.
Species at Risk	Y	Y	– Construction or maintenance activities may disturb SAR, e.g., grassland bird habitat.

## 7.2 SOCIO-ECONOMIC ENVIRONMENT

### 7.2.1. HUMAN SETTLEMENTS

#### 7.2.1.1 POTENTIAL EFFECTS

The proposed Project may result in potential effects to human settlements located along the preferred route (Route Option D), including the Common Elements Route, due to proximity to residences. Effects related to the transformer station are less likely as there are no residences in the immediate vicinity of Station Option 1-A.

## Population and Demographics

The addition of a temporary workforce to the local population as a result of the proposed Project is predicted to be indiscernible and the Project will not change the social structure or demographic characteristics of the surrounding neighbourhood or community; No potential adverse effects on the local population and/or demographics are anticipated.

## Property

PUC currently possesses easements which run along the northerly Common Elements Route stretching from the Hydro One Third Line Station west to approximately half way between Allen's Side Road and Goulais Ave.; however, there is potential for property fragmentation by the proposed new ROW and property owners will have new restrictions on lands within the new ROW for the duration of that the transmission line operates. There are also landowner concerns regarding potential impacts to property values.

The preferred station option is located within an area already zoned for industrial use. Therefore, it is not expected that the preferred station location will have discernible effects on residential properties or housing within 125 m of the station option.

## Public Safety

Construction sites pose potential safety hazards to local land users and residents due to the operation of heavy construction equipment.

During operations, there may be emergency situations that take facilities out of service. They include ice and wind storms, tornadoes and flood conditions. The effects of power disruption can be severe and there may also be associated safety hazards.

Workplace safety and public safety are priorities for PUC and mitigations to address safety issues will be implemented in accordance with public safety policies and company standards during construction.

### 7.2.1.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects relating to Human Settlements, PUC will ensure the following measure are undertaken.

## Property

### Construction

- Prior to construction, a letter will be sent to each directly affected property owner, providing information about the planned construction schedule and the name and telephone number of the designated construction representative. This representative will be available for further discussion during the construction period. The letter may also include other project contacts, such as the PUC representative responsible for the project.
- Each directly affected property owner will be contacted by a PUC representative. Permission will be requested to conduct any activities on private property including surveying, soil testing, property appraisals and woodlot evaluation as required.
- Where new land rights are required, a property appraisal will be carried out and meetings arranged to discuss. PUC will make best efforts to reach a fair settlement for compensation with the affected property owners.

### Operations

- ROW management practices will comply with provincial legislative requirements and will be designed to ensure the long-term safety and reliability of the line and protection of the environment

## Public Safety

### Construction

- Adding of signage, fencing and locks to construction laydown areas, stations, junctions, and other visible infrastructure, as necessary.
- Installation of lighting in construction laydown areas and equipment areas if required.
- Ensuring selected construction laydown areas are safe and have adequate road access.
- Co-development of Project-related construction with residents/the public to ensure consideration of construction restrictions in any land easements present within the EA Study Area.
- Co-development of Project-related construction with the municipality of Sault Ste. Marie in order to avoid major events, where feasible and ensuring emergency and protective services are provided with a copy of the final construction schedule.
- Providing alternative driveway and/or pedestrian entrances for residences, businesses and municipal facilities where traditional routes may be blocked by construction activities.
- Utilization of measures to reduce potential nuisance effects of dust and air emissions (i.e., dust suppression techniques, site watering, road sweeping, etc.).
- Barriers will be used where appropriate to maintain public safety and prevent unauthorized access to work areas.
- Construction activities will conform to the City of Sault Ste. Marie Noise By-Law 80-200. 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, PUC will inform local residents and businesses.

### Operations

- Safety precautions will be utilized to protect the public, such as anti-climbing devices.
- Routine patrols and/or inspections and maintenance of the transmission line will be conducted to ensure acceptable performance of the line components over time and to repair damage due to accidents or unusual climatic conditions.
- Maintenance personnel will make periodic inspections of the transformer station and can be dispatched to the station in the case of an emergency.
- If there is an emergency situation or power outage, PUC's first priority will be to return facilities to service. Emergency repairs will be carried out as quickly as possible.
- ROW management practices will reflect provincial legislative requirements and will be designed to ensure the long-term safety and reliability of the line and protection of the environment

### 7.2.1.3 NET EFFECTS

The proposed project will have effects to landowners along the new easements whose property is directly affected. With compensation, these effects to property are expected to be mitigated.

With the implementation of the mitigation measures described above, the proposed Project is not anticipated to have adverse net effects on public safety.

Overall, while there will be net effects to human settlements, taking the mitigation measures into account, significant adverse net effects are not predicted.

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## 7.2.2. ECONOMY AND EMPLOYMENT

The need for the Project is to support the EAF project proposed by Algoma Steel, which is the largest employer in the city; thus, it will be beneficial for that employer and the city as a whole. In addition, economic development associated with construction spending is another positive effect of transmission and transformer station projects.

### 7.2.2.1 POTENTIAL EFFECTS

Construction activities can provide an opportunity for local employment and result in spin-off effects to the local service industry. The bulk of the direct employment and benefits from that are expected to be realized during the construction phase of the proposed Project.

Indirect employment and/or economic benefits may also be stimulated through direct expenditures on goods and services sourced from local (Sault Ste. Marie) and provincial (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 (i.e., food and beverages, local accommodations, etc.). Together, these demands would result in small but positive labour market benefits to the region for workers and supplying businesses.

The proposed transmission line overlaps areas where a number of commercial and industrial businesses are located. Activities associated with the construction phase of the transmission line may have the potential to temporarily disrupt commercial and/or industrial operations as a result. Some business operations take place near the southern end of the Project within the communities of Broadview Gardens, Brookfield, and Bayview (i.e., local contractors and few food establishments). Although the preferred route option intersects with businesses, the Project will generally be constructed within existing corridors and/or alongside existing linear infrastructure; thus, negative effects, if any, are expected to be short-term and minimal.

The proposed transformer station is not expected to result in effects to business operations as there are no business operations in close proximity to the preferred station location.

### 7.2.2.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects from construction activities, PUC will ensure the following:

- Contact will be maintained with business owners regarding the Project work schedule and other items of interest.
- Access to businesses will be maintained at all times during construction to the extent feasible. If existing access cannot be maintained, arrangements will be made to create temporary alternate access points, including public signage as required.
- Construction activities and equipment will be managed to avoid damage and disturbance to adjacent properties, structures, and operations.

Also refer to the mitigation recommended for property and public safety under **Section 7.2.1** (Human Settlements) where they may relate to business operations.

### 7.2.2.3 NET EFFECTS

The proposed project is expected to have positive effects to local employment and economy. The Project is expected to create overall benefits to the local economy and employment but may have temporary short-term negative effects to local businesses during construction. With the implementation of the mitigation measures described above, the proposed Project is not anticipated to have significant adverse net effects to business operations or broader employment and economy.

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## 7.2.3. LAND USE PLANNING AND POLICIES

The outline of land use policies, acceptable uses, and how the Project fits into the Provincial Policy Statement and local official plan of Sault Ste. Marie is outlined in **Section 4.1.3**.

Generally, the official plan includes support towards energy and transmission investment in the proposed Project region, as the plan allows for the provision of opportunities to develop energy supply including electricity transmission facilities in all land use types. There is also specific support for the expansion of local steel industry included within the Official Plan's policy directions.

### 7.2.3.1 POTENTIAL EFFECTS

The proposed transmission line is not expected to require a change in land use planning and/or policies.

The proposal to use the existing PUC easement, which was proactively planned decades ago, is supported by the Provincial Policy Statement issued under the Ontario *Planning Act*. Where feasible, the proposed Project is using a corridor (i.e., the northern segment of the Common Elements Route) that was planned and protected to meet projected infrastructure needs and using the corridors for the purposes for which it was maintained.

Under 4.5.1 of the Official Zoning By-Law (2005-150), utilities including electrical transmission, sewage, underground pipelines, natural gas, telephone, cable television are permitted in all land use designations. The majority of the preferred route option is currently zoned as Rural Area Zone (RA), Environmental Management Zone (EM) or Medium to Heavy Industrial Zone (M2 and M3). The preferred route option intersects with Residential Zones (R1, R2, R3, R4) and Parks and Recreation Zones (PR) but will generally be constructed within existing corridors and/or alongside existing linear infrastructure.

Uses deemed to be compatible with overhead transmission lines (e.g., agriculture) are often approved within transmission line ROWs. Typically, there are no restrictions placed on development or new construction outside of the transmission line ROW itself.

Effects to significant resources, as identified by Section 2 of the Provincial Policy Statement, outside of the proposed EA study area are not anticipated (Government of Ontario, 2020).

The proposed transformer station is not expected to require changes to land use planning and/or policies.

The preferred station location is located in an area currently zoned as a Heavy Industrial Zone (M3) (City of Sault Ste. Marie, 2022). Current activity within the area of the preferred station location presently consists of industrial operations related to the Algoma Steel plant; this, the proposed use is compatible with current planned land use and no effects to land use are anticipated.

### 7.2.3.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects from construction activities, PUC should ensure the following:

- Compliance with the *Provincial Planning Statement* and the Sault Ste. Marie Official Plan.
- Coordination with the municipality (Sault Ste. Marie) to consider potential means of accommodating potential future development during design of the transmission line, within the property fabric traversed by the transmission line ROW.

Also refer to the mitigation recommended under **Section 7.2.1** (Human Settlements) as they relate to property.

### 7.2.3.3 NET EFFECTS

The proposed project is consistent with the Provincial Policy Statement and local official plan. While the proposed electrical transmission utilities are permitted in all land use designations, there could be effects to some current and future land use within the residential, rural, and commercial land designated properties crossed by the project.

With the implementation of the mitigation measures described above, the proposed Project is not anticipated to have significant adverse net effects on land use planning and policies.

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## 7.2.4. INFRASTRUCTURE AND SERVICES

The proposed Project may result in potential effects to infrastructure and services including business operations, transportation, and general waste management along the preferred route (Route Option D), including the Common Elements Route, and station option (Station Option 1-A). The Project is not expected to result in potential effects to services such as EMS, hospitals, police and fire services.

### 7.2.4.1 POTENTIAL EFFECTS

#### Transportation

The EA Study Area overlaps areas where a number of transportation corridors (i.e., roadway, railway, and pedestrian pathways) are located. Activities associated with the construction phase of the Project may have the potential to disrupt transportation as a result.

The proposed Project is located within both rural and urban landscapes. Construction activities have potential to cause disruption to traffic on municipal roads during the construction phase of the Project. Specifically, stringing of conductors across roads— which may require temporary road closures, rolling closures and/or detours. The presence of heavy equipment may also increase traffic and loads which may result in localized wear and tear on lower order roadways. Effects to road and highway traffic and roadways are expected to be minimal and temporary in nature. Potential disruption to airports/aerodromes are not expected as there are none located within 125 m of the preferred route (Route Option D), including the Common Elements Route and station option (Station Option 1-A).

The Project intersects with CN railway line located between Moss Road and Tallack Boulevard south of Fourth Line; however, potential disruptions to railway lines are not anticipated.

The proposed transformer station is not expected to result in direct effects to transportation operations.

#### Waste Management

The proposed Project has the potential to generate non-hazardous wastes along the preferred route (Route Option D), including the Common Elements Route, and station option (Station Option 1-A). Waste produced during the construction period may include non-hazardous wastes (i.e., construction wastes, general waste from workers such as coffee cups, packaging, etc.) and hazardous wastes (i.e., fuels, insulating oils, etc.). Non-hazardous construction waste will be required to be disposed of in regional landfills and/or recycling facilities, while hazardous waste must be disposed of at registered disposal sites.

The Project is not expected to directly impact operations at any waste management facilities as there is none located within the EA Study Area, and while the Project also has the potential to slightly increase demand on waste infrastructure in the EA Study Area during the construction phase, the volume of waste generated is expected to be manageable by existing facilities.

Construction activities may result in the accumulation of mud and construction debris on and adjacent to local roads in construction areas. These effects have the potential to migrate to areas outside of the construction zone of the proposed Project.

### 7.2.4.2 MITIGATION AND MONITORING MEASURES

#### Transportation

Temporary effects to roads and traffic are largely unavoidable. To mitigate potential effects from construction activities, PUC will ensure that the construction contractor will:

- Complete a pre- and post-construction road survey to document effects to local roads caused by heavy equipment and increased construction traffic during construction activities, if required. Survey results can be shared with Sault Ste. Marie municipal staff in advance of work commencement.
- if required, a Traffic Control Plan will be developed and shared with the City of Sault Ste. Marie.
- Damage to transportation infrastructure as a direct result of construction activities will be repaired upon completion of construction activities.
- The proposed Project will adhere to seasonal load restrictions.
- Construction haul routes and schedules will be shared and developed with the City, as necessary.
- Construction traffic will access the construction area from the existing road network at specific construction access/egress locations.
- Common parking areas will be established for construction crews.

- To the extent practical, in an effort to avoid road closures and other disruptions during stringing, conductor stringing will utilize rider poles, boom-tipped riders, or other protective measures.
- If temporary road closures (i.e., rolling closures) are required during stringing or other construction activities, the construction contractor will coordinate closely with the appropriate road authority to ensure that the proper notice is provided and that required signage and traffic controls are utilized, and that the duration of any temporary closures will be minimized to the extent practical.
- Local advertisements (i.e., radio, newspaper, etc.) will be issued and road signage will be erected to provide notification/pre-construction information to area residents on timelines and construction routes, and potential detours, if required.
- Traffic control or flag persons will be assigned to assist with construction entry/exit, as necessary.

### **Waste Management**

To mitigate potential effects from Project activities, PUC will ensure the following:

- Testing, handling, storing, transportation, and disposal of wastes will be conducted in accordance with federal, provincial, and municipal legislation (i.e., Ontario *Environmental Protection Act*, Reg. 347).
- Construction will be completed with general clean site policies enforced requiring pick-up and disposal of refuse and construction waste on a regular basis.
- Solid wastes will be disposed of in accordance with applicable regulations at a licensed waste facility.
- Hazardous wastes (solid and liquid) will be transported by MECP-licensed waste haulers to MECP registered disposal sites.
- Wastes temporarily stored on-site will be stored in secured containers in designated sites away from sensitive areas (i.e., wetland/watercourses) and removed from the site on an on-going basis.
- With respect to concrete wash water, all water from concrete chute washing activities should be contained appropriately in leak-proof containers or in approved settling ponds located off-site.
- Waste production will be reduced, segregated and recycled where possible.
- Site clean-up will be completed regularly.
- Mud mats will be installed (as needed) as a mechanism to reduce the transportation of debris off-site.
- Mud related to construction activities will be removed from local roads and access roads as necessary throughout construction.

#### **7.2.4.3 NET EFFECTS**

With the implementation of the mitigation measures described above, the proposed Project is not anticipated to result in adverse effects to transportation, including local roads and traffic conditions. Likewise, the proposed Project is not anticipated to have adverse effects on general waste management facilities.

With the implementation of the mitigation measures described above, it is not expected that the Project will result in significant adverse net effects on infrastructure and services.

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### **7.2.5. RECREATIONAL RESOURCES**

#### **7.2.5.1 POTENTIAL EFFECTS**

The proposed Project has the potential to result in effects to recreational resources along the preferred route (Route Option D), including the Common Elements Route.

There is potential for resources such as pedestrian trails (i.e., Hub Trail, Green Acres Park, Rosita Park, and Glasgow Park), woodlands, wetlands and/or watercourses (i.e., East Davignon Creek, West Davignon Creek, Central Creek, Fort Creek, and Bennett Creek), which are used recreationally, to be temporarily affected during the construction of the proposed Project due to the increased presence of construction activities such as temporary workspaces within the corridor, construction equipment, and

presence of construction crew members. Thus, during construction there may be some temporary effects to the enjoyment of recreational resources adjacent to the transmission line. These are primarily anticipated to be annoyance effects and are expected to be temporary and short-term in nature.

No significant valley lands or areas of natural or scientific interest that may be utilized recreationally were identified within the EA Study Area.

Impacts at the preferred station location are not expected considering current land use activities at the site, which presently consists of industrial operations related to the Algoma Steel plant.

### **7.2.5.2 MITIGATION AND MONITORING MEASURES**

To mitigate potential effects from Project activities, PUC should ensure the following:

- Advanced notice will be provided to nearby residences, landowners, and commercial operations, outlining the location of entry/exit points for the construction site(s).
- The schedule for construction work or construction-related traffic will be provided to nearby residences, landowners, and commercial operations.
- Clear and temporary road signage outlining the notice of construction and Project schedule will also be installed at entry/exit points.
- Disturbances to the surrounding environment will be avoided where possible and attempts will be made to ensure the Project design is minimally obtrusive/intrusive.
- A landscape plan will be developed and implemented if necessary.
- Work should be scheduled, when possible, to avoid peak use times for recreational areas.

Also refer to the mitigation recommended under **Section 7.2.1** (Human Settlements) where they relate to public safety.

### **7.2.5.3 NET EFFECTS**

With the implementation of the mitigation measures described above, the proposed Project is not anticipated to result in significant adverse net effects to recreation or recreational resources.

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## **7.2.6. VISUAL AND AESTHETIC RESOURCES**

### **7.2.6.1 POTENTIAL EFFECTS**

Visual and aesthetic resources vary with the topography and vegetation of the natural landscape, as well as the degree of human activity associated with the settlement patterns and non-consumptive land/resource uses in the Project area.

Once constructed, the proposed presence of a transmission line will have the potential to influence the visual landscape in its existing urban and rural setting; however, given the current presence of existing vertical infrastructure (e.g., traffic and light standards, power poles and existing transmission lines) in the EA Study Area and its surrounding, these effects are not new or unique.

The proposed Project footprint intersects transportation corridors, waterways (such as West Davignon Creek) and recreational lands such as Glasgow Park. The majority of sensitive receptors are residents with views onto the horizon along the Project route and recreational trail users that may utilize trail systems that may be impacted by the Project. Many of the properties located within the proposed Project area have existing tree lined wind breaks and hedgerows that offer localized privacy from adjacent visual elements. Design of the transmission line (e.g., placement of structure locations) will be visible to nearby sensitive receptors (i.e., occupied homes/communities, campgrounds, picnic areas and other recreational/natural areas). The potential magnitude of such effects on visual and aesthetic resources can vary for each viewer and typically depend on:

- The physical relationship of the viewer to the transmission line (distance to and site line);
- The activity of the viewer (i.e., living in the area, driving through, sightseeing); and

- The contrast between the transmission line and the surrounding environment).

The proposed transformer station is not expected to result in adverse net effects to visual and aesthetic resources because activity at the preferred station location already consists of industrial operations related to the Algoma Steel plant.

### **7.2.6.2 MITIGATION AND MONITORING MEASURES**

To mitigate potential effects from Project activities, PUC will ensure the following:

#### Construction

- During detailed design (selection of the transmission structure placement), consideration will be given to nearby sensitive receptors, existing visual screening (i.e., vegetation), and infrastructure and other landscape characteristics, in order to mitigate the net visual change resulting from the new transmission structures where possible.
- Visual effects of construction on neighbouring properties will be managed by maintaining a clean, organized workspace during Project activities.
- If necessary, installation of temporary screens during construction activities to block the view of construction activities.
- Restoration and remediation activities upon completion of construction activities to assist with improving the visual/aesthetic environment such as landscaping using trees to serve as a permanent screen, or topsoil/seed used to disguise access routes located in urban areas.

#### Operations

- Grounds Maintenance will include activities such as grass cutting, vegetation maintenance, and snow ploughing in order to keep properties in a visually acceptable and safe condition.

### **7.2.6.3 NET EFFECTS**

The proposed project will have long-term effects on visual and/or aesthetic resources. Given the landscape context and taking the mitigation measures into account, significant adverse net effects are not predicted.

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## **7.2.7. INDIGENOUS LAND USE**

The preferred route (Route Option D), including the Common Elements Route, and station option (Station Option 1-A) are contained within the boundaries of the traditional territory of the Anishinaabeg within the Robinson-Huron Treaty Territory.

### **7.2.7.1 POTENTIAL EFFECTS**

The preferred route option is located within the traditional territory of the Anishinaabeg. Traditional lands have the potential to be disturbed by construction, maintenance, and operations of the proposed Project. Batchewana First Nation, Garden River First Nation, Michipicoten First Nation and the Métis Nation of Ontario hold existing land claims within the EA Study Area and were identified within **Section 7.1.7** as having the potential to express interest in the Project based on this claim.

Given that the study areas for the proposed transmission line route options cross private and municipal lands, but no federal or provincial Crown land, and no Indigenous communities have identified Indigenous land use in the project area, it is expected that no existing land uses, or Aboriginal rights are being exercised within the project area.

The proposed transformer station is not expected to result in effects to Indigenous land use at the preferred station location as it presently consists of industrial operations related to the Algoma Steel plant.

### **7.2.7.2 MITIGATION AND MONITORING MEASURES**

As no Indigenous land uses have been identified, no effects have been identified, and no mitigation warranted.

### 7.2.7.3 NET EFFECTS

As no Indigenous land uses have been identified, the proposed Project is not anticipated to have significant adverse net effects on Indigenous land use.

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## 7.2.8. BUILT HERITAGE RESOURCES

### 7.2.8.1 POTENTIAL EFFECTS

The conservation of the identified potential BHR is considered to be a matter of public interest.

Changes to infrastructure have the potential to adversely affect BHRs by displacement and/or disruption during and after construction. Heritage resources may experience displacement (i.e., removal) if they are located within the footprint of the undertaking; however, in this case, no built resources will be displaced by the project. Nonetheless, there may be potential for disruption or indirect effects to the potential BHR by the introduction of physical, visual, audible or atmospheric elements that are not in keeping with their character and/or setting.

Based on the preferred route for the transmission line, there is a potential for indirect effects to BHR-4 (202 Allen's Side Road) (**Figure 7-1**) due to construction vibrations and/or the proximity of construction equipment to the property.

No known or potential BHRs are located within proximity of the preferred station location.

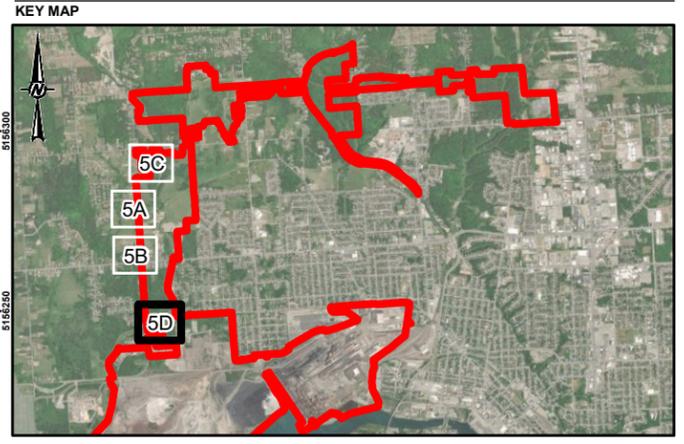
### 7.2.8.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects from Project activities, PUC will ensure the following:

- Staging areas for materials and equipment, as well as construction site parking areas, should be strategically located well away from the potential BHR property and any mature trees / vegetation to reduce any accidental damage.
- Vibration studies are recommended for the potential BHR property. The study should be prepared by a qualified engineer to determine the maximum acceptable vibration levels and the zone of influence of the construction area in order to mitigate any negative effects to the heritage attributes of the resource.
- Should future work require expansion beyond the limits of the cultural Heritage Study Area (see **Section 4.1.8**), a qualified heritage consultant should be contacted to confirm the effects of the proposed work on known or potential BHRs and CHLs.

### 7.2.8.3 NET EFFECTS

With the implementation of the mitigation measures described above, the proposed Project is not anticipated to have significant adverse net effects on built heritage resources.



**LEGEND**

- IDENTIFIED DURING FIELD REVIEW

**BHR - LOCATION**

BHR-4 - 202 ALLENS SIDE ROAD

- ROUTE OPTION A
- ROUTE OPTION B
- ROUTE OPTION C
- ROUTE OPTION D
- 230 KV COMMON ELEMENT ROUTE
- STUDY AREA
- ROADWAY
- WATERCOURSE

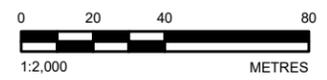
**NOTE(S)**

1. ALL LOCATIONS ARE APPROXIMATE

**REFERENCE(S)**

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2022
2. SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 16, VERTICAL DATUM: CGVD28

DRAFT



<b>CLIENT</b>		
PUC TRANSMISSION LP		
<b>PROJECT</b>		
CULTURAL HERITAGE REPORT: EXISTING CONDITIONS AND PRELIMINARY IMPACT ASSESSMENT, 230 KV TRANSMISSION PROJECT CLASS ENVIRONMENTAL ASSESSMENT		
<b>TITLE</b>		
LOCATION OF BUILT HERITAGE RESOURCES (202 ALLENS SIDE ROAD)		
<b>CONSULTANT</b>	YYYY-MM-DD	2022-07-26
	DESIGNED	EG
	PREPARED	BR
	REVIEWED	---
	APPROVED	---
<b>PROJECT No.</b>	<b>CONTROL</b>	<b>REV.</b>
221-01502-00	0003	A
		<b>FIGURE</b>
		<b>7-1</b>

Path: S:\Client\BUC\_Services\_Inv\Salt\_Site\_Maint\980\_PROJ\221\_01502\_00\_PUC\_Services\_Inv\_2020\Transmittal\_Planet\_Chrm\_EA\MO\_PECO\003\_Cultural\_Heritage\_Report\221\_01502\_00\_003-1A-000640.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 26mm

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## 7.2.9. ARCHAEOLOGICAL RESOURCES

### 7.2.9.1 POTENTIAL EFFECTS

During construction, there is the potential for Project-related activities that involve ground disturbance to disturb areas of archaeological potential within the footprint and cause damage to archaeological resources.

### 7.2.9.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects from Project activities, PUC will ensure the following:

- Complete a Stage 2 archaeological assessment for areas determined to retain archaeological potential that will be impacted by ground disturbing activities (**Figure 4-2**), following the recommendations requirements of Section 2.1.5 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS, 2011)
- Ground disturbing activities will not commence until the Stage 2 Archaeological Assessment recommendations have been accepted by the Ontario MTCS, and the report has been entered into the Public Register of Archaeological Reports.
- Where recommended by the MTCS, complete further archaeological studies in areas with archaeological potential prior to construction.
- Provide archaeological assessment reports to interested Indigenous communities for review and inclusion of their comments.
- Workers should be alert for artifacts and human remains when excavating within 300 m (1,000 ft) of a watercourse.
- The Constructor must immediately stop construction when archaeological resources or skeletal remains are found. Work must not start again until approval has been given by the applicable authorities and the Company.

### 7.2.9.3 NET EFFECTS

With the implementation of the mitigation measures described above, the proposed Project is not anticipated to have significant adverse net effects on archaeological resources.

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## 7.3 BIOPHYSICAL ENVIRONMENT

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### 7.3.1. ATMOSPHERIC ENVIRONMENT

#### 7.3.1.1 POTENTIAL EFFECTS

Potential effects may include air emissions from construction equipment and vehicle exhaust, as well as the creation of dust that may be carried away from the site during dry and windy conditions.

Operation activities could result in air emissions from vehicles and equipment, including dust, though such effects would be short-term, local, and infrequent.

#### 7.3.1.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects to air quality related to Project activities, PUC will ensure the following:

- Implement best practice measures including:
  - maintain equipment in good condition,

- minimize idling,
- equip vehicles with emission controls, as applicable, and operate within regulatory requirements,
- use appropriate earth moving practices, and
- limit construction activities during high wind events.
- Limit the area of excavated soil piles to reduce the potential to create dust where possible.
- Monitor dust conditions and take actions to suppress dust, as necessary.
- Manage dust by spraying excavated soil with water or covering exposed soil with tarps to control dust during dry and windy conditions.
- Minimize the amount of excavated soil and clean up immediately following construction.
- Regularly monitor dust control measures to increase efficiency and inspect to ensure that the work area is kept clean to minimize dust from construction.

### **7.3.1.3 NET EFFECTS**

The Project will have increased air emissions during construction, but with the implementation of the mitigation measures described above, the Project is not anticipated to have significant adverse net effects on the atmospheric environment.

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## **7.3.2. ACOUSTIC ENVIRONMENT**

### **7.3.2.1 POTENTIAL EFFECTS**

Constructive activities will result in increased noise levels that may be perceptible to nearby receptors.

No potential effects are anticipated during normal operation of the transmission line and station, though noise levels could increase temporarily during emergency maintenance or other short-term repairs.

### **7.3.2.2 MITIGATION AND MONITORING MEASURES**

To mitigate potential effects to increased noise levels related to Project activities, PUC will ensure the following:

- General noise control measures will be implemented during construction (i.e., proper maintenance of equipment, muffling systems, minimum idling of equipment and vehicles).
- Construction activities will conform to the City of Sault Ste. Marie Noise By-Law 80-200. 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, the construction contractor will inform local residents and businesses.
- No construction activities will occur on statutory holidays, Sundays or at night without applicable noise by-law exemption from the City of Sault Ste. Marie.

### **7.3.2.3 NET EFFECTS**

The Project will have increased noise levels emissions during construction, but with the implementation of the mitigation measures described above, the Project is not anticipated to have significant adverse net effects on the acoustic environment.

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## **7.3.3. GROUNDWATER**

### **7.3.3.1 POTENTIAL EFFECTS**

Construction activities involving excavation or drilling (e.g., for tower foundations) may encounter groundwater and may require water taking in the form of dewatering of the excavations and discharge of the water. Surface water taking (e.g., for dust control) is not expected to be required.

Construction activities may result in temporary threats to Source Water Protection Areas (HVA, groundwater recharge areas, intake protection zones) if there are effects to groundwater quality or quantity. There is potential for contamination of groundwater due to incidental spills of oil, gasoline and other liquids during construction and operation.

### 7.3.3.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects to groundwater features related to Project activities, PUC will ensure that the construction contractor carries out the following:

- 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 SSMRCA and City of Sault Ste. Marie in order to undertake the proper action for managing any potential threats.
- Register under the EASR if water takings will be greater than 50,000 L/day and less than 400,000 L/day
- Obtain a PTTW from the MECP where water taking will be in excess of 400,000 L/day is required.
- Monitor vulnerable receptors (e.g., watercourses or wells) in the vicinity of dewatering, as required.
- Discharge water should be directed away from sensitive natural features.
- To reduce the potential of erosion and scouring at discharge locations during construction dewatering/ and/or hydrostatic testing, protective measures may include dewatering at low velocities, dissipating water energy by discharging into a filter bag, check dams or diffuser and utilizing protective riprap or equivalent.
- Discharge should be monitored to make sure that no erosion or flooding occurs. If energy dissipation measures are found to be inadequate, the rate of dewatering should be reduced, or dewatering discontinued until satisfactory mitigation measures are in place.

To mitigate potential effects due to accidental spills related to Project activities, PUC will ensure that the construction contractor carries out the following:

- 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 are in place.
- Monitoring equipment and alarms are installed on equipment so that early detection of spills can be made.
- Report all spills to regulatory authorities, including the MECP Spills Action Centre 1-800-268-6060, as required
- Emergency Response Plans (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 contractor 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.

### 7.3.3.3 NET EFFECTS

The proposed Project may interact with groundwater, but with the implementation of the mitigation measures described above, the proposed Project is not anticipated to have significant adverse net effects on groundwater resources.

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### 7.3.4. VEGETATION AND WETLANDS

#### 7.3.4.1 POTENTIAL EFFECTS

Direct effects to vegetation and wetland communities are anticipated and are associated with the clearing of vegetation along the transmission corridor, which will include the Common Elements Route segments, as well as the new segments in Route Option D. Clearing is required for the construction of the towers, and also to construct a permanent travel lane to allow vehicles to access the line for ongoing operation and maintenance. Most of this alignment occurs within Meadow along with smaller scattered areas of Shrub, Mineral Meadow Marsh and Mineral Thicket Swamp communities; all these communities generally are characterized by low-lying vegetation where trees are absent (as described in **Section 4.2.9**). The adjacent communities beyond the PUC ROW and along the Common Elements sections are dominated by forest communities, Aspen-Birch Hardwood as such, small extents of woodland removal is anticipated along the PUC easement and Wallace Terrace. While vegetation will be allowed to grow within the transmission ROW once construction is complete, the vegetation will be managed to prevent the growth of tall trees in proximity to the line for safety, as well as to maintain a safe travel lane for vehicular access. The gravel road along the corridor will likely result in permanent loss of vegetation and wetlands, depending on location.

The Common Elements Route along the existing PUC easement has been previously cleared and continuously undergoes maintenance; thus, the impacts of clearing in that area will be less than in the new easements where vegetation communities are present. The adjacent communities beyond the PUC easement and along the Common Elements Route are dominated by forest communities, Aspen-Birch Hardwood.

Direct impacts associated with wetland communities will require further review to determine full extent of habitat loss and if avoidance can be achieved and will also require discussion with the local Conservation Authority for permitting. That said, impacts are considered nominal, and vegetation in these areas is generally already subject to varying levels of disturbance from existing recreational trails activities.

As with any construction activities, there is always potential for indirect effects to adjacent retained vegetation features during and following construction (operation) including, but not limited to, the following:

- Release of construction-generated sediment to adjacent habitats
- Vegetation clearing / damage beyond the working area
- Spills of contaminants, fuels and other materials that may reach natural areas
- Changes in drainage patterns (groundwater and/or surface runoff flow) that can impact dependent vegetation / wetland areas located either upgradient or downgradient of the ROW. Blocking of existing surface / subsurface drainage patterns can result in upstream and downstream vegetation dieback / condition changes. An increase in downstream runoff can result in erosion impacts on receiving vegetation.

There are no anticipated effects to vegetation associated with the preferred station footprint itself; however, there will be some direct loss of riparian vegetation within 15 m to accommodate for construction.

#### 7.3.4.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects to vegetation and wetlands related to Project activities, PUC will ensure the following:

- Further refinement to avoid impacts to wetlands associated with the tower locations and access roads, both of which are considered to have a permanent footprint, will be carried out.
- Consult with the SSMRCA to determine permitting requirements in relation to wetland features.

- The limit of any area to be disturbed shall be clearly marked in the field prior to the commencement of the work and shall be maintained for the duration of work until the area is stabilized.
- Delineate all wetlands, watercourses, forests, and entry into these areas for storage of materials shall be prohibited.
- Minimize removal and disturbance of vegetation where removal is required for construction, particularly in the local riparian systems and wetlands. Trees, shrubs, and other vegetation not specified for removal shall be preserved.
- Ensure the use of appropriate vegetation clearing techniques (i.e., felling away from retained vegetation communities and watercourses) to avoid effects / damage to sensitive areas (e.g., riparian and wetland habitats).
- Avoiding placing a tower at known locations of the one provincially rare species (i.e., S-rank S1 – S3), Canada Cinquefoil. Transplantation of this species could be considered upon further consultation with SSMCA.
- The Erosion and Sediment Control (ESC) fencing shall also serve to mark the vegetation clearing zones and prevent encroachment into vegetation beyond ESC fencing.
- Complete stripping and grading during frozen ground conditions where possible in proximity to wetlands.
- Reduce grading within wetland boundary. Do not use temporary workspace within the boundaries of wetlands.
- Regular environmental monitoring/inspection shall be implemented throughout construction to ensure that environmental protection measures are implemented, maintained and repaired and that remedial measures are initiated where warranted.
- The duration of soil exposure shall be limited, and construction shall be staged where possible to minimize the amount of exposed soil.
- Shoreline or banks disturbed by any activity associated with the Project shall be stabilized immediately to prevent erosion and/or sedimentation, preferably through revegetation with native species suitable for the site. No seed or cover shall come in contact with waterbodies.
- Construction materials shall be removed from the site upon Project completion.
- Re-stabilize and re-vegetate all exposed surfaces as soon as possible using appropriate native plantings / seed mix, except in wetland areas, where natural recovery is the preferred method of reclamation. Do not seed wetland areas.
- During operations, no herbicides are to be used for ROW maintenance on a routine basis.
- Select spraying for weed and vegetation control may be carried out for station maintenance, as required, by a licensed Applicator or under the supervision of a licensed Supervisor.
- The licensed Applicator/Supervisor will have the responsibility to assess the work areas prior to any application of herbicide to identify the following:
  - Environmental values/areas of concern, and
  - Landowner and/or property restrictions.
- The licensed Applicator/Supervisor will record the product applied and particulars of the application (e.g., date and time, meteorological data, and weather conditions).

#### 7.3.4.3 NET EFFECTS

The proposed Project is expected to result in removal of vegetation communities which will require further refinement to minimize these areas of potential impacts based on tower location and gravel road access. That said, impacts are expected to be local, low magnitude, and likely to not have long-term effect. With the implementation of the mitigation measures described above, the proposed Project is not anticipated to have significant adverse net effects on vegetation and wetland communities.

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### 7.3.5. SURFACE WATER, FISH AND AQUATIC HABITAT

#### 7.3.5.1 POTENTIAL EFFECTS

The transportation corridor and station footprint themselves can likely avoid direct footprint impacts to fish and fish habitat with strategic placement of the towers. However, the gravel access roads may require a direct footprint involving in-water works (i.e., culverts), which could have a direct effect on fish and fish habitat. The Preferred Route Option includes crossings of: Bennett Creek at two locations (coldwater, permanent); and one crossing of a tributary to West Davignon Creek on a skew (coldwater, permanent); two (2) location of Bennett-West Davignon Creek Flood Diversion Channel and three (3) of West Davignon Creek (coldwater, permanent). Along the existing PUC easement, the transmission line will cross over Fort Creek, East Davignon Creek (2 locations) and West Davignon Creek (2 locations). In addition, the Preferred Route will be located along manmade sections of the Bennett-West Davignon Creek Flood Diversion Channel which currently has high levels of disturbance from road activity, maintenance activities, urban runoff and highly variable flows.

Temporary indirect effects are possible if mitigation measures are not properly implemented as described in **Section 7.3.7.2** below. The temporary construction-related effects to fish and fish habitat associated with the transmission line works may consist of the following:

- Potential sedimentation and erosion associated with the excavation of bank material;
- Addition of deleterious substances to the watercourses such as sediment, fuel, oil, and lubricants associated with the use of heavy machinery; and,
- Removal of riparian vegetation.

The proposed works associated with the gravel access road is assumed to involve in-water works, as such, it is likely to have direct effects on fish and fish habitat. Station Option 1-A is directly adjacent to West Davignon Creek which is a highly disturbed and altered watercourse.

Temporary indirect effects are possible if mitigation measures are not properly implemented as described in **Section 7.3.7.2** below. The temporary construction-related effects to fish and fish habitat associated with the transmission line works may consist of the following:

- Potential sedimentation and erosion associated with the excavation of bank material;
- Addition of deleterious substances to the watercourses such as sediment, fuel, oil, and lubricants associated with the use of heavy machinery; and,
- Removal of riparian vegetation.

#### 7.3.5.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects to surface water, fish and aquatic habitat, PUC will ensure the following:

- Implement opportunities to avoid direct in-water works, such as the placement of towers situated away from top of bank and the floodplain (15 m setback) to avoid introducing deleterious substances into the watercourses.
- No construction activity in a watercourse or wetland (i.e., in-water work) will occur during the restricted activity period, which occurs between September 1 and June 15 (DFO, 2013) for coldwater watercourses and April 1 to June 15 (DFO, 2013) for coolwater watercourses (this window should be confirmed by the MECP), of any given year unless:
  - it is dry or frozen to the bottom at the time of construction, or
  - approval from the responsible regulatory authority is obtained.
- Any in and/or near-water work, work within or near wetlands or new culverts required for access roads, should only occur after necessary approvals have been obtained from agencies including but not limited to the DFO and SSMRCA.
- Activities that are proposed through, over or near a watercourse warrant further consideration to ensure compliance with the *Fisheries Act* and DFO's measures to protect fish and fish habitat.

- If in-water works are required, complete a self-assessment to determine if through common mitigation practices harm to fish and fish habitat can be avoided. Where this is not possible or unclear, a Request for Project Review (RfR) will be completed and submitted to the DFO for comment.
- If DFO determines that an Authorization is required, a *Fisheries Act* Authorization permit application will be submitted to DFO.
- During construction, a *Licence to Collect Fish for Scientific Purposes* will be obtained from the local MNR office to relocate fish during any temporary isolation of flows, if required.
- Work shall be scheduled to avoid wet, windy and rainy periods that may increase erosion and sedimentation.
- ESC measures shall be installed around all watercourses and wetlands prior to the initiation of construction works to prevent encroachment and the transfer of deleterious substances (e.g., sediment from exposed soils) into the aquatic habitat.
- ESC measures shall be inspected and maintained to ensure they are functioning as intended throughout the construction period and until such time that construction is complete and disturbed areas have been stabilized. The ESC measures that are failing shall be repaired/replaced as soon as possible.
- The size of disturbed areas shall be limited by minimizing non-essential clearing and grading.
- Storage and stockpiling of soil and other fill material shall be located a minimum of 30 m away from any watercourses and wetlands.
- The Contractor shall develop an Emergency Response Plan to be implemented immediately in the event of a sediment release or a spill of a deleterious substance. It shall include keeping an emergency spill kit on site when working in or near water.
- ESC measures that are non-biodegradable must be removed from the site when work is complete, and the site is stabilized.
- Construction-related materials, equipment, and construction-generated materials (e.g., sediment in dewatering or runoff from exposed soils, stockpiled soils or other materials from clearing and grubbing) shall be properly stored/contained, maintained, filtered and otherwise handled and managed throughout and following construction.

### 7.3.5.3 NET EFFECTS

There is anticipated to be some impacts to fish and fish habitat which is likely to be low in extent, spatial scale and magnitude. Review by DFO and the local Conservation Authority should be carried out when the full extent of impacts are known. That said, with the implementation of the mitigation measures described above, the proposed Project is not anticipated to have significant adverse net effects on surface water, fish or aquatic habitat.

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## 7.3.6. WILDLIFE AND SIGNIFICANT HABITAT

### 7.3.6.1 POTENTIAL EFFECTS

Wildlife habitat effects are generally similar to those described for vegetation (i.e., direct effect to meadow, marsh and some woodland habitat). Potential effects would include disturbance to nesting birds or possibly loss of nests or young, if nests are present in the year of construction.

Although no confirmed wildlife habitat features (e.g., turtle nesting habitat along the gravel road shoulders, amphibian breeding habitat) there is potential that along the preferred route these habitats do exist. That said, they are not limiting to the general area and given the current disturbance by human activity and existing cleared PUC easement, wildlife are likely to be using more suitable habitat in the Natural Heritage Assessment Study Area. Refer to Section 8.3.9 for grassland bird habitat effects.

No potential effects are anticipated at the preferred station location given the highly disturbed and cleared area.

### 7.3.6.2 MITIGATION AND MONITORING MEASURES

Nesting migratory birds are protected under the *Migratory Birds Convention Act, 1994* (MBCA). No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of birds species protected under the MBCA and/or Regulations under that Act.

In order to protect nesting migratory birds, in accordance with the MBCA, PUC will ensure that:

- Vegetation removal (including grubbing) will be avoided during the identified migratory bird nesting season (April 1 to August 31).
- If vegetation clearing and grubbing occur between March 25 and August 31, it shall be preceded by nest surveys conducted by an avian biologist not more than two days prior to the work.
- No active nests (nests with eggs or young birds) will be removed or disturbed in accordance with the MBCA.

If a nesting migratory bird is identified within or adjacent to the construction site and the construction activities are such that continuing construction in that area would result in a contravention of the MBCA, all activities will stop, and the Contract Administrator and Environment Canada will be contacted to discuss mitigation options.

For the protection of wildlife in general, the contractor will ensure that:

- Any wildlife incidentally encountered during construction or operation will not be knowingly harmed and will be allowed to move away on its own. In the event that an animal encountered during construction does not move from the construction zone and construction activities are such that continuing construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified.
- Any equipment parked overnight in the area will also be inspected to ensure no wildlife have climbed into or beneath it.
- Disturbed areas will be regraded and reseed, where practical.

### 7.3.6.3 NET EFFECTS

With the implementation of the mitigation measures described above, the proposed Project is not anticipated to have significant adverse net effects on wildlife, wildlife habitat or significant wildlife habitat.

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## 7.3.7. SPECIES AT RISK

### 7.3.7.1 POTENTIAL EFFECTS

There is moderate / high potential for 10 Endangered and/or Threatened species to be present along the Preferred Route. Although there were no recorded Eastern Meadowlark during the surveys and only 'possible' breeding recorded for Bobolink along the Preferred Route, habitat is present for Bobolink along the Common Elements Route in the existing PUC easement as well as along the Preferred Route adjacent to the Bennett-West Davignon Creek Flood Diversion Channel. The proposed alignment north of Third Line only effects the perimeter of breeding habitat; however, the transmission line will traverse through larger sections of breeding habitat south of Third Line.

The reasonable likelihood and magnitude of effects to the species are generally considered to be Low. It is anticipated that there may be some flexibility in regard to structure placement that can limit disturbance in areas that may be most sensitive. Additionally, construction planning to avoid sensitive periods for wildlife may further minimize impacts to species. Opportunities to avoid or minimize impacts to SAR and/or their habitats are outlined below.

- SAR birds occurring within the general area, such as Chimney Swift, Barn Swallow and Bank Swallow may forage over the Natural Heritage Assessment Study Area. By avoiding existing structure

removal or demolition and leaving the banks of watercourses undisturbed, most permanent effects to the habitat of these species can be prevented.

- Species that are dependent on open habitats of meadows or fields, including Bobolink, Eastern Meadowlark, Nine-spotted Lady Beetle, Gypsy Cuckoo Bumble Bee, and Rusty-patched Bumble Bee would use these habitats during the spring and summer months. Limiting permanent effects to these areas and avoiding construction during the period in which this habitat is used (e.g., spring and summer), would avoid and/or minimize effects to the species and their habitat. It should be noted that the last observation of Nine-spotted Lady Beetle in Ontario was in 1987. The observations of multiple Bobolink at Stations 8, 9 and 11 during the breeding bird window during the two survey dates suggests that individuals are likely using the habitat for breeding and as such, these habitats are likely to be regulated under the *Endangered Species Act, 2007*. Further discussions with MECP are required to determine permitting implications once design details of the preferred route are completed. Current practice for effects to breeding habitat of Bobolink include a Notice of Activity to MECP where mitigation / compensation / monitoring are required for habitat lost or payment through the SAR Conservation Fund for lost habitat.
- Turtles may use watercourses, wetlands and nearby gravelly areas as habitat. It is presumed that in-water work can be avoided and measures to protect adds, including exclusionary fencing, will be employed.
- There is a low probability that aquatic SAR occur within the watercourses that are proposed for crossing along the routes; however, avoidance of in-water work or activities within the meander belt of direct habitat is possible.

Given the highly disturbed nature of the Station location, there is low likelihood of SAR and/or their habitat to be present.

#### 7.3.7.2 MITIGATION AND MONITORING MEASURES

To mitigate potential effects to SAR related to Project activities, PUC will ensure the following:

- Avoiding placing a tower at known locations of the one provincially rare species (i.e., S-rank S1 – S3), Canada Cinquefoil. Transplantation of this species could be considered upon further consultation with SSMRCA.
- If a SAR or possible SAR is encountered in the construction area and the construction activities are such that continuing construction in that area would result in a contravention of the *Endangered Species Act, 2007*, all activities shall stop, and the Contract Services Administrator will be notified immediately. The Contract Services Administrator will then contact MECP for direction.
- SAR or potential SAR will not be handled prior to consulting with the MECP SAR Biologist.
- Species that are dependent on forested areas or treed habitats at specific times of year (e.g., SAR bats and migratory birds) can be protected by applying timing restrictions to tree removal. For forest communities that require removal for the transmission line will require further consultation with MECP to determine if acoustic surveys are required to confirm roosting habitat use and potential compensation measures prior to any construction activities such as vegetation/tree clearing.
- Tree removal should occur outside the SAR bat active season (March 25 to September 30) to avoid harming SAR bats that may be roosting/resting in these trees.
- If work is scheduled during the turtle nesting season (June 1 to September 30), silt fencing shall be installed at the perimeter of the work zone prior to April 30 to exclude nesting turtles adjacent to wetlands and watercourses.

#### 7.3.7.3 NET EFFECTS

The project will likely result in net residual effects associated with loss of SAR grassland bird habitat (Bobolink) associated with the permanent footprint impacts (i.e., towers and gravel road access). Overall, the extent of this residual effect is anticipated to be low in scale and magnitude.

# 8 EFFECTS MONITORING

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## 8.1 PRE-CONSTRUCTION PHASE

Prior to commencement of construction the following activities should take place:

- Obtain and review permits, and approvals as outlined in **Section 1.5.2**.
  - If species at risk timing restrictions cannot be avoided for vegetation / tree clearing activities, monitoring will be required to confirm habitat use and potential compensation measures prior to any construction activities.
  - Development of an Environmental Protection Plan (EPP).
  - Review of the most recent PUC's Contractor Policy and EPP (if developed).
  - Emergency and Health and Safety plans should be developed and reviewed with construction staff.
  - Project-specific environmental awareness training.
- 

## 8.2 CONSTRUCTION PHASE

During construction, the following activities should take place:

- Appointment of an Environmental Inspector who should be on-site on a routine basis to monitor construction activities. The Environmental Inspector will monitor the Project for potential environmental concerns, provide guidance on environmental protection, if required, and support overall successful construction completion.
  - 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;
    - Provide specific directions to construction personnel on the implementation of environmental mitigation measures, response plans, and other information (e.g., identification of a species at risk);
    - Ensure that supporting protection plans have been implemented during construction;
    - Outline steps to be taken when documenting monitoring and identify procedures for follow-up actions, as required; and,
    - Provide specific directions to construction crews.
  - The EPP should be present during construction for staff to reference.
  - Environmental monitors should be used, as required (e.g., interaction with wildlife).
  - Emergency and Health and Safety Plans should be available at the work site for all staff to review.
- 

## 8.3 POST-CONSTRUCTION PHASE

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. Post-construction monitoring will be conducted to ensure that the area has been returned, as much as practical, to equivalent-to pre-construction conditions or better.

## 9 CONCLUSION

PUC, as the Project proponent, is seeking approval under the EA Act for the construction of a new transmission line and transformer station in the city of Sault Ste. Marie.

The purpose of the proposed Project is to transmit electricity required for an additional electrical load of 300 MW to serve the immediate need for increased power supply to Algoma Steel for its new electric arc furnaces (EAF) project.

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

As part of the site selection process, socio-economic, biophysical, and technical criteria were established to identify and evaluate alternative route and station options. Based on the analysis undertaken, Route Option D and Station Option 1-A were selected as the preferred route and station for the proposed Project.

PUC has conducted a consultation program to inform municipal, provincial, and federal government officials and agencies indigenous communities, and potentially affected and interested persons about the proposed Project. Through this process, issues and concerns were identified and resolved, and communications are ongoing where needed to continue dialogue with interested parties.

Potential short- and long-term environmental effects were identified, and corresponding mitigation measures were developed to address these effects. In consideration of the environmental effects assessment for the preferred route and station, some socio-economic and biophysical effects are anticipated as a result of Project construction and operation; however, no significant adverse effects were identified. Overall, effects range from short to long-term in duration, yet effects are anticipated to be negligible and local, considering the implementation of the mitigation measures proposed.

The adherence to applicable municipal by laws and permit conditions and implementation of mitigation measures will help to ensure that potential effects to the socio-economic and biophysical environments are minimized. On-going consultation with Indigenous communities and engagement with local residents, local municipalities and other stakeholders will also be important for the successful completion of the Project.

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