

**The Town of Cobourg and The Cobourg East Development Owners
Group**

Project File Report

**Cobourg East Community Secondary Plan Area Municipal
Servicing Class EA**

May 2023

C14-0454

CIMA+

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Project File Report

Cobourg East Community Secondary Plan Area Municipal Servicing Class Environmental Assessment Project No. C14-0454

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1 Introduction

The Town of Cobourg and the Cobourg East Development Owners Group are the proponents of a Municipal Class Environmental Assessment (EA) Study to provide water and wastewater servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). The need to provide municipal water and wastewater services to the Cobourg East Secondary Plan Area was identified in the Secondary Plan (Town of Cobourg, 2005).

The municipal water and wastewater trunk services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments.

CIMA Canada Inc. (CIMA+) were retained by the Cobourg East Development Owners Group to complete the Schedule B Class EA Study to identify, evaluate and recommend the preferred alternative for servicing Cobourg East.

This Project File Report documents the information corresponding to Phases 1 and 2 of the Class Environmental Assessment process.

1.1 Purpose of Study

The objective of this study is to satisfy the Class EA requirements outlined in the Municipal Class EA document (MEA, 2015) in order to allow the project to proceed to implementation.

This Project File Report has been developed to:

- Develop a problem/opportunity statement to provide the rationale for undertaking the Class EA study
- Provide a full review of alternative water and wastewater servicing solutions to address the problem/opportunity statement and identify a short list of feasible alternatives to be carried forward through a detailed evaluation process
- Determine the preferred approach to accommodate future needs

1.2 Related Documents and Projects

1.2.1 Provincial Policy Statement

The Provincial Policy Statement (PPS) (2020) provides direction to municipalities on matters related to land use planning and development. The PPS sets the policies to regulate the development and use of land while enhancing the quality of life of Ontario residents. The policies require that the infrastructure for public service facilities shall be integrated with growth management so that they meet the forecasted needs of the Town

of Cobourg. The PPS emphasizes the need to develop water and wastewater services to meet the expected growth, while sustaining the water resources and protecting the natural and cultural environment.

Policy 1.6 of the PPS provides direction to municipalities regarding infrastructure and public service facilities. Key policies state that infrastructure “shall be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs”. Policies 1.6.3 and 1.6.4 state that the use of existing infrastructure should be optimized before consideration is given to developing new infrastructure and infrastructure should be strategically located to support effective and efficient delivery of emergency management services. With respect to wastewater, key sections of Policy 1.6.6 state that planning for sewage services shall:

- Ensure that these systems are provided in a manner that: i) can be sustained by the water resources upon which such services rely; ii) prepares for the impacts of a changing climate; iii) is feasible and financially viable over the lifecycle; and iv) protects human health and safety, and the natural environment;
- Promote water conservation and water use efficiency; and
- Integrate servicing and land use considerations at all stages of the planning process.

The PPS also provides direction to regional and local municipalities on infrastructure and public service facilities, specifically sewage, water and stormwater. Section 1.6.6.1 provides planning policies for water servicing that accommodates expected growth in a manner that promotes the optimization and efficient use of existing municipal water services.

Policy 2.0 of the PPS provides for the protection of natural heritage, water, agricultural, mineral, cultural heritage and archaeological resources for their economic, environmental and social benefits. Policy 2.1 Natural Heritage identifies that natural features and areas shall be protected for the long term. Specifically, site alteration shall not be permitted in or adjacent to significant wetlands, significant woodlands and valleylands, significant wildlife habitat and significant areas of natural and scientific interest unless the ecological features and areas have been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions. Mitigation measures may be considered to protect, improve, or restore sensitive surface water features, sensitive ground water features and their hydrologic functions.

1.2.2 Town of Cobourg Official Plan – Cobourg East Community Secondary Plan

In June 2005, the Town of Cobourg adopted Official Plan Amendment No. 61 – Cobourg East Community Secondary Plan. Subsequent Official Plan amendments, including Official Plan Amendment No. 66 and No. 76, have been adopted to constitute the current Cobourg East Community Secondary Plan. The Secondary Plan consists of land use designations, unit densities, development policies, and a high-level municipal servicing strategy for Cobourg East.

Cobourg East is approximately 571 ha, and is bound by Highway 401 to the north, the CN/CP railway corridor to the south, the Town border to the east and existing developments to the west. Per the Secondary Plan, Cobourg East is proposed to consist of Living, Employment, Commercial, Community and Environmental Areas.

Table 1 summarizes designated Cobourg East land uses per the Secondary Plan.

Table 1: Cobourg East Land Uses

LAND USE	HECTARES	PERCENTAGE OF TOTAL
Residential	241	42.2
Employment	96	16.81
Service Commercial	5	0.88
Mixed Use	4	0.7
Elementary Schools	18	3.15
High School	5	0.88
Places of Worship	5	0.88
Environmental Protection	159	27.85
Parkland	38	6.65
TOTAL:	571	100

As shown in **Table 1**, 42% of Cobourg East is designated residential area. The Secondary Plan specifies that 65% of the new residential dwellings will be low density with the remaining 35% being medium density. The below unit densities are set out in the Secondary Plan:

- Low Density: 20 – 25 units per hectare and 2.93 people per unit
- Medium Density: 40 units per hectare and 1.83 people per unit

As such, the full build out population of Cobourg East is estimated at approximately 16,500 people based on the Secondary Plan. This number could be inflated to a

population in excess of 20,000 people if limited high density residential development occur in some areas.

Additionally, policies within the Secondary Plan were developed with the understanding that the ability of Cobourg East to attract employment would be a key driver to the success of the area as a whole. As shown in **Table 1**, it was estimated that employment development in Cobourg East would encompass 96 Ha of land. At an estimated employment density of 37.5 employees per hectare, the Secondary Plan area could support a working population of approximately 3,600 employees.

The Secondary Plan excluded approximately 159 Ha of land in Cobourg East from development due to environmental constraints and/or lands of importance from a natural heritage perspective. Cobourg East contains an abundance of natural heritage features and a significant portion of environmentally protected land. The Secondary Plan aims to establish a land use framework that would link natural heritage features and create an open-space system that would provide the greatest benefit to community residents.

The Secondary Plan notes that all new development within Cobourg East shall be serviced by municipal water and sewer services. Existing development within Cobourg East shall also, over time, be connected to the same municipal services, as appropriate. As described in **Section 1.2.3** below, KMK Consultants Limited on behalf of the Town of Cobourg, developed a high-level servicing strategy to support the Secondary Plan.

1.2.3 Cobourg East Community Municipal Servicing Summary Report, KMK Consultants Limited

In November 2004, KMK Consultants Limited (KMK), as part of a team hired by the Town of Cobourg to develop the Secondary Plan for the Cobourg East Community, was tasked with analyzing water, wastewater and stormwater servicing requirements for Cobourg East.

The report evaluated existing distribution and collection systems, Town of Cobourg design criteria, and estimated future demands to develop servicing alternatives that would provide sufficient capacities to service the Cobourg East area at full build-out.

The preferred water servicing strategy for treatment and distribution was to construct a new reservoir and pumping facility within Zone 3 that would provide pumped storage for Zones 2 and 3 and address storage deficits in Zone 1, and construction of an elevated water tank to service Zone 3.

The preferred wastewater servicing strategy was to direct wastewater flows from the entirety of Cobourg East southeasterly toward Water Pollution Control Plant (WPCP) #2

in the Town of Cobourg with a connection to the existing sewer network south of the CN/CP rail corridor (or the southern limit of Cobourg East) at Wilmott Street and County Road 2 (King Street East).

1.2.4 Cobourg Drinking Water System Master Plan, CIMA+

In July 2021, CIMA+, on behalf of Lakeview Utility Services Inc. (LUSI), concluded the Cobourg Drinking Water System Master Plan (Water Master Plan) process and published a series of five (5) technical memoranda and one (1) supplemental technical memorandum evaluating the Town of Cobourg drinking water system (DWS) demands; current and future, and infrastructure; existing and required.

Technical Memorandums No. 2 & 3 – Treated Water Storage Requirements, identified major deficiencies and operational constraints in treated water storage and pumping infrastructure within the Cobourg DWS and identified upgrade requirements and a preliminary preferred solution to address long-term treated water pumping and storage needs for the Town of Cobourg. The preliminary preferred alternative for satisfying treated water pumping and storage requirements in the Town of Cobourg, and the alternative that LUSI has chosen to proceed with following public consultation completed as part of the Master Plan process, includes:

- A new Zone 1 Elevated Tank and co-located Zone 2 Booster Pumping Station to address treated water storage and pumping needs;
- New Zone 2 twin, at-grade tanks to accommodate future Zone 2 growth; and
- New Zone 3 Booster Pumping Station to service growth in Zone 3.

Technical Memorandums No. 2 & 3B – Evaluation of Potential Storage and Pumping Facility Site Locations, identified a preferred site for a combined Zone 1 Elevated Tank and Zone 2 Booster Pumping Station, determined in TM 2 & 3 to be the preferred alternative for satisfying short-term treated water pumping and storage needs. The preferred site for a combined Zone 1 Elevated Tank and Zone 2 Booster Pumping Station is at the rear of Buildings 18 and 19 of the Northam Industrial Park on property owned by the Town of Cobourg, ± 560 m north of the existing rail corridor and ± 230 m east of D'Arcy Street. LUSI is currently in the process of moving forward with preliminary investigations and assessment processes to confirm the suitability of the site for construction.

Technical Memorandum No. 5 – Water Distribution System Assessment (TM-5), provided a general description of the existing distribution system and identified system expansion requirements to support future growth. Conceptual alignments for future trunk and sub-trunk watermains in Cobourg East were identified through TM-5. These alignments have been used as a basis for this study.

1.2.5 Cobourg Trails External Servicing Functional Servicing Report, CIMA+

In January 2022, CIMA+, on behalf of Tribute Rondeau Partnership Limited (Tribute) prepared an external servicing Functional Servicing Report (FSR) to determine the municipal servicing requirements for the Cobourg Trails development. The FSR consolidated background information, calculations, and design details to support the following objectives:

1. Advance initial conceptual designs previously prepared by D.G. Biddle in 2020 to develop a functional design for the provision of a trunk sanitary sewer external to Tribute's Cobourg Trails lands that will service those lands by providing a connection to Water Pollution Control Plant #2 (WPCP #2).
2. Identify for the Town of Cobourg the extent to which such an external trunk sewer traversing most of the Cobourg East Community at considerable depth (i.e., 7 to 10 m) can potentially service other developable lands in the secondary plan area conveying flows to WPCP #2 consistent with the concept originally put forward by KMK Consultants Limited in 2004.
3. Advance the design of several trunk and sub-trunk watermain projects identified in the 2021 Cobourg Waster Master Plan from a concept level of detail to a functional design level of detail and confirm that the watermain network as proposed is adequate.

1.2.6 Cobourg Zone 1 Elevated Tank and Zone 2 Booster Pumping Station Class EA, CIMA+

Lakefront Utility Services Inc., on behalf of the Town of Cobourg, is planning to construct new infrastructure to address existing constraints in Zone 1 and Zone 2 of the Town of Cobourg's water distribution system.

In March 2023, CIMA+ on behalf of Lakefront Utility Services Inc. prepared a Project File Report to document the findings of a Schedule B Class EA Study. The study approach involved understanding the issues with the existing system, identifying alternative solutions and evaluating alternatives to determine the preferred solution. The study built upon the Cobourg DWS Master Plan.

The Class EA problem statement was defined as follows:

As identified in the Cobourg DWS Master Plan, a solution is required to address storage capacity constraints in Zone 1 of the Town of Cobourg's distribution system and pumping capacity limitations in Zone 2.

Additional storage and pumping capacity is required to provide redundancy and security of supply, meet MECP guidelines and Town level of service requirements, improve operational flexibility and efficiency while reducing energy consumption.

Several alternative solutions were evaluated to address the problem statement. The preferred alternative identified was to construct a new Zone 1 Elevated Tank and a new Zone 2 Booster Pumping Station.

Five different sites were considered for the construction of the new facilities. The sites were evaluated based on their technical merit, cost and with respect to their impact on the natural and social/cultural environment. The preferred site identified was 700 D'Arcy Street, southeast of the Cobourg Community Center.

2 Environmental Assessment Process

This section describes the Environmental Assessment (EA) process and the specific requirements associated with this study.

2.1 Environmental Assessment Act

Ontario's Environmental Assessment Act, R.S.O. 1990 (henceforth referred to as "the Act") was passed in 1975 and proclaimed in 1976. The planning of major municipal projects or activities is subject to the Act and requires the Proponent to complete an EA, including an inventory and description of the existing environment in the area affected by the proposed activity (Ontario, 2021).

The Act defines the environment broadly as:

- Air, land or water
- Plant and animal life, including human life
- The social, economic and cultural conditions that influence the life of humans or a community
- Any building, structure, machine or other device or thing made by humans
- Any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities, or
- Any part or combination of the foregoing and the interrelationships between any two or more of them

The purpose of the Act is the betterment of the people in the whole or any part of Ontario by providing for the protection, conservation and wise management of the environment in the Province (RSO1990, c. 18, s.2).

As set out in Section 5(3) of the Act, an EA document must include the following:

1. A description of the purpose of the undertaking including:

- The undertaking
- The alternative methods of carrying out the undertaking
- Alternatives to the undertaking

2. A description of:

- The environment that will be affected or that might reasonably be expected to be affected, directly or indirectly, by the undertaking or alternatives to the undertaking.
- The effects that will be caused or that might reasonably be expected to be caused to the environment by the undertaking or alternatives to the undertaking.

- The actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment by the undertaking or alternatives to the undertaking.
- An evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking.

2.2 Principles of Environmental Planning

The Act (Ontario, 2021) sets a framework for a systematic, rational and replicable environmental planning process that is based on five key principles, as follows:

- Consultation with affected parties - Consultation with the public and government review agencies is an integral part of the planning process.
- Consultation allows the proponent to identify and address concerns cooperatively before final decisions are made. Consultation should begin as early as possible in the planning process.
- Consideration of a reasonable range of alternatives – Alternatives should include functionally different solutions to the proposed undertaking and alternative methods of implementing the preferred solution. The “do nothing” alternative must also be considered.
- Identification and consideration of the effects of each alternative on all aspects of the environment - This includes the natural, social, cultural, technical, and economic environments.
- Systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects - The evaluation shall increase in the level of detail as the study moves from the evaluation of alternatives to the proposed undertaking to the evaluation of alternative methods.
- Provision of clean and complete documentation of the planning process – This will allow traceability of decision-making with respect to the project. The planning process must be documented in such a way that it may be repeated with similar results.

2.3 Municipal Class Environmental Assessment

Class Environmental Assessment processes were approved by the Minister of the Environment in 1987 to satisfy the requirements of the Act for municipal projects having predictable and preventable impacts. The Class EA approach streamlines the planning and approvals process for municipal projects which have the following characteristics:

- Are recurring
- Are similar in nature
- Are limited in scale
- Have a predictable range of environmental impacts
- Involve environmental impacts that can be mitigated

The Municipal Class Environmental Assessment document, prepared by the Municipal Engineers Association (MEA, 2015), outlines the procedures to be followed to satisfy Class EA requirements for water, wastewater and road projects. The process includes five phases:

- **Phase 1:** Problem Definition
- **Phase 2:** Identification and Evaluation of Alternative Solutions to Determine a Preferred Solution
- **Phase 3:** Examination of Alternative Methods of Implementation of the Preferred Solution
- **Phase 4:** Documentation of the Planning, Design and Consultation Process
- **Phase 5:** Implementation and Monitoring.

Since projects undertaken by municipalities can vary in their complexity and potential environmental impacts, projects are classified in “Schedules” as follows (MEA, 2015):

- **Schedule A and A+:** Generally, includes normal or emergency operational and maintenance activities. The environmental effects of these activities are usually minimal and, therefore, these projects are exempt from the EA Act.
- **Schedule B:** Generally, includes improvements and minor expansions to existing facilities/infrastructure. There is the potential for some adverse environmental impacts and, therefore, the Proponent is required to proceed through a screening process including consultation with those who may be affected.
 - Typical projects that follow a Schedule B process include projects requiring watercourse crossings, projects requiring property acquisition, construction of watermains and sewers outside of existing road allowances and construction of pumping stations and water reservoirs/ elevated storage tanks.
- **Schedule C:** Generally, includes the construction of new water and wastewater treatment facilities and major expansions to existing facilities.

It is important to note that the Schedule assigned to a particular project is proponent-driven. For example, even if a project can be categorized as Schedule A, the proponent can decide to comply with the requirements of a Schedule B or C of the MEA process.

based on the magnitude of anticipated impacts or the special public and agency consultation requirements specific to that particular project (MEA, 2015).

Public and agency consultation are integral to the Class EA planning process, with minimum consultation requirements varying depending on the project's Class EA Schedule.

The Class EA process provides an appeal mechanism to change the project status. Under the provisions of Subsection 16 of the amended EA Act, there is an opportunity under the Class EA planning process for the Minister to review the status of a project. Members of the public, interest groups and review agencies may request the Minister to require a Proponent to comply with section 16 of the EA Act before proceeding with a proposed undertaking. For Schedule B and C projects the public can request additional investigation by filing a section 16 Order Request to the Ministry of the Environment, Conservation and Parks. The Minister determines whether this is necessary, with the Minister's decision being final. The procedure for dealing with concerns, which may result in the Minister, by order, requiring the Proponent to comply with section 16 of the Act is outlined in the MEA document (MEA, 2015). Changes to the Act found in the *More Homes, More Choice Act, 2019* resulted in a change to section 16 Order requests. This change removed the opportunity for anyone to request a section 16 Order (formerly a Part II Order) for any project unless the order may prevent, mitigate or remedy adverse impacts on existing Aboriginal and treaty rights.

It should be noted that amendments to the Class EA process were approved on March 3, 2023. The amended Class EA (MEA, 2023) provides transition processes for projects that were underway prior to the amendments being adopted. However, for projects such as this, where a Notice of Commencement has been issued prior to March 3, 2023 the project may proceed following the previous MEA Class EA (October 2000, as amended in 2007, 2011 & 2015). The decision was made to complete the project continuing to follow the previous MEA Municipal Class EA process.

2.4 Canadian Impact Assessment Act Compliance

The Impact Assessment Act S.C. 2019 received royal assent in June 2019 and replaced the Canadian Environmental Assessment Act S.C. 2012. Projects are subject to Impact Assessments under the Impact Assessment Act if they are listed within the Physical Activities Regulations, also known as the "Project List". Examples of projects on the Project List include nuclear, pipeline and mining projects. The project subject to this EA study is not subject to an Impact Assessment per the Impact Assessment Act.

2.5 Project Class EA Schedule

As indicated in Section 2.3, this project proceeded in accordance with the Class EA process outlined in the previous MEA document. This Class EA was completed as a Schedule B project as it generally fits the description listed under Items 1 for Schedule B Water and Wastewater Projects in Appendix 1 of the MEA Class EA document:

- *Establish, extend or enlarge a water distribution system and all works necessary to connect the system to an existing system or water source, where such facilities are not in either an existing road allowance or an existing utility corridor,*
- *Establish, extend or enlarge a sewage collection system and all works necessary to connect the system to an existing sewage outlet where such facilities are not in an existing road allowance or an existing utility corridor. ((MEA), October 2000, as amended in 2007, 2011 & 2015.)*

While portions of the project are within an existing road allowance or an existing utility corridor, segments of the proposed sanitary sewers and watermains are outside of these areas. Schedule B projects require the completion of Phases 1 and 2 followed by Phase 5 (project implementation).

This report documents Phases 1 and 2 of the Municipal Class EA Process.

Phase 1 is documented in **Sections 3 & 4** and Phase 2 is documented in the remaining sections.

3 Problem Definition

3.1 Problem or Opportunity Statement

Phase 1 of the Municipal Class EA planning process defines the Problem/Opportunity Statement to establish the starting point of the Class EA and assist in defining the scope of the project. The Problem/Opportunity Statement for this project has been defined as follows:

To provide water and wastewater servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area.

The municipal water and wastewater trunk services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments.

The servicing alternatives considered required the identification of potential trunk water and wastewater linear infrastructure alignments.

3.2 Project Justification

As discussed in **Section 1.2**, previous studies have been undertaken to determine the water and wastewater infrastructure requirements and the preferred high-level servicing solutions to support future growth in the Town of Cobourg.

Among other requirements, the Water Master Plan identified the need for a Zone 2 BPS to support the increased Zone 2 demand from development within Cobourg East. Through the Water Master Plan and subsequent Cobourg Zone 1 Elevated Tank and Zone 2 Booster Pumping Station Class EA, it was determined that the preferred site for the BPS was at the rear of Buildings 18 and 19 of the Northam Industrial Park on property owned by the Town of Cobourg. The Water Master Plan also identified the need for a trunk watermain to connect the Zone 2 BPS to Brook Road North, within Cobourg East (Water Master Plan Project 2b). This Class EA study reviewed alternative trunk watermain alignments for Project 2b, to connect the Zone 2 BPS to Brook Road North and determined the preferred alignment.

The preferred wastewater servicing strategy outlined in the Secondary Plan is to direct wastewater flows from the entirety of Cobourg East southeasterly toward WPCP #2. This Class EA reviewed the alternative wastewater trunk sewer alignments to connect Cobourg East with WPCP #2 and determine the preferred alternative.

3.3 Study Area

The Study Area includes the Cobourg East Community Secondary Plan Area as well as boundaries in which linear servicing alternatives for Cobourg East were considered. As per **Figure 1**, the study area is generally bound by Highway 401 to the north, the township line to the east, King Street and Thompson Street to the south and Brook Road N, Willmott Street and existing developments to the west. The study area is approximately 6.93 km² (693 ha) in total.

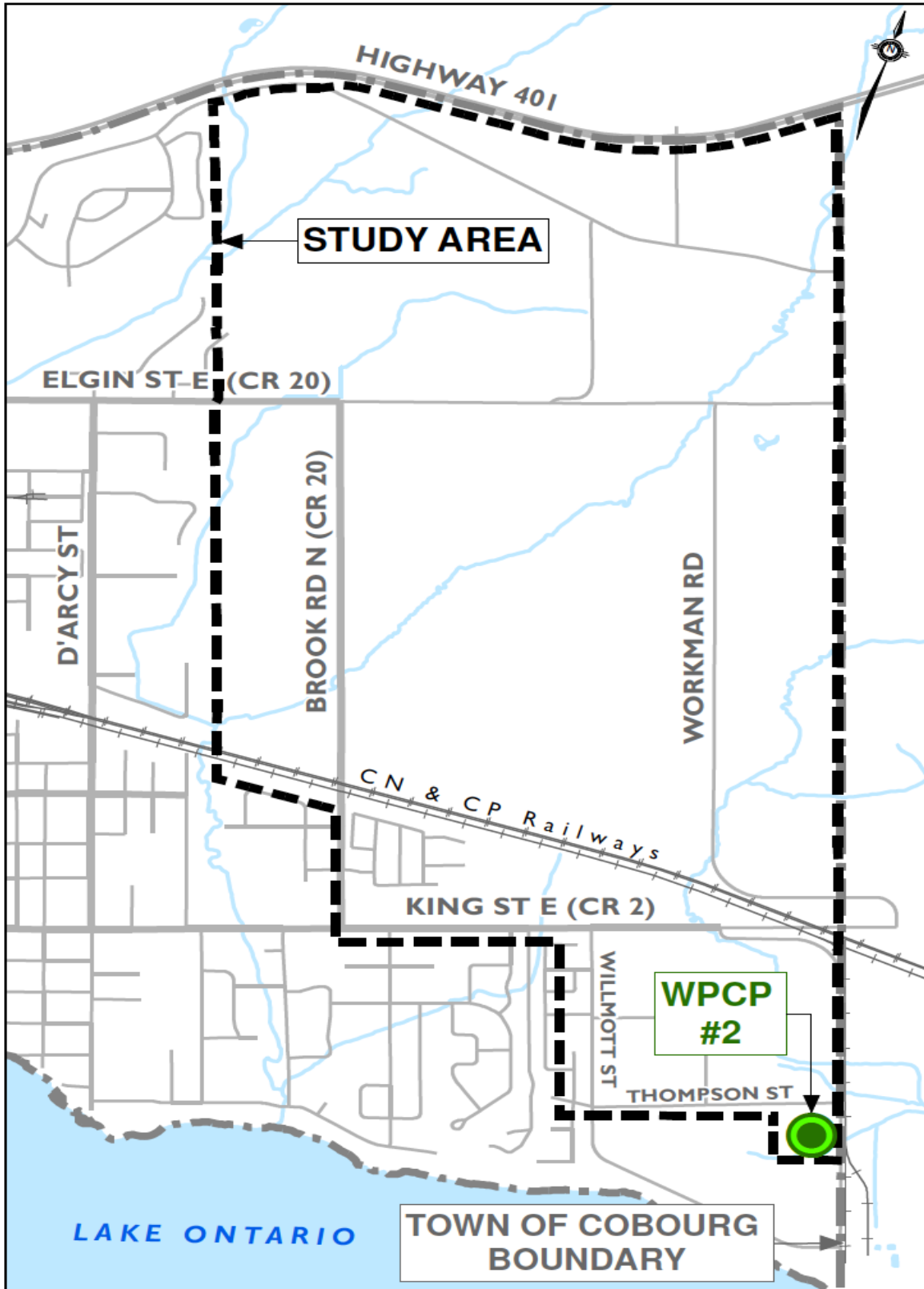


Figure 1: Study Area

3.4 Land Use Projections

As discussed in **Section 1.2.1**, the Secondary Plan includes land use designations for Cobourg East. Schedule X1 of the Official Plan, shown below in **Figure 2**, illustrates the designated Cobourg East land uses.

Further to the Secondary Plan, members of the Cobourg East Development Owners Group have refined the land uses within their respective properties through detailed planning work. In determining the water demand and projected wastewater flows as part of this study, detailed land use information from Tribute and Mistral Land Developments/JMCD North Holdings (Mistral) was used for their respective properties, and land use information from the Secondary Plan was used elsewhere. **Table 2** summarizes the refined Cobourg East land uses to reflect a combination of the detailed planning work completed by the Cobourg East Development Owners Group and the Secondary Plan.

Table 2: Cobourg East Refined Land Use Breakdown

Land Use Type	Land Area (Ha)
Residential and Institutional	289
Commercial	6
Employment (Industrial)	77
Environmental Protection	194

Figure 3 illustrates the Cobourg East Development Owners Group Landownership Map.

As per the Town of Cobourg Official Plan, the lands within the Study Area south of Cobourg East, are generally designated employment area with some residential and mixed-use land directly south of the railway. **Figure 4** illustrates the Town of Cobourg land uses outside of the Cobourg East Community Secondary Plan Area.

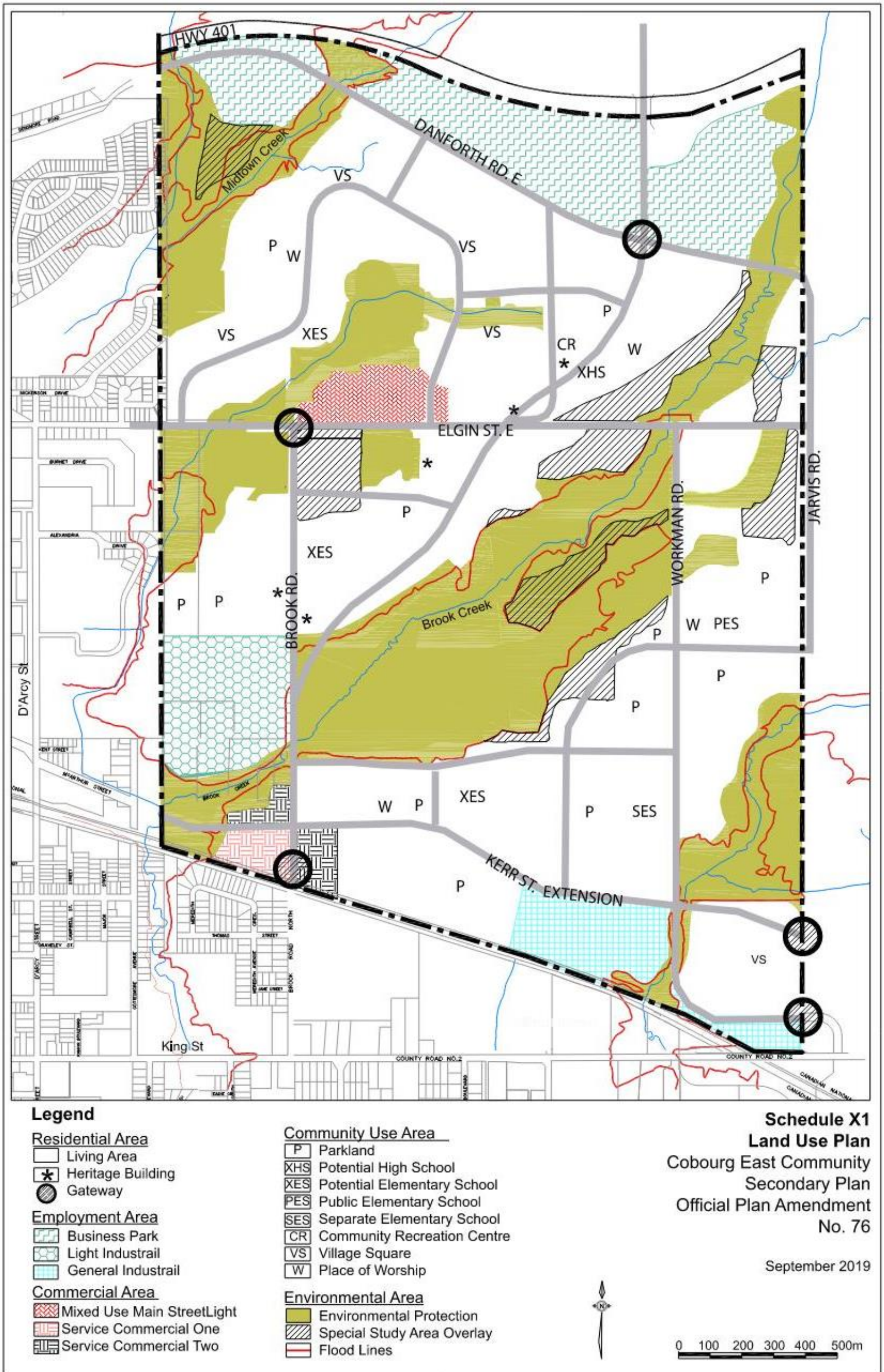


Figure 2: Cobourg East Community Secondary Plan Area Land Use Plan



Figure 3: Cobourg East Development Owners Group Landownership Map

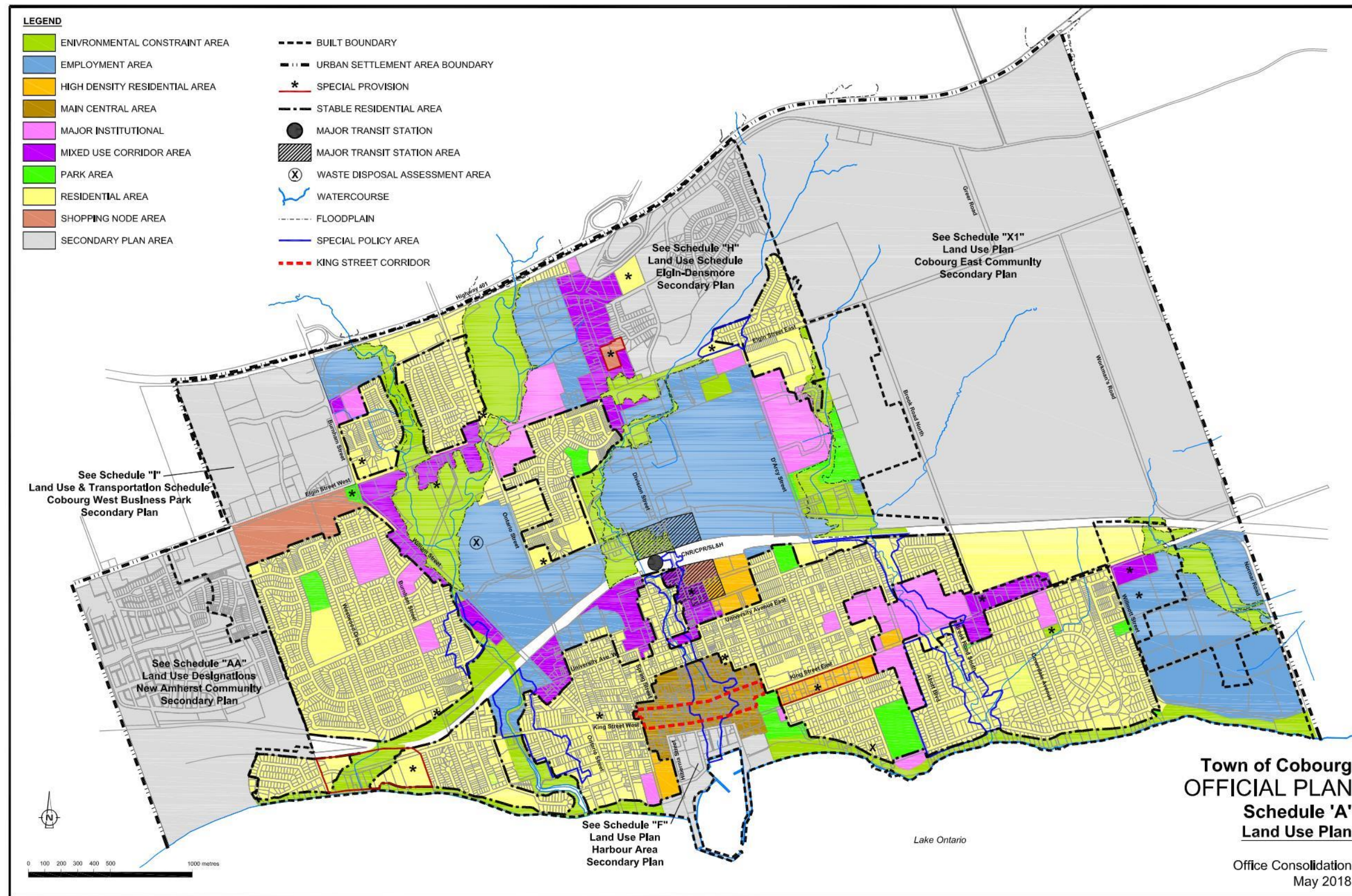


Figure 4: Town of Cobourg Lane Use Plan

3.5 Population Projections

The Secondary Plan assumes that there will be increasing demands for housing within the Town of Cobourg as the Greater Toronto Area continues to expand. Cobourg East is generally the last area within the Town of Cobourg that is undeveloped, and therefore constitutes a large portion of the projected growth in Cobourg.

As discussed in **Section 1.2.2**, the full build out residential population of Cobourg East could be more than 20,000 people. Cobourg East could also support a working population of approximately 3,600 people. The ultimate population to be used in the design of the sanitary and water systems will be confirmed at detailed design.

3.6 Water System Requirements

3.6.1 Design Criteria

The following criteria were used to develop the water servicing alternatives:

- Cobourg Drinking Water System Master Plan, CIMA+, April 2021
- The latest revision of Town of Cobourg Design Guidelines, revised April 2015;
- Design Guidelines for Drinking-Water Systems, Ministry of the Environment (MOE), revised 2008; and
- F-6-1 Procedures to Govern Separation of Sewers and Watermains, Ministry of the Environment, Conservation and Parks, revised July 2021.

3.6.2 Water Demand Projections

The projected water demand for Cobourg East is based on the demand criteria shown in **Table 3** below and the land uses outlined in **Section 3.4**. The criteria listed in **Table 3** has been adopted in the Water Master Plan and is based on historic data.

Table 3: Water System Design Criteria

Criteria	Value	Reference
Average Day Residential Demand	282 L/cap/day	DWS Master Plan (CIMA+, 2021)
Average Day ICI Demand	10.95 m ³ /ha/day	DWS Master Plan (CIMA+, 2021)
Maximum Day Factor	1.7	DWS Master Plan (CIMA+, 2021)
Peak Hour Factor	2.7	DWS Master Plan (CIMA+, 2021)

Maximum day and peak hour demands are obtained by multiplying the average day demand by the corresponding peaking factors.

The Town of Cobourg Design Guidelines specify that watermains shall be designed to carry the greater of maximum day plus fire flow or maximum hour demand. Per the Master Plan fire flows should be at least 150 L/s for residential areas and at least 250 L/s for ICI development.

3.7 Wastewater System Requirements

3.7.1 Design Criteria

The following criteria were used to develop the wastewater servicing alternatives:

- The latest revision of Town of Cobourg Design Guidelines, revised April 2015;
- Engineering design standards for rail crossings as published by the Canadian National Railway (CN) and Canadian Pacific Railway (CP):
 - CN Sanitary Pipeline Crossing Application (September 2007) and accompanying guidelines
 - Canadian Pacific Utility Specification and Application Process (No Date)
 - Canadian Pacific Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks (February 25, 2020)
 - Canadian Pacific Railway (CPR) Specification No. SP-TS-2.39: Pipeline and Utility Installations Buried within Canadian Pacific Railway Right-of-Way in Canada (April 23, 2007)
- Design Guidelines for Sewage Works as published by the Ministry of the Environment (MOE), revised 2008.

3.7.2 Wastewater Flow Projections

Wastewater flow projections for Cobourg East are based on the above noted criteria and the land uses from the Town's latest Official Plan as well as more detailed planning data from Tribute and Mistral outlined in **Section 3.4**.

The total flow contributing to the East Cobourg trunk sanitary sewer system can generally be described as a combination of the following:

1. Flow from future development land in Cobourg East.
2. Flow from existing serviced areas and future infill in the southeastern portion of the Town (varies depending on the servicing alternative).

3.7.2.1 Cobourg East Community - Future Development Land

The following Town of Cobourg Design Guidelines were used to determine the ultimate wastewater flow projections for Cobourg East.

Residential Flows

Table 4: Unit Density and Unit Mix

	Population Per Unit (PPU) ¹	Units Per Hectare
Single-Family Dwelling (SFD) and Semi-Detached	3.23	20
Townhouse	2.68	50
Apartment (Medium Density)	1.62	100

Notes:

1. It is recognized that unit densities/population densities for the Cobourg East area were set out in the Secondary Plan to estimate a population for the Town of Cobourg at full build-out, however, the unit densities from the Town of Cobourg Design Guidelines have been applied for the purposes of conservatively estimating wastewater flow rates herein.

A 65% / 35% mix of low density / medium density residential development in accordance with the range of housing specified in the Secondary Plan (as discussed in **Section 1.2.2**) was assumed for the purposes of evaluating future estimated flows for Cobourg East. The 35% medium density portion of residential development is assumed to be comprised of 30% townhomes and 5% apartments based on the historic understanding of residential development in the Town of Cobourg. As such, where areas have been designated Residential Use, the associated population per hectare is estimated to be 90.29 persons/hectare as shown in **Table 5** below.

Table 5: Residential Densities

Residential Unit Mix		PPU	Units/Ha	Weighted Ppl/Ha
SFD	65%	3.23	20	41.99
Towns	30%	2.68	50	40.2
Apartments (Med. Density)	5%	1.62	100	8.1
			Total	90.29

Dry weather and wet weather flows associated with residential land use were assumed in accordance with Town of Cobourg Design Guidelines.

Table 6: Town of Cobourg Design Guidelines: Residential Wastewater Flow Rates

Land Use Type	Flow
Residential	364 L/person/day
Infiltration	22.5 m ³ /gross ha/day

Based on the above, the flow per hectare contributing to the trunk sanitary sewer system from residential developments is estimated to be 32.87 m³/ha/day.

Non-Residential Flows

To estimate non-residential wastewater flows contributing to the wastewater system from planned future development in Cobourg East, the following flow rates based on land use type were applied in accordance with the Town of Cobourg Design Guidelines:

Table 7: Town of Cobourg Design Guidelines – Non-Residential Wastewater Flow Rates

Land Use Type	Flow	Floor Space Index
Commercial	180 m ³ /gross ha/day ¹	50%
Industrial (Trunk) ²	180 m ³ /gross ha/day ¹	100%

Notes:

1. As specified in the Town of Cobourg Design Guidelines, flow rates as listed in the above table are inclusive of infiltration and peaking effect.
2. The Town's Design Guidelines provide for the reduction of industrial flow rates for the design of trunk sewers to 90m³/gross ha/day at the Town's discretion. This approach has not been applied to the estimation of ultimate wastewater flows for the proposed trunk sewer based on preliminary discussions with the Town and concerns that the potential conversion of employment lands to residential uses could result in flow rates that would significantly exceed the reduced industrial flow rate.

Environmental Protection Area Flows

It was assumed, in accordance with Town of Cobourg Design Guidelines and as mentioned above, that all residential areas would contribute infiltration flow of 22.5 m³/gross ha/day. Infiltration contributing to the trunk sanitary sewer system from environmental protection areas was considered as well. Consideration was given to the natural topography of environmental protection areas and where contours depicted surface flows in opposing directions to sub-trunk or trunk sewer systems, these areas were excluded from infiltration estimates. Alternatively, where current contour mapping showed a condition where surface drainage within environmental protection areas flowed towards sub-trunk or trunk sewers, an infiltration flow attributable to those areas was included. The infiltration flow contributing to the proposed trunk sewer from environmental areas was estimated assuming a flow rate of 22.5 m³/gross ha/day (0.26 L/s/ha).

3.7.2.2 Existing Development and Future Infill in the Southeast Portion of Town

Provisions should be made for flows from existing industrial properties and future infill of developable land in the southeast portion of Town when considering the linear wastewater alternatives.

To estimate flows for both the developed and undeveloped portion of the Study Area outside of Cobourg East, flow rates were applied as specified in the Town of Cobourg Design Guidelines based on the designated land uses in the Official Plan.

4 Existing Conditions

4.1 Existing Water Supply System

Water is supplied to the Cobourg water distribution system by the Cobourg Water Treatment Plant (WTP), which draws raw water from Lake Ontario. Treated water is discharged from the Cobourg WTP into Pressure Zone 1 (Zone 1) of the water distribution system. Zone 1 services the southern portion of the Town including lands up to an elevation of ± 98 m. In the Cobourg East area, the northern boundary of Zone 1 roughly equates to the CN/CP rail corridor. Currently, treated water storage in Zone 1 is provided by the Victoria Street Elevated Tank (ET), which has a total volume of 1,360 m³ and a top water level of 132.0 m. LUSI has plans to replace the existing storage facility with a larger ET (5,000m³ capacity) in the next 1-3 years.

Most of the lands in the Cobourg East area are located within Pressure Zone 2, which services lands up to an elevation of ± 120 m.

Water is supplied to Zone 2 from Zone 1 by the Ewart Street Booster Pumping Station (BPS) located near the intersection of Ewart Street and Division Street. The Ewart Street BPS is equipped with three (3) pumps each rated for 76 L/s at 48.8 m of Total Dynamic Head (TDH) and a firm rated pumping capacity of 152 L/s with two (2) pumps in service. Treated water storage in Zone 2 is provided by the Strathy Road Elevated Tank (ET), which has a total volume of 3,734 m³ and a top water level of 158.40 m.

Lands in the very northeastern portion of the Cobourg East area are located at elevations above ± 120 m. As a result, the servicing of these lands from a water supply perspective will require the creation of a new pressure zone (Zone 3) to be serviced by a new BPS.

Water distribution infrastructure within the Cobourg East area is limited. A single 300 mm dia. (Zone 1) watermain that extends east from D'Arcy Street along Kent Street to service the private watermains located at 701 Brook Road North is the only existing watermain within the Cobourg East area. Given that the site at 701 Brook Road North is partially at elevations above 98 m, it would be more appropriately serviced from Zone 2 in the future. As such, the existing Zone 1 watermains servicing that site are of limited value to supporting future development in Cobourg East.

To the west of Cobourg East, several existing Zone 2 watermains are available to facilitate extension of the Cobourg water distribution system into the Cobourg East Community Secondary Plan Area. These include the following trunk and sub-trunk watermains:

- A 400 mm dia. trunk watermain on Elgin Street East that currently terminates at Conger Avenue and is planned to be extended to future Street A of the Cobourg Trails development in the near term.
- A 300 mm dia. sub-trunk watermain on Densmore Road that currently terminates at Parkview Hills Drive.

Both of these watermains are identified for easterly extensions in the Cobourg Drinking Water System Master Plan.

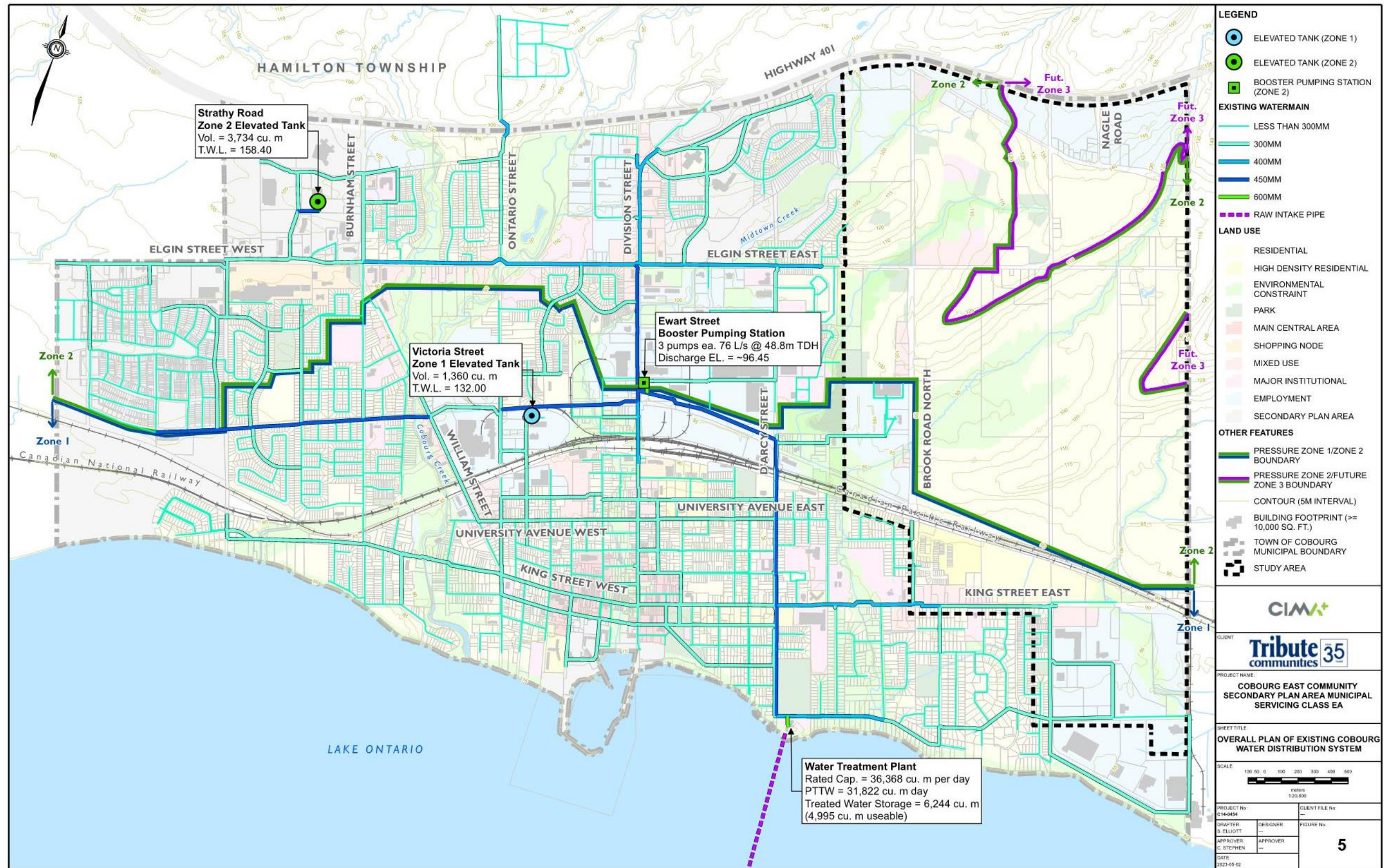


Figure 5: Cobourg Water Distribution System and Associated Facilities

4.2 Existing Wastewater System

The Town of Cobourg is currently serviced by two (2) wastewater treatment facilities, WPCP #1 which mainly services the western and northern portions of the Town and WPCP #2 which mainly services the eastern and southern portions of the Town.

The entirety of the Study Area, as defined in **Section 3.3** herein, is contained within the WPCP #2 catchment area. This is in-line with the Town's previously stated preferred wastewater servicing strategy which involves draining the entirety of wastewater flows from Cobourg East to WPCP #2. WPCP #2 is located in the east end of Cobourg within the Lucas Point industrial park at the intersection of Thompson Street and Normar Road. Under existing conditions, WPCP #2 receives flows from two (2) sewer systems:

- Willmott Street local sewer which services existing industrial and institutional lands on the east side of Willmott Street as shown in **Figure 6**; and
- 1,200 mm dia. Thompson Street sewer which drains Cooper Court and Willmott Street west side residential properties as well as captures and conveys flows from a forcemain that services the Brook Road Sewage Pumping Station (SPS) and McGill Street SPS located further west in the Town of Cobourg.

Prior planning completed for WPCP #2 had identified the need to ultimately expand the treatment facility to double its rated capacity to meet long-term wastewater treatment needs of development within the WPCP #2 catchment area. The Town is aware of the need to expand the capacity of WPCP #2 to be able to fulfill the preferred servicing strategy for Cobourg East.

Figure 6 provides an annotated version of the existing Town of Cobourg wastewater collection (sanitary sewer) system in the context of the Study Area described above.

4.2.1 Cobourg East Community Secondary Plan Area

Within the Cobourg East Community Secondary Plan Area portion of the Study Area, there is limited existing wastewater infrastructure. The Town's existing sanitary sewer system extends into or near the Secondary Plan area as follows:

- On Brook Road North a 375 mm dia. Sanitary sewer extends under the CN/CP rail corridor to a maintenance hole located just north of the CN tracks. This sanitary sewer is considered to have limited capacity to support future development as it ultimately flows to the Brook Road Sewage Pumping Station, which experiences operational issues during wet weather events and has some future development areas south of the CN/CP rail corridor in its catchment area.
- An existing sewer flows west towards D'Arcy Street from the north-end of Cottsmore Avenue (i.e., just south of the Legion Fields baseball fields). It is

understood that some wastewater from the existing industrial development at 701 Brook Road North flows through private sewers to connect at this location. Given that this sewer ultimately flows to Cobourg WPCP #1 it is not considered to have capacity to support future development at flow rate in excess of what it currently receives from the existing development.

- Just west of the Secondary Plan area, an existing sanitary sewer extends east along Elgin Street to Conger Avenue where a local sewer extends along Denton Drive. The existing sewer on Elgin Street East will be extended easterly to future Street A to provide an interim solution for conveying flows from Phase 1 of the Cobourg Trails development to WPCP #1. Ultimately, the flows from Phase 1 must be redirected to flow towards Cobourg WPCP #2.

4.2.2 Existing Development South of the Railway

South of King Street East, Willmott Street development is a mix of residential, industrial, and commercial. Willmott Street is a two-lane urban collector road with water, wastewater, and stormwater infrastructure as well as private utilities such as underground gas and communications infrastructure, and overhead hydro. There is an existing 375 mm dia. Local sanitary sewer along the east side of Willmott Street that flows south connecting to an existing 1,200 mm dia. Trunk sanitary sewer on Thompson Street.

The existing 1,200 mm dia. Trunk sanitary sewer on Thompson Street flows east along Thompson Street for approximately 700 m where it outlets to Cobourg WPCP #2. In addition to flows from the existing Willmott Street developments, the existing Thompson Street trunk sewer also receives all flows from areas further west in the WPCP #2 catchment area. This includes:

- Flows pumped from the existing Brook Road SPS and the McGill Street SPS that discharge separately at the same location on Hamilton Court and flow east via trunk sewers on Hamilton Court/Avenue, an easement between Hamilton Avenue and Cooper Court and then along Cooper Court towards Thompson Street.
- Flows from existing and future residential development in the area west of Willmott Street that flow southerly towards the above noted trunk sewer on Hamilton Avenue and Cooper Court and then east towards Thompson Street.

The capacity of the existing 1,200 mm dia. trunk sewer on Thompson Street was evaluated through previous Functional Servicing Reports prepared for Tribute and Mistral to confirm that the existing sewer was of sufficient size to capture and convey flows from the full build-out of Cobourg East.

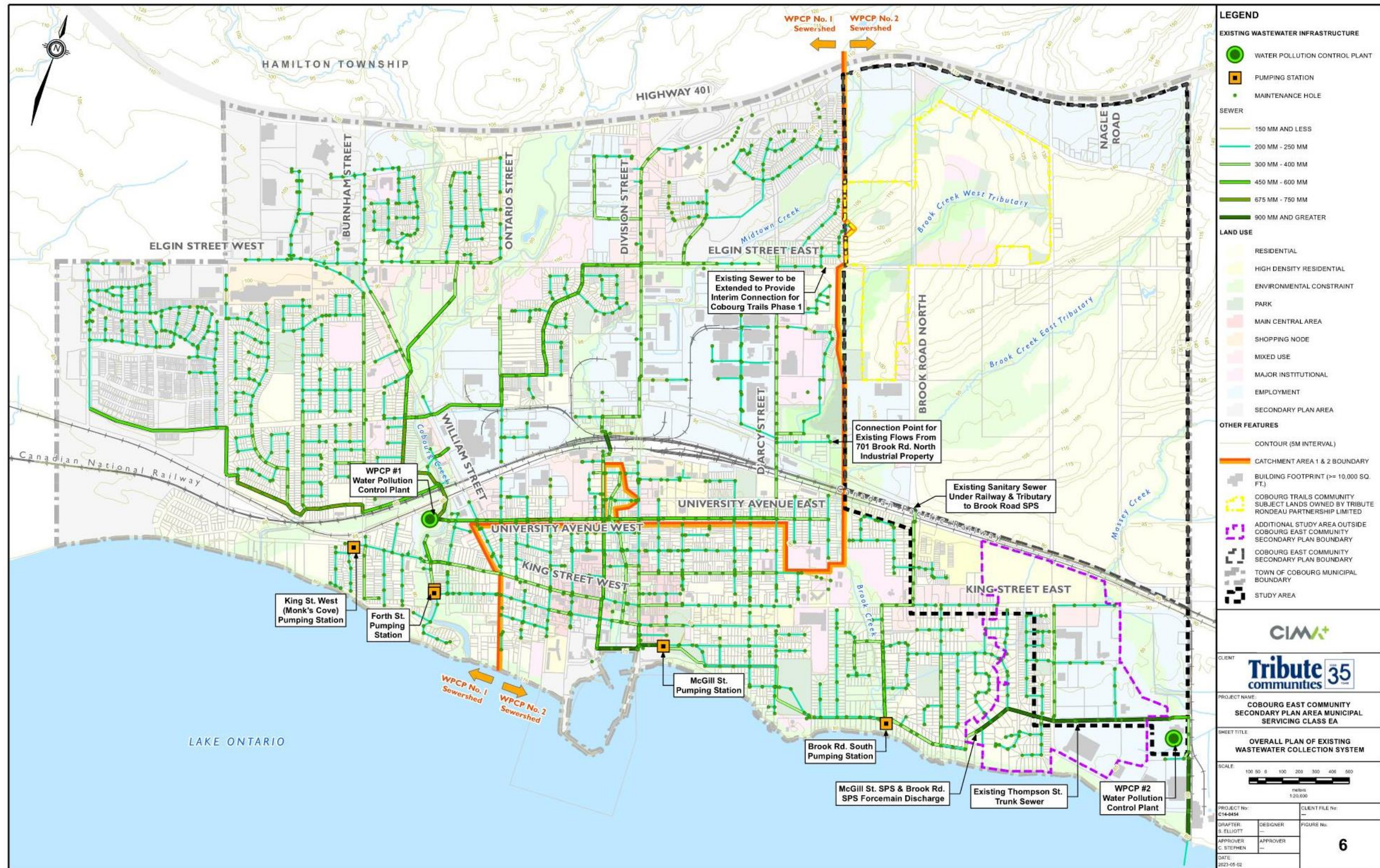


Figure 6: Cobourg Wastewater Collection System and Associated Facilities

4.3 Natural Heritage Features

Policies and regulations within Ontario that protect the form and function of Natural Heritage Features within the Town of Cobourg include the following:

- Provincial Policy Statement, 2020 (PPS) (MECP, 2021)
- Growth Plan for the Greater Golden Horseshoe (GPGGH) (Ontario, 2020)
- Official Plan and Zoning By-Law (Town of Cobourg, 2018)
- Conservation Authority Regulation (Ontario, 2021)
- Endangered Species Act, 2007 (Ontario, 2020)
- Species at Risk Act, 2002 (Canada, 2022)
- Fisheries Act (Canada, 2019)

The GPGGH and Official Plans and Zoning By-Laws build upon the PPS to designate areas where development could be damaging to the natural environment or be unsafe due to naturally occurring processes such as flood or erosion susceptibility. The Town of Cobourg Official Plan outlines a Greenlands System and Sustainability Strategy with the purpose of enhancing biodiversity and ecological health and function, while providing education and recreational opportunities. Within the Official Plan, Environmental Constraint Areas are defined as the following:

- Significant woodlands
- Wetlands including both provincially and non-provincially significant wetlands and coastal wetlands
- Significant habitat of endangered and threatened species
- Significant valleylands
- Significant wildlife habitat
- Fish habitat
- Significant areas of natural and scientific interest
- Groundwater discharge areas
- Steep slopes which are susceptible to erosion or present a danger to development

A map illustrating the Greenlands System Town of Cobourg can be seen in **Figure 7**.

Further to the Greenland System outlined in the Official Plan, the Secondary Plan established Environmental Areas including Environmental Protection areas and Special Study areas within Cobourg East. The Environmental Protection areas were established to protect, maintain, and improve natural heritage features. The Special Study areas are considered sensitive to development and act as a buffer to more sensitive

environmental features within the Environmental Protection zone (Town of Cobourg, 2018). The Secondary Plan, however, does not specify what natural heritage features are present within the Environmental Areas. Schedule X1 of the Secondary Plan found in **Figure 2** illustrates the Cobourg East Environmental Areas.

4.3.1 Source Water Protection

The 2006 Clean Water Act (CWA) protects existing and future sources of municipal drinking water. As part of the CWA, vulnerable areas are delineated around surface water intakes and wellheads for every existing and planned municipal residential drinking water systems that are located in a Source Protection Area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) or surface water Intake Protection Zones (IPZs).

Projects may include activities that, if located in a vulnerable area, could be a threat to drinking water sources. As defined under the Clean Water Act, 2006 a “drinking water threat” means an activity or condition that adversely affects or has the potential to adversely affect the quality or quantity of any water that is or may be used as a source of drinking water and includes an activity or condition that is prescribed by the regulations as a drinking water threat.

As per Regulation 287/07: The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage is considered to be a prescribed threat. According to the Approved Source Protection Plan: Ganaraska Source Protection Plan (updated 2021) some of the study area (around the Brook Creek tributary (on Elgin Street East) and Brook Creek) is located within the Intake Protection Zone with Vulnerability, specifically IPZ-2, but not within any Wellhead Protection Areas (WHPAs). This means that it is possible for a contaminant to reach the intake if a large storm event were to occur, and it is anticipated that this would take a specific period of time to occur.

The Town took this into consideration for the wastewater servicing alternative solution and incorporated mitigation measures.

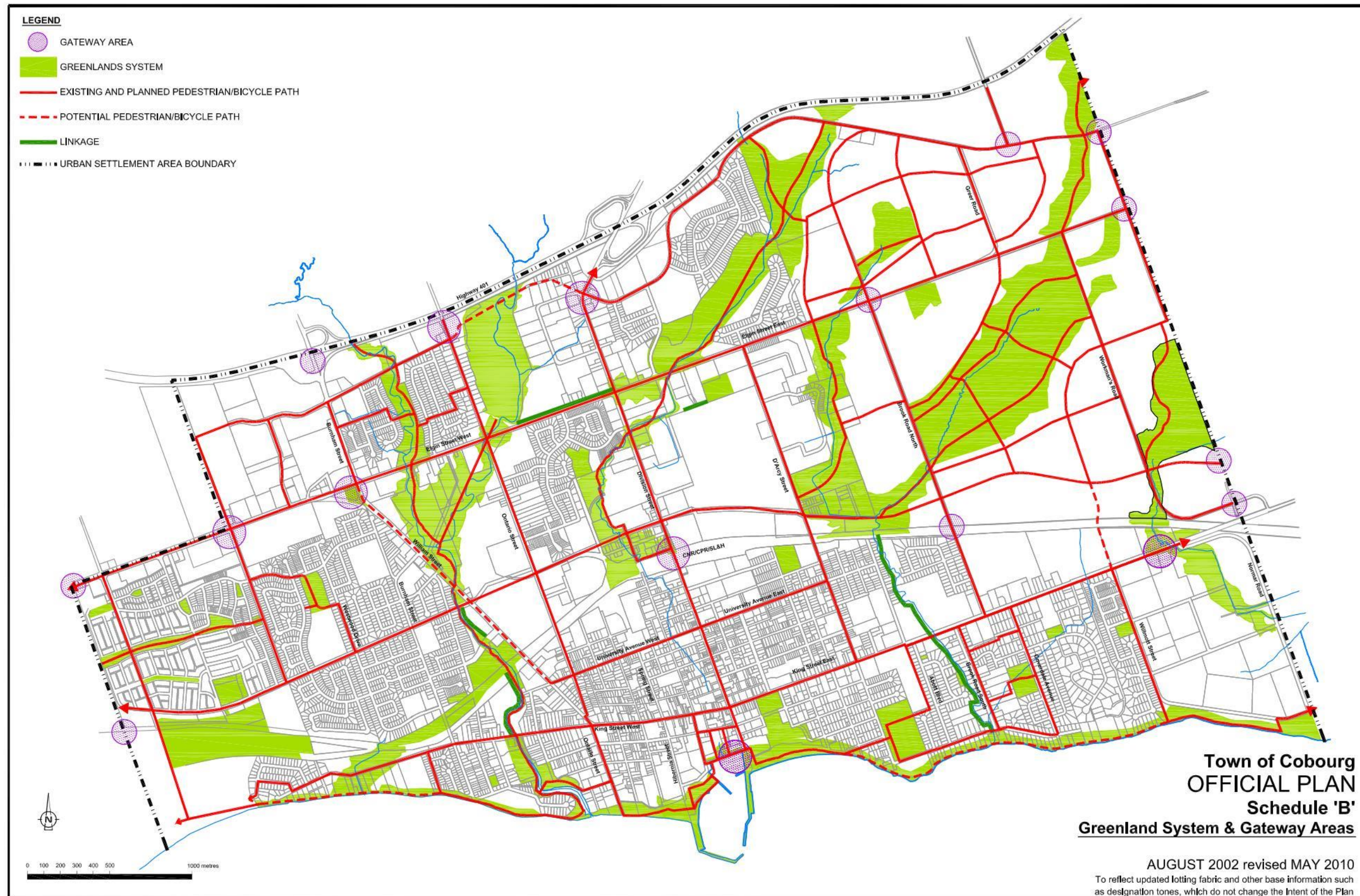


Figure 7: Town of Cobourg Greenland System

4.3.2 Physiography, Geotechnical & Hydrogeological Conditions

The Study Area is located within the Iroquois Plain Physiographic Region and is punctuated by large drumlins that create high elevations and steep slopes. The lands generally slope toward the south and southwest, with the highest elevations in the northeast of the Study Area of approximately 148 m and lowest elevations in the south of approximately 82 m.

The surficial geology for the Study Area is illustrated in **Figure 8** and is based on information obtained from the Ontario Ministry of Mines (The Ontario Geological Survey, 2003). Primary soil types within the Study Area include the following:

- 8a – Fine-textured glaciolacustrine deposits: silt and clay, minor sand and gravel. Massive to well laminated.
- 9c – Coarse-textured glaciolacustrine deposits: sand, gravel, minor silt and clay. Foreshore and basinal deposits.
- 5b – Stone poor, sandy silt to silty sand textured till on Paleozoic terrain.
- 19 – Modern alluvial deposits: clay, silt, sand, gravel, may contain organic remains

Groundwater exists at varying depths below ground within the Study Area. It is anticipated that groundwater may be encountered along each of the alternative water and wastewater servicing alignments. A hydrogeological investigation should be completed at the detailed design stage to confirm groundwater levels and determine if a Permit to Take Water (PTTW) is required for the construction of the preferred municipal servicing alignment. As the Study Area is generally unserviced, several existing properties surrounding the alternative servicing alignments rely on domestic and livestock wells. Any potential impacts to the existing wells caused by dewatering must be addressed through detailed design.

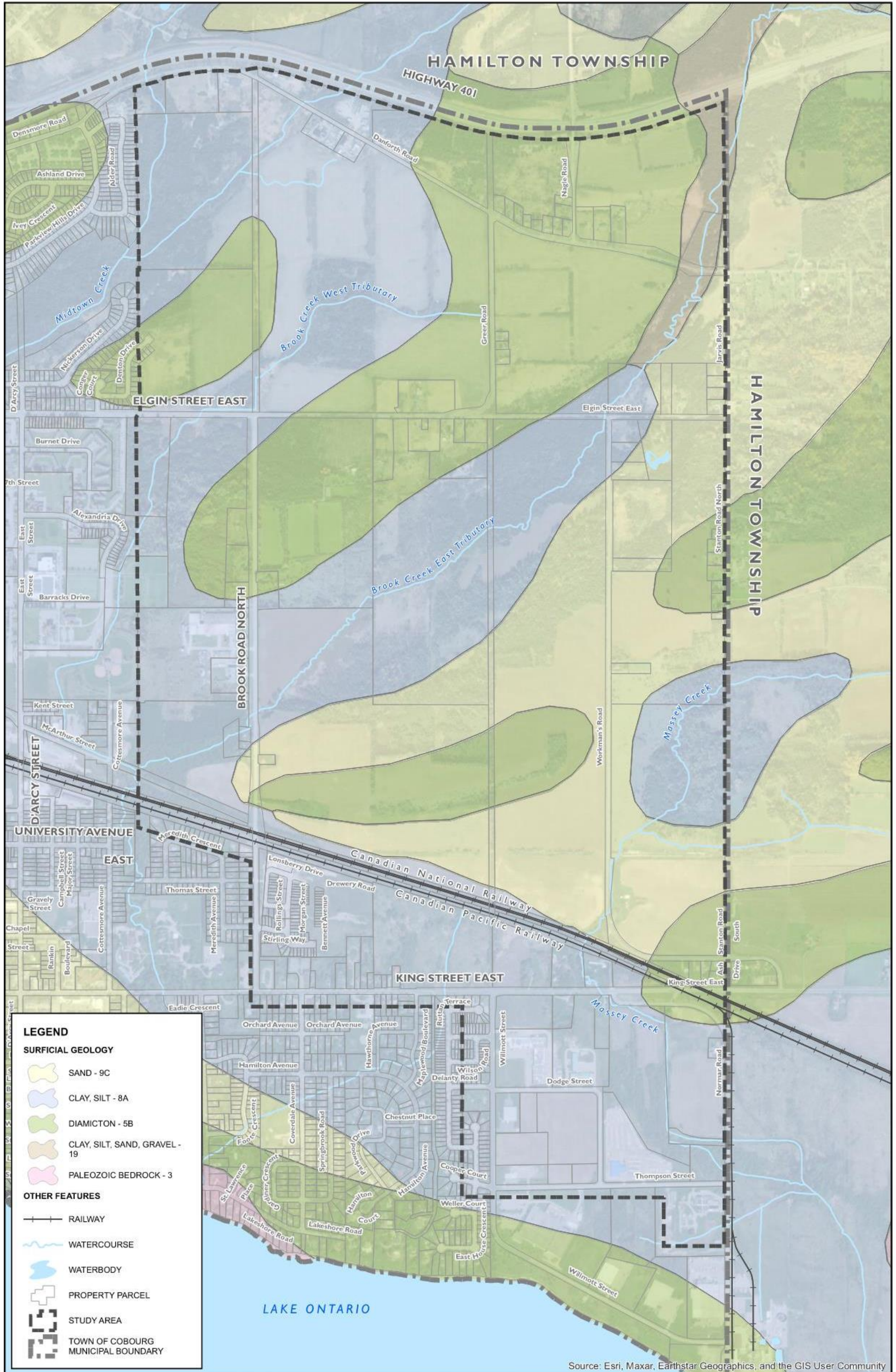


Figure 8: Surficial Geology

4.3.3 Watersheds and Surface Water Features

The Study Area is situated within the East Lake Ontario Watershed, within the jurisdiction of the Ganaraska Region Conservation Authority (GRCA). Four (4) mapped watercourses pass through the Study Area; Midtown Creek, Brook Creek West tributary, Brook Creek East tributary and Massey Creek. These features generally flow south and outlet to Lake Ontario.

The Midtown and Brook Creek systems are permanent watercourses with warm to cool thermal regimes, depending on the reach. These types of systems have some groundwater contributions but are largely fed by surface drainage. (Cambrium Inc., 2022)

4.3.4 Terrestrial Environment

The Study Area is located within the Mixedwoods Plains Ecozone: Lake Simcoe Rideau Ecoregion 6E. The Study Area also falls within the Great-Lakes St. Lawrence Forest Region. (Cambrium Inc., 2022)

Significant Wetlands and Woodlands

The Study Area as a whole is largely undeveloped, consisting of agricultural lands, wetlands, and forested areas. There are several unevaluated wetlands within the Study Area, but no Provincially Significant Wetlands (PSWs) (Ontario Ministry of Natural Resources and Forestry, 2019). Woodlands within Cobourg East have not been evaluated through prior planning; therefore no significant woodlands are noted in the Study Area.

Flora

In the vicinity of the proposed alternative water and wastewater servicing alignments, the Study Area is generally occupied by existing development, active development sites, or existing infrastructure (ie. road right-of-ways). The vegetation communities within the vicinity of the proposed alternative water and wastewater servicing alignments were reported and mapped by Cambium as part of the Environmental Impact Study – Cobourg Trails External Servicing Report (EIS) prepared for Tribute and included in Appendix A. Twenty-two (22) different terrestrial communities and six (6) different wetland communities were observed including Deciduous Forest, White Cedar – Hardwood Mineral Mixed Forest, Mineral Cultural Meadows, Poplar Mineral Deciduous Swamp, among others. Figures 2 through 8 found in the EIS illustrate the ELC communities within the vicinity of the proposed alternative servicing alignments.

Fauna

Desktop reptile surveys, Species at Risk (SAR) surveys, and Significant Wildlife Habitat (SWH) surveys were completed within the Study Area. Additionally, areas along the alternative servicing alignments were screened for potential suitable bat maternity roost habitats. Targeted wildlife surveys were not completed, however, as the Study Area is within the urban boundary of the Town of Cobourg and it is assumed that species living within this area have adapted to an urban environment. Further, the majority of the alternative servicing alignments are proposed within existing, developed rights-of-ways. (Cambrium Inc., 2022)

Based on information available from the Natural Heritage Information Centre (NHIC), snapping turtles are the only reptile species that overlaps with the Study Area. No evidence was documented of snapping turtles within the vicinity of the proposed alternative water and wastewater servicing alignments, however, they are likely present within the wetlands, watercourses and riparian areas of the Study Area. (Cambrium Inc., 2022)

Screening for suitable bat maternity roost habitat features was completed in the vicinity of the proposed alternative water and wastewater servicing alignments. One potential habitat was identified on the south side of Elgin Street, however, the alternative servicing alignments are not anticipated to disturb the area. (Cambrium Inc., 2022)

Fish sampling was completed in the two of the watercourses within the Study Area as part of prior environmental impact studies completed to support development in Cobourg East. The results of the sampling indicate that Carp/Minnows (*Cyprinidae sp.*) and Sticklebacks (*Gasterosteidae sp.*) occupy the Midtown Creek and Brook Creek West tributary in the vicinity of the Study Area. The species composition was slightly different in the two watercourses, however. The species found in Midtown Creek occur in warm and cool water regimes, whereas the species found in Brook Creek West tributary occur in cool-water thermal regimes. There are no details available regarding the fish communities present in Massey Creek or the East Brook Creek tributary, however, East Brook Creek tributary is expected to support similar fish communities present in the other two watercourses and have a warm-to-cool water thermal regime. (Cambrium Inc., 2022)

A comprehensive desktop review confirmed that there are no records of aquatic Species at Risk (SAR) within the vicinity of the alternative servicing alignments. Additionally, no endangered or threatened avian or terrestrial species, nor their habitats, were identified along the alternative servicing alignments. (Cambrium Inc., 2022)

Desktop studies augmented with field observations confirmed that there are no Significant Wildlife Habitats (SWH) within the vicinity of the alternative servicing

alignments based on the Ministry of Natural Resources and Forestry guidance documents.

4.4 Social Environment

4.4.1 Land Use

Currently the lands within the Study Area are largely a rural agricultural land use. There are some existing homes on Brook Road North but most of the land is undeveloped. The study area is the Cobourg East Community Secondary Plan Area that is identified for future development as described in **Section 3.4** and shown in **Figure 2**.

4.4.2 Air Quality and Noise

An air quality assessment was not undertaken since the only impacts on air quality and any increase in noise levels would occur during water and wastewater infrastructure construction. Operation of the watermain or sewer will not have an impact on air quality or noise levels in the area. There are some residential homes present along Brock Road that are potential sensitive receptors. Therefore, mitigation measures to address potential dust and noise were considered and discussed in Section 11.2.3.

4.5 Traffic, Road Use and Transportation

The Study Area includes a network of existing local and arterial roads that connect Cobourg East to developed areas within the Town.

Brook Road North is under the jurisdiction of Northumberland County (the County) and runs north-south in the western portion of the Study Area. Between Elgin Street East and the southern limit of Cobourg East, Brook Road North provides entrance to seven (7) residential properties and two (2) industrial properties and is made up of a number of rolling hills, some of which are quite steep. Brook Road North is generally bound by agricultural fields and densely vegetated areas. Approximately 1,050 m south of Elgin Street East, the East tributary of Brook Creek crosses Brook Road North through an approximately 1.8 m high, 4.3 m wide, 27 m long concrete box culvert.

Elgin Street East (west of Brook Road North) is also under the jurisdiction of the County as County Road 20 and runs east-west in the northern portion of the Study Area. Existing development on Elgin Street East is fairly limited within the Study Area and is mainly gathered around intersections east of Brook Road North. Approximately 215 m west of Brook Road North, the West tributary of Brook Creek crosses Elgin Street East through a 1.0 m diameter CSP culvert. The Brook Creek East tributary also crosses Elgin Street East in the area of Workman Road.

In the north portion of the Study Area, Densmore/Danforth Road runs east-west just south of Highway 401. The road is currently a rural, two-lane route that services a small number of residential and industrial properties as well as provides a link for properties in the northern portion of Cobourg East to the Highway 401 interchange at Division Street. Densmore/Danforth Road is expected in time to be urbanized and provide an entrance to the Cobourg Trails community and an east-west link to the future Nagle Road Highway 401 interchange.

King Street East runs east-west in the south portion of the Study Area and is under the jurisdiction of the County as County Road 2. Within the Study Area, the road is an urban, two-lane route with bike lanes on both sides and a sidewalk west of Willmott Street. King Street East is a major artery within the Town of Cobourg, with a school, church, and several residential and commercial properties fronting it within the Study Area. King Street East also intersects with several local streets that provide access to residential and industrial areas within the Study Area. At the east extent of the Study Area, King Street East bridges over the CN and CP Railway. Approximately 230 m west of the King Street East bridge, Massey Creek flows below King Street East through a culvert.

In the east portion of the Study Area, Workman Road runs north-south until it reaches the railway, where it curves and runs east-west to the township line. Workman Road is a two-lane rural route and provides access to 9 properties within the Study Area. Agricultural fields and wooded areas generally bound the road. At the south end of Workman Road, Massey Creek flows along the east side for approximately 200 m, until it crosses through a culvert under Workman Road and continues south toward Lake Ontario.

Willmott Street runs north-south at the south end of the Study Area and is an urban two-lane route. A sidewalk runs along the west side of Willmott Street from King Street East to Delanty Road. Willmott Street is a dividing line between an existing residential area to the west and an employment area to the east.

4.6 Archaeological and Heritage Features

Stage 1 and Stage 2 archaeological assessments have been completed or are underway at several locations within the Study Area. Three (3) of the assessments completed to date are along the alternative servicing alignments and have been entered into the Ontario Public Register of Archaeological Reports. The reports indicate that the areas reviewed do not possess any cultural heritage value or interest.

Based on the Town of Cobourg Heritage Register, there are three (3) properties within the Study Area that are listed as having heritage value or interest. These built heritage properties are located on King Street East and are not impacted by the alternative municipal servicing alignments.

A large portion of the construction will occur along existing roads (Elgin Street East and Broad Road North). Based on the results of the previous archaeological assessments and the heavily disturbed nature of the road right-of-ways, no additional archaeological assessment was considered to be required at this time.

During construction, if any archaeological resources are discovered, all excavation must stop immediately, and an archaeologist must be contacted. Archaeological clearance letters received to date have been included in Appendix B.

5 Evaluation Approach

Taking the existing environment into consideration the alternative solutions (described in Section 6) will be comparatively evaluated using a description or qualitative assessment based on criteria developed within the categories representing the broad definition of the environment and as described in the EA Act.

The evaluation approach for this study included a two-step process as described below:

1. Identification of alternative solutions and preliminary screening
2. Evaluation of alternative solutions

5.1 Preliminary Screening Criteria

A long list of potential alternative solutions was initially developed to address the problem statement related to the wastewater options. Since there were limited options to address the water needs a long list of alternative solutions was not required and no preliminary screening process was undertaken, each wastewater alternative solution was qualitatively assessed against a set of preliminary screening criteria with the purpose of narrowing down the list to only those that are considered “feasible” and eliminating alternatives that are unrealistic from further consideration. The preliminary screening step helped to avoid the need to carry unrealistic wastewater servicing alternatives through the next steps of the evaluation process which included development of potential implementation scenarios and a detailed comparative assessment.

Preliminary screening is accomplished by applying the “must-meet” criteria which are established to capture key objectives established for this project. The “must-meet” criteria are outlined below.

5.2 Evaluation Criteria

The alternatives that passed preliminary screening (where applicable) were considered feasible and further developed into alternative options. Evaluation criteria were developed to assess the alternative options, to identify the potential environmental effects and distinguish the advantages and disadvantages between alternatives. The criteria reflect all components of the environment in the study area, the alternative solutions being considered, the problem/opportunity being addressed, and the Class EA requirements. The alternative options were evaluated against a set of evaluation criteria listed below:

1. Natural Environment

- Impacts to watercourse crossings and fish and fish habitat
- Impacts to vegetation communities, including wetlands
- Impacts to Species at Risk (SAR) (Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or Ontario Endangered Species Act Status)
- Impacts to environmentally sensitive features, including Environmentally Sensitive Areas (ESA), Areas of Natural Scientific Interest (ANSI), Designated Natural Areas, significant woodlands, Provincially Significant Wetlands (PSWs) etc.)
- Impacts to significant wildlife, or wildlife habitat, including SAR and migratory birds
- Proximity to floodplains

2. Social and Cultural Environment

- Impacts to Cultural heritage (built heritage and cultural heritage landscapes) and archaeological resources
- Traffic Disruption during construction
- Potential for temporary well interference due to construction dewatering activity
- Impacts on local schools, residents and businesses (including air and noise impacts)
- Temporary and permanent property requirements

3. Technical Considerations

- Ability to service Cobourg East Secondary Plan Area
- Ease of construction (e.g., Impacts to Utilities, Construction Methodologies)
- Resiliency
- Railway crossings
- Predicted Dewatering and depressurization requirements
- Requirement for Permits and Approvals

4. Financial Considerations

- Estimated capital costs
- Operating and Maintenance Costs
- Land Acquisition Requirements

Generally, during this stage of a Schedule C Class EA, supporting studies such as natural environment assessment, geotechnical studies and hydraulic modelling are required to evaluate the implementation or design options. For the purposes of this Schedule B project, only technical considerations were evaluated based on already available information.

5.3 Evaluation Methodology

The evaluation criteria were used to comparatively evaluate the alternative solutions as applicable in a descriptive manner as opposed to a quantitative manner. A numerical or weighted ranking system was not used; the evaluation concentrates instead on the strengths and weaknesses of each alternative to identify the best possible solution. Set weightings of criteria were not specifically assigned, however, all evaluation criteria are not necessarily created equal and professional judgement and knowledge of the area and issues was used to understand preferences.

5.4 Climate Change (Mitigation and Adaptation)

5.4.1 Project Impacts on Climate Change (Mitigation)

Climate change considerations were taken into account during the evaluation of alternatives. Potential impacts were considered of the project on climate change by examining direct greenhouse gas emissions of the alternatives and whether they would positively or negatively affect the storage of carbon or removal of carbon dioxide from the atmosphere. The watermain and sewer would have potential impacts on the climate change during the construction phase. Do Nothing would have limited potential impacts since the construction related activities are associated with upgrades to an existing sanitary pumping station. The alternatives would have potential impacts but these would be limited to the construction phase. This was considered further in the selection of the preferred alternative and the mitigation measures through limiting idling during the operation of construction equipment.

Most of the construction will be undertaken in the road right-of-way. There is minimal vegetation that will be impacted by construction of the sewer and thus there are limited alternative methods (e.g., construction scheduling) that could be considered.

5.4.2 Impacts of Climate Change on the Project (Adaptation)

The watermain and sewer will be constructed to meet the Town's design criteria which consider potential climate change issues for construction and operation. The construction will be scheduled to minimize the potential impacts on the environment (e.g., season, precipitation). The sewer will largely be located within the road right-of-way which minimizes the potential impacts from climate change.

6 Identification of Alternative Water Servicing Solutions

As noted above, the need to provide municipal water services to the Cobourg East Secondary Plan Area was identified in the Secondary Plan (Town of Cobourg, 2005). As part of this Class EA, alternative servicing approaches were identified and evaluated to confirm the preferred solution to address the problem statement.

The following section summarizes the alternatives evaluated and the findings of the evaluation.

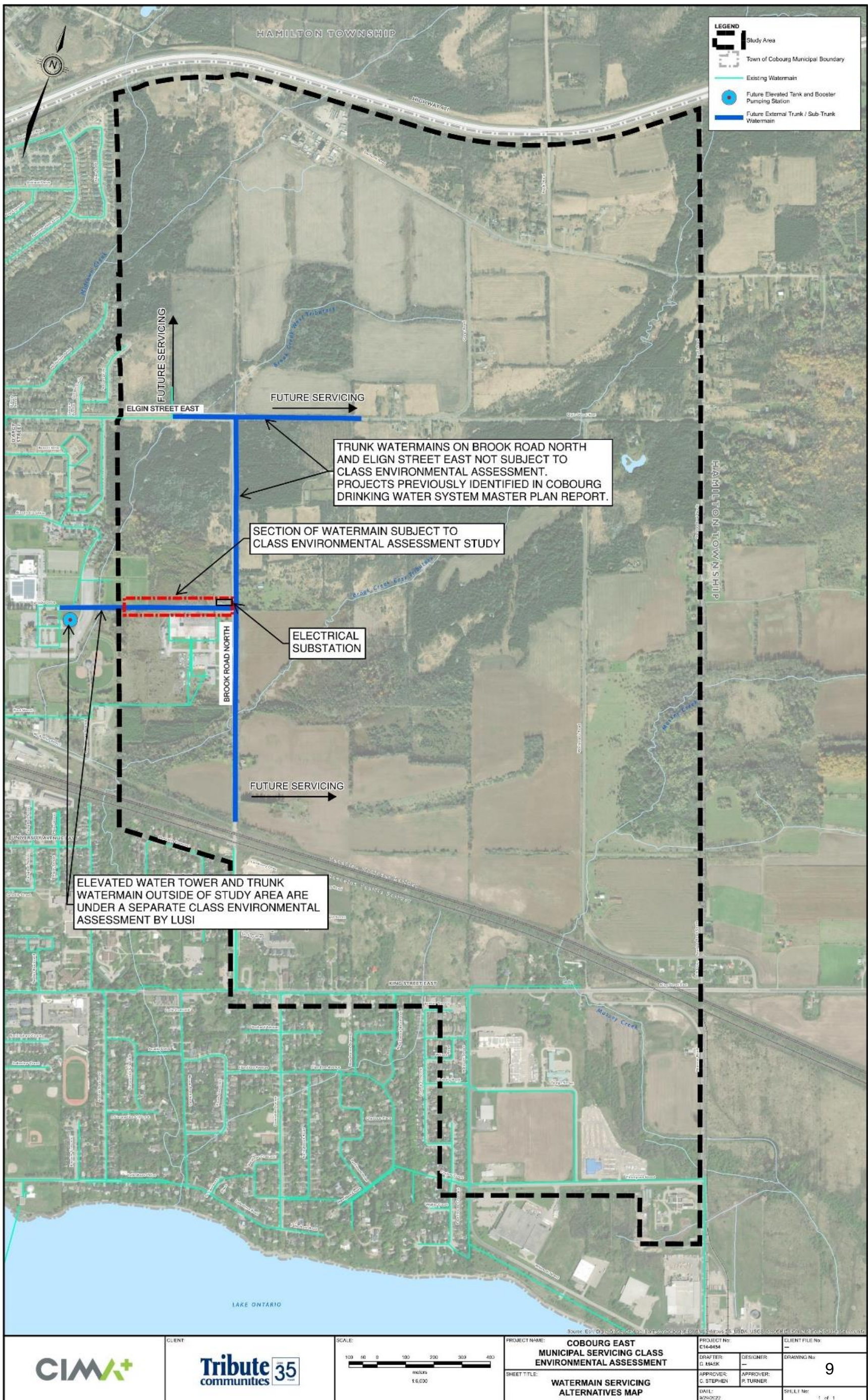


Figure 9: Water Servicing Alternatives

6.1 Alternative Do Nothing

This alternative involves no additional water infrastructure to service the Cobourg East Secondary Plan Area.

For the evaluation of the “Do Nothing” approach it is assumed that future upgrades to the system would only involve infrastructure replacement without increases in capacity. No new infrastructure would be constructed in the Cobourg East Secondary Plan Area.

6.2 Alternative W1

This alternative requires the extension of a watermain from the west limit of the Study Area near the Cobourg Community Centre to a connection at a proposed watermain on Brook Road North. The watermain at the west limit of the Study Area supplies water from the proposed Booster Pumping Station east of D'Arcy Street and the watermain on Brook Road North supplies water to Cobourg East.

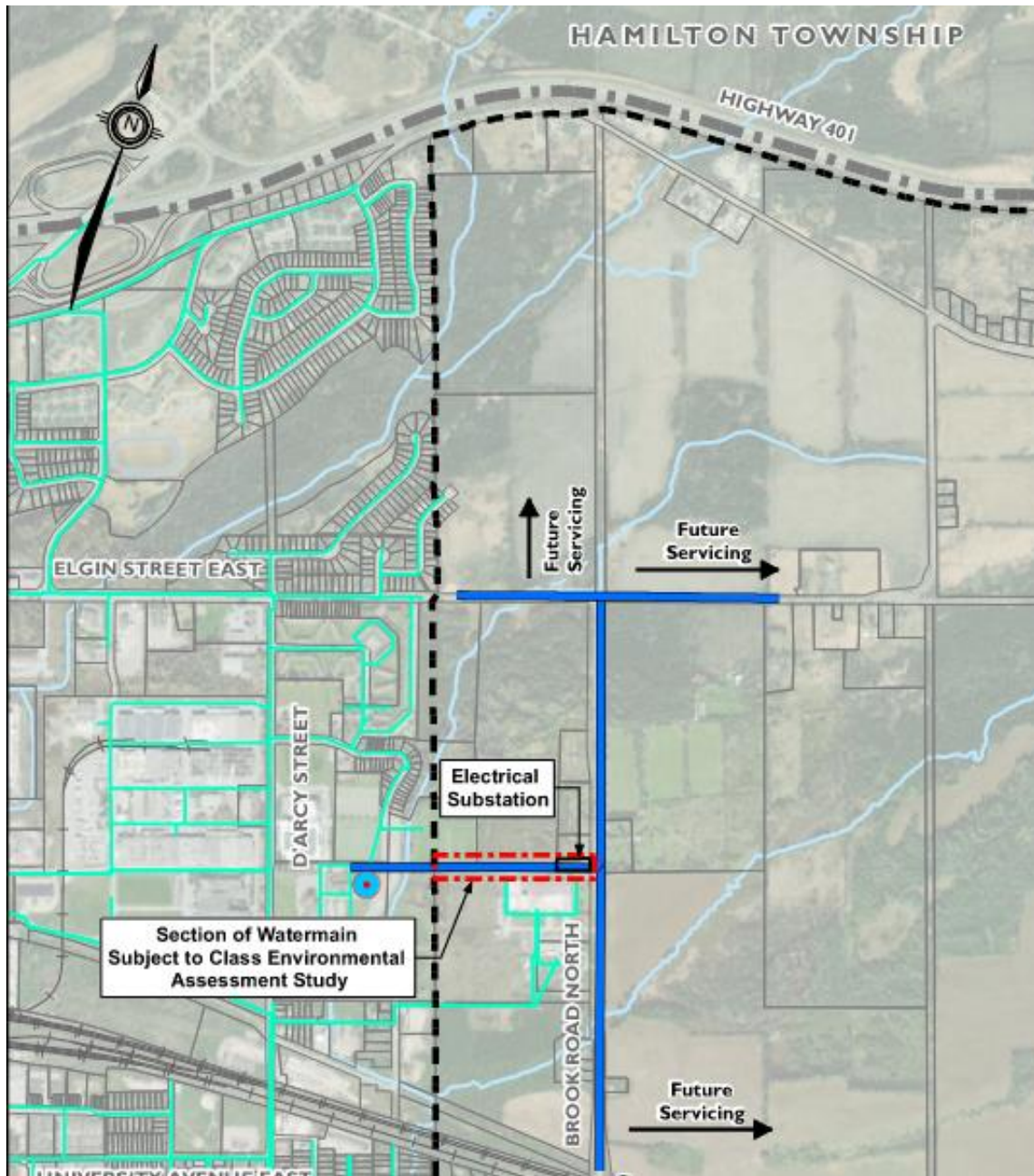


Figure 10: W1

7 Identification of Alternative Wastewater Servicing Solutions and Preliminary Screening

As noted above, the need to provide municipal wastewater services to the Cobourg East Secondary Plan Area was identified in the Secondary Plan (Town of Cobourg, 2005). As part of this Class EA, alternative servicing approaches were evaluated to confirm the preferred solution to address the problem statement.

The following section summarizes the alternatives evaluated and the findings of the evaluation.

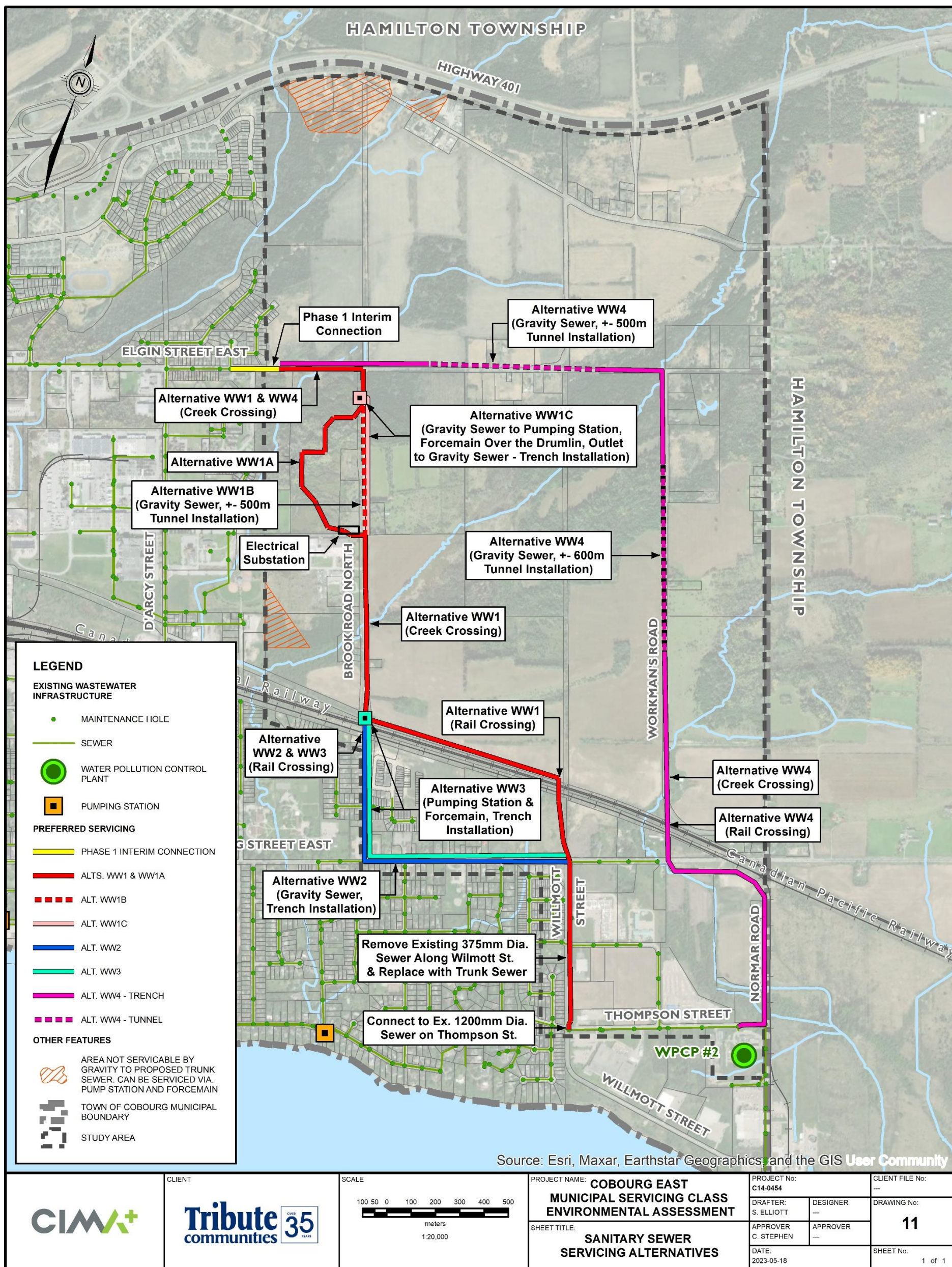


Figure 11: Wastewater Servicing Alignments

7.1 Do Nothing

This alternative involves no additional wastewater infrastructure to service the Cobourg East Community Secondary Plan Area.

The Do Nothing alternative is typically included to provide an understanding of the baseline conditions present. However, the Do Nothing does not address the problem statement for the project. Based on this evaluation of the Do Nothing wastewater option has not been included in the comparative evaluation table since the Do Nothing does not provide wastewater servicing that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East).

7.2 Alternative Solutions

The wastewater alternative solution needs to determine the alignment from the connection point with the existing wastewater sewer on Thompson Street (at the intersection with Willmott Street) north to the connection point with the Phase 1 Cobourg Trails interim wastewater solution on Elgin Street East at the east of the Study Area. Refer to **Figure 11** for the alignments of the alternative solutions.

For portions of the alignment a common component of all alternatives except WW4 is following Brook Road North from north of the CN and CP Railway to the electrical substation and then west along Elgin Street East (from the intersection with Brook Road North) to the connection point with the Phase 1 interim solution.

There are two areas that require evaluation and selection of a preferred alternative solution:

1. Northern portion which includes WW1A, WW1B and WW1C which represents the area from the electrical substation to the intersection of Brook Road North and Elgin Street East.
2. Southern portion which includes solutions WW1, WW2 and WW3 representing different options for crossing the CN and CP Railway and connecting with the existing sanitary sewer on Thompson Street (at the intersection with Willmott Street).

The ultimate preferred wastewater alternative solution will be either WW4 or a combination of the alignment from Thompson Street (at the intersection with Willmott Street) to the north side of the CN and CP Railway (which will consist of WW1, WW2 or WW3) **plus** along Brook Road North, north to the electrical substation, **plus** from the electrical substation to Elgin Street East (which consists of either WW1A, WW1B or

WW1C) **plus** along Elgin Street East (from Brook Road North intersection) to the Phase 1 Cobourg Trails interim solution connection point.

7.2.1 Alternative WW1

Alternative WW1 consists of a gravity sewer that extends from the connection with the existing 1200mm diameter wastewater sewer on Thompson Street (the existing sewer ultimately connects to WPCP #2), north on Willmott Street and through the unopened Willmott Street right-of-way, across the CN and CP railway, and west across proposed development lands to Brook Road North.

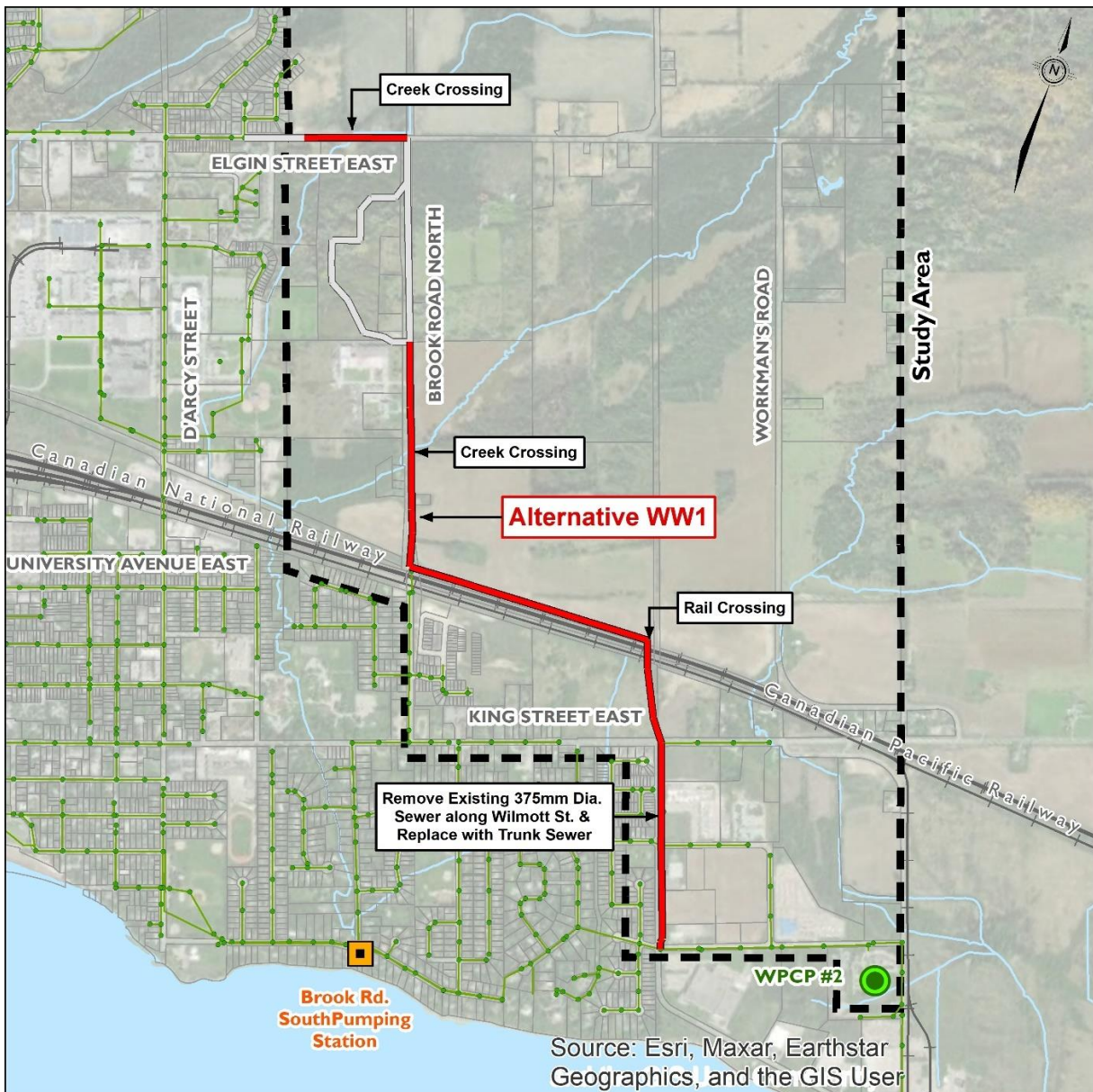


Figure 12: WW1

7.2.1.1 Alternative WW1A

Alternative WW1A consists of a gravity sewer that extends from the electrical substation (on Brook Road North) through proposed development lands around the drumlin to re-connect with Brook Road North and ultimately Elgin Street East.

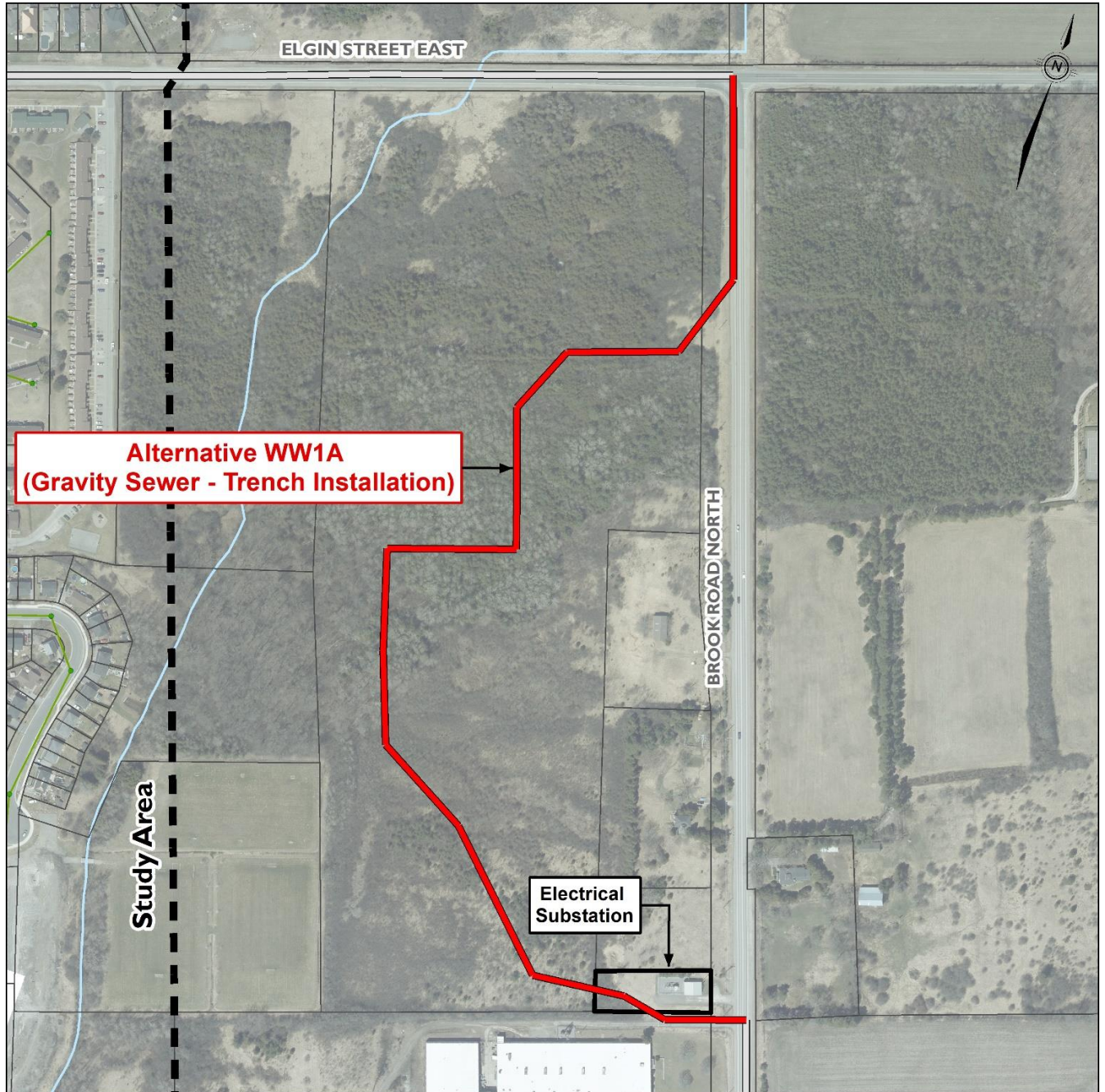


Figure 13: WW1A

7.2.1.2 Alternative WW1B

Alternative WW1B consists of a gravity sewer that extends from the electrical substation (on Brook Road North) north along Brook Road North to Elgin Street East.



Figure 14: WW1B

7.2.1.3 Alternative WW1C

Alternative WW1C consists of a forcemain that extends from the electrical substation (on Brook Road North) north along Brook Road North to Elgin Street East. This will require construction of a pumping station on Brook Road North south of the intersection with Elgin Street East.



Figure 15: WW1C

7.2.2 Alternative WW2

Alternative WW2 consists of a gravity sewer that extends from north of the CN and CP Railway along Brook Road North south toward King Street East and east across King Street East to the connection with WW1 for the extension south on Willmott Street to the existing sewer on Thompson Street.

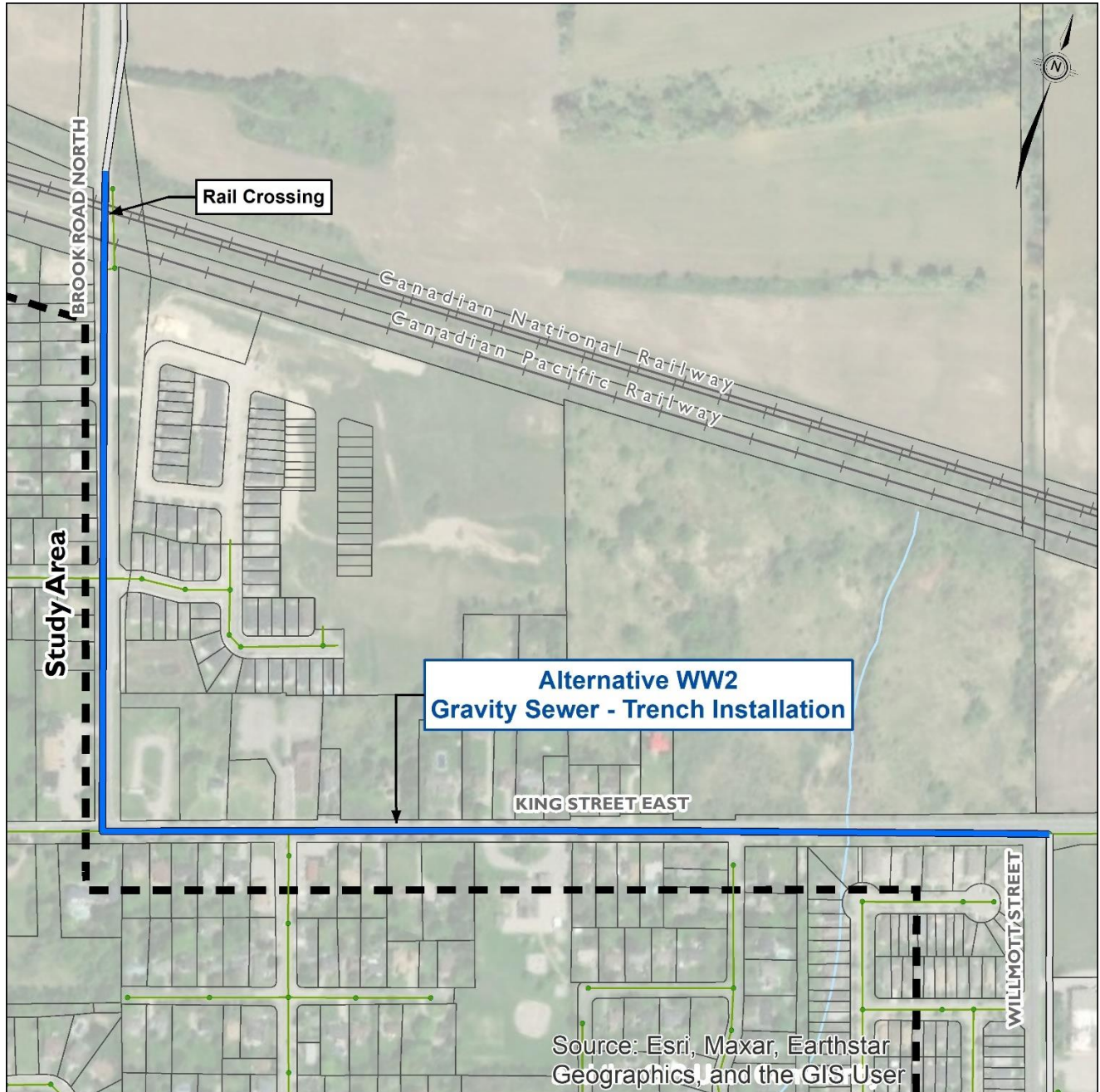


Figure 16: WW2

7.2.3 Alternative WW3

Alternative WW3 consists of a forcemain that extends from north of the CN and CP Railway along Brook Road North south toward King Street East and east across King Street East to the connection with WW1 for the extension south on Willmott Street to the existing sewer on Thompson Street. This alternative will require construction of a pumping station on Brook Road North on the north side of the CN and CP Railway.

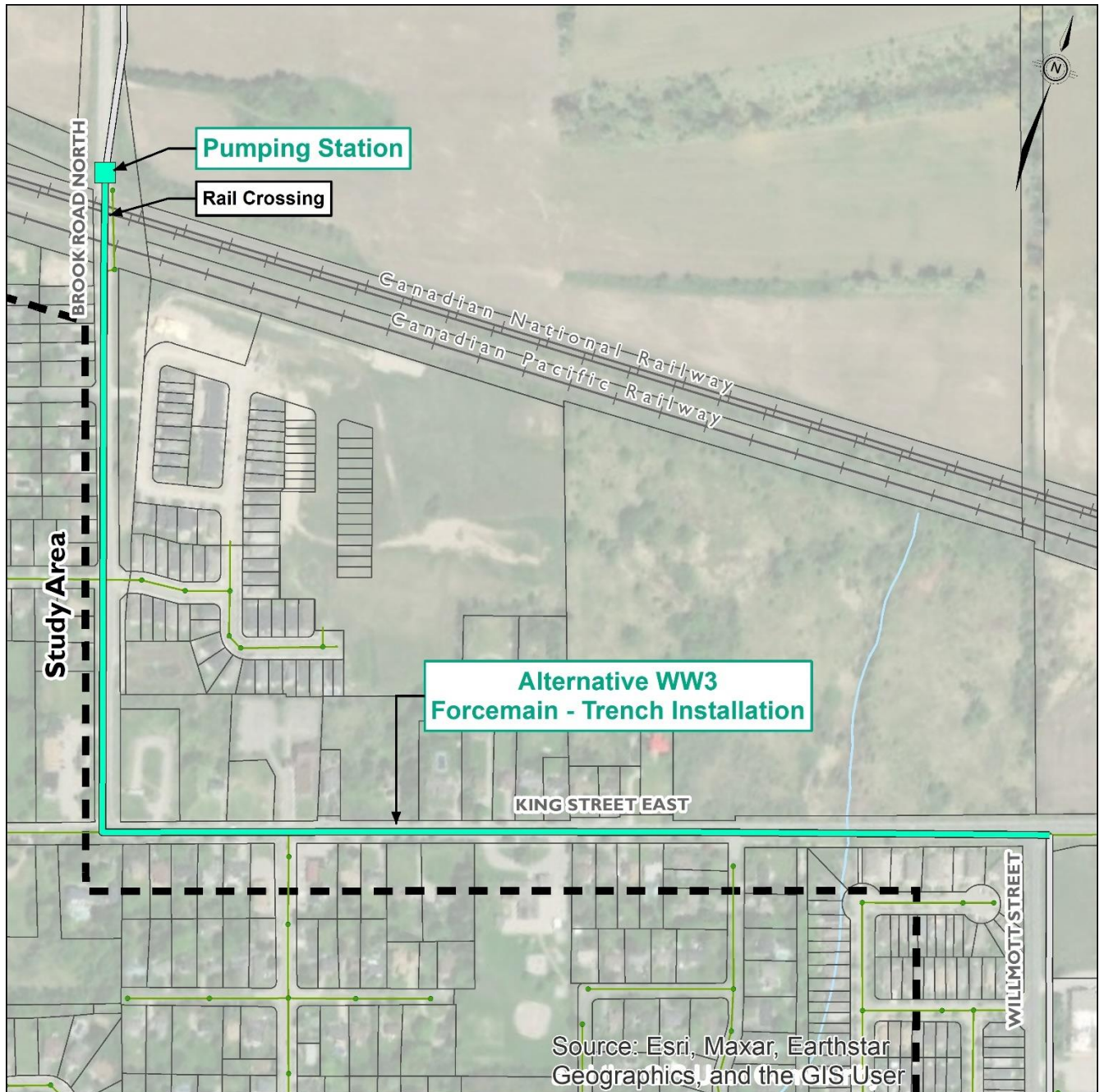


Figure 17: WW3

7.2.4 Alternative WW4

Alternative WW4 alignment for the proposed trunk sanitary sewer begins at the existing Cobourg WPCP #2 on Thompson Street. The alignment from the treatment plant extends easterly on Thompson Street to Normar Road and continues northerly along Normar Road to King Street East. The proposed sewer crosses King Street and continues north through private property to cross under the existing CN and CP Railway. The sewer follows the Workman Road right-of-way north, extending all the way to Elgin Street East. The sewer alignment extends westerly along Elgin Street East all the way past Brook Road North where it would connect to Phase 1 Cobourg Trails Development.

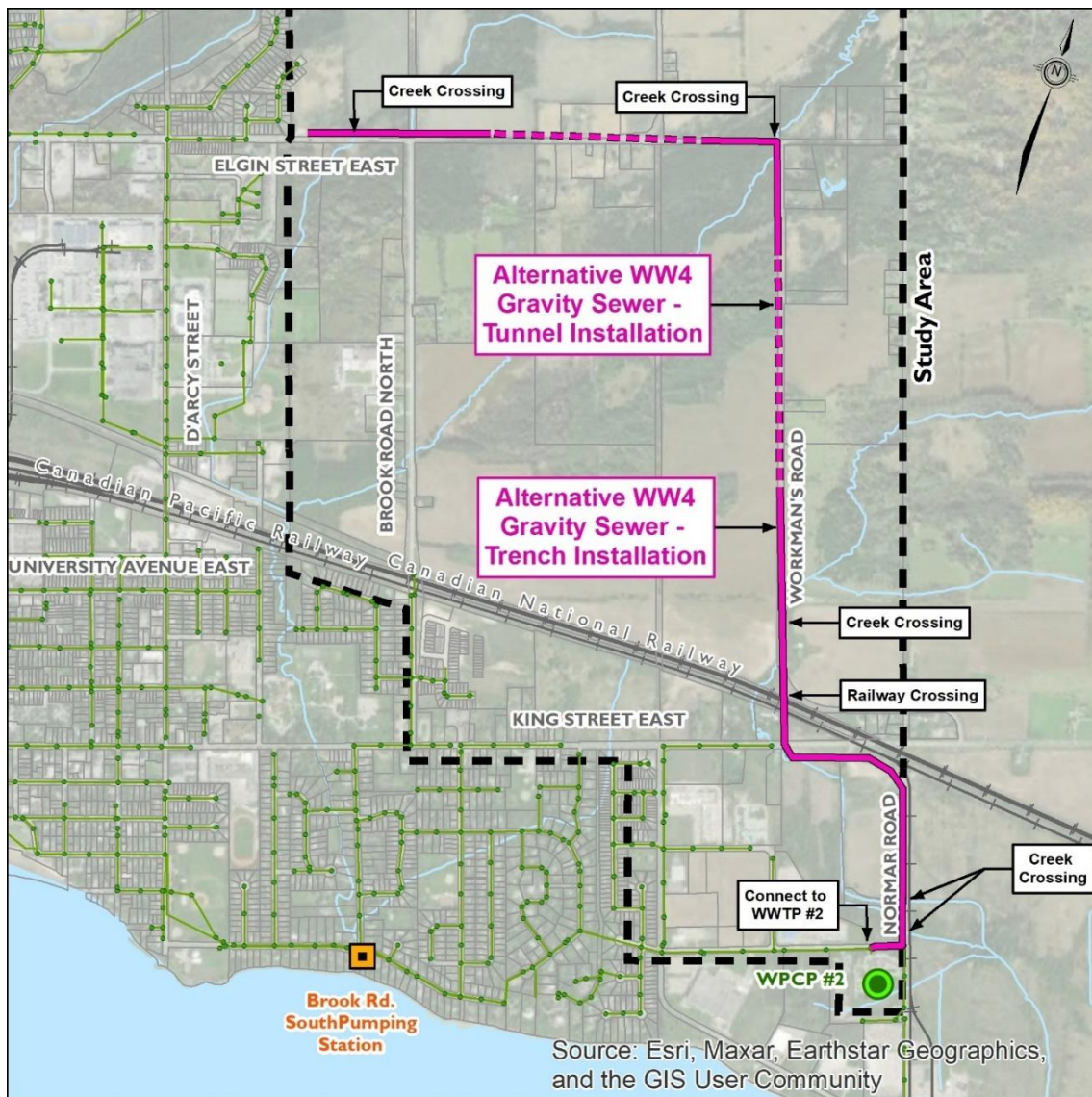


Figure 18: WW4

7.3 Preliminary Screening Results – Preliminary Preferred Wastewater Servicing Alternative

Alternative solutions that do not meet one or more of the key evaluation criteria or “must-meet criteria” in the preliminary screening were considered not feasible and were thus eliminated from further consideration. Alternative solutions that meet all “must-meet criteria” were short-listed and recommended to move forward for a more detailed examination.

The EA evaluation criteria were grouped into the following categories:

- Natural Environment
- Social and Cultural Environments
- Technical Considerations
- Financial Considerations

Of the categories listed above, Natural Environment and Social and Cultural Environments will have fairly similar impacts amongst all the alternatives. Although, when considering Alternative WW4 under the Technical and Financial Considerations categories, the impacts related to construction screen out the alternative for any further detailed evaluation for the reasons as outlined below.

Under the Technical Considerations evaluation category, key criteria are:

- Ability to service development areas
- Ease of Construction

Under Financial Considerations evaluation category, key criteria are:

- Estimated capital costs

Alternative WW4 alignment extends up the easterly side of the study area. The contours on the map illustrate that the general gradient of the land, within the Study Area, falls in a southwest direction. Constructing a trunk sewer traversing the easterly side of the study area makes it very difficult to service proposed development lands and results in a ‘very deep’ profile for the trunk sanitary sewer along the proposed alignment. The ground surface profile along Workman Road rises substantially extending northerly from the railway crossing with ground surface elevations reaching as much as 110m. At this location, the proposed trunk sanitary sewer would be approximately 23m deep below ground surface. Similarly, along Elgin Street East, the depth of the proposed sanitary trunk sewer is as much as 36m deep below ground

surface. The only feasible construction method to install the proposed sanitary sewer at the depth note above is via tunneling methods.

The financial implications (capital costs) with having to construct the above noted sections of sewer using tunneling methods quickly screens Alternative WW4 out from needing to complete any further detailed evaluation.

In summary, Alternative WW4 was screened out due to the following issues:

- Difficult to service the development area from the easterly side of the study area.
- To service the development via gravity, the sewer along this alignment would have to be constructed at depths between 23 m to 36 m deep which is challenging to construct and maintain.
- To construct the sewer at these proposed depths, it can only be done using tunnelling methods.
- There would be a significant cost to constructing a sewer by tunnelling.

Alternative solutions WW1, WW2 and WW3 are carried forward to the comparative evaluation.

8 Evaluation of Water Servicing Alternatives

8.1 Comparative Evaluation Methodology

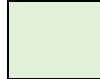


The evaluation criteria were used to comparatively evaluate the alternative solutions as applicable in a descriptive manner as opposed to a quantitative manner. A numerical or weighted ranking system was not used; the evaluation concentrates instead on the strengths and weaknesses of each alternative to identify the best possible solution. Set weightings of criteria were not specifically assigned, however, all evaluation criteria are not necessarily created equal and professional judgement and knowledge of the area and issues was used to understand preferences.

For each criterion and for each possible alternative alignment, the potential effects on the environment (natural, social, etc.) were identified. The evaluation is based on the relative advantages and disadvantages of the potential effects for each alternative, taking into account the natural and social-cultural environments as well as technical and financial considerations. The process requires considering trade-offs to select the preferred alternative which needed to take into consideration whether potential impacts could be mitigated or not. Reasonable mitigation measures were then identified to avoid or minimize any potential negative effects. The selection of the preferred alternative is based on the relative advantages and disadvantages of the net environmental effects, including the results of applying mitigating measures.

The ranking of each alternative solution relative to the specific evaluation criteria was conducted using a colour coding system comprised of green, yellow and red, designed to be indicative of preferred (green), less preferred (yellow) to least preferred (red). The comparison of each criterion was made horizontally (within a category such as natural environment) between the alternatives and then vertically (between categories such as natural environment, technical considerations) to derive the recommended solution. A summary row is provided where the alternatives are compared against each other within the four (4) categories of natural, social-cultural, technical and financial environments or considerations. The summary rows are then compared to determine the recommended alternative solution based on all aspects of the environment. The alternative solution which demonstrated the greatest number of “preferred” boxes and/or the fewest “least” preferred boxes relative to their potential environmental effects would likely be the preferred alternative. However, this was dependent on the extent of potential effects and whether they could be mitigated

8.2 Comparative Evaluation of Alternatives

The following sections include water evaluation matrices that compare the alternative alignments. The preferred, less preferred and least preferred alternatives are identified based on the following colours:

Preferred:  Less Preferred:  Least Preferred: 

8.3 Impacts on the Natural Environment

Table 8: Water Evaluation Matrix - Natural Environment

EVALUATION CRITERIA	ALTERNATIVE W1	DO NOTHING
Impacts to Watercourse Crossings, Fish and Fish Habitat	- Brook Creek West Tributary is located adjacent to the study area	- No construction related impacts
Impacts to Vegetation Communities including wetlands	- Crosses through recreational fields, Buckhorn deciduous shrub thicket and Willow Lowland deciduous forest - Adjacent to naturalized deciduous hedgerow, cultural woodland, mineral cultural meadow	- No construction related impacts
Impacts to Species at Risk, COSEWIC or Endangered Species Act Status	- No Species at Risk present	- No construction related impacts
Impacts to Environmentally Sensitive Features (Wetlands/PSWs/ESAs/ANSIs/Locally Significant Areas/Significant Woodlands)	- No significant environmental features present	- No construction related impacts
Proximity to Floodplains	- Minimal to no wildlife use of the area	- No construction related impacts
Impacts to Watercourse Crossings, Fish and Fish Habitat	- Construction of watermain across Brook Creek West tributary may temporarily influence the floodplain and should be avoided during high-water periods	- No construction related impacts
Natural Environment Overall Rating	Preferred	Preferred

8.4 Impacts to Social and Cultural Environment

Table 9: Water Evaluation Matrix - Social and Cultural Considerations

EVALUATION CRITERIA	ALTERNATIVE W1	DO NOTHING
Cultural heritage & archaeological resources	- No cultural heritage or archaeological resources present	- No construction related impacts
Traffic Disruption	- No roadway present	- No construction related impacts
Air and Noise Considerations	- Air and noise impacts during construction with minimal effect on industrial business and recreational fields	- No construction related impacts
Potential for temporary well interference due to construction dewatering activity	- No wells present in area	- No construction related impacts
Impacts on local schools, residents, and businesses	- None present in watermain alignment	- No construction related impacts
Temporary and permanent property requirements	- Permanent easement required through development lands	- No construction related impacts
Social and Cultural Overall Rating	Preferred	Preferred

8.5 Technical Considerations

Table 10: Water Evaluation Matrix - Technical Considerations

EVALUATION CRITERIA	ALTERNATIVE W1	DO NOTHING
Ability to service Cobourg East Secondary Plan Area	- Alignment has ability to provide water services to the Cobourg East Secondary Plan Area	- Does not provide water servicing to development areas and does not meet problem statement
Ease of construction (e.g., Impacts to Utilities, Construction Methodologies)	- Watermain can be constructed via open cut trench methods, shallow bury of minimum 1.8m depth - Some impacts to existing electrical utility at electrical substation	- No construction related impacts
Resiliency	- Watermain will provide main supply of expanded water supply system	- No resiliency provided
Railway crossings	- No railway crossings	- No construction related impacts
Predicted Dewatering and depressurization requirements	- Minimal dewatering impacts with minimum bury depth of 1.8m below ground surface	- No construction related impacts

EVALUATION CRITERIA	ALTERNATIVE W1	DO NOTHING
Requirement for Permits and Approvals	- No permits required	- No permits required
Technical Overall Rating	Preferred	Least Preferred

8.6 Financial Considerations

Table 11: Water Evaluation Matrix - Financial Considerations

EVALUATION CRITERIA	ALTERNATIVE W1	DO NOTHING
Estimated capital costs	- \$500K	- No capital costs but inability to provide water services to development areas is a cost to the Town
Operating and Maintenance Costs	- Minimal operating and maintenance costs	- No operating and maintenance costs
Land Acquisition Requirements	- Land needs to be provided from development lands	- No land acquisition required
Economic Overall Rating	Preferred	Least Preferred

8.7 Summary

Table 12: Water Evaluation Matrix - Overall Rating

EVALUATION CRITERIA	ALTERNATIVE W1	DO NOTHING
Natural Environment	- Crosses through recreational fields, Buckhorn deciduous shrub thicket and Willow Lowland deciduous forest	- No construction related impacts
Social and Cultural Environment	- Air and noise impacts during construction with minimal effect on industrial business and recreational fields	- No construction related impacts
Technical Considerations	- Constructed via open cut trench methods with minimal dewatering impacts due to shallow bury of minimum 1.8 m depth - Watermain will provide main supply of expanded water supply system	- Does not provide water servicing to development areas and does not meet problem statement - No resiliency provided
Financial Considerations	- Some land needs to be provided from development lands - Approximately \$500,000 capital costs and minimal operating and maintenance costs	- No capital costs but inability to provide water services to development areas is a cost to the Town
Overall Rating	Preferred	Least Preferred

8.8 Preferred Alternative

Based on the evaluation completed, it was determined that the preferred alternative solution is Alternative W1 in which the watermain will be constructed from a connection with the proposed watermain at the west limit of the Study Area near the Cobourg Community Centre to a connection at a proposed watermain on Brook Road North.

Figure 11 shows the preferred alignment and **Section 10.1.1** provides further description of the preferred water alternative solution.

9 Evaluation of Wastewater Servicing Alternatives

9.1 Comparative Evaluation Methodology


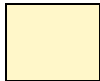

The evaluation criteria were used to comparatively evaluate the alternative solutions as applicable in a descriptive manner as opposed to a quantitative manner. A numerical or weighted ranking system was not used; the evaluation concentrates instead on the strengths and weaknesses of each alternative to identify the best possible solution. Set weightings of criteria were not specifically assigned, however, all evaluation criteria are not necessarily created equal and professional judgement and knowledge of the area and issues was used to understand preferences.

For each criterion and for each possible alternative alignment, the potential effects on the environment (natural, social, etc.) were identified. The evaluation is based on the relative advantages and disadvantages of the potential effects for each alternative, taking into account the natural and social-cultural environments as well as technical and financial considerations. The process requires considering trade-offs to select the preferred alternative which needed to take into consideration whether potential impacts could be mitigated or not. Reasonable mitigation measures were then identified to avoid or minimize any potential negative effects. The selection of the preferred alternative is based on the relative advantages and disadvantages of the net environmental effects, including the results of applying mitigating measures.

The ranking of each alternative solution relative to the specific evaluation criteria was conducted using a colour coding system comprised of green, yellow and red, designed to be indicative of preferred (green), less preferred (yellow) to least preferred (red). The comparison of each criterion was made horizontally (within a category such as natural environment) between the alternatives and then vertically (between categories such as natural environment, technical considerations) to derive the recommended solution. A summary row is provided where the alternatives are compared against each other within the four (4) categories of natural, social-cultural, technical and financial environments or considerations. The summary rows are then compared to determine the recommended alternative solution based on all aspects of the environment. The alternative solution which demonstrated the greatest number of “preferred” boxes and/or the fewest “least” preferred boxes relative to their potential environmental effects would likely be the preferred alternative. However, this was dependent on the extent of potential effects and whether they could be mitigated.

9.2 Comparative Evaluation of Alternatives

The following sections include wastewater evaluation matrices that compare the alternative alignments. The preferred, less preferred, and least preferred alternatives are identified based on the following colours:

Preferred:  Less Preferred:  Least Preferred: 

9.3 Impacts on the Natural Environment

Table 13: Wastewater Evaluation Matrix - Natural Environment

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Impacts to Watercourse Crossings, Fish and Fish Habitat	- 1 crossing (Brook Creek East Tributary is a cool-water thermal regime) with open bottom box culvert present – trenchless technology and no in-water works	- 1 crossing (Brook Creek East Tributary is a cool-water thermal regime) with open bottom box culvert present – trenchless technology and no in-water works	- 1 crossing (Brook Creek East Tributary is a cool-water thermal regime) with open bottom box culvert present – trenchless technology and no in-water works	- 1 crossing (Brook Creek West Tributary is a cool-water thermal regime) on Elgin Street E is a relocated naturalized channel – trenchless technology and no in-water works	- 1 crossing (Brook Creek West Tributary is a cool-water thermal regime) on Elgin Street E is a relocated naturalized channel – trenchless technology and no in-water works	- 1 crossing (Brook Creek West Tributary is a cool-water thermal regime) on Elgin Street E is a relocated naturalized channel – trenchless technology and no in-water works	- No construction related impacts
Impacts to Vegetation Communities including wetlands	- Cleared areas, agricultural lands, naturalized deciduous hedgerow and cultural meadows within ROWs and development lands - Stays largely within existing ROW - Built-up lands from King Street E to Thompson Street	- Cleared areas, agricultural lands, cultural meadows and built-up urban environment and within ROWs - Stays largely within existing ROWs	- Cleared areas, agricultural lands, cultural meadows and built-up urban environment and within ROWs - Stays largely within existing ROWs - Agricultural lands for pumping station	- Cuts through area cleared for development	- Follows Brook Road N ROW with minimal vegetation present	- Follows Brook Road N ROW with minimal vegetation present - Pumping station located in area cleared for development	- No construction related impacts

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Impacts to Species at Risk, COSEWIC or Endangered Species Act Status	<ul style="list-style-type: none"> - No aquatic SAR or critical habitat for SAR present - No threatened terrestrial or avian species or suitable habitat for these species were documented in the area 	<ul style="list-style-type: none"> - No aquatic SAR or critical habitat for SAR present - No threatened terrestrial or avian species or suitable habitat for these species were documented in the area 	<ul style="list-style-type: none"> - No aquatic SAR or critical habitat for SAR present - No threatened terrestrial or avian species or suitable habitat for these species were documented in the area 	<ul style="list-style-type: none"> - No aquatic SAR or critical habitat for SAR present - No threatened terrestrial or avian species or suitable habitat for these species were documented in the area (Elgin Street E ROW) 	<ul style="list-style-type: none"> - No aquatic SAR or critical habitat for SAR present - No threatened terrestrial or avian species or suitable habitat for these species were documented in the area (Elgin Street E and Brook Road N ROW) 	<ul style="list-style-type: none"> - No aquatic SAR or critical habitat for SAR present - No threatened terrestrial or avian species or suitable habitat for these species were documented in the area (Elgin Street E and Brook Road N ROW) 	<ul style="list-style-type: none"> - No construction related impacts
Impacts to Environmentally Sensitive Features (Wetlands/PSWs/ESAs/ANS Is/Locally Significant Areas/Significant Woodlands)	<ul style="list-style-type: none"> - Unevaluated wetland and wetland on east side of Brook Road N at watercourse crossing - Small, isolated swamp present south of CN/CP Railway crossing on east edge of proposed sewer alignment 	<ul style="list-style-type: none"> - Unevaluated wetland and wetland on east side of Brook Road N at watercourse crossing - No wetlands present south of CN/CP railway crossing within Brook Road N or King Street ROW 	<ul style="list-style-type: none"> - Unevaluated wetland and wetland on east side of Brook Road N at watercourse crossing - No wetlands present south of CN/CP railway crossing within Brook Road N or King Street ROW 	<ul style="list-style-type: none"> - Elgin Street E ROW is adjacent to marsh on north and south sides - Cuts through 2 portions of an unevaluated wetland located on disturbed lands that will be developed 	<ul style="list-style-type: none"> - Elgin Street E ROW is adjacent to marsh on north and south sides - Portion of unevaluated wetlands adjacent to Brook Road N ROW near Elgin Street E 	<ul style="list-style-type: none"> - Elgin Street E ROW is adjacent to marsh on north and south sides - Portion of unevaluated hardwood mixed swamp adjacent to Brook Road N ROW near Elgin Street E - Impacts an unevaluated wetland located adjacent to the pumping station site 	<ul style="list-style-type: none"> - No construction related impacts
Proximity to Floodplains	<ul style="list-style-type: none"> - Construction of sewer across Brook Creek East tributary may temporarily influence the floodplain and should be avoided during high-water periods 	<ul style="list-style-type: none"> - Construction of sewer across Brook Creek East tributary may temporarily influence the floodplain and should be avoided during high-water periods 	<ul style="list-style-type: none"> - Construction of sewer across Brook Creek East tributary may temporarily influence the floodplain and should be avoided during high-water periods 	<ul style="list-style-type: none"> - Prior to construction the existing Brook Creek West Tributary will become a relocated naturalized channel on Elgin Street E with no associated floodplain issues 	<ul style="list-style-type: none"> - Prior to construction the existing Brook Creek West Tributary will become a relocated naturalized channel on Elgin Street E with no associated floodplain issues 	<ul style="list-style-type: none"> - Prior to construction the existing Brook Creek West Tributary will become a relocated naturalized channel on Elgin Street E with no associated floodplain issues 	<ul style="list-style-type: none"> - No construction related impacts
Natural Environment Overall Rating	Less Preferred	Less Preferred	Less Preferred	Less Preferred	Less Preferred	Less Preferred	Preferred

9.4 Impacts to Social and Cultural Environment

Table 14: Wastewater Evaluation Matrix – Social and Cultural Considerations

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Impacts to Cultural Heritage (built and landscapes) & Archaeological Resources	<ul style="list-style-type: none"> - No built heritage or cultural landscape resources are present - Potential for archaeological resources on undeveloped lands north of CN/CP Railway 	<ul style="list-style-type: none"> - No built heritage or cultural landscape resources are present in ROW - Lowest potential for archaeological resources due to alignment within ROW 	<ul style="list-style-type: none"> - No built heritage or cultural landscape resources are present in ROW - Low potential for archaeological resources due to alignment within ROW but possible on site for pumping station 	<ul style="list-style-type: none"> - No built heritage or cultural landscape resources are present - No archaeological resources based on Archaeological Assessment completed on undeveloped lands crossed south of Elgin Street 	<ul style="list-style-type: none"> - No built heritage or cultural landscape resources are present in ROW - Lowest potential for archaeological resources due to alignment within previously disturbed ROW 	<ul style="list-style-type: none"> - No built heritage or cultural landscape resources are present in ROW - Lowest potential for archaeological resources on lands for pumping station due to site located within previously disturbed ROW 	<ul style="list-style-type: none"> - No construction related impacts
Traffic Disruption During Construction	<ul style="list-style-type: none"> - Section of alignment avoids busy Brook Road N by going through development lands - Minor construction impacts on Wilmott Street, considerable impacts on Brook Road N 	<ul style="list-style-type: none"> - Considerable construction impacts to traffic on busy roadways of King Street and Brook Road N 	<ul style="list-style-type: none"> - Considerable construction impacts to traffic on busy roadways of King Street and Brook Road N 	<ul style="list-style-type: none"> - Construction impacts on busy Elgin Street E - Section of alignment avoids busy Brook Road N by going through development land 	<ul style="list-style-type: none"> - Depending on shaft locations - construction impacts on busy Brook Road N and Elgin Street E 	<ul style="list-style-type: none"> - Shallow forcemain but may result in greater construction impacts on busy Brook Road N and Elgin Street E 	<ul style="list-style-type: none"> - No construction related impacts
Air and Noise Considerations	<ul style="list-style-type: none"> - Air and noise impacts during construction affects undeveloped lands and a portion in built-up areas 	<ul style="list-style-type: none"> - Air and noise impacts during construction affects undeveloped lands and built-up area 	<ul style="list-style-type: none"> - Air and noise impacts during construction affects undeveloped lands and built-up area - Air and noise impacts during operation of pumping station affects undeveloped lands 	<ul style="list-style-type: none"> - Air and noise impacts during construction affects undeveloped lands 	<ul style="list-style-type: none"> - Air and noise impacts during construction affects undeveloped lands 	<ul style="list-style-type: none"> - Air and noise impacts during construction affects undeveloped lands - Air and noise from operation of pumping station affects undeveloped lands 	<ul style="list-style-type: none"> - No construction related impacts
Potential for temporary well interference due to construction dewatering activity	<ul style="list-style-type: none"> - 2 wells present near lands to be developed - 1 well present along Brook Road N that could be impacted 	<ul style="list-style-type: none"> - No wells present with residents on municipal water or on lands to be developed 	<ul style="list-style-type: none"> - No wells present with residents on municipal water or on lands to be developed 	<ul style="list-style-type: none"> - No wells present in area that could be impacted 	<ul style="list-style-type: none"> - 2 wells present in area that could be impacted 	<ul style="list-style-type: none"> - 2 wells present in area that could be impacted 	<ul style="list-style-type: none"> - No construction related impacts

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Impacts on local schools, residents, and businesses	- Large portion of alignment is within undeveloped lands and construction would not cause an impact - Construction impact on industrial businesses and residents along Willmott Street	- Larger portion of lands within existing urban environment and residents, businesses and school could be impacted during construction	- Larger portion of lands within existing urban environment and residents, businesses and school could be impacted during construction	- Undeveloped lands only	- Undeveloped lands only	- Undeveloped lands only	- No construction related impacts
Temporary and permanent property requirements	- Permanent easement required through development lands	- No easements needed	- Possible temporary and permanent easement required for pumping station	- Permanent easement required through development lands	- No easements needed	- Possible temporary and permanent easement required for pumping station	- No property required
Social and Cultural Overall Rating	Less Preferred	Least Preferred	Least Preferred	Preferred	Less Preferred	Least Preferred	Preferred

9.5 Technical Considerations

Table 15: Wastewater Evaluation Matrix – Technical Considerations

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Ability to service Cobourg East Secondary Plan Area	- Alignment has ability to service the development area	- Alignment has ability to service the development area	- Alignment has ability to service the development area	- Alignment assists in servicing the development area	- Alignment assists in servicing the development area	- Alignment assists in servicing the development area	- Not able to service Cobourg East Secondary Plan Area and does not meet problem statement

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Ease of construction (e.g., Impacts to Utilities, Construction Methodologies)	<ul style="list-style-type: none"> - Requires removal of existing 375mm dia. Sewer along Wilmott Street, minor impacts to existing bell underground - Majority of alignment would be constructed via open cut trench methods, trenchless methods at railway and creek crossing - Some construction constraints on Wilmott Street, crossing under King Street and along Brook Road N and Elgin Street E 	<ul style="list-style-type: none"> - Significant impact with storm culvert on King Street - Requires impact mitigation to existing municipal services along King Street and Brook Road N south of railway - Majority of alignment would be constructed via open cut trench methods, trenchless methods at railway and creek crossing - Significant construction constraints on King Street, high traffic volume, congested roadway 	<ul style="list-style-type: none"> - Requires impact mitigation to existing municipal services along King Street and Brook Road N south of railway - Majority of alignment would be constructed via open cut trench methods, trenchless methods at railway and creek crossing - Significant construction constraints on King Street, high traffic volume, congested roadway 	<ul style="list-style-type: none"> - Sewer can be constructed through the Phase 2 lands via open cut trench methods - Minimal impacts to existing utilities 	<ul style="list-style-type: none"> - Sewer required to be constructed via tunnelling methods through the drumlin on Brook Road North - Some construction constraints on Brook Road N 	<ul style="list-style-type: none"> - Space required to construct pumping station, forcemain constructed via open trench method along Brook Road N over the drumlin - Some construction constraints on Brook Road N 	<ul style="list-style-type: none"> - No construction related impacts
Resiliency	<ul style="list-style-type: none"> - Majority of sanitary sewer can be built using a gravity sewer - Tunnelling will be required under railway and creek crossing - Infrastructure will be more resilient because it will be based on gravity flow 	<ul style="list-style-type: none"> - Majority of sanitary sewer can be built using a gravity sewer - Tunnelling will be required under railway and creek crossing - Infrastructure will be more resilient because it will be based on gravity flow 	<ul style="list-style-type: none"> - Sewer system requires gravity sanitary sewers, a pumping station and forcemains - Infrastructure will be less resilient because it will be constrained by a pumping station 	<ul style="list-style-type: none"> - Entire sanitary sewer can be built using a gravity sewer - Infrastructure will be more resilient because it will be based on gravity flow 	<ul style="list-style-type: none"> - Entire sanitary sewer can be built using a gravity sewer - Tunnelling will be required under the drumlin - Infrastructure will be more resilient because it will be based on gravity flow 	<ul style="list-style-type: none"> - Sewer system requires a pumping station and forcemains - Infrastructure will be less resilient because it will be constrained by a pumping station 	<ul style="list-style-type: none"> - Does not address resiliency
Railway crossings	<ul style="list-style-type: none"> - Requires crossing of CN/CP railway using trenchless methods 	<ul style="list-style-type: none"> - Requires crossing of CN/CP railway using trenchless methods 	<ul style="list-style-type: none"> - Requires crossing of CN/CP railway using trenchless methods 	<ul style="list-style-type: none"> - No railway crossing in this section 	<ul style="list-style-type: none"> - No railway crossing in this section 	<ul style="list-style-type: none"> - No railway crossing in this section 	<ul style="list-style-type: none"> - No railway crossing

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Predicted Dewatering and Depressurization Requirements	- Open cut trench construction will require temporary groundwater control. Dewatering will be only localized at trench and shaft excavations and will be temporary	- Open cut trench construction will require temporary groundwater control. Dewatering will be only localized at trench and shaft excavations and will be temporary	- Open cut trench construction will require temporary groundwater control but less due to shallow forcemain. Dewatering will be only localized at trench and shaft excavations and will be temporary	- Open cut trench construction will require temporary groundwater control. Dewatering will be only localized at trench excavations and will be temporary	- Open cut trench construction will require temporary groundwater control. Dewatering will be only localized at trench and shaft excavations and will be temporary	- Open cut trench construction will require temporary groundwater control but less due to shallow forcemain. Dewatering will be only localized at trench excavations and will be temporary	- No construction related impacts
Requirement for Permits and Approvals	- Permits and Approvals will be required from MECP for construction of a new sanitary sewer, Town of Cobourg for Wilmott Street and Northumberland County for Brook Road N - Permit and Approvals from CN/CP railway - Permit and Approval from GRCA for creek crossing and encroachment of wetland	- Permits and Approvals will be required from MECP for construction of a new sanitary sewer, Town of Cobourg for Wilmott Street and King Street and Northumberland County for Brook Road North - Permit and Approvals from CN/CP railway - Permit and Approval from GRCA for creek crossing and encroachment of wetland	- Permits and Approvals will be required from MECP for construction of a new sanitary sewer pumping station and forcemain, Town of Cobourg for Wilmott Street and King Street and Northumberland County for Brook Road North - Permit and Approvals from CN/CP railway - Permit and Approval from GRCA for creek crossing and encroachment of wetland	- Permits and Approvals will be required from MECP for construction of a new sanitary sewer and Northumberland County for Elgin Street E	- Permits and Approvals will be required from MECP for construction of a new sanitary sewer and Northumberland County for Brook Road N and Elgin Street E	- Permits and Approvals will be required from MECP for construction of a new sanitary sewer pumping station and forcemain and Northumberland County for Brook Road N and Elgin Street E	- No construction related impacts
Technical Overall Rating	Preferred	Less Preferred	Least Preferred	Preferred	Less Preferred	Least Preferred	Least Preferred

9.6 Financial Considerations

Table 16: Wastewater Evaluation Matrix – Financial Considerations

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Estimated capital costs	- \$12.5M (includes WW1A costs)	- \$13.5M (includes WW1A costs)	- \$20M (includes WW1A costs)	- \$2M	- \$10M	- \$8.5M	- No capital costs but inability to provide wastewater services to development areas is a cost to the Town
Operating and Maintenance Costs	- Low Operating and Maintenance costs with gravity sewer system	- Low Operating and Maintenance costs with gravity sewer system	- Higher operating costs with a pumping station and forcemain	- Low Operating and Maintenance costs with gravity sewer system	- Low Operating and Maintenance costs with gravity sewer system	- Higher operating costs with a pumping station and forcemain	- No operating and maintenance costs
Land Acquisition Requirements	- Land needs to be provided from development lands	- No land acquisition needed	- Land needs to be provided for pumping station from development lands	- Land acquisition required through development property	- No land acquisition needed	- Land needs to be provided for pumping station from development lands	- No land acquisition costs
Economic Overall Rating	Preferred	Less Preferred	Least Preferred	Preferred	Less Preferred	Least Preferred	Least Preferred

9.7 Summary

Table 17: Wastewater Evaluation Matrix - Overall Rating

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Natural Environment	- Creek crossing through trenchless technology (no in-water work) - Construction stays within Brook Road N and Thompson Street ROW	- Creek crossing through trenchless technology (no in-water work) - Construction stays within Brook Road N, King Street and Thompson Street ROW	- Creek crossing through trenchless technology (no in-water work) - Construction stays within Brook Road N, King Street and Thompson Street ROW	- Creek crossing through trenchless technology (no in-water work) - Marsh and unevaluated wetlands present but these are located on disturbed lands that will be developed	- Creek crossing through trenchless technology (no in-water work) - Construction stays within Elgin Street E and Brook Road N ROW	- Creek crossing through trenchless technology (no in-water work) - Construction stays within Elgin Street E and Brook Road N ROW with minimal impacts to	- No construction related impacts

EVALUATION CRITERIA	FROM ELECTRICAL SUB-STATION TO THOMPSON STREET			FROM ELGIN STREET TO ELECTRICAL SUB-STATION			DO NOTHING
	ALTERNATIVE WW1	ALTERNATIVE WW2	ALTERNATIVE WW3	ALTERNATIVE WW1A	ALTERNATIVE WW1B	ALTERNATIVE WW1C	
Social and Cultural Environment	<ul style="list-style-type: none"> - Lower construction impacts by crossing disturbed development lands (north of CN/CP Railway) and Wilmott Street - Greater construction related impacts on Brook Road N 	<ul style="list-style-type: none"> - Greater construction impacts on Brook Road N and King Street and within built-up area - Larger portion of lands within existing urban environment (south of CN/CP Railway) 	<ul style="list-style-type: none"> - Forcemain and pumping station results in greater construction impacts on Brook Road N and King Street and within built-up area 	<ul style="list-style-type: none"> - Undeveloped lands impacted - Some construction impacts along Elgin Street E 	<ul style="list-style-type: none"> - Construction impacts along Brook Road N and Elgin Street E 	<ul style="list-style-type: none"> - Shallow forcemain results in greater construction impacts on Brook Road N and Elgin Street E - Land required and potentially impacted for pumping station 	<ul style="list-style-type: none"> - No construction related impacts
Technical Considerations	<ul style="list-style-type: none"> - Majority is gravity sewer making it more resilient - Constructed via open cut trench methods, trenchless methods at railway and creek crossing 	<ul style="list-style-type: none"> - Majority is gravity sewer making it more resilient - Constructed via open cut trench methods, trenchless methods at railway and creek crossing - Significant construction constraints on King Street 	<ul style="list-style-type: none"> - Gravity sanitary sewer, pumping station and forcemains – less resilient - Constructed via open cut trench methods, trenchless methods at railway and creek crossing - Significant construction constraints on King Street 	<ul style="list-style-type: none"> - Gravity sewer making it more resilient - Open cut trench construction around the drumlin 	<ul style="list-style-type: none"> - Gravity sewer making it more resilient - Sewer required to be constructed via tunnelling methods through the drumlin on Brook Road N 	<ul style="list-style-type: none"> - Space required to construct pumping station, forcemain constructed via open trench method along Brook Road N through the drumlin - Sewer system requires pumping station and forcemains – less resilient 	<ul style="list-style-type: none"> - Not able to service Cobourg East Secondary Plan Area and does not meet problem statement or address resiliency
Financial Considerations	<ul style="list-style-type: none"> - Lower capital costs and low operating/maintenance costs - Development lands required 	<ul style="list-style-type: none"> - High capital costs with low operating/maintenance costs - No land acquisition required 	<ul style="list-style-type: none"> - Highest capital, operating/maintenance costs with forcemain and pumping station - Land required for pumping station 	<ul style="list-style-type: none"> - Lowest capital costs and low operating/maintenance costs - Land required from development lands 	<ul style="list-style-type: none"> - Higher capital costs with depth of gravity sewer but low operating/maintenance costs - No land acquisition required 	<ul style="list-style-type: none"> - High capital, costs and higher operating/maintenance costs with forcemain and pumping station - Land required for pumping station 	<ul style="list-style-type: none"> - No capital costs but inability to provide wastewater services to development areas is a cost to the Town
Overall Rating	Preferred	Less Preferred	Least Preferred	Preferred	Less Preferred	Least Preferred	Least Preferred

9.8 Preferred Alternative

The preferred wastewater alternative solution includes alignments WW1A and WW1 which consist of a gravity sewer that extends from the connection with the Phase 1 interim solution, east along Elgin Street East to the intersection of Brook Road North and then south on Brook Road North to the point where it sweeps west through the proposed development lands around the drumlin (Alternative WW1A) and then re-connects with Brook Road North (Alternative WW1). The WW1 alternative alignment then continues south on Brook Road North to the point north of the railway where it extends east through the proposed development lands and under the CN and CP Railway to continue south through the unopened Willmott Street right-of-way and on Willmott Street to connect with the existing sewer on Thompson Street.

Figure 20 shows the preferred alignment and **Section 10.1.2** provides further description of the preferred wastewater alternative solution.

10 Preliminary Design Considerations

10.1 Preliminary Design Drawings

Preliminary design concepts indicating the preferred water and wastewater servicing alignments are shown in **Figure 19** and **Figure 20**. Following completion of the Class EA the next phase of the project will be undertaking detailed design for the watermain and wastewater sewer.

10.1.1 Water Infrastructure

As illustrated in **Figure 19**, the preferred watermain alignment connects to a proposed watermain at the west of the Study Area, which supplies water from the proposed Booster Pumping Station east of D'Arcy Street that was identified through the Cobourg Zone 1 Elevated Tank and Zone 2 Booster Pumping Station Class EA (CIMA+, 2023). The preferred watermain alignment then traverses east and connects to a proposed watermain on Brook Road North, which supplies water to Cobourg East.

Along the route, the preferred watermain alignment runs easterly along the south side of existing soccer fields at the rear of the Cobourg Community Centre. East of the soccer fields the proposed watermain will continue east along the southern limit of the Cobourg Trails Phase 2 development though an area that will ultimately become parkland. East of Phase 2 the proposed trunk watermain will enter the LUSI electrical substation property and continue to Brook Road North. The watermain will then be deflected northerly and connected to a proposed trunk watermain on Brook Road North.

10.1.2 Wastewater Infrastructure

As illustrated in **Figure 20**, the preferred trunk sanitary sewer alignment begins on Elgin Street East, at the southwestern limit of Tribute's planned Cobourg Trails Phase 1 development area. The proposed gravity trunk sewer then progresses east on Elgin Street East, crossing Brook Creek West tributary before progressing south on Brook Road North. The sanitary sewer construction at Brook Creek West tributary is proposed via open cut construction in conjunction with a culvert replacement and channel naturalization project Tribute is undertaking to support their Cobourg Trails development. To implement an open-cut installation the following approach is recommended:

- Install trunk sanitary sewer to a location just west of the existing culvert.
- Install a new culvert approximately 15 m west of the existing culvert above the trunk sanitary sewer and watermain.

- Extend the proposed natural channel works approximately 15m west to connect to the new culvert location.
- Reconfigure the watercourse at the new culvert outlet to integrate with the wetland area south of Elgin Street East.
- Divert flows to the new natural channel and culvert.
- Remove the existing culvert and continue trunk sanitary sewer easterly towards Brook Road North.

Measures to mitigate potential impacts to the watercourse and wetland are described in **Section 11.1** and in the EIS included in Appendix A.

Following the creek crossing, the preferred wastewater servicing alignment progresses south on Brook Road North for approximately 150 m before the trunk sewer alignment deviates southwesterly from Brook Road North and enters the Cobourg Trails Phase 2 lands. Deviating from Brook Road North into Cobourg Trails Phase 2 allows the sewer alignment to skirt around the west side of a large drumlin, avoiding the crest and the greatest excessive sewer depth on Brook Road North. The gravity trunk sewer alignment internal to Cobourg Trails Phase 2 is proposed within green space, a SWM block and parkland with connection onto Brook Road North through a combination of LUSI Electrical Substation and Markham Metals Property.

After connecting back onto Brook Road North, the trunk sanitary sewer progresses south where it crosses Brook Creek East tributary. The Brook Creek East tributary crossing is proposed to be completed via trenchless technologies, which is further described in **Section 10.2.2**.

Downstream of the Brook Creek East tributary crossing, the preferred trunk sewer alignment runs southerly along Brook Road North for approximately 350 m, until it deflects east into development lands owned by Mistral.

Within the Mistral development lands the proposed trunk sanitary sewer flows easterly towards the future Willmott Street right-of-way paralleling the CN/CP rail corridor. The sewer will be safely offset from the CN / CP rail corridor as required by the applicable standards and is proposed to be situated within a municipal servicing easement and future local road right-of-way.

At the east extent of the Mistral development lands, the trunk sanitary sewer is proposed to cross below the CN / CP rail corridor via trenchless technologies. The trenchless installation is further detailed in **Section 10.2.2**.

On the south side of the CN / CP rail corridor, the trunk sanitary sewer is proposed to progress south through the unopened Willmott Street right-of-way. The trunk sanitary

sewer through this area is proposed to pass within the vicinity of an existing wetland. Based on preliminary sewer alignments, the proposed trunk sanitary sewer is approximately 15 m away from the wetland feature, but within the 30 m buffer. Measures to mitigate potential impacts to the wetland are discussed in **Section 11.1.1** and the EIS included in Appendix A.

The preferred trunk sanitary sewer alignment progresses south, crossing King Street East, along Willmott Street to Thompson Street. Based on CIMA's understanding of existing municipal infrastructure and private utilities within the Willmott Street right-of-way, as well as existing residential development lining the west side of the street, the east side of the right-of-way is considered the preferred location for the trunk sanitary sewer alignment. It is proposed that the trunk sanitary sewer will ultimately replace the existing 375 mm dia. sanitary sewer on Willmott Street. As the trunk sewer is proposed on the east side of the right-of-way, flow from existing industrial properties and future infill of developable land east of Willmott Street will be considered in the design of the trunk sewer. When the trunk sanitary sewer reaches Thompson Street, it connects to an existing 1200 mm diameter sanitary trunk sewer which ultimately outlets to WPCP #2.

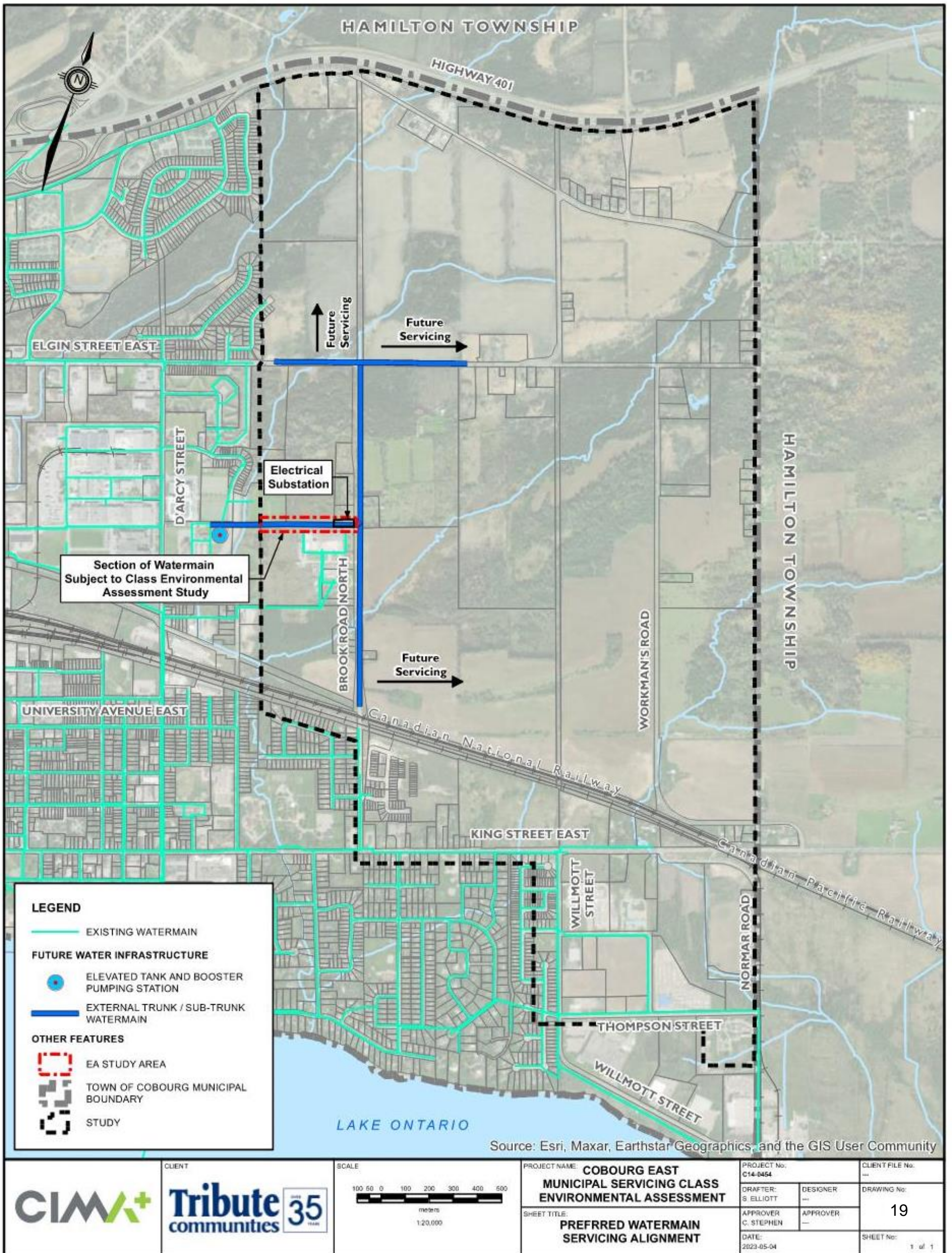


Figure 19: Preferred Water Servicing Alignment

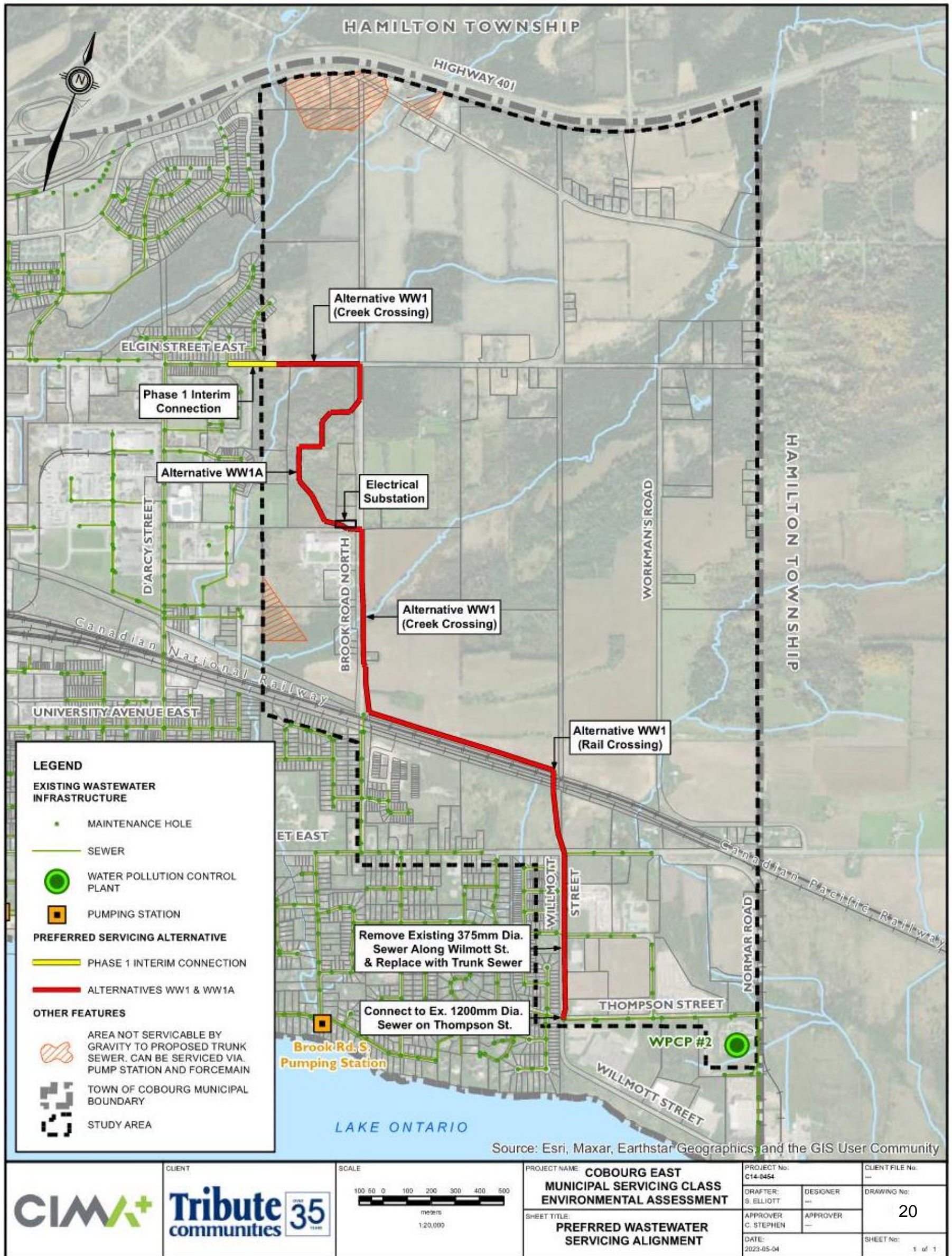


Figure 20: Preferred Wastewater Servicing Alignment

10.2 Construction Techniques

10.2.1 Open Cut Construction

Open cut is a common technique that involves the excavation of a trench from the ground surface to the required sewer depth, installation of the pipe at the design grade, and the backfilling and compaction of the trench. Open cut construction is generally limited to excavations less than 10 m in depth due to safety concerns and economic feasibility. Soil and groundwater conditions can have significant implications on open cut construction. If groundwater is present within the trench, dewatering may be required. Trench boxes, shoring or extensive sloping may be required in poor soil conditions.

It is proposed that the majority of the preferred sanitary trunk sewer alignment and the whole of the preferred watermain alignment, will be constructed via open cut methodology, unless otherwise specified.

10.2.2 Trenchless Technology

Alternatives to open cut construction are trenchless methodologies. Trenchless methodologies are commonly used to install excessively deep pipes or install pipes through sensitive areas where open cut construction is not feasible. As the name suggests, trenchless technologies do not require an open trench, and therefore limit surface disturbance. Several types of trenchless methodologies exist, including Jack and Bore, Horizontal Directional Drilling and Microtunnelling. Each of these techniques require a sending shaft and a receiving shaft. The sending and receiving shafts are the entry and exit points for the pipe installed below ground.

As discussed in **Section 10.1.2**, to avoid disturbing the natural watercourse, trenchless techniques are proposed for trunk sanitary sewer construction at the Brook Creek East tributary crossing. The final trenchless method will be selected at detailed design based on the results of geotechnical investigations. However, it is likely that micro-tunneling methods will be preferred as they are understood to be more effective than jack-and-bore methods in wet and soft soil conditions. It is anticipated that a sanitary sewer length of approximately 90 m will need to be installed by trenchless methods to reach a suitable shaft location south of the culvert and limit open-cut installation.

A trenchless method of sewer installation will also be utilized for the sanitary trunk sewer crossing the rail corridor. Similar to the Brook Creek East tributary crossing on Brook Road North, sending and receiving shafts will be installed on either side of the corridor outside of the CN/CP rail corridor right-of-way. The shafts are proposed approximately 10 m from the CP right-of-way on the south side of the rail corridor, and

20 m from the CN right-of-way on the north side of the corridor. The shaft locations are proposed to place shafts in accessible locations that are beyond the track loading zone of influence.

10.3 Design / Construction Consideration

Several design and construction considerations for the preferred water and wastewater infrastructure alignment have been discussed throughout this study. Below is a summary of these considerations:

- Future flows and demand from Cobourg East and existing and infill development flows from areas along the municipal servicing route
- Environmental feature protection measures including timing windows for construction to mitigate disruptions to animals during critical periods
- Construction methodology
- Soil and groundwater conditions
- Town of Cobourg design criteria including criteria related to manholes and appurtenances
- No individual sanitary service connections should be made to the trunk sanitary sewer
- Locate maintenance holes on the trunk sanitary sewer facilitate the connection of the future sub-trunks
- Easement, block and road allowance width needs and setbacks from property lines and planned footings when designing the alignment of the trunk sanitary sewer
- Maintenance and operational needs for access to and future replacement of the trunk sanitary sewer
- MOE/MECP design guidelines
- CN / CP design criteria
- Required permits

In addition, potential conflicts with existing infrastructure along the preferred servicing alignments should be reviewed and mitigated at detailed design. Of particular note is a potential conflict with electrical feeds at the LUSI substation property. As noted in **Section 10.1.1**, the preferred water servicing alignment traverses the LUSI electrical substation property. It is noted that where the watermain exits the LUSI substation

property at Brook Road North it will run through the existing substation entrance. The incoming and outgoing electrical feeds from the substation transition from aerial lines along Brook Road North to underground at the entrance and connect to the substation facilities. The watermain will cross below these lines requiring that they are temporarily supported during construction. It is anticipated that short-term de-energization of these feeds will also have to be coordinated with LUSI.

It should also be noted that the ownership of the eastern half of the unopened Willmott Street right-of-way north of King Street East is currently unclear. It is possible that the eastern half was previously conveyed to the owners of the parcel of land to the east of the right-of-way. If it is determined that the eastern half of the right-of-way is not in public ownership, the wastewater sewer should be designed fully within the western half of the right-of-way.

11 Preferred Municipal Servicing Alternative: Potential Effects and Mitigation Measures

When constructing any type of infrastructure, there is a potential for environmental impacts to occur as a result of the construction activities. In such situations, measures must be taken to either minimize or offset the negative effects. Actions taken to reduce the effects of a certain project on the environment are called “mitigating measures”.

The Class EA process requires development of mitigating measures after identification of the magnitude of the net negative impacts of the preferred alternative solution. These measures are defined in such a way to allow the project to be undertaken at a reasonable cost, while at the same time protecting the environment against net negative impacts.

The municipal trunk watermain and wastewater sewers will have the potential for environmental impacts, and where these can be anticipated in the design stage, special provisions should be written into the construction specifications and/or incorporated in the design. The provisions will dictate the construction methods that are permitted and more importantly the construction methods that are not allowed. Unforeseen problems that arise during construction will be addressed on site, and judgment should be used to ensure that any resulting changes to the contract do not cause negative environmental impacts. The mitigation measures proposed are based on preliminary design concepts and the environmental impacts and mitigation measures will be further refined during detailed design of the water and wastewater infrastructure.

Staff responsible for inspecting the contractor’s work must be made aware of such provisions in order to ensure compliance during construction. It will be the responsibility of their contract administrator to ensure that inspectors enforce compliance with the environmental provisions, as well as the standard engineering provisions of the construction package.

This project is also subject to permitting and approvals from regulatory agencies. The potential permit and approval requirements are listed in **Section 11.3** below and should be reviewed again during the detailed design stage.

It is recommended that an environmental site assessment (ESA) be completed prior to or during property acquisition negotiations to assess whether there is existing soil or groundwater contamination.

11.1 Natural Environment Impacts and Mitigation Measures

Cambium Inc. conducted a screening assessment of the natural environment for the preferred water and wastewater alternatives. A copy of the report is provided in Appendix A, with a summary from the report excerpted below.

11.1.1 Wetlands

The preferred water and wastewater servicing alignments have the potential to impact five (5) wetland features.

Trenchless construction methodologies are proposed for installing municipal servicing in the vicinity of one (1) of the wetland features. Trenchless construction avoids disturbing the wetlands and limits the potential impacts to the sending and receiving shafts as well as equipment and material staging areas. The sending and receiving shafts are proposed approximately 30 m from the wetland. To mitigate the potential impacts, heavy-duty silt fence should be installed between the shafts and the wetland feature. Additionally, equipment should be stored at least 30 m from wetland features and light duty silt fence installed between the wetland and the storage area. In accordance with GRCA policy, all infrastructure proposed below cool-water thermal regimes should be installed at least 2.5 m below the creek bed.

Open cut construction techniques are proposed for constructing the municipal servicing infrastructure in the vicinity of four (4) wetlands. The rationale for open-cut construction varies in each circumstance and is further detailed in the EIS included in Appendix A. Mitigating measures can be implemented to reduce the potential impacts of the open cut construction on the wetlands. Some of the mitigating measures include installing silt fence between the work area and the wetland, hydraulically disconnecting the wetland from downstream waterbodies by pumping the feature dry and installing sandbag barriers, and minimizing vegetation removal. In all cases, equipment should be stored at least 30 m from wetland features and light duty silt fence installed between the wetland and the storage area. In accordance with GRCA policy, all infrastructure proposed below cool-water thermal regimes should be installed at least 2.5 m below the creek bed.

11.1.2 Permanent Watercourses

The preferred municipal servicing alignment includes two (2) permanent watercourse crossings. The preferred sanitary sewer alignment crosses Brook Creek West tributary on Elgin Street, and Brook Creek East tributary on Brook Road North. The crossing on Elgin Street is proposed to be completed via open cut construction in parallel with the

Elgin Street culvert replacement. The crossing on Brook Road North is proposed to be completed via trenchless technologies. Both of these watercourses flow through wetlands and the potential impacts and mitigating measures are summarized in **Section 11.1.1** above.

All work within watercourses should be undertaken during the in-water window between July 1 – September 30 to mitigate potential impacts to fish.

11.1.3 Sediment and Erosion Control

Sediment and Erosion Control Plans should be developed prior to the proposed works.

Table 18: Mitigation Measures – Sediment and Erosion

Feature Type	Potential Impacts	Mitigation Measures
Ditches	<p>Sediment transport within ditches to downstream receiving water features (wetlands, watercourses, Lake Ontario).</p> <p>Potential impacts to fish and fish habitat.</p>	<p>Flow Check Dams (OPSD219.180, or 219.190) should be installed in ditches downgradient of work locations where sediment transport can be reasonably anticipated.</p> <p>Where feasible, Light Duty Silt Fence (OPSD219.110) should be installed parallel to the servicing route, between the disturbed area and the ditch.</p>
Exposed Soils	<p>Exposed soils can be transported by water and wind, ultimately ending up in downstream water features.</p> <p>Potential impacts to fish and fish habitat.</p>	<p>Installation should be staged to limit exposed soils to periods of 48 hours or less.</p> <p>Works in proximity to wetlands and watercourses should not occur if heavy precipitation is forecast.</p> <p>Exposed soils should be stabilized as quickly as possible with a temporary ESC measure (Fibre Blanket, Straw Mulch) and seeded with native, non-invasive seed.</p>
Material Stockpiles	<p>Sediment transport may occur from soil stockpiles.</p>	<p>A designated staging area should be identified near the work area. Any soil stockpiles should be surrounded with Light Duty Silt Fence (OPSD219.110) and cover if they will be inactive for a period of 72 hours or more.</p>
Equipment Storage	<p>Deleterious substances can impact water quality</p>	<p>A designated staging area should be identified near the work area. All equipment should be stored in the designated area. No refuelling of</p>

Feature Type	Potential Impacts	Mitigation Measures
		equipment should occur within 30m of the watercourse.

11.1.4 Wildlife and Wildlife Habitats

Nesting birds and their nests, eggs, and young are protected under the Migratory Birds Convention Act, 1994. Site preparation, including any necessary vegetation clearing, should occur outside the breeding bird season, which extends from April 15 to August 15 in the local area.

If vegetation is to occur between April 15 and August 15, the vegetation should be investigated by a qualified biologist to confirm if any nests are present. Note that birds nest on the ground, in woody and herbaceous vegetation, and around structures. Vegetation clearing can proceed provided there are no active nests. If active nests are confirmed, the nests should be left undisturbed until young have fledged or the nest is determined to be inactive.

Turtles and snakes are vulnerable to construction-related impacts on sites adjacent to wetlands, watercourses, and waterbodies. As the site is located adjacent to a potential habitat for turtles, workers should be aware of the nesting season for turtles, which extends from May 15 to August 15. Disturbance to banks or riparian areas should be avoided during this time. If work must go ahead within the nesting season, non-compacted gravel areas, watercourse embankments, and natural banks watercourse features should be inspected daily by a qualified person to ensure that turtle nests are not disturbed.

11.1.5 Dewatering Requirements

Construction dewatering may be required depending on groundwater levels. The dewatering requirements will need to be confirmed during the detailed design stage. If dewatering is needed during construction, a Permit to Take Water (PTTW) may be required.

A baseline well survey may also be required at the detailed design stage if dewatering is needed. A baseline well survey establishes the baseline water levels, water quality and well performance for the domestic wells in the area surrounding the proposed construction activities. A plan to monitor and address potential impacts to private wells can then be developed and implemented.

11.1.6 Climate Change (Mitigation)

With respect to Climate Change, this project will consider all opportunities to mitigate its contributions to greenhouse gas emissions and adapt to potential climate change impacts. Measures to mitigate greenhouse gas emissions include, where feasible, ensuring construction equipment does not idle unnecessarily.

The proposed sewer will be constructed by trenchless methodology to minimize the impact and disturbance on vegetations and trees. The construction will be also scheduled to minimize the potential impacts of the environment (e.g., season, precipitation).

11.2 Social and Cultural Impacts and Mitigation Measures

11.2.1 Traffic

The preferred water and wastewater servicing alignments minimize impact to traffic by traversing development land in several areas. Some impacts, however, are expected to occur due to construction on Elgin Street East, Brook Road North, and Willmott Street. A traffic management plan should be prepared at detailed design to mitigate impacts to traffic and outline the required road closures, detours, signage, etc. in accordance with the Town of Cobourg, Northumberland County and Ontario guidelines.

11.2.2 Archaeology and Cultural Heritage Features

As mentioned in **Section 4.6**, archaeological assessments have been completed or are underway within the Study Area. The archaeological assessments completed to date have not found anything of cultural heritage value or interest in the vicinity of the preferred water and wastewater servicing alignments. Stage 2 archaeological assessments need to be completed during detailed design for the remainder of the preferred servicing alignment in the sections where the alignment diverges from an established road right-of-way and the area has been determined to have high archaeological potential.

During construction, if any archaeological resources are discovered, all excavation must stop immediately, and an archaeologist must be contacted.

Archeological clearance letters received to date have been included in Appendix B.

11.2.3 Noise, Dust and Vibration

Noise, dust and vibration during construction projects is unavoidable. Potential sources of noise, dust, and vibration are truck traffic and regular construction activities. These impacts can generally be mitigated following the guidelines below:

- All truck traffic, excavation equipment and other activity that potentially generates significant noise levels should be restricted to normal work hours pursuant to local municipal noise bylaws.
- Excavated materials should be used on-site wherever possible in order to minimize truck haulage to off-site disposal areas.
- Dust control agents should be applied as necessary
- Dry exposed soil should be kept wet to make it less susceptible to wind erosion and should be covered if left for extended periods of time.
- Pre-construction and post-construction surveys of neighboring building/properties should be completed to ensure that any impacts associated with construction can be clearly identified.
- Construction in residential areas should be scheduled during cool or cold weather periods, when recreational usage of outdoor areas on residential properties is generally lower, if at all possible.

11.2.4 Public Notification

Public notification during construction is to be facilitated through newspaper ads, construction signage and flyers to local residents and businesses. All emergency services (Police, Fire, and EMS) should be notified of the project, specifically where construction is to impact access to public roads.

11.3 Permits and Approvals

11.3.1 Ministry of the Environment, Conservation and Parks

Environmental Compliance Approval (ECA) may be required from the Ministry of the Environment, Conservation and Parks (MECP) for the construction of the proposed wastewater infrastructure.

A Permit to Take Water (PTTW) may also be required from the MECP if more than 50,000 litres of water per day is required to be taken from the environment for dewatering purposes during construction.

11.3.2 Town of Cobourg / Northumberland County

The proposed water and wastewater infrastructure will be constructed within and ultimately assumed by the Town of Cobourg. Reviews and approvals will be required by the Town to ensure the infrastructure is designed and constructed in accordance with municipal standards.

Road Occupancy Permits (ROP) may be required from both the Town of Cobourg and Northumberland County for works completed within their respective road right-of-ways.

11.3.3 Ganaraska Region Conservation Authority (GRCA)

The preferred servicing alternatives are located within the Ganaraska Region Conservation Authority (GRCA) jurisdiction. A permit with the GRCA will be required prior to the commencement of construction for work proposed within the vicinity of watercourses and wetlands.

11.3.4 CN / CP Railway

The preferred municipal wastewater servicing alignment crosses the CN and CP Railway via trenchless construction methodologies. Permits and approvals are required from CN and CP to ensure the design conforms to their respective standards and to facilitate construction in the vicinity of the railways.

12 Public, Indigenous Communities and Agency Consultation

12.1 Stakeholder and Indigenous Communities List

A stakeholder and Indigenous Communities list was compiled for the project, representing all parties that were expected to have an interest or regulatory authority over some portion of the project. These groups are further described in the following sections and a copy of the Stakeholder List is provided in Appendix C (Public Consultation). A summary of the key issues / comments that were received by the Project Team is provided in Section 12.3.

12.1.1 External Agencies

A list of relevant technical agencies was assembled at the beginning of the study. External 'agencies' (including regulator/review agencies, utilities and emergency service providers) were notified as the study progressed (**Table 19** – Key Points of Contact) and copies of the original correspondence (emails) are provided in Appendix D (Public Consultation).

12.1.2 Indigenous Communities Consultation

The Town and The Cobourg East Development Owners Group followed the Aboriginal consultation recommendations provided by the Ministry of the Environment, Conservation and Parks (MECP) in their response letter to the Notice of Commencement dated November 23, 2022, that was sent via email to the project team.

The Project Team provided the study notifications and an information package to all the Indigenous Communities identified in the MECP's letter. Details of these points of contact can be found in **Table 19** – Key Points of Contact, and copies of the original correspondence (emails) are provided in Appendix D (Public Consultation).

The Town and The Cobourg East Development Owners Group commits to continuing outreach and engagement with all Indigenous Communities that may have interest in the study area during Detailed design. All future correspondence will be documented and submitted with any subsequent applications to the MECP.

12.1.3 Public

At the outset of the study, a direct mailing list of residents within the Study Area was developed and it was updated based on feedback received throughout the study.

Members of the public were made aware of the study through a notification in the local newspapers (Northumberland News and Today’s Northumberland) and were invited to contact the project team to join the project mailing list. Members of the general public requesting to be on the mailing list received direct notification of subsequent study milestones.

12.2 Points of Contact

External agencies, utilities, emergency service providers, Indigenous Communities, as well as residents, business owners and property owners within the Study Area were contacted directly at key milestones during the Municipal Class EA Study to provide input to the study and feedback on the decision-making process. The key points of contact are listed in Table 19. Copies of the Notices are provided in Appendix E.

Project updates were uploaded to the Town’s website as the study progressed:

<https://www.cobourg.ca/en/town-hall/Reports-Studies-and-Plans.aspx>

Table 19: Key Points of Contact

Notice	Notification & Date	Purpose
<p>Notice of Study Commencement</p>	<ul style="list-style-type: none"> • Notice mailed via Canada Post to residents without email the week of September 26, 2022. • Streamlined EA Project Information Form and Notice emailed to MECP on September 29, 2022 • Noticed emailed to Indigenous Communities on September 29, 2022 • Notice emailed to agencies, stakeholders, residents and business owners on September 29, 2022. • Notice advertised in The Northumberland News and the Town’s website on September 29, 2022. • Notice emailed to MECP general EA notification email and the 	<p>To introduce and invite participation in the study and to request preliminary comments.</p>

Notice	Notification & Date	Purpose
	Eastern Regional Office notification email.	
Public Information Centre	<ul style="list-style-type: none"> • Notice mailed via Canada Post to residents without email the week of January 16, 2023. • Notice emailed to agencies, stakeholders, residents and business owners on January 19, 2023. • Notice advertised in Today's Northumberland and on the Town's website on January 19, 2023. • Information package containing the PIC slides was sent to the Indigenous Communities via email on February 7, 2023. 	To notify and invite interested parties to view and participate in the first virtual Public Information Centre held on February 8, 2023.
Notice of Study Completion	<ul style="list-style-type: none"> • Notice emailed to Indigenous Communities on June 8, 2023. • Notice mailed via Canada Post to residents without email the week of June 8, 2023. • Notice emailed to agencies, stakeholders, residents and business owners on June 8, 2023. • Notice advertised in The Northumberland News and the Town's website on June 8, 2023. • Notice emailed to MECP general EA notification email and the Eastern Regional Office notification email. 	To announce completion of the Class EA Study and notify interested parties of the 30-calendar day comment period for the Project File Report.

12.2.1 Public Information Centre

The Public Information Centre (PIC) was held in-person on Wednesday February 8, 2023 at the Cobourg Community Centre from 4:00 pm to 7:00pm. The purpose of the PIC was to introduce the study and present the study scope, existing conditions,

problems and opportunities, alternative solutions, and the preliminary recommended solution.

PIC Boards were displayed so members of the public could review all the information and several members of the Project Team were on hand to answer any questions. The PIC Boards are provided in Appendix F. Thirty-one (31) people attended the PIC. In addition to the questions and comments received at the PIC itself, comments were also received during the comment period, ending February 22, 2023. We added these comments to the summary provided in Section 12.3, Table 20.

12.3 Summary of Comments and Responses

Table 20: Summary of Comments and Responses

Received From	Comment	Project Team Response
External Agencies		
Ministry of the Environment, Conservation and Parks (MECP) – Eastern Regional Office	Provided an email comment about whether a Master Servicing Plan should be conducted for the project area.	Discussion with MECP to clarify that this is not for servicing various communities within the Town but to provide services for the Secondary Plan Area. To do this only requires providing servicing through construction of a trunk watermain and trunk sanitary sewer. Based on this MECP confirmed that a Master Servicing Plan was not applicable for the project.
Ministry of the Environment, Conservation and Parks (MECP) – Eastern Regional Office	Provided a response letter to the Study Notification Form and the Notice of Commencement. The draft EA report should be submitted for a 30-day review by the MECP before filing the final report.	Discussion with MECP confirmed that for this project review of the Draft Project File Report was not necessary. MECP will review the final Project File Report.

Received From	Comment	Project Team Response
Ministry of Natural Resources and Forestry (MNR)	After reviewing the information provided, the MNR stated that there was no need to circulate any subsequent notices to their office as the study does not identify any of their agency's interests.	No response required.
Public		
Member of the Public	Requested to be on the contact list and wanted to know what groups comprised The Cobourg East Development Group.	Project Team added the individual to the stakeholder list and provided a location map of the study area showing each group within The Cobourg East Development Group and their respective land ownership.
Member of the Public	Requested to be on the contact list and wanted to know what groups comprised The Cobourg East Development Group. Subsequent email following the PIC, the individual wanted to provide feedback noting their support for the recommendations presented and understood that the full build-out of the system would be over several years if not decades.	Project Team added the individual to the stakeholder list and provided a location map of the study area showing each group within The Cobourg East Development Group and their respective land ownership.
Member of the Public	Requested to be on the contact list and raised concerns regarding the traffic travelling along King Street East in both	Project Team added the individual to the stakeholder list and noted the concerns regarding the

Received From	Comment	Project Team Response
	<p>directions, specifically the construction vehicles, which are increasing the wait time at the lights at Brook Road North. They wanted to know the Town's plans for traffic control as more and more people move to the new development area.</p>	<p>increased traffic although outside the scope of this EA Study.</p>
<p>Member of the Public</p>	<p>Requested to be on the contact list and wanted further information on the route of the water and sewer line along Brook Road North.</p>	<p>Project Team added the individual to the stakeholder list</p>
<p>Member of the Public</p>	<p>Requested to be on the contact list and noted that most of the plans focus on the western side of the Cobourg East area but left everything east of Brook Road North untouched. Individual was concerned that the project team has not accounted for the planned growth for the area, specifically in pipe sizing.</p>	<p>Project Team added the individual to the stakeholder list and noted that the preferred alignment for the gravity trunk sanitary sewer (TSS) allows the construction to occur within a short timeframe, to support active developments, as it would be located within existing municipal right-of-ways and through active development sites. A TSS alignment located further to the east would cross lands not owned by the Town, County and active developers and would be excessively deep as it would pass below the ridges.</p> <p>While the TSS acts as a trunk main; sub-trunk sanitary sewers</p>

Received From	Comment	Project Team Response
		<p>have been preliminarily designed, to accommodate all lands within Cobourg East Community (CEC). The TSS has been sized to accommodate a full CEC buildout of 17,500 to 20,000 residents and up to 3,000 retail/commercial workers. All of these flow details have been included in the TSS pipe sizing. Following the collection of the wastewater in the TSS, the flows will be directed to WPCP#2 for treatment, where the future expansion of the plant has already been planned for.</p>
<p>Member of the Public</p>	<p>Requested further information on:</p> <p>How much available sewage capacity is there at the present time for new development?</p> <p>How much of that capacity will the Area C servicing agreements use?</p>	<p>Currently, there is capacity at WPCP#2 for the Tribute Homes development which is located within Cobourg East Community Secondary Plan.</p> <p>As Cobourg East Community builds out, an expansion to WPCP#2's rated capacity will be required. This was identified in a previous Environmental Assessment for the plant expansion, and the funding for that expansion will be as per the Town's Development Charge Study.</p>
<p>Member of the Public</p>	<p>Wanted to confirm if the pipe diameter / velocity calculations consider the development off the south side of Elgin Street East. Water would feed from</p>	<p>The proposed trunk sanitary sewer (TSS), as presented at the Public Information Centre (PIC), has been preliminarily designed to accommodate the sanitary flows of</p>

Received From	Comment	Project Team Response
	<p>Elgin Street East while sewer would be natural gravity run to Brook. Development size could be roughly 32 acres.</p>	<p>all the developable lands within the Cobourg East Community (CEC). This includes considering 'branch' or sub-trunk sanitary sewers to service the lands identified.</p> <p>The proposed trunk sanitary sewer will capture the flows from the sub-trunk sanitary sewers and convey all the flows within the CEC and direct them to the WPCP#2 for treatment. Future expansion of the WPCP #2 has already been planned to accommodate these flows.</p>
Local Groups / Businesses / Schools		
<p>EV Society - Northumberland / Sustainable Cobourg</p>	<p>Requested to be on the contact list and would like to ensure that there is adequate provision for support of high levels (over 50%) of adoption of electric vehicles.</p>	<p>Confirmed group was added to the contact list and noted their interest in electric vehicles, although it is outside of the scope of this EA Study.</p>
<p>Northumberland Christian School</p>	<p>Requested to be on the contact list.</p> <p>Following the PIC, the School sent two (2) letters requesting further information as to why their lands cannot be serviced by gravity but will need to be serviced by a pumping station. Believes this will limit their growth potential and ability to connect to municipal servicing.</p>	<p>The EA currently underway is related to the Trunk Sanitary Sewer (TSS) and is required to accommodate sanitary drainage flows from all lands within Cobourg East Community (CEC), an area of approximately 1,400 acres, whether by gravity sewer or pressurized sanitary forcemain. Sub-trunk sanitary sewers that deal with smaller sanitary drainage areas, that ultimately connect to</p>

Received From	Comment	Project Team Response
		<p>the TSS, will be required to go through separate Site Plan or Plan of Subdivision approvals at a later date, and will be subject to approved design submissions at that time.</p> <p>The Town will continue to explore all options available for existing individual lots that may wish to connect to sanitary servicing on Danforth Road including potential cost sharing and timing/coordination with other planned municipal activities. The Town has identified the need to reconstruct Danforth Road from Parkview Hills to Jarvis Road, with a priority on Parkview Hills to Street 'L' first, and this will be reliant on available Municipal right-of-way widths and Municipal budget approval for reconstruction to occur.</p>
Indigenous Communities		
Chippewas of Rama First Nation	After reviewing the Notice of Commencement, they confirmed they had no further comments at the time.	No response required.

Town of Cobourg and The Cobourg East Development Owners Group
 Cobourg East Community Secondary Plan Area Municipal Servicing Class EA
 Project File Report

Received From	Comment	Project Team Response
Curve Lake First Nation	Emailed formal letter requesting a filing fee for review of study documents and a summary statement indicating how the project will address areas of concern to their Community.	Provided response summarizing potential concerns and associated mitigation measures being put in place to limit or avoid impacts.

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A

Appendix A: Environmental Impact Study



Environmental Impact Study – Cobourg Trails External Servicing, Cobourg, Northumberland County, Ontario

January 14, 2022

Prepared for:
Tribute Rondeau Partnership Ltd.

Cambium Reference No.: 13806-001

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1.0 Introduction

Cambium Inc. (Cambium) was retained by Tribute Rondeau Partnership Ltd. to conduct an Environmental Impact Study – Cobourg Trails External Servicing, Cobourg, Northumberland County, Ontario (Figure 1). The proposed development includes an expansion of municipal servicing (water and wastewater) to several areas within the Urban Area of Cobourg. Based on the nature of the proposed development, the entire alignment of the servicing expansion, plus an adjacent land area of 30 m from the alignment, will be considered to be the Site for this report. Information collected for this Study was obtained from several sources, including: recent EIS reports, publicly accessible information, and direct field observations (from publicly accessible lands). A list of supporting reports/information sources is included herein.

An Environmental Impact Study (EIS; the Study) is required to address potential negative impacts to natural heritage features identified during the preliminary development review process, as required by the Provincial Policy Statement (PPS) and regulations of the local Conservation Authority. Due to the broad area covered within this report, the alignment overlaps or is adjacent to (within 120 m of) the following mapped natural heritage and/or hydrologic features: unevaluated wetlands, watercourses, and significant woodlands. The Site is within Ecoregion 6E of Ontario (Crins, Gray, Uhlig, & Wester, 2009). The Site is within the Urban Area of Cobourg; therefore, the natural heritage policies of the Provincial Policy Statement (PPS) apply.

The Site is within the jurisdiction of the Ganaraska Region Conservation Authority (GRCA) and their regulated area overlaps portions of the Site. Due to the linear nature of the servicing route, it will pass through, beneath, or adjacent to several wetland and watercourse features. As such, the Study will consider regulations on development as imposed by the local Conservation Authority's Regulation under the *Conservation Authorities Act, 1990*.

The Endangered Species Act, 2007 (ESA) protects endangered and threatened species and their habitats from harm or destruction. Habitat for endangered and threatened species is also afforded protection under provincial natural heritage policy; however, it is ultimately the landowner's responsibility to ensure that no harm to these species or their habitats occurs on



their property. This Study includes a habitat-based screening for species of conservation concern to determine if the Site has suitable habitat for any provincially or federally listed species at risk (SAR).

Cambium has conducted this Study to provide an evaluation of reasonably anticipated ecological impacts, positive or negative, that may arise as a result of this proposed development, to guide the decision-making process and address approval authority requirements.

1.1 Terms of Reference

Cambium consulted directly with GRCA on this file. Due to the nature of the project, which will supply and connect to municipal infrastructure, the Municipality has been regularly consulted by the planning and engineering team, with information disseminated to Cambium as needed. Relevant correspondence and documentation are included in Appendix A.

1.2 Proposed Development and Conceptual Site Plan

The proposed works include the installation of municipal servicing (water and wastewater) to several areas within the Cobourg East Community Secondary Plan area. Cobourg is a quickly growing Urban Area with multiple developments occurring along the servicing alignment. The regional location of the Site is illustrated on Figure 1. The majority of the alignment will be through terrestrial areas within existing ROWs. These areas have low sensitivity to disturbance, due to the existing constructed feature and associated influences.

Due to the length of the servicing alignment, Cambium has divided the route into several sections to make discussion of the natural heritage features of the Site easier to follow. The sections that will be spoken to in this report, and a brief description of each, is provided below:

Table 1 Route Location Details

Section and Figure Reference	Location	Land Use Details
1 (Figure 2)	Densmore Road and Danforth Road	Route Path: Existing Road Right of Way (ROW), south lane/shoulder Adjacent 30m: Existing developed lands (residential, commercial, institutional) and 401 corridor to the north



Section and Figure Reference	Location	Land Use Details
2 (Figure 3)*	Unopened road allowance: Danforth Road to Mid-town Creek crossing	Route Path: Existing unopened road/trail Adjacent 30m: Various natural features including wetland, watercourse, woodland and cultural meadow features
3 (Figure 4)	Elgin Street East: Extending 400 m west and 530m east of Brook Road North	Route Path: Existing ROW, north shoulder, watercourse (Brook Creek West crossing) Adjacent 30m: North side - Tribute sales office and lawn, watercourse, active residential development. South side - woodland, cultural meadow, watercourse
4 (Figure 5)	Brook Road North: East side Brook Road North: West side	Route Path (East side): Existing ROW, east shoulder Adjacent 30m (East side): Woodland, watercourse (Brook Creek East crossing), agricultural lands, rural residential Route Path (West side): Existing ROW, cleared development area (Tribute Phase 2 lands), cultural thicket Adjacent 30m (West side): cleared development area (Tribute Phase 2 lands), cultural thicket
5 (Figure 6)	Vacant land extending west from Brook Road North to Barracks Drive (north of Lot 13 Conc A, Hamilton)	Route Path: Vacant lands, cultural thicket, watercourse (Brook Creek West crossing) Adjacent 30m: Commercial, utilities, active residential development, cultural thicket, recreational lands
6 (Figure 7)	Agricultural lands north of CN/CP Railways; JMCD North Holdings lands	Route Path: Agricultural lands (proposed residential development) Adjacent 30m: Agricultural lands (proposed residential development), CN/CP Railway
7 (Figure 8)	CN/CP Railways south to Willmott Street	Route Path: Hedgerow, cultural meadow, active residential development, existing mixed-use development (south of Highway 2) Adjacent 30m: wetland, hedgerow, cultural meadow, active residential development, existing mixed-use development (south of Highway 2)

Note: * The alignment through Section 2 was abandoned as a result of environmental and logistical constraints.

A Plan entitled Overview of Proposed External Servicing, and a complete set of Preliminary Design Drawings (current as of publish date of this report) are included as Appendix B. Note that the Detailed Design Plans submitted in support of permit applications, if deemed to be required, should include the recommendations provided herein.



2.0 Applicable Natural Heritage Policy and Regulation

2.1 Provincial Policy Statement, 2020

Section 2.1 of the Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing, 2020) protects the form and function of natural heritage features as defined by the PPS. Natural heritage features included in the PPS are provincially significant wetlands (PSW), significant coastal wetlands, significant woodlands, significant valleylands, significant wildlife habitat (SWH), significant areas of natural and scientific interest (ANSI), fish habitat, and the habitat of endangered and threatened species. Given their significance, development is prohibited within PSWs in Ecoregions 5E, 6E, and 7E and within significant coastal wetlands. Development in fish habitat and the habitat of endangered and threatened species shall only be permitted in accordance with provincial and federal requirements. Development within other natural heritage features and on lands adjacent to all natural heritage features are permitted only if demonstrated that there will be no negative impacts on the feature or their ecological function. Development includes the creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the *Planning Act*.

Section 2.2 of the PPS protects the quality and quantity of water, including the form and hydrologic function of sensitive surface water features and sensitive ground water features. Focus is given to maintaining hydrologic linkages and functions at the watershed scale to minimize potential negative impacts, including cross-jurisdictional and cross-watershed impacts of development. Mitigative measures and/or alternative development approaches should be considered for development near water features.

2.2 Growth Plan for the Greater Golden Horseshoe, 2020

The Greater Golden Horseshoe is one of the most dynamic and fast-growing regions in North America. To address the challenges of increased development within the area, the Growth Plan for the Greater Golden Horseshoe, 2020 (GPGGH) builds on the PPS “*to establish a unique land use planning framework for the Greater Golden Horseshoe that supports achievement of complete communities, a thriving economy, a clean and healthy environment, and social equity*” (Ministry of Municipal Affairs and Housing, 2020). In general, the GPGGH



seeks to preserve agricultural lands, water resources, and natural areas by directing growth to settlement areas as defined in municipal Official Plans.

The GPGGH contains policies regarding a provincial Natural Heritage System (NHS), key hydrologic features (KHF), key hydrologic areas (KHAs), and key natural heritage features (KNHFs) (Ministry of Municipal Affairs and Housing, 2020). Policies that reference the provincial NHS apply once the municipal Official Plan has incorporated the provincial NHS into their schedules; until that time, the policies that reference the NHS will apply *outside settlement areas* to the natural heritage systems identified in Official Plans that were approved and in effect as of July 1, 2017. Section 4.2.3 of the GPGGH states that, *outside of settlement areas*, development or site alteration is generally not permitted in KNHFs that are part of the NHS or in KHFs.

The project will occur entirely within the Cobourg Urban Area; therefore, the natural heritage policies of the GPGGH do not apply to the works.

2.3 Official Plan and Zoning By-Law

The Northumberland County Official Plan (OP) designates the Site and surrounding lands as Cobourg Urban Area. The Town of Cobourg Official Plan indicates that the servicing route is largely within the Cobourg East Community Secondary Plan area, except for Section 7. Lower-tier land use designations and zoning for the Site are included in Table 2. The majority of the work will occur within existing infrastructure ROWs, except where noted otherwise. These exceptions will be discussed in detail in Section 5.0.

Table 2 Lower-tier Land Use and Zoning

Section	Lower-tier Land Use	Zoning
1	Business Park (BP), Environmental Protection (EP) and Living Area (LA)	Rural (RU), RU-4, Environmental Constraint (EC), General Industrial (GM-2)
2 **	EP, BP	RU, EC
3	EP, Mixed Use Area, Gateway, Special Study Area (SSA)	RU, RU-2, EC
4	EP, SSA, LA, Light Industrial (LI), Service Commercial 2	RU, RU-2, RU-3, EC, Development (D)
5 *	LA, LI	D, EC, Institutional (I)
6 *	LA, Service Commercial 2	D



Section	Lower-tier Land Use	Zoning
7 *	Residential	D, District Commercial (DC-3), Light Industrial (LM-3)

Note: * Portions of the alignment are outside of existing infrastructure ROW

** The alignment through Section 2 was abandoned as a result of environmental and logistical constraints

2.4 Conservation Authority Regulation

“Conservation Authorities are local watershed management agencies that deliver services and programs to protect and manage impacts on water and other natural resources in partnership with all levels of government, landowners and many other organizations” (Conservation Ontario, 2021). Conservation Authorities each have their own Ontario Regulation under the *Conservation Authorities Act, 1990*. In general, they regulate development within and adjacent to river or stream valleys, Great Lakes and inland lakes, shorelines, watercourses, hazardous lands (flood, erosion, unstable soils) and wetlands.

Ganaraska Region Conservation Authority (GRCA) regulates these features under Ontario Regulation 150/06: *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*.

2.5 Endangered Species Act, 2007

Species listed as endangered or threatened on the Species at Risk in Ontario (SARO) list are protected under the provincial *Endangered Species Act, 2007* (ESA) (Government of Ontario, 2007). Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing or taking a member of a species listed as endangered, threatened, or extirpated. Section 10(1) of the ESA prohibits the damage or destruction of habitat of species listed as endangered or threatened. Protection of special concern species is provided through designation of their habitat as significant wildlife habitat, a provincially protected natural heritage feature.

2.6 Species at Risk Act

The federal *Species at Risk Act* (SARA) was adopted in 2002 to prevent endangered or threatened species from becoming extinct or extirpated, to help in the recovery of endangered, threatened and extirpated species, and to manage species of special concern to help prevent them from becoming endangered or threatened. Habitat which is deemed necessary for the



survival/recovery of a listed wildlife species, referred to as Critical Habitat, is protected under Section 56 of the SARA. The SARA applies to all federal lands in Canada; however, at-risk aquatic and migratory bird species located on private property in Ontario also receive protection under the Act.

2.7 Fisheries Act

Works within and adjacent to lakes, watercourses, and other bodies of water containing fish have the potential to impact fish and/or fish habitat. As a result of amendments to the federal Fisheries Act in 2019, projects near water that could potentially impact fish or fish habitat may require Fisheries and Oceans Canada (DFO) review. The primary purpose of the review is to determine whether harmful alteration, disruption, or destruction (HADD) of fish habitat, as defined by the Act, can be avoided. The DFO Fisheries Protection Program provides a Decision Framework and guidance material applicable to these reviews (available on-line at www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html). If it is determined that “HADD” may be unavoidable, the project should be submitted to DFO for review and determination of project approach and conditions of approval.



3.0 Technical Approach and Data Collection Methods

3.1 Background Information Review

Existing background information pertaining to the Site and surrounding landscape was compiled and reviewed, as part of a comprehensive desktop exercise, to better understand local biophysical conditions. In southern Ontario, readily available data includes orthoimagery, topographic base mapping, and geological records. Natural environment and land use schedules prepared in support of Official Plans and Zoning By-Laws were reviewed to acquire municipal data. Natural area records and species occurrences were obtained from digital resources and reference materials.

The comprehensive desktop review for this Site included the following resources:

- Natural Heritage Areas: Make-a-map (Ministry of Natural Resources and Forestry, 2018);
- Aquatic Species at Risk Maps - Ontario (Fisheries and Oceans Canada, 2018);
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2018);
- Ontario Breeding Birds Atlas (OBBA) (2001-2005) (Bird Studies Canada, 2005)
- Conservation Authority materials including regulated area mapping
- Official Plans for Northumberland County and Town of Cobourg, and associated maps
- Environmental Impact Study for Rondeau (Cobourg) Ltd. Development Draft Plan of Subdivision 14t-06001-R, Cobourg East Community Secondary Plan Area, Elgin Street East/County Road 20 Part Lots 11, 12 And 13, Concessions A and 1 Block D, Plan 277 Town of Cobourg (Niblett Environmental Associates, May 2016)
- Environmental Impact Study for JCMD Holdings: 460 King St. East, Cobourg, Ontario (Cambium Inc., November 2018)
- Draft Environmental Impact Study for JCMD Holdings: Brook Road North, Cobourg, Ontario (Cambium Inc., November 2021)



- Technical Design Brief: Tributary of Brook Creek Realignment, Town of Cobourg, Ontario (GEO Morphix Ltd., July 2019)

Mapped natural heritage features present in the general area of the Site are shown on Figure 2 through Figure 8.

3.1.1 Ministry Consultation

Depending on the natural feature of the Site, ministry consultation may include the Ministry of Northern Development, Mines, Natural Resources, and Forestry (NDMNR) and/or the Ministry of Environment, Conservation, and Parks (MECP), as applicable.

In early 2019, the Government of Ontario made changes to the regulating authority on matters related to SAR in the province. The MECP is now responsible for administering the ESA and providing direction on potential compliance issues. MECP has prepared a guidance document titled *Client's Guide to Preliminary Screening for Species at Risk* (Ministry of the Environment, Conservation and Parks, 2019). This document aims to “help clients better understand their obligation to gather information and complete a preliminary screening for SAR before contacting the Ministry”. This document was used to guide the SAR habitat-based screening for the Study.

3.2 Field Investigations

Information gathered through the background information review was used to guide the development of the fieldwork program. The purpose of the site visit(s) was to verify information acquired through existing documentation and to gather additional site-specific information. The following sections detail the methodologies that were applied. Field investigations were limited to lands within 30 m of the servicing route, where accessible/visible from the ROW. Access to private property was not obtained; therefore, Cambium personnel completed the necessary field work from publicly accessible lands. This information was supplemented as necessary with orthoimagery interpretation and data from previous technical reports as referenced in Section 3.1.



3.2.1 Ecological Land Classification and Vegetation Inventory

The Ecological Land Classification (ELC) System for Southern Ontario (Lee, et al., 1998) was used to classify vegetation communities on the Site. Definitions of vegetation types are derived from the ELC for Southern Ontario First Approximation Field Guide (Lee, et al., 1998) and the revised 2008 tables. ELC units were initially delineated and classified by orthoimagery interpretation. Field investigations served to confirm the type and extent of communities on the Site through vegetation inventory and soil assessment with a hand auger. Where vegetation communities extend off the Site, classification is done through observation from property boundaries and publicly accessible lands.

3.2.2 Wetland Boundary Delineation

In Ontario, wetlands are mapped and evaluated under the Ontario Wetland Evaluation System (OWES). Mapped evaluated wetlands have undergone extensive study and been assessed based on their form and function under four categories: Biological, Social, Hydrological, and Special Features (Ministry of Natural Resources, 2014). Evaluated wetlands that score high enough are deemed Provincially Significant Wetlands (PSW). Evaluated wetlands that did not score high enough to be a PSW are called Locally Significant Wetlands (LSW). The province also maps unevaluated wetlands. These mapped wetlands are approximate; as such, they require field verification to confirm their presence and determine their boundaries.

There are several unevaluated wetlands present along the servicing route. Wetland boundaries were initially delineated and classified by orthoimagery interpretation. The presence/absence and boundaries of wetlands on the Site was field verified by provincially certified Cambium staff, in accordance with the provincially approved methods outlined in the Ontario Wetland Evaluation System: Southern Manual, 3rd Ed. (Ministry of Natural Resources, 2014). Wetland boundaries were determined using the 50% wetland vegetation rule. Where vegetation-based delineation was inconclusive, soil assessment with a hand auger was used to confirm wetland boundaries. Wetland boundaries on and adjacent to the Site were marked with a hand-held GPS unit in the field, where accessible.



3.2.3 Surface Water and Drainage Feature Mapping

Presence, location, boundary, and direction of flow were confirmed for all surface water features on and adjacent to the Site through visual investigation. Where feasible, the substrate type and cover features of surface water features were also noted. Indicators of surface drainage, including erosion of soils, gullies, and sediment deposition areas were noted and traced to identify sources of erosion. All watercourse and drainage feature crossings were noted and GPS marked in the field, including bridges, culverts, and bed-level crossings.

3.2.4 Aquatic Habitat Assessment

Aquatic habitat assessments were completed at all watercourse crossing points along the servicing route. On-site features were characterized based on in-stream and riparian cover, channel structure/morphology, substrates, hydrologic measurements, and indicators of instability, thermal regime, and permanence of flow, where applicable. Definitions and technical criteria referenced in the Ontario Stream Assessment Protocol (Ministry of Natural Resources and Forestry, 2017) were applied to wadeable streams. In addition, all identified aquatic features were assessed to determine their function as habitat for fish. Fish presence, specialized habitat features, and potential barriers to fish movement were documented. All feature crossings including bridges, culverts, and bed-level crossings, were also noted and georeferenced in the field. Finally, any evidence of erosion or sedimentation was noted, and up-gradient areas were investigated to identify potential sources.

3.2.5 Butternut Screening

Butternut are an endangered species protected under the provincial *Endangered Species Act, 2007* (ESA) from being killed, harmed, or removed. The level of protection granted to Butternut trees is determined based on the degree to which an individual tree has been affected by the fungal pathogen known as butternut canker (*Sirococcus clavigignenti-juglandacearum*). All wooded areas along the servicing route were screened for Butternut trees, to ensure that minimum setbacks are maintained as required under the ESA, if necessary.



3.2.6 Bat Maternity Roost Habitat Screening

Bats present in Ontario typically require a snag or cavity tree for maternity roosting habitat. A snag or cavity tree is defined as a standing live or dead tree ≥ 25 cm diameter at breast height (DBH), with cracks, crevices, hollows, cavities and/or loose or naturally exfoliating bark appropriate for bat roosting. Bat maternity roost habitat is typically assessed using methods detailed in the *Bat and Bat Habitats: Guidelines for Wind Power Projects* (Ontario Ministry of Natural Resources, 2011). Due to the linear nature of the proposed works, and the lack of encroachment into lands outside of the ROW or active developing lands, Cambium screened the 30 m adjacent lands for suitable maternity roost trees. Any potentially suitable cavity trees were georeferenced in the field with a hand-held GPS, to the best extent possible from public lands.

3.2.7 Habitat-Based Wildlife Surveys

Given the scale of the proposed development, a habitat-based approach was used to assess potential impacts to wildlife, consistent with standard practice. General habitat information gathered through the field investigations was used to assess the connectivity of the Site with the surrounding landscape and evaluate the ecological significance of the local area. Cambium staff screened the servicing route for features that may provide specialized habitat for wildlife. Any evidence of breeding, forage, shelter, or nesting was noted, if determined to exist. Species and habitat observations were documented and photographed where applicable.



4.0 Characterization of Natural Features and Functions

Data acquired through the background information review and field investigations is summarized in the following sections. Based on the information gathered, an assessment of significance has been completed to identify protected natural heritage features on and/or adjacent to the Site.

The following field investigations were carried out on the Site and are summarized in Table 3. Representative Site photos are included in Appendix C. Survey areas and specific assessment points (i.e. aquatic assessments) are shown on Figure 3 through Figure 8.

Table 3 Summary of Field Investigations

Date	Time On Site	Weather	Observer	Activities
2021-10-05	0830-1700	15°C, Sunny, Clear Wind: 1	T. Jamieson A. Coppins	Ecological Land Classification Vascular Plant Survey Wetland Delineation Woodland Assessment Butternut Screening Cavity Tree Screening
2021-11-19	0900-1600	4°C, Sunny, Clear Wind: 2	T. Jamieson M. Latter	Aquatic Habitat Assessment Wetland Delineation

Notes:

Wind speed is reported as a Beaufort Wind Scale value (0 = 0-2 kph, 1 = 3-5 kph, 2 = 6-11 kph, 3= 12-19 kph, 4 = 20-30 kph, 5 = 31-39 kph, -- 6- = 40-50 kph).

4.1 Landscape Position and Topography

The Site is located within the Mixedwood Plains Ecozone: Lake Simcoe Rideau Ecoregion 6E, which extends southward from a line connecting Lake Huron in the west to the Ottawa River in the east, including Ottawa, Kingston, Peterborough, Barrie, Tobermory, Kitchener, and Toronto. This Ecoregion is characterized by a mixed geology that includes both shallow soil areas such as alvar and bedrock plains, as well as deep soil areas such as the Oak Ridges Moraine. It falls within the Great-Lakes St. Lawrence Forest Region, including deciduous and mixed forests; however, over 50% of the landscape in this Ecoregion is currently in use as agricultural land (Lee, et al., 1998).



The regional area is characterized as a gently rolling to topographically level landscape. Cobourg is situated on the north shore of Lake Ontario, with the nearest point of the Site located approximately 1 km to the north of the lake shore. The Oak Ridges Moraine is located approximately 7 km to the north.

4.2 Vegetation Communities

Vegetation cover within the Site varies based on the section of the servicing route. For the most part, the Site is occupied by existing development, active development sites (i.e., vegetation has been removed), or existing infrastructure. The areas within the ROWs throughout the Site contain a similar assemblage of common pioneer and weedy species that have colonized as a result of historical ground disturbance and exposure. A list of common pioneer and weedy species that were documented along the existing roadways is included in Appendix D, alongside vegetation inventories for each of the ELC communities illustrated on Figure 2 through Figure 8. The vegetation communities on the Site are summarized in Table 4.

Table 4 Vegetation Communities

Section	ELC Code	Community Description	Community Type	S -Rank
1	CUW	Cultural Woodland	Terrestrial	NA
	CVR	Residential	Cultural	NA
	MAS2-1	Cattail Mineral Shallow Marsh	Wetland	S5
	FOMM4-2	White Cedar – Poplar Mixed Forest	Terrestrial	S5
	SWMM1-1	White Cedar – Hardwood Mixed Swamp	Wetland	S5
	CVS_1	Education	Cultural	NA
	CVC	Commercial / Institutional	Cultural	NA
	CUM1-1	Mineral Cultural Meadow	Terrestrial	NA
	FOD4	Upland Deciduous Forest	Terrestrial	NA
	SWDM4-5	Poplar Mineral Deciduous Swamp	Wetland	S5



Section	ELC Code	Community Description	Community Type	S -Rank
	MAS2-1	Cattail Mineral Shallow Marsh	Wetland	S5
	FOD	Deciduous Forest	Terrestrial	NA
	CVC	Commercial / Institutional	Cultural	NA
	FOC	Coniferous Forest	Terrestrial	NA
2**	FOC	Coniferous Forest	Terrestrial	NA
	SWDM4-5	Poplar Mineral Deciduous Swamp	Wetland	SNA
	FOD	Deciduous Forest	Terrestrial	NA
	MAS2-1	Cattail Mineral Shallow Marsh	Wetland	S5
	CVC	Commercial / Institutional	Cultural	NA
	FOMM7-2	Moist White Cedar – Hardwood Mixed Forest	Terrestrial	S5
3	SWMM1-1	White Cedar – Hardwood Mineral Mixed Swamp	Wetland	S5
	FOMM4-3	White Cedar - Hardwood Mineral Mixed Forest	Terrestrial	SNA
	FODM5-2	Sugar Maple – Beech Deciduous Forest	Terrestrial	S5
	FOCM6-3	Scots Pine Naturalized Plantation	Terrestrial	NA
	FODM11	Naturalized Deciduous Hedgerow	Terrestrial	NA
	MAM2-10*	Mixed Forb Mineral Meadow Marsh	Wetland	SNA
	FOC4-1*	White Cedar Coniferous Forest	Terrestrial	S5
	MAS2-1*	Cattail Mineral Shallow Marsh	Wetland	S5
	CUM1-1*	Mineral Cultural Meadow	Terrestrial	NA
	CVC	Commercial / Institutional	Cultural	NA
4	FOC4-1*	White Cedar Coniferous Forest	Terrestrial	S5



Section	ELC Code	Community Description	Community Type	S -Rank
	FOCM6-3	Scots Pine Naturalized Plantation	Terrestrial	NA
	SWMM1-1	White Cedar – Hardwood Mixed Swamp	Wetland	S5
	CUM	Mineral Cultural Meadow	Terrestrial	NA
	CVR_4	Rural Property	Cultural	NA
	TAGM1	Coniferous Plantation	Terrestrial	NA
	MAM2-9	Jewelweed Forb Mineral Meadow Marsh	Wetland	S4
	OAG	Open Agriculture	Cultural	NA
	FOCM5	Naturalized Coniferous Hedgerow	Terrestrial	NA
	OAG	Open Agriculture	Cultural	NA
5	CGL_4	Recreational	Cultural	NA
	CVI_1	Transportation	Cultural	NA
	FODM7-3	Willow Lowland Deciduous Forest	Terrestrial	S5
	CUM1-1	Mineral Cultural Meadow	Terrestrial	NA
	FODM11	Naturalized Deciduous Hedgerow	Terrestrial	NA
	CUW	Cultural Woodland	Terrestrial	NA
	THDM2-6	Buckthorn Deciduous Shrub Thicket	Terrestrial	NA
	CVI	Transportation and Utilities	Cultural	NA
	CVC	Commercial / Institutional	Cultural	NA
6	OAG	Agriculture	Cultural	NA
	FODM11	Naturalized Deciduous Hedgerow	Terrestrial	NA
7	CVR	Residential	Cultural	NA



Section	ELC Code	Community Description	Community Type	S -Rank
	CVC	Commercial/Institutional	Cultural	NA
	CGL	Recreational/Green Space	Cultural	NA
	OAG/OAGM 2	Agriculture	Cultural	NA
	CUM	Cultural Meadow	Terrestrial	NA
	SWD2-2	Green Ash Mineral Deciduous Swamp	Wetland	S5
	CUT	Cultural Thicket	Terrestrial	NA
	THDM2-6	Buckthorn Deciduous Shrub Thicket	Terrestrial	NA

Note: * Codes derived from Niblett EIS (Niblett Environmental Associates, May 2016)

** The alignment through Section 2 was abandoned as a result of environmental and logistical constraints.

A search for butternut (*Juglans cinerea*; provincially endangered) was completed as part of the vegetation survey; no butternut trees were identified on the Site.

4.2.1 Significant Woodlands

The Northumberland County Official Plan (2016) references significant woodlands as a component of the Natural Heritage System (NHS). An NHS has been developed at the County level and will soon be enacted. The NHS does not apply to land within Urban Areas; therefore, no significant woodlands have been identified by the County within the Town of Cobourg.

The Town of Cobourg Official Plan (2010) identifies Environmental Constraint Areas to protect natural features, including significant woodlands. The majority of the Site is within the Cobourg East Community Secondary Plan, which does not follow the convention of Environmental Constraint Areas, as defined in the Town of Cobourg Official Plan. The Secondary Plan Area identifies Environmental Protection areas, but does not state whether these areas contain woodlands, or by what criteria a woodland would be deemed significant.

Due to the scope and scale of the project, which will have minimal impacts outside of infrastructure ROWs and existing developed lands, a thorough evaluation of woodland



significance has not been undertaken within this report. This approach is further supported by the fact that infrastructure and utility works typically have exemptions from natural heritage policies, particularly within settlement areas. Natural features, including woodlands, will be adequately protected from the temporary disturbance associated with the proposed works, provided that the recommendations provided in Section 7.0 are adhered to.

4.3 Wetland Delineation

There are several unevaluated wetlands located along the servicing route; however, there are no PSWs within 120 m. The unevaluated wetland areas were assessed during the field investigations, and the boundaries of these features were georeferenced using a hand-held GPS, in accordance with the OWES protocol. Wetland areas were initially delineated using orthoimagery, and boundaries were confirmed on-site. Wetland areas are illustrated on Figure 2 through Figure 8.

The boundaries of the wetlands are relevant to the project both from an environmental constraint perspective, and a logistical perspective. For this reason, the Client decided to abandon the initial concept of servicing through the unopened road allowance within Section 2 (see Figure 3). The wetland area within this section posed a considerable constraint from an ecological and logistical perspective. The alignment was modified to extend east along Danforth Road, and then enter an existing developing area to the south of Danforth Road (Tribute Phase 3 lands). The alignment through that section will be linked with infrastructure plans that are in development in association with the Tribute Phase 3 lands. As such, the Site area identified as Section 2 will not be discussed further in this report.

The majority of the remaining wetland components will be avoided by trenchless installation methods in and adjacent to these features. A discussion of potential interference with wetlands, and mitigation measures to protect the form and function of these features during installation, is presented in Section 5.0.

A brief description of the wetland features is provided in Table 5.



Table 5 Wetland Characteristics and Proposed Installation Methods

Section	Direct / Indirect	Veg Type	Community Identifier	Description
1	Indirect	MAS2-1; Cattail Mineral Shallow Marsh	WL#1	Isolated feature between Densmore Rd and Hwy 401. Riparian area of Midtown Creek. Boundaries GPS marked. Trenchless installation proposed, on the opposite side/shoulder of Densmore Road.
	Direct ¹	SWMM1-1; White Cedar – Hardwood Mixed Swamp	WL#2	Mapped as unevaluated wetland. Large feature extending to south and associated with Midtown Creek. Boundaries appeared consistent with mapping, as visible from roadside. Trenchless installation proposed.
	Indirect	SWTM2-5; Red-osier Dogwood Mineral Deciduous Thicket Swamp	WL#3	Small feature on the north side of Danforth Rd. Connected to WL#4 through culvert beneath Danforth Rd. Riparian area of Midtown Creek. Trenchless installation is proposed on opposite side/shoulder of Danforth Road
	Direct ¹	MAS2-1; Cattail Mineral Shallow Marsh	WL#4	South side of Danforth Rd. Riparian area of Midtown Creek. Open water at culvert outlet. Boundaries GPS marked. Trenchless installation proposed.
3	Direct ²	SWMM1-1; White Cedar – Hardwood Mineral Mixed Swamp	WL#5	Small swamp feature located at the south-east corner of Elgin St. and Brook Rd. N. Likely a result of impeded drainage from road construction. Open trench installation proposed.
	Direct ²	MAM2-10*; Mixed Forb Mineral Meadow Marsh	WL#6	Wetland type indicates that portions of this feature are dry for a portion of the year. Located on the south side of Elgin St. E and associated with Brook Creek W tributary. Receives drainage from Brook Creek W via a culvert beneath Elgin St. E. This feature will be modified somewhat due to the proposed relocation of this culvert. A detailed discussion is included in Section 5.0.



Section	Direct / Indirect	Veg Type	Community Identifier	Description
	Direct ²	MAS2-1*; Cattail Mineral Shallow Marsh	WL#7	Small feature located north of Elgin St. E at the intersect of Brook Rd. N. Will be altered during the proposed re-alignment of Brook Creek W tributary. A detailed discussion is included in Section 5.0.
4	Direct ²	SWM1-1; White Cedar – Hardwood Mineral Mixed Swamp	WL#5	Small swamp feature located at the south-east corner of Elgin St. and Brock Rd. N. Likely a result of impeded drainage from road construction. Open trench installation proposed.
	Direct ¹	MAM2-9; Jewelweed Forb Mineral Meadow Marsh	WL#8	Riparian area of Brook Creek E tributary. Wetland boundary GPS marked. Trenchless installation proposed.
7	Indirect	SWD2-2; Green Ash Mineral Deciduous Swamp	WL#9	Outside of alignment route. No direct interference with wetland is proposed; however, alignment is within 30 m adjacent lands of wetland feature.

Note: GPS mark of boundaries limited to the point that the wetland met the ROW. Full boundary delineations were not undertaken.
 Direct = alignment crosses feature; Indirect = alignment does not contact feature (i.e., adjacent lands only)
 1. Indicates that contact is avoided through selected installation method (i.e., trenchless installation with insert and exit outside of feature)
 2. Indicates contact within an existing ROW
 * ELC community delineations derived from NEA EIS Report (Niblett Environmental Associates, May 2016)

An additional small wetland feature was observed in Section 7 between the CN/CP Railways and King Street East. This feature occupies an area of approximately 0.01 ha, between the area cleared for development and WL#9. The vegetation was dominated by European Common Reed (*Phragmites sp.*), an invasive species. No overland drainage path was observed between this area and WL#9. Due to the small size of this feature, the lack of connectivity with other wetlands/watercourses, and the invasive species that occupies it, this community is considered an anomaly and will not be evaluated further in this report.

4.4 Surface Water and Drainage Features

The Site includes three mapped watercourses: Midtown Creek, Brook Creek East tributary, and Brook Creek West tributary. All of these watercourses are within the East Lake Ontario watershed, which drains the lands to the south and east of the larger Cobourg Creek



watershed, within the jurisdiction of the GRCA. These features outlet to Lake Ontario. According to the 2018 GRCA Watershed Report Card (Ganaraska Region Conservation Authority, 2018), surface water quality in the East Lake Ontario watershed is 'Good', as measured by various nutrient, chemical and bacterial parameters.

As its name suggests, Midtown Creek flows through the center of the Town of Cobourg, outletting to Lake Ontario at Cobourg Harbour. The east and west tributaries of Brook Creek converge just north of the CP/CN Railway on the northeast side of Cobourg approximately 400 m east of D'Arcy Street, and outlet to Lake Ontario just west of Brook Road South. Both systems flow in a generally south/southwest direction and are permanent watercourses exhibiting warm to cool water thermal regimes depending upon the reach being considered. Systems of this type have some groundwater contributions but are predominantly composed of surface drainage.

Aquatic Habitat Assessments were undertaken in 5 locations along the servicing alignment and are illustrated on Figure 2 through Figure 8. Data obtained is summarized in Appendix E.

4.5 Fish and Fish Habitat

Fish sampling was not undertaken as a component of this Study, due to the overall lack of lasting impact to water features overlapping and adjacent to the Site. Considerable recent information on fish community characteristics is available within existing reports relevant to the Site area, including the NEA EIS (May 2016). According to that report, the fish community of Midtown Creek was sampled upstream and downstream of the culvert at Danforth Road (WCC1b), in 2006 and 2015. The results of that sampling indicate that Midtown Creek (in the vicinity of the Site) is occupied by species from two families: Carp/Minnows (*Cyprinidae sp.*) and Sticklebacks (*Gasterosteidae sp.*). These species occur in both warm and cool water thermal regimes and are common to the local watershed.

The fish community in Brook Creek was sampled by NEA in 2005 and 2016 (Niblett Environmental Associates, May 2016) at the culvert at Elgin Street East (WCC3). The results indicated that Brook Creek West tributary is occupied by species from the same two families as Midtown Creek: Carp/Minnows (*Cyprinidae sp.*) and Sticklebacks (*Gasterosteidae sp.*). The



species composition was slightly different from Midtown Creek and was indicative of a cool-water thermal regime. Specific fisheries data was not available for Brook Creek East but based on the fish communities present in the two other watercourses in the Site area, it is expected that this watercourse supports a similar fish community and is characterized by a warm- to cool-water thermal regime.

The fish habitat conditions present at the crossing locations along the alignment are summarized in Table 6. Locations of watercourse crossings are illustrated on the referenced Figures.



Table 6 Fish Habitat Conditions at Servicing Crossing Locations

Section	Crossing ID	Watercourse	Habitat Description
1	WCC1a Figure 2	Midtown Creek Proposed installation method: Horizontal Directional Drill	Open bottom box culvert. Flow toward south. Inlet consists of emergent cattail/phragmites vegetation, sandy substrates with some gravel and cobble. Outlet is an open channel, sandy substrates with some gravel. All banks are stabilized with vegetation, limited instream cover, some overhead cover (shrubs and trees) south of outlet. No observed areas of blocked fish passage.
	WCC1b Figure 2	Midtown Creek Proposed installation method: Horizontal Directional Drill	CSP culvert almost entirely submerged at north inlet, likely embedded. Flow toward south. Inlet consists of a cattail marsh with organic substrates. Outlet could not be located but based on orientation of inlet is presumed to be within a cattail marsh with organic substrates. Some open water near potential outlet. No defined channel on either side of Danforth Rd. No observed area of blocked fish passage.
3	WCC3 Figure 4	Brook Creek West tributary Proposed installation method: Open-Cut in Conjunction with Channel Restoration	CSP culvert embedded, flow toward south. Inlet and outlet consist of small open pools within cattail marsh. Limited channelization due to dense vegetation. Substrates sand with some gravel. No observed area of blocked fish passage.
4	WCC4 Figure 5	Brook Creek East tributary Proposed installation method Micro Tunnel Boring:	Open bottom concrete box culvert. Flow toward west. Inlet consists of sand substrates with some gravel and cobble. Instream cover is limited to overhead trees and shrubs – no instream vegetation. Soil banks exhibiting exposed soils in some areas. No observed area of blocked fish passage.
5	WCC5 Figure 6	Brook Creek West tributary Proposed installation method: Jack and Bore	Open channel within wooded area. Flow toward south. Receives some stormwater flow via culvert from adjacent parking lot. Substrates sand with some gravel and detritus. Banks exhibit some exposed soil and erosion prone areas. Top of bank stabilized by surrounding vegetation. Almost 100% overhead cover by trees and shrubs. Limited in-stream cover composed of woody debris. Some wood debris dams. No observed areas of blocked fish passage.

Note: CSP = Corrugated Steel Pipe culvert

In summary, fish habitat characteristics are generally consistent with modified habitats as a result of existing roadways and associated infrastructure. No areas of valuable fish habitat, such as spawning or nursery habitat, were observed.



The comprehensive desktop review confirmed that there are no aquatic SAR records within the project area, and no critical habitat for SAR has been identified in the vicinity of the Site.

4.6 Wildlife Survey Results

No targeted wildlife surveys were undertaken due to the limited scope of interference. Further, due to the location of the Site within the Urban Area of the Town of Cobourg, wildlife using this area would be adapted to living in an urban environment and will be relatively tolerant of short-term habitat alterations. Turtles, which are slower moving and more heavily dependent on wetland and riparian areas for portions of their life processes are addressed separately in Section 4.6.1. Bat maternity roost habitat is discussed in Section 4.6.2.

Local wildlife will be adequately protected, provided that the recommendations outlined in Section 5.0 are adhered to.

4.6.1 Reptiles

The Natural Heritage Information Centre (NHIC) on-line Make-a-Map tool was consulted to obtain species occurrence data for tracked species within the Site area. The only record for reptile species overlapping the Site is for snapping turtle. Snapping turtle is a Special Concern (SC) species in Ontario. No evidence of use of the Site by snapping turtle was documented; however, it is likely that this species uses some of the wetland, watercourse and riparian habitats within the Site area.

Reptile species are sensitive to habitat disturbances during the nesting period. Avoidance of nesting habitat is the preferred approach to minimizing impact to turtles during nesting. Impact to this species has the potential to occur during the overwintering period; however, minimal potential overwintering habitat, limited to the cattail marsh community at WCC1b, was observed within the Site area.

Provided the recommendations presented in Section 5.0 are adhered to, the risk of impacts to turtles is expected to be minimal.



4.6.2 Bat Maternity Roost Habitat

Due to the nature of the proposed works, which involves a limited area of disturbance along a defined path outside of typical bat habitat environs, a full bat maternity roost habitat survey was not undertaken. Instead, the entire length of the alignment was screened for suitable bat maternity roost habitat features (i.e., cavity trees). Only 1 potentially suitable cavity tree was identified on the south side of Elgin Street East, in the lands adjacent to the Site (Figure 4). No physical disturbance to this location is proposed, and no trees are proposed to be removed within the woodlot surrounding this tree. Accordingly, bat maternity roost habitat will not be considered further in this report.

4.7 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) guidance documents produced by the NDMNRF were used as a guide to identify and confirm SWH on the Site (MNR, 2000). The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (Ministry of Natural Resources and Forestry, 2015) apply to the proposed works. Information gathered during the background review and field investigations were compared to SWH criteria to identify SWH at the Site. Based on our observations during field investigations and the ELC classifications described in Section 4.2, the Site does not meet the criteria for designation as SWH. Details on species of conservation concern and their protected habitats are provided in Section 4.8.

4.8 Species of Conservation Concern

A list of species of conservation concern, including SAR, with potential to occur in the general vicinity of the Site has been compiled based on known species' ranges, habitat requirements, and review of background information sources (as listed in Section 3.1). In addition, the list has been augmented with direct field observations from this Study, as detailed in the previous sections. Cambium has employed a habitat-based screening, supplemented with targeted field surveys, when necessary, in order to identify suitable habitat for species located on or adjacent to the Site.

No endangered or threatened terrestrial or avian species were documented within the Site area, and no suitable habitat for these species was identified. A detailed habitat suitability



analysis is provided in Appendix F. No Critical Habitat for aquatic SAR listed under SARA was identified in Midtown Creek or Brook Creek, on or adjacent to the Site.



5.0 Impact Assessment and Mitigation Measures

The proposed works include the installation of municipal servicing (water and wastewater) to several areas within the Cobourg East Community Secondary Plan area. Cobourg is a quickly growing Urban Area with multiple developments occurring along the servicing route. A Plan entitled Overview of Proposed External Servicing is included as Appendix B. Avoidance of all environmental constraint features is not feasible due to the project type; however, most of the alignment will be through terrestrial areas within existing ROWs. These areas have low sensitivity to disturbance, due to the existing constructed feature and associated influences. Industry standard best management practices are recommended in the following sections for minimizing impacts to natural features and their functions.

The following sections address potential impacts to protected features identified on and adjacent to the Site that may result from the proposed development and site alteration:

- Other Wetlands (i.e., non-PSW)
- Permanent Watercourses
- Fish Habitat

No other natural heritage features protected by provincial policy were confirmed on or adjacent to the Site.

Mitigation measures and best management practices have been recommended to ensure that the integrity of the current existing natural features is protected and/or enhanced and furthermore that their functions are not negatively impacted during or following construction.

Work within and around wetlands, watercourses, and fish habitat may require permits from the GRCA or an Authorization from Fisheries and Oceans Canada (DFO). These agencies should be consulted directly prior to undertaking works within or adjacent to these features.

5.1 Other Wetlands

The alignment has the potential to directly impact 7 wetland features (see Table 5). Trenchless installation, resulting in avoidance of the wetland, is proposed for 4 of these features (WL#2, WL#4, WL#5, WL#8). The alignment traverses the adjacent lands to 1 wetland feature (WL#9),



remaining a minimum of 10 m from the wetland boundary. The other 2 features (WL#6, WL#7) are associated with the restoration and naturalization of Brook Creek West north of Elgin Street East and will be addressed independently as part of the design for restoration and naturalization of the upstream section of the Brook Creek West tributary.

A summary of the potential impacts to each wetland, and erosion and sediment control (ESC) measures to address the anticipated impacts is included in Table 7. Design Drawings are referenced below where relevant and have been included as Appendix B.

Table 7 Mitigation Measures – Wetland Areas

Veg Type	Community Identifier	Potential Impacts	Mitigation Measures
SWMM1-1; White Cedar – Hardwood Mixed Swamp	WL#2 / WCC1a	<p>Trenchless installation proposed. Horizontal Directional Drill is preliminary preferred installation method.</p> <p>Impacts will be limited to the insert and exit points of the servicing. Sending/receiving pits are 28 m west and 35 m east of the watercourse. See design drawing PP-W2.</p> <p>Equipment staging would occur within the south shoulder/boulevard area of the road.</p>	<p>Installation of Heavy-Duty Silt Fence (OPSD219.130) offset 2 m from the insert and exit points, between area of disturbance and wetland feature. Ends of fencing run should be angled upgradient to trap any sediment that may accumulate behind the barrier.</p> <p>Any sediment that has accumulated behind the barrier should be removed and stabilized prior to removal of the ESC fence.</p> <p>All materials and equipment should be stored greater than 30 m from the wetland boundary or have Light Duty Silt Fence (OPSD219.110) installed between the wetland and/or ditch and the storage area.</p>
MAS2-1; Cattail Mineral Shallow Marsh	WL#4 / WCC1b	<p>Trenchless installation proposed. Horizontal Directional Drill is preliminary preferred installation method.</p> <p>Impacts will be limited to the insert and exit points of the servicing. Sending/receiving pits are 34 m west and 35 m east of the watercourse. See design drawing PP-W4.</p> <p>Equipment staging would occur within the south shoulder/boulevard area of the road.</p>	<p>Installation of Heavy-Duty Silt Fence (OPSD219.130) offset 2 m from the insert and exit points, between area of disturbance and wetland feature. Ends of fencing run should be angled upgradient to trap any sediment that may accumulate behind the barrier.</p> <p>Any sediment that has accumulated behind the barrier should be removed and stabilized prior to removal of the ESC fence.</p>



Veg Type	Community Identifier	Potential Impacts	Mitigation Measures
			<p>All materials and equipment should be stored greater than 30 m from the wetland boundary or have Light Duty Silt Fence (OPSD219.110) installed between the wetland and/or ditch and the storage area.</p>
<p>SWMM1-1; White Cedar – Hardwood Mineral Mixed Swamp</p>	<p>WL#5</p>	<p>Open-cut installation proposed. This is a non-sensitive wetland feature that is expected to be dry for portions of the year; however, it is connected via culvert to the west side of Brook Rd N, and the Brook Creek West tributary. Impacts will be minimized by isolating the work area from the downstream environment during installation.</p>	<p>Due to the cool-water thermal regime, the infrastructure shall occur at a minimum of 2.5m below the bed of the creek, in accordance with GRCA policy.</p> <p>A temporary Sandbag Barrier (OPSD219.150 or equivalent) should be installed to block flow from passing through the culvert toward the west. Pumping of water to the west side of Brock Road via a pump/pipe with a fish screen on the inlet and filter bag at the outlet, as necessary to keep the work area dry.</p> <p>All materials and equipment should be stored greater than 30 m from the wetland boundary or have Light Duty Silt Fence (OPSD219.110) installed between the wetland and/or ditch and the storage area.</p>
<p>MAM2-10**; Mixed Forb Mineral Meadow Marsh</p>	<p>WL#6 / WCC3</p>	<p>Open-cut installation in conjunction with Channel restoration and naturalization.</p>	<p>Due to the cool-water thermal regime, the infrastructure shall occur at a minimum of 2.5m below the bed of the creek, in accordance with GRCA policy.</p> <p>The new culvert location is proposed to be constructed in the dry. Flow from Brook Creek W will discharge to the vegetated ground surface adjacent to Elgin St. E and will flow naturally toward the lower reach of Brook Creek W. To direct the flow toward the existing channel at the former culvert location, it is recommended that a Light-Duty Fibre Roll Barrier (OPSD219.120) be installed to capture and direct flow from Brook Creek W north of Elgin St. toward the existing channel location at the previous culvert outlet. An alignment will naturally establish over time.</p>



Veg Type	Community Identifier	Potential Impacts	Mitigation Measures
		<p>The culvert transporting the flow from Brook Creek W beneath Elgin St. E is proposed to be permanently relocated approximately 15 m to the west of the current location as part of the Brook Creek W restoration/naturalization. The receiving wetland on the south side of Elgin St. E is non-sensitive, composed primarily of Reed-canary grass. No modifications to the landscape on the south side of Elgin St. E are proposed. Due to topography, flow will naturally travel toward Brook Creek W, overland. It is recommended that this area stay in the currently vegetated state, and a new alignment will evolve over time from the new culvert outlet.</p>	
<p>MAS2-1**; Cattail Mineral Shallow Marsh</p>	<p>WL#7</p>	<p>This small wetland feature is addressed in detail within the Brook Creek Restoration and Naturalization report prepared by GEO Morphix (GEO Morphix Ltd., July 2019).</p>	<p>No further recommendations related to ESC are made. A Request for Review / Authorization should be obtained from Fisheries and Oceans Canada (DFO) prior to the commencement of works.</p>
<p>MAM2-9; Jewelweed Forb Mineral Meadow Marsh</p>	<p>WL#8 / WCC4</p>	<p>Trenchless installation proposed. Micro Tunnel Boring is preliminary preferred installation method. Impacts will be limited to the insert and exit points of the servicing. Sending/receiving shafts are 30 m north and 40 m south of the watercourse. See design drawing PP-5 and PP-6. Equipment staging would occur within the east shoulder/boulevard area of the road.</p>	<p>Due to the cool-water thermal regime, the infrastructure shall occur at a minimum of 2.5m below the bed of the creek, in accordance with GRCA policy. Installation of Heavy-Duty Silt Fence (OPSD219.130) offset 2 m from the insert and exit points, between area of disturbance and wetland feature. Ends of fencing run should be angled upgradient to trap any sediment that may accumulate behind the barrier. All materials and equipment should be stored greater than 30 m from the wetland boundary or have Light Duty Silt Fence (OPSD219.110) installed between the wetland and/or ditch and the storage area.</p>



Veg Type	Community Identifier	Potential Impacts	Mitigation Measures
SWD2-2; Green Ash Mineral Deciduous Swamp	WL#9	<p>Open-cut installation proposed.</p> <p>The alignment runs approximately parallel to the wetland boundary, offset by a distance of 10-30 m (as shown on design drawings PP-3 and PP-4), and passes through a small, isolated wetland feature dominated by Common Reed (<i>Phragmites sp.</i>)</p> <p>The adjacent lands to the west have been cleared for development, and a large soil stockpile is present between the cleared area and the proposed alignment.</p>	<p>Installation of Light Duty Silt Fence (OPSD219.110) offset 2 m to the west of the trench, between the disturbed area and the wetland feature. Ends of fencing run should be angled toward the trench to trap any sediment that may accumulate behind the barrier. The barrier should extend from the CN/CP Railways south to 30 m north of King St. E.</p> <p>Vegetation removal should be kept to a minimum on the west side of the trench. All work should be done from the west side of the trench. All soil should be stored on the west side of the trench.</p> <p>All materials and equipment should be stored greater than 30 m from the wetland boundary and have Light Duty Silt Fence (OPSD219.110) installed between the wetland and/or ditch and the storage area.</p>

The recommendations in the table above include Ontario Provincial Standard measures for erosion and sediment control. Installation details for the referenced ESC measures have been supplied in Appendix G.

Provided that the mitigation measures outlined above are adhered to, the risk of lasting impacts to the wetlands associated with the proposed works is considered to be minimal.

5.2 Permanent Streams

There are 3 permanent watercourses intersected by the alignment of the proposed servicing. In all but one case, these watercourses flow through wetland areas that have already been addressed in Table 7. The remaining watercourse should be addressed as outlined in Table 8.



Table 8 Mitigation Measures - Watercourses

Veg Type	Community Identifier	Potential Impacts	Mitigation Measures
FODM11; Deciduous Hedgerow	WCC5	<p>Trenchless installation proposed. Jack and Bore is the preliminary preferred installation method.</p> <p>Impacts will be limited to the insert and exit points of the servicing. Sending/receiving shafts are 18 m east and 20 m west of the watercourse. See design drawing PPW-9.</p> <p>Prior to undertaking the works, habitat mapping should be completed by a qualified biologist for the area of disturbance, including 5 m upstream and downstream of the disturbance footprint. The habitat features present should be replicated to the best extent possible following the completion of the works.</p>	<p>Due to the cool-water thermal regime, the infrastructure shall occur at a minimum of 2.5m below the bed of the creek, in accordance with GRCA policy.</p> <p>Sending and receiving pits should be located greater than 30 m from the watercourse and have Light Duty Silt Fence (OPSD219.110) installed between the watercourse and any areas of ground disturbance or temporary soil storage.</p> <p>All materials and equipment should be stored greater than 30 m from the watercourse or have Light Duty Silt Fence (OPSD219.110) installed between the watercourse and the storage area.</p>

The recommendations in the table above include Ontario Provincial Standard measures for erosion and sediment control. Installation details for the referenced ESC measures have been supplied in Appendix G.

Provided that the work area is isolated, water is managed properly during construction, and the disturbed area is returned to near or better ecological condition than prior to the disturbance, the risk of lasting impacts to watercourses is considered to be minimal.

5.3 Fish Habitat

Midtown Creek and Brook Creek (East and West tributaries) are confirmed direct fish habitat. The fish species present are indicative of warm- to cool-water thermal regimes. In Ontario, there are Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat, which are defined by the NDMNRF. For the Site area, based on the species that were documented within the referenced watercourses, no in-water work should occur between March 15 – July 15, or between October 1 – May 31. Accordingly, work within watercourses within the Site area should be undertaken between July 1 and September 30.



Temporary disruption to fish habitat are expected as a result of the proposed works; however, provided that the mitigation measures outlined in Table 7, Table 8, and Section 5.4.1 are adhered to, lasting impacts to fish or their habitats are not anticipated.

5.4 Best Management Practices

5.4.1 Erosion and Sediment Control

The majority of the alignment will be through terrestrial areas within existing ROWs. These areas have low sensitivity to disturbance, due to the existing constructed feature and associated influences. Regardless, the control of sediment during installation of the servicing infrastructure will be critical to ensuring limited and temporary impact to the environment. In addition to the mitigation measures for the wetland features presented in Table 7 and Table 8, several additional areas of potential impact have been identified, and are presented in Table 9.

Table 9 Mitigation Measures - Other Areas of Potential Impact

Feature type	Potential Impacts	Mitigation Measures
Ditches	Sediment transport within ditches to downstream receiving water features (wetlands, watercourses, Lake Ontario). Potential impacts to fish and fish habitat.	Flow Check Dams (OPSD219.180, or 219.190) should be installed in ditches downgradient of work locations where sediment transport can be reasonably anticipated. Where feasible, Light Duty Silt Fence (OPSD219.110) should be installed parallel to the servicing route, between the disturbed area and the ditch.
Exposed Soils	Exposed soils can be transported by water and wind, ultimately ending up in downstream water features. Potential impacts to fish and fish habitat.	Staging installation to limit the duration of exposed soils. The maximum length of exposed trench at any one time is expected to be approximately 50 m. Based on work scheduling, it is anticipated that this equates to approximately 24 to 48 hours. Works in proximity to wetlands and watercourses should not occur if heavy precipitation is forecast. Exposed soils should be stabilized as quickly as possible with a temporary ESC measure (Fibre Blanket, Straw Mulch) and seeded with native, non-invasive seed.
Material Stockpiles	Sediment transport may occur from soil stockpiles.	A designated staging area should be identified near each work area. All materials should be stored in the designated area. Any soil



		stockpiles should be surrounding with Light Duty Silt Fence (OPSD219.110) and covered if they will be inactive for a period of 72 hours or more.
Equipment Storage	Deleterious substances can impact water quality.	A designated staging area should be identified near each work area. All equipment should be stored in the designated area. No refueling of equipment should occur within 30 m of a watercourse or wetland.

The recommendations in the table above include Ontario Provincial Standard measures for erosion and sediment control. Installation details for the referenced ESC measures have been supplied in Appendix G.

5.4.2 Invasive Species

Invasive species are becoming problematic throughout Ontario and can adversely impact our natural landscapes, including wetlands, woodlands, and watercourses. Soils, if brought in from off-Site, should be sourced from a reputable location. Landscape Plans should focus on native or non-invasive species. Additional best management practices to reduce the spread of invasive species include:

1. Revegetate with species native to the local area.
2. Request fill and compost from reputable sources that are conscious of the potential for the spread of invasive species via these media.
3. Get to know the most common invasive species in the area.
4. If invasive species are known to be present, equipment should be cleaned before moving to other areas, or to sensitive features such as wetlands.

At this Site, European buckthorn is present along most of the ROWs. Control of this species once established is difficult; however, efforts should be made to ensure that equipment is clean prior to work in and around watercourses and wetlands to slow the spread of this species.



5.4.3 Wildlife Protection

5.4.3.1 Breeding Birds

Nesting birds and their nests, eggs, and young are protected under the Migratory Birds Convention Act, 1994. Vegetation clearing on the Site should occur outside the breeding bird season, which extends from April 15 to August 15 in the local area (as per Environment and Climate Change Canada Guidelines).

If vegetation clearing is to occur between April 15 and August 15, the vegetation should be investigated by a qualified biologist to confirm if any nests are present. Note that birds nest on the ground, in woody and herbaceous vegetation, and on and around structures. Vegetation clearing can proceed provided there are no active nests. If active nests are confirmed, the nests should be left undisturbed until young have fledged or the nest is determined to be inactive.

Similarly, if construction is planned to proceed during the breeding season, the area should be investigated for the presence of breeding birds and nests containing eggs and/or young, prior to Site alteration. Nests discovered should be left undisturbed until young have fledged or the nest is determined to be inactive.

5.4.3.2 Reptiles

Turtles and snakes are particularly vulnerable to construction-related impacts on sites adjacent to wetlands, watercourses, and waterbodies. As the Site is located adjacent to potential habitat for turtles, workers should be aware of the nesting season for turtles, which extends from May 15 to August 15. Disturbance to banks or riparian areas should be avoided during this time. If work must go ahead within the nesting season, roadside embankments adjacent to wetlands and watercourses, and natural banks of wetland and watercourse features should be inspected daily by a qualified person to ensure that turtle nests are not disturbed.

Most turtles in Ontario are species of special concern; therefore, depending on the species, nests and individuals may be protected under the ESA. If any individuals are encountered, they should be photographed and allowed time to move out of harm's way. Should any nesting



turtles be encountered, work should stop immediately, and the turtle should be left to finish nesting undisturbed. The turtle should be photographed, and the nest marked to ensure it is not disturbed during construction, or until eggs have hatched (late August – September). If a nest is laid in a stockpile or other area that requires disturbance, Cambium should be contacted to determine if the nest can be relocated.

Observations of SAR, including most species of snakes and turtles, should be reported to the Natural Heritage Information Centre (NHIC).

5.5 Restoration Plan

Restoration of disturbed areas will be critical to preventing post-construction impacts to downstream water and wetland features, due to the location of the servicing alignment within and adjacent to conveyance features associated with existing roadways. Planting of native trees, shrubs, and herbaceous plants in previously disturbed areas, particularly near wetland boundaries and watercourses, will provide increased soil stability and encourage infiltration of run-off.

If trees or shrubs are removed or disturbed during the installation of the proposed works, Cambium recommends that shrub species native to the local area be planted as replacement vegetation. Species selection should be suited to the moisture regime and exposure conditions of the planting location. Shrubs should be planted in clusters, rather than evenly spaced, to more closely replicate natural conditions. Cambium staff can assist with providing expertise on species selection, to ensure species survival based on site suitability and soil characteristics, or advice can be sought from a reputable local nursery that specializes in native and non-invasive plant species.

Cambium recommends applying suitable seed mixtures to all disturbed and sloped areas. Ontario Seed Company (OSC) based out of Waterloo, Ontario, carries a variety of seed mixtures that do not contain non-native or invasive species. Specialized mixtures such as an 'erosion control mixture' contain wildflowers and grass species, which provide rapid vegetation cover. Other seed mixtures available include an Early Successional Dry Prairie Meadow Mix and Standard OBL Wetland Mix, which would enhance the areas surrounding wetland



features. These mixtures provide an excellent method of rehabilitating areas with a diverse composition of plant species suitable for the conditions documented. Disturbed soils should be temporarily covered with straw mulch or similar, to provide stability until seeds germinate and take root.

Cambium is available to discuss enhancement measures to ensure species planting densities, planting locations and species selection are suitable and will provide maximum ecological benefit. The final Design Drawings should incorporate these recommendations, or similar.



6.0 Policy Compliance

Based on the key natural heritage and/or hydrologic features identified on or adjacent to the Site and the findings of the field investigations detailed herein, the proposed development of the Site is in compliance with the PPS. Compliance with applicable natural heritage policy is summarized in Table 10.

Table 10 PPS Policy Compliance Summary

Key Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
Fish Habitat	Yes	Yes	Yes
	Explanation: Appropriate mitigation measures have been proposed to ensure that impacts to fish habitat are minimized. Timing windows have been recommended for the proposed works. A Request for Review should be submitted to DFO for the Brook Creek West tributary restoration/naturalization (design completed by GEO Morphix), and the infrastructure crossings at WCC3 and WCC5.		
Significant Wildlife Habitat (including habitat of special concern species)	Potentially	Potentially	Yes
	Explanation: Habitat for snapping turtle may be present within the wetlands and watercourses associated with the Site. Recommendations have been made to minimize impacts, and to avoid disruption to turtle nesting.		
Habitat of Threatened and Endangered Species	Potentially	Potentially	Yes
	Explanation: One potentially suitable bat maternity roost tree was identified adjacent to the Site. This feature will not be disturbed.		
Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)	No	Potentially	Yes
	Explanation: Significant Woodlands have not been identified by the Municipality. No impact to wooded areas is proposed; therefore, significant woodlands were not evaluated as a component of this Study.		
Streams (permanent/intermittent)	Yes	Yes	Yes
	Explanation: Midtown Creek, Brook Creek East and Brook Creek West are intersected by the proposed works. Provided the mitigation measures contained within this document are adhered to, the risk of lasting impact to watercourses is minimal.		



The proposed works occur within the jurisdiction of the GRCA, and the regulated area of that Authority overlaps portions of the alignment in several locations. The GRCA regulated areas relevant to this project include: wetlands, lands adjacent to wetlands (i.e., up to 120 m from wetland boundary), watercourses, and regional floodplain. An assessment of compliance with applicable GRCA policies, as presented in the GRCA Policies for Implementation of Ontario Regulation 168/06 (Ganaraska Region Conservation Authority, January 2014), is included in Table 11.

Each of these policies generally state that *‘Public infrastructure (e.g., roads, sewers, flood and erosion control works) and various utilities (e.g., pipelines) may be permitted within the feature subject to the activity being approved through a satisfactory Environmental Assessment process and/or if it has been demonstrated to the satisfaction of the Conservation Authority that the control of flooding, erosion, pollution, dynamic beaches or the conservation of land will not be affected’.*



Table 11 GRCA Policy Compliance

Policy Reference	On Site	On Adjacent Lands	Meets Associated Policy
Regulatory Floodplain Policy 1.5.4	Yes	Yes	Yes
	Explanation: The installation of subsurface infrastructure will have a temporary influence on the floodplain during the installation works. Works within floodplain areas should be planned to occur outside of periods of high-water elevation and/or significant precipitation or runoff. Lasting impacts to flood storage are not anticipated.		
Watercourses Policy 3.1.1	Yes	Yes	Yes
	Explanation: The installation of subsurface infrastructure has the potential to temporarily affect water quality and quantity within the watercourses on Site. Provided the recommendations regarding ESC measures are implemented, no lasting impacts to watercourses or fish habitat are anticipated.		
Wetlands Policy 4.1.1	Yes	Yes	Yes
	Explanation: The alignment crosses several wetland communities within existing ROWs. These areas are already affected by existing infrastructure. The majority of the crossings proposed will be installed using a trenchless method; therefore, direct impact to those wetlands is not anticipated. In the event of open-cut installation (i.e., WL#5), additional mitigation measures have been recommended to safeguard downgradient areas. Provided that the recommendations regarding ESC measures are implemented, no lasting impacts to wetlands are anticipated.		
Adjacent Lands Policy 4.3.1 (30 m)	Yes	Yes	Yes
	Explanation: No PSWs have been identified on or adjacent to the Site; therefore, the relevant adjacent lands include a setback of 30 m from wetland boundaries. Provided that the recommendations regarding ESC measures are implemented, no lasting impacts to adjacent lands or the associated wetlands are anticipated.		



7.0 Summary of Mitigation, Compensation, and Best Practices

The following recommendations have been made to safeguard the natural environment surrounding the Site area during the installation process:

1. Mitigation measures to prevent impact to wetland features should be implemented as outlined in Table 7.
2. Mitigation measures to prevent impact to watercourse features should be implemented as outlined in Table 8.
3. Other general mitigation measures to prevent impact to the natural environment should be implemented as outlined in Table 9.
4. Due to the cool-water thermal regime in Brook Creek East and West, and to minimize the potential for fracture of the Creek bed during construction, the infrastructure shall occur at a minimum of 2.5 m below the bed of the creek, in accordance with GRCA policy, to the best extent possible.
5. No in-water work should occur between March 15 – July 15, or between October 1 – May 31. Accordingly, work within watercourses within the Site area should be undertaken between July 1 and September 30.
6. Prior to in-water work commencing at WCC3, a Request for Review should be submitted to DFO.
7. Prior to any work within or adjacent to wetlands, GRCA should be directly consulted with Detailed Design Plans to determine whether permits from that agency are required.
8. The measures to prevent the introduction and spread of invasive species should be adhered to as outlined in Section 5.4.2.
9. Vegetation clearing on the Site should occur outside the breeding bird season, which extends from April 15 to August 15 in the local area. If this is not possible, the further mitigation measures outlined in Section 5.4.3.1 should be adhered to.



10. The nesting season for turtles extends from May 15 to August 15. Disturbance to banks or riparian areas should be avoided during this time. If this is not possible, the further mitigation measures outlined in Section 5.4.3.2 should be adhered to.
11. Observations of SAR, including most species of snakes and turtles, should be reported to the Natural Heritage Information Centre (NHIC).
12. A Restoration Plan should be developed for the Site to accompany the final Design Drawings and should include the recommendations outlined in Section 5.5.



8.0 Closing

In closing, potential negative impacts associated with the proposed development and site alteration can be appropriately minimized, provided that the recommendations outlined in Section 7.0 are adhered to. The information presented herein demonstrates that the proposed development can be carried out in a way that will not adversely impact natural heritage and hydrologic features and function identified on or adjacent to the subject Site. Furthermore, the proposed development complies with applicable provincial policy.

Respectfully submitted,

Cambium Inc.

Andrea Coppins, BA Hons., Dipl.
Senior Ecologist / Project Manager

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Glossary of Terms

ANSI: Area of Natural and Scientific Interest	GIS: Geographic Information System
ARA: Aquatic Resources Area	GLSL: Great Lakes – St. Lawrence
ARA: Aggregate Resources Act	GPGGH: Growth Plan for the Greater Golden Horseshoe
AS: Agricultural System	GPS: Global Positioning System
ATK: Aboriginal Traditional Knowledge	HSA: Habitat Suitability Analysis
BMA: Bear Management Area	HIS: Habitat Suitability Index
BMP: Best Management Practice	KHA: Key Hydrologic Areas
CA: Conservation Authority	KHF: Key Hydrologic Features
CEAA: Canadian Environmental Assessment Act/Agency	KNHF: Key Natural Heritage Features
CFA: Canadian Forestry Association	LCFSP: Licence to Collect Fish for Scientific Purposes
CFIP: Community Fisheries Involvement Program	LIO: Land Information Ontario
CFS: Canadian Forestry Service	LRIA: Lake and Rivers Improvement Act
CHU: Critical Habitat Unit	LUP: Land Use Permit or Plan
CH: Cultural Heritage	MA: Management Area
CLI: Canada Land Inventory	MAFA: Moose Aquatic Feeding Area
CLU: Crown Land Use	MCEA: Municipal Class Environmental Assessment
COSSARO: Committee on the Status of Species at Risk in Ontario	MECP: Ontario Ministry of Environment, Conservation and Parks
CR: Conservation Reserve	MNDMRF: Ontario Ministry of Natural Resources and Forestry
CWIP: Community Wildlife Involvement Program	NER: Natural Environment Report
CWS: Canadian Wildlife Service	NHIC: Natural Heritage Information Centre
DFO: Fisheries and Oceans Canada	NHIS: Natural Heritage Information System
EA: Environmental Assessment	NHS: Natural Heritage System
EAA: Environmental Assessment Act	OBM: Ontario Base Map
EAB: Emerald Ash Borer	OFIS: Ontario Fisheries Information System
EBR: Environmental Bill of Rights	OLI: Ontario Land Inventory
EIA: Environmental Impact Assessment	OMAFRA: Ontario Ministry of Agriculture, Food and Rural Affairs
EIS: Environmental Impact Study/Statement	OWES: Ontario Wetland Evaluation System
ELC: Ecological Land Classification System	PPS: Provincial Policy Statement (2014)
ELUP: Ecological Land Use Plan	PSW: Provincially Significant Wetland
END: Endangered species	RLUP: Regional Land Use Plan
EPA: Environmental Protection Act	RMP: Regional Management Plan
ER: Environmental Registry	R.P.F.: Registered Professional Forester
ESA: Endangered Species Act (2007)	SAR: Species at Risk
ESA: Environmentally Sensitive Area	SARO: Species at Risk in Ontario
ESC: Erosion and Sediment Control	SC: Special Concern species
F&W: Fish and Wildlife	SWH: Significant Wildlife Habitat



FA: Fisheries Act (Federal)
FEC: Forest Ecosystem Classification
FMP: Forest Management Plan
FRI: Forest Resources Inventory
FWCA: Fish and Wildlife Conservation Act
GGH: Greater Golden Horseshoe
GHP: General Habitat Protection

SWM: Stormwater Management
THR: Threatened species
TOR: Terms of Reference
TPP: Tree Preservation Plan
WIA: Woodlands Improvement Act
WMU: Wildlife Management Unit



Appended Figures

**ENVIRONMENTAL
IMPACT STUDY**
TRIBUTE RONDEAU PARTNERSHIP
Cobourg, Ontario

LEGEND

- Highway
- Major Road
- Minor Road
- Railroad
- Water Area
- Ecodistrict
- Study Area

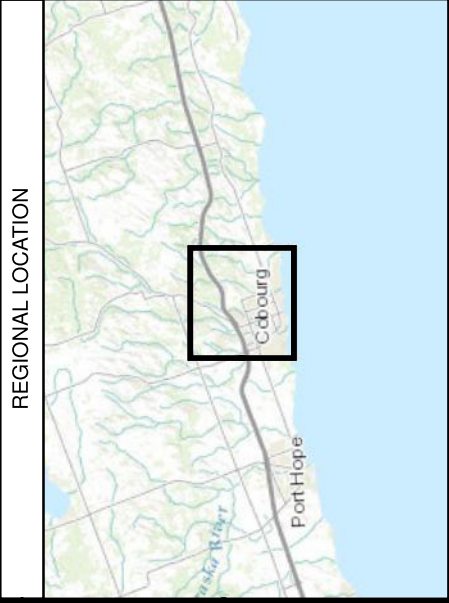
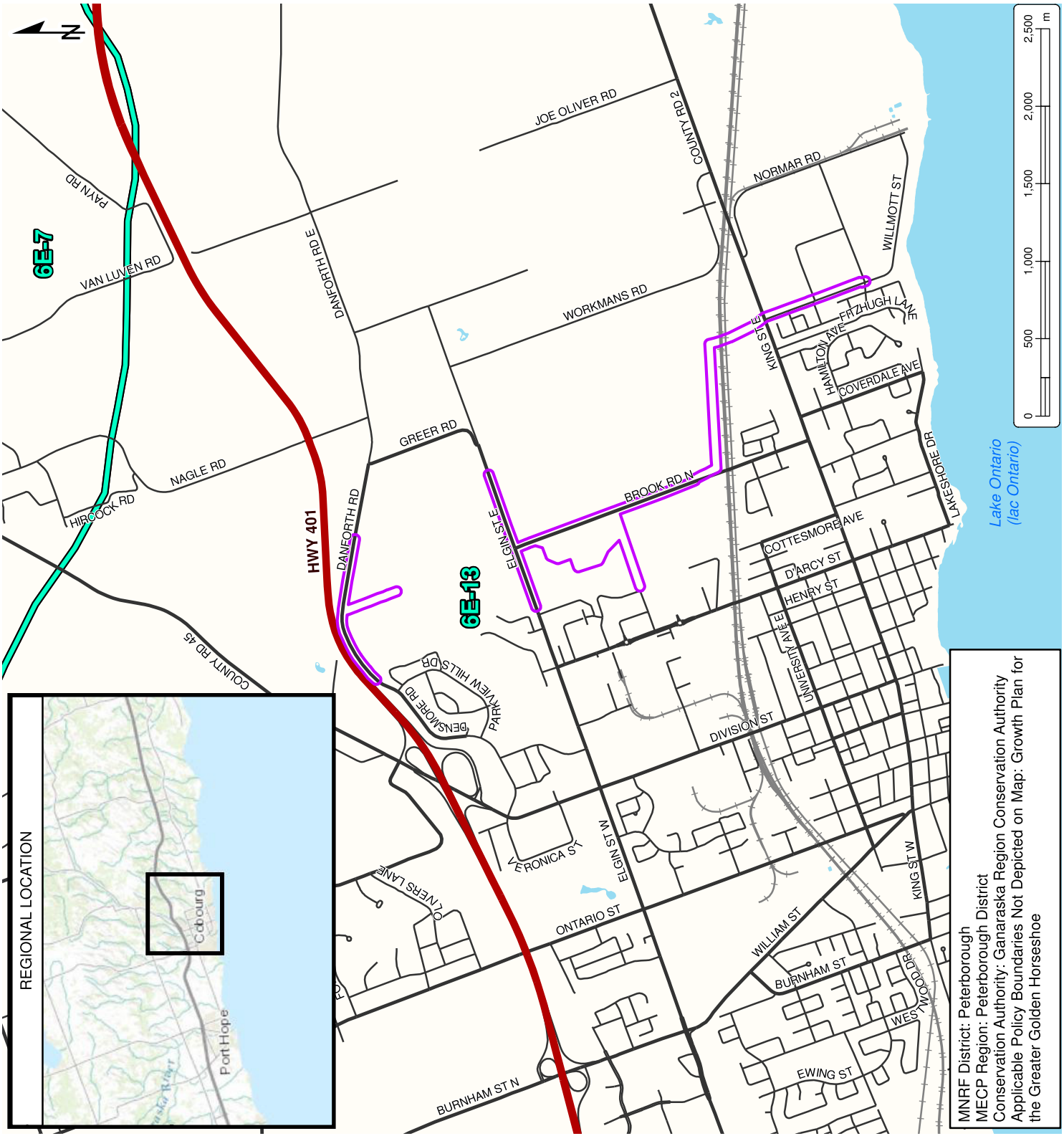
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**SITE LOCATION AND
SPECIAL PLANNING AREAS**










Project No.:	138005-001	Date:	January 2022
Scale:	1:35,000	Rev.:	
Created by:	MAT	Projection:	NAD 1983 UTM Zone 17N
Checked by:	AZC	Figure:	1







MNRF District: Peterborough
MECP Region: Peterborough District
Conservation Authority: Ganaraska Region Conservation Authority
Applicable Policy Boundaries Not Depicted on Map: Growth Plan for the Greater Golden Horseshoe

**ENVIRONMENTAL
IMPACT STUDY**
TRIBUTE RONDEAU PARTNERSHIP
Cobourg, Ontario

LEGEND

-  Culvert
-  WAT Trunk Watermain
-  Vegetation Community
-  Watercourse, Intermittent
-  Watercourse, Permanent
-  Contour 5m Interval (Major)
-  Contour 5m Interval (Minor)
-  Unevaluated Wetlands
-  Study Area, Section 1

Wetland Communities

-  WL#1
-  WL#2
-  WL#3
-  WL#4

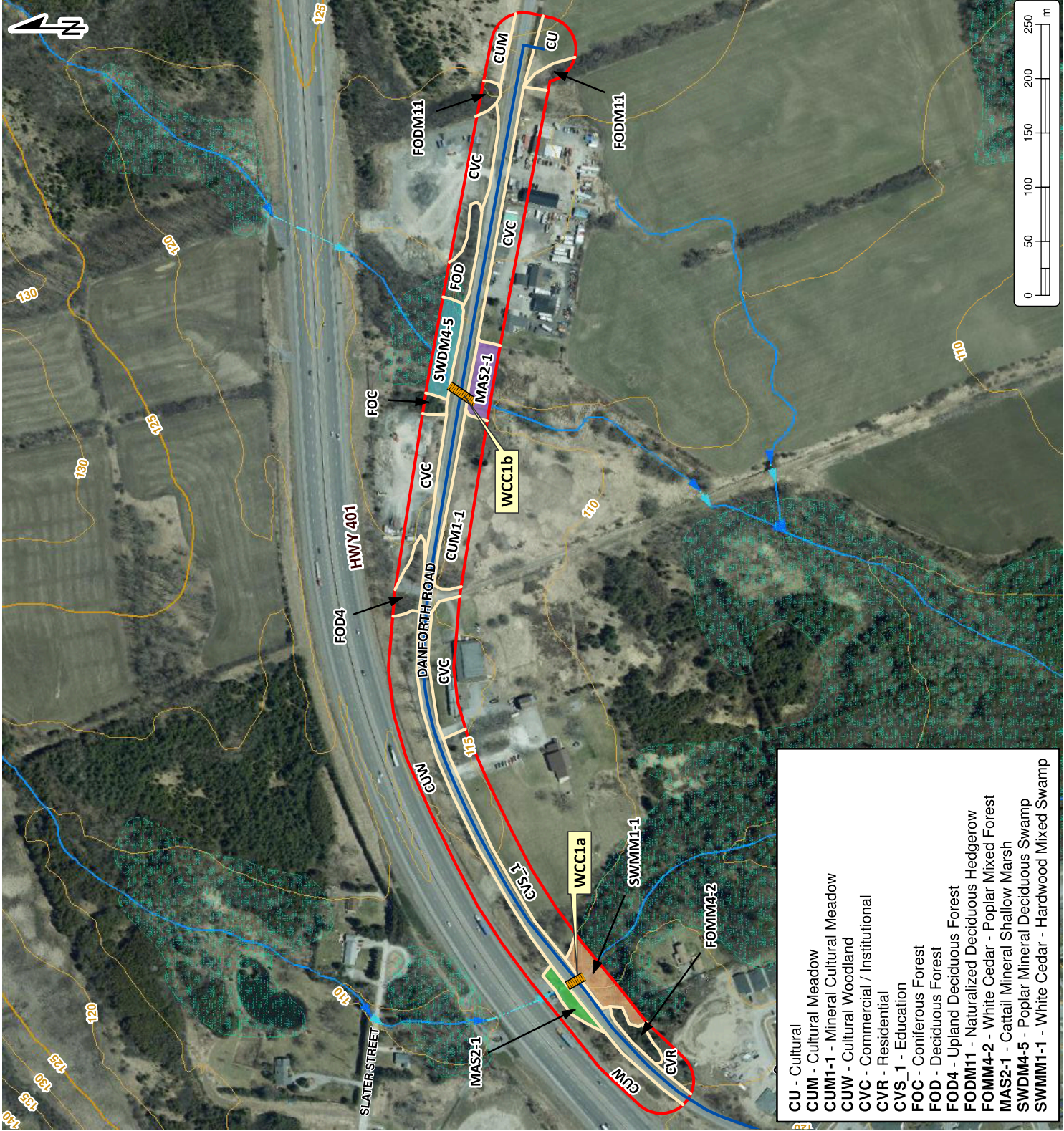
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**SECTION 1: LOCAL NATURAL
HERITAGE FEATURES**










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		Figure:	2



- CU - Cultural
- CUM - Cultural Meadow
- CUM1-1 - Mineral Cultural Meadow
- CUW - Cultural Woodland
- CVC - Commercial / Institutional
- CVR - Residential
- CVS_1 - Education
- FOC - Coniferous Forest
- FOD - Deciduous Forest
- FOD4 - Upland Deciduous Forest
- FODM11 - Naturalized Deciduous Hedgerow
- FOMM4-2 - White Cedar - Poplar Mixed Forest
- MAS2-1 - Cattail Mineral Shallow Marsh
- SWDM4-5 - Poplar Mineral Deciduous Swamp
- SWMM1-1 - White Cedar - Hardwood Mixed Swamp

**ENVIRONMENTAL
IMPACT STUDY**
TRIBUTE RONDEAU PARTNERSHIP
Cobourg, Ontario

LEGEND

-  Culvert
-  WAT Trunk Watermain
-  Vegetation Community
-  Watercourse, Intermittent
-  Watercourse, Permanent
-  Contour 5m Interval (Minor)
-  Unevaluated Wetlands
-  Wetland
-  Study Area, Section 2

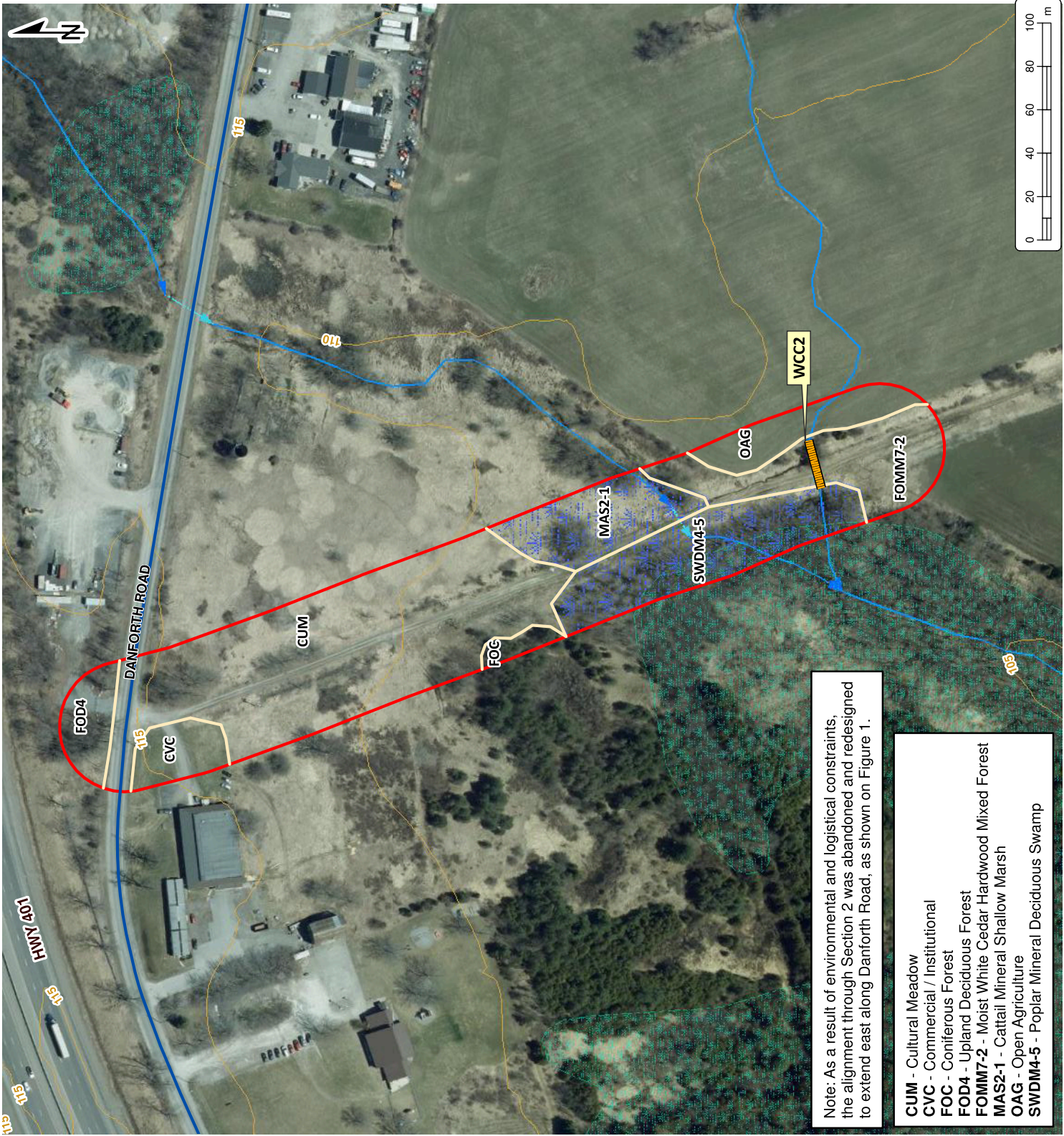
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**SECTION 2: LOCAL NATURAL
HERITAGE FEATURES**

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		Figure:	3



Note: As a result of environmental and logistical constraints, the alignment through Section 2 was abandoned and redesigned to extend east along Danforth Road, as shown on Figure 1.

- CUM** - Cultural Meadow
- GVC** - Commercial / Institutional
- FOC** - Coniferous Forest
- FOD4** - Upland Deciduous Forest
- FOMM7-2** - Moist White Cedar Hardwood Mixed Forest
- MAS2-1** - Cattail Mineral Shallow Marsh
- OAG** - Open Agriculture
- SWDM4-5** - Poplar Mineral Deciduous Swamp

**ENVIRONMENTAL
IMPACT STUDY**
TRIBUTE RONDEAU PARTNERSHIP
Cobourg, Ontario

LEGEND

- Cavity Tree
- SAN Trunk Sewer
- Culvert
- WAT Trunk Watermain
- Vegetation Community
- Watercourse, Intermittent
- Watercourse, Permanent
- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Cleared Area
- Unevaluated Wetlands
- Study Area, Section 3

Wetland Communities

- WL#5
- WL#6
- WL#7

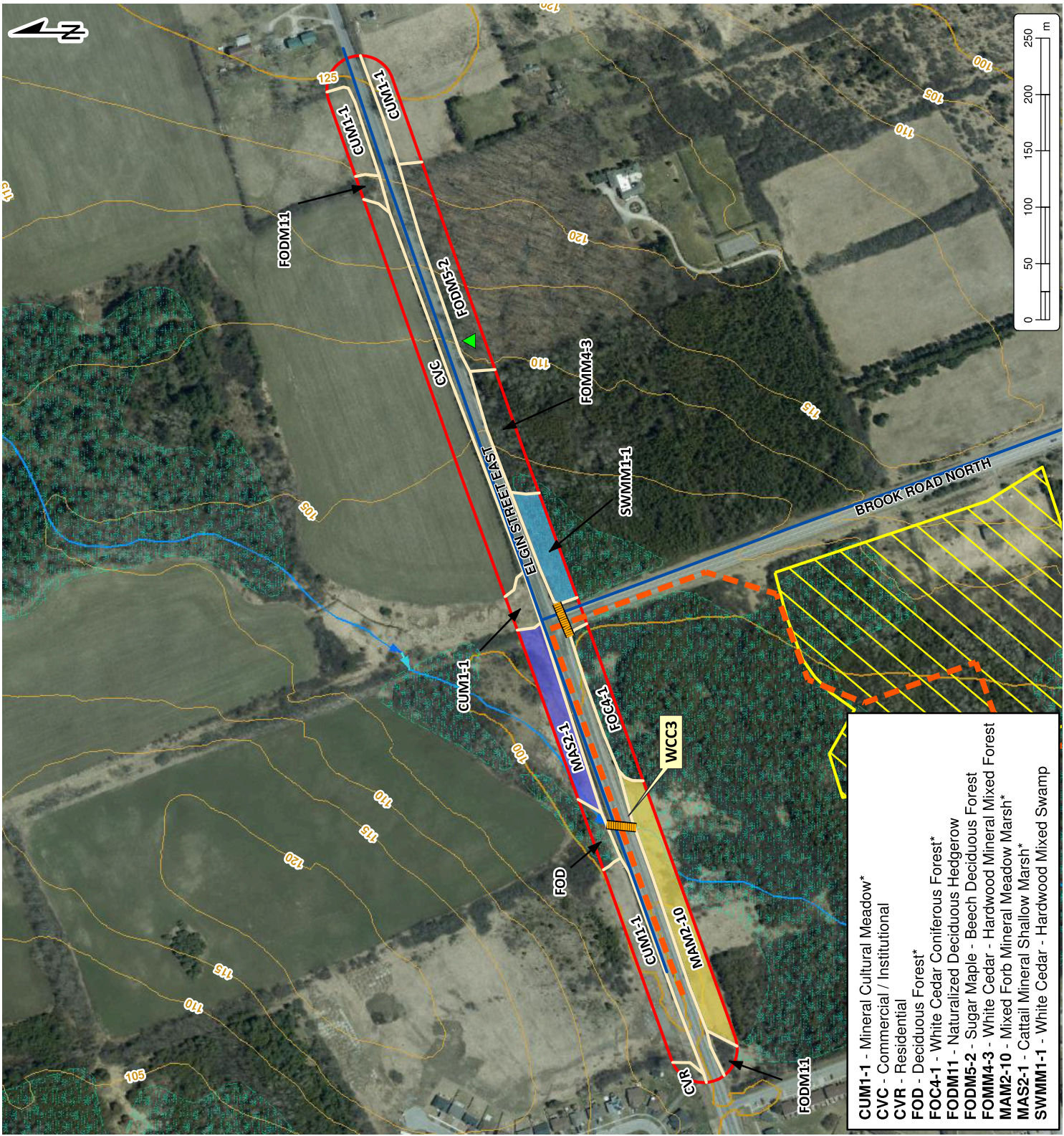
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**SECTION 3: LOCAL NATURAL
HERITAGE FEATURES**













Project No.:	138006-001	Date:	January 2022
Scale:	1:4,815	Projection:	NAD 1983 UTM Zone 17N
Created by:	MAT	Checked by:	Figure: AZC
			4



- CUM1-1 - Mineral Cultural Meadow*
- CVC - Commercial / Institutional
- CVR - Residential
- FOD - Deciduous Forest*
- FOC4-1 - White Cedar Coniferous Forest*
- FODM11 - Naturalized Deciduous Hedgerow
- FODM5-2 - Sugar Maple - Beech Deciduous Forest
- FODM4-3 - White Cedar - Hardwood Mineral Mixed Forest
- MAM2-10 - Mixed Forb Mineral Meadow Marsh*
- MAS2-1 - Cattail Mineral Shallow Marsh*
- SWMM1-1 - White Cedar - Hardwood Mixed Swamp

**ENVIRONMENTAL
IMPACT STUDY**
TRIBUTE RONDEAU PARTNERSHIP
Cobourg, Ontario

LEGEND

-  Culvert
-  WAT Trunk Watermain
-  SAN Trunk Sewer
-  Vegetation Community
-  Watercourse, Intermittent
-  Watercourse, Permanent
-  Contour 5m Interval (Major)
-  Contour 5m Interval (Minor)
-  Unevaluated Wetlands
-  Wetland
-  Cleared Area (approximate)
-  Study Area, Section 4

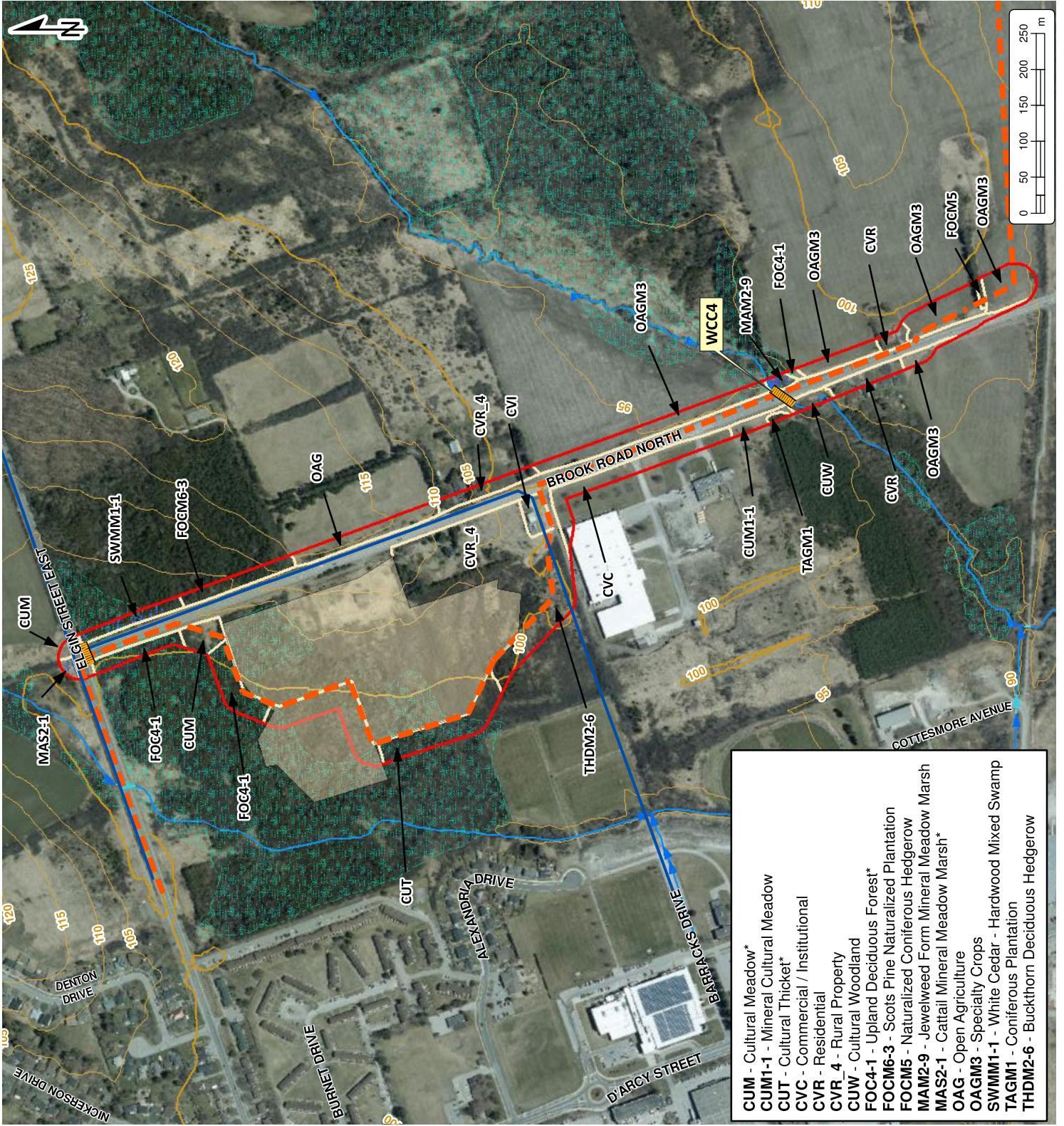
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**SECTION 4: LOCAL NATURAL
HERITAGE FEATURES**

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Projection:	NAD 1983 UTM Zone 17N	Created by:	MAT
Checked by:	AZC	Figure:	5



- CUM - Cultural Meadow*
- CUM1-1 - Mineral Cultural Meadow
- CUT - Cultural Thicket*
- CVC - Commercial / Institutional
- CVR - Residential
- CVR_4 - Rural Property
- CJW - Cultural Woodland
- FOC4-1 - Upland Deciduous Forest*
- FOCM6-3 - Scots Pine Naturalized Plantation
- FOCM5 - Naturalized Coniferous Hedgerow
- MAM2-9 - Jewelweed Form Mineral Meadow Marsh
- MAS2-1 - Cattail Mineral Meadow Marsh*
- OAG - Open Agriculture
- OAGM3 - Specialty Crops
- SWMM1-1 - White Cedar - Hardwood Mixed Swamp
- TAGM1 - Coniferous Plantation
- THDM2-6 - Buckthorn Deciduous Hedgerow

LEGEND

-  Culvert
-  WAT Trunk Watermain
-  SAN Trunk Sewer
-  Vegetation Community
-  Watercourse, Permanent
-  Contour 5m Interval (Major)
-  Contour 5m Interval (Minor)
-  Study Area, Section 5

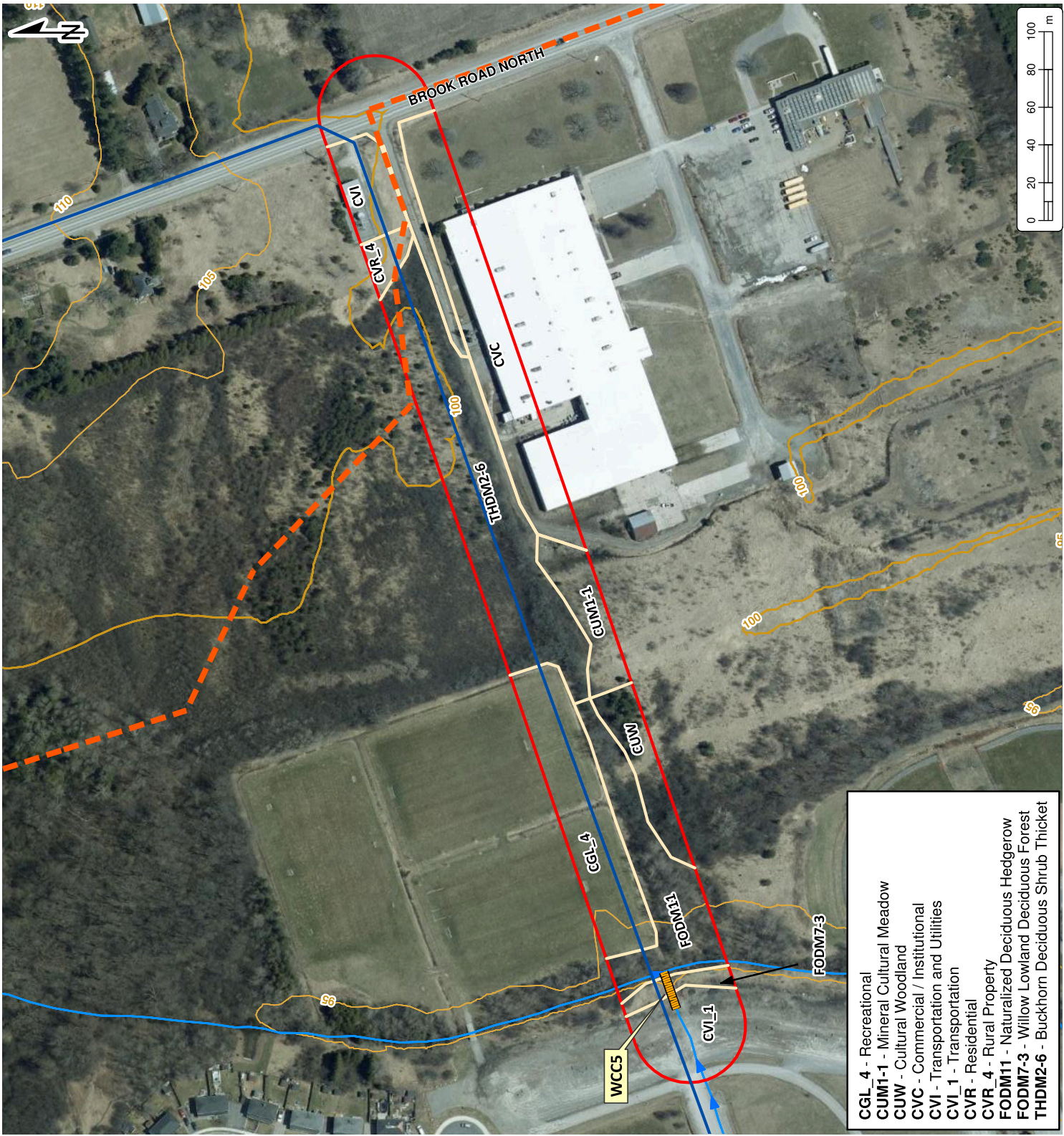
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**SECTION 5: LOCAL NATURAL
HERITAGE FEATURES**

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Scale:	1:2,874	Projection:	NAD 1983 UTM Zone 17N
Created by:	MAT	Checked by:	Figure: AZC
			6



- CGL_4 - Recreational
- CUM1-1 - Mineral Cultural Meadow
- CUM - Cultural Woodland
- CVC - Commercial / Institutional
- CVI - Transportation and Utilities
- CVR_1 - Transportation
- CVR - Residential
- CVR_4 - Rural Property
- FODM11 - Naturalized Deciduous Hedgerow
- FODM7-3 - Willow Lowland Deciduous Forest
- THDM2-6 - Buckhorn Deciduous Shrub Thicket

**ENVIRONMENTAL
IMPACT STUDY**
TRIBUTE RONDEAU PARTNERSHIP
Cobourg, Ontario

LEGEND

-  Vegetation Community
-  SAN Trunk Sewer
-  Watercourse, Permanent
-  Contour 5m Interval (Major)
-  Contour 5m Interval (Minor)
-  Study Area, Section 6

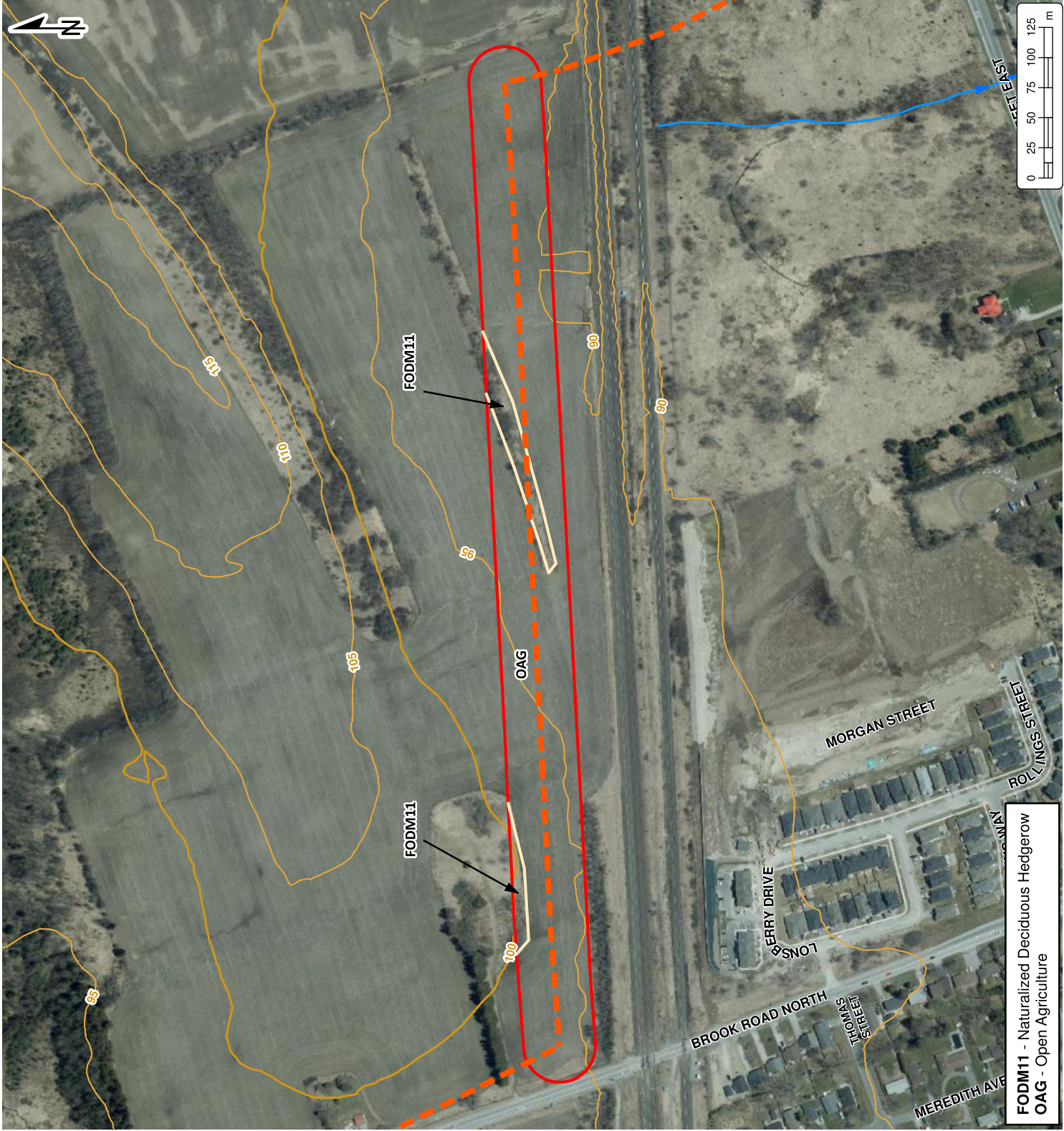
Notes:
 - Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources and Forestry or the Ontario Government).
 - The map is a plan view and does not show elevation. The plan is in metres and can be converted to feet by multiplying by 3.28.
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 www.cambium-inc.com

**SECTION 6: LOCAL NATURAL
HERITAGE FEATURES**

Project No.:	138005-001	Date:	January 2022
Scale:	1:4,500	Projection:	NAD 1983 UTM Zone 17N
Created by:	MAT	Checked by:	Figure: 7
			AZC



FODM11 - Naturalized Deciduous Hedgerow
OAG - Open Agriculture

**ENVIRONMENTAL
IMPACT STUDY**
TRIBUTE RONDEAU PARTNERSHIP
Cobourg, Ontario

LEGEND

- Vegetation Community
- SAN Trunk Sewer
- Watercourse, Intermittent
- Watercourse, Permanent
- Contour 5m Interval (Minor)
- Wetland
- Study Area, Section 7

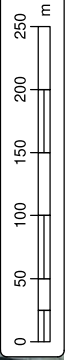
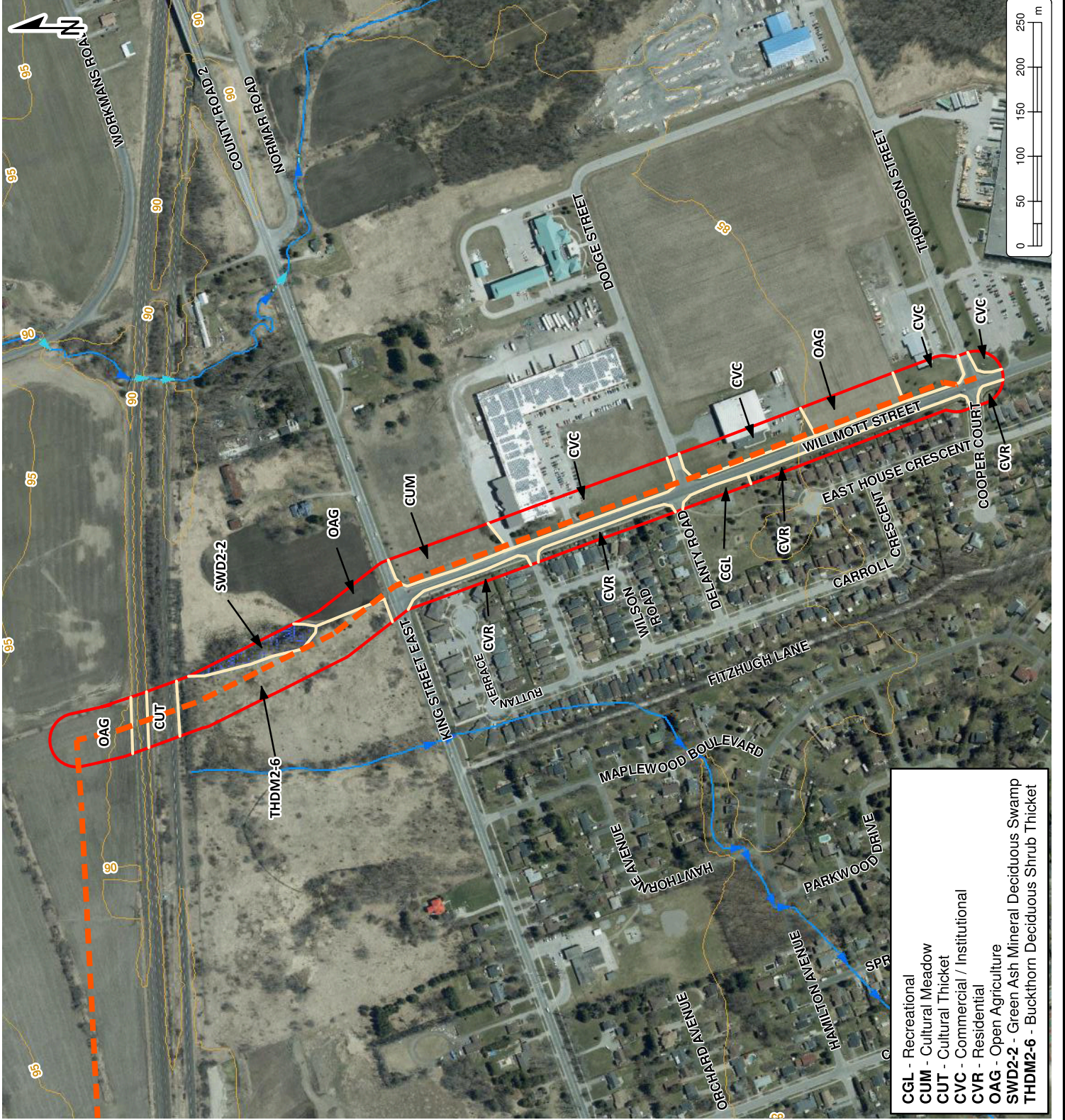
Notes:
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 All distances and bearings are in metres and can be converted to feet by multiplying by 3.28084.
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**SECTION 7: LOCAL NATURAL
HERITAGE FEATURES**

Project No.:	138005-001	Date:	January 2022
Scale:	1:6,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	MAT	Checked by:	AZC
		Figure:	8



- CGL - Recreational
- CUM - Cultural Meadow
- CUT - Cultural Thicket
- CVC - Commercial / Institutional
- CVR - Residential
- OAG - Open Agriculture
- SWD2-2 - Green Ash Mineral Deciduous Swamp
- THDM2-6 - Buckthorn Deciduous Shrub Thicket



Appendix A

Correspondence

Andrea Coppins

From: Ken Thajer <kthajer@grca.on.ca>
Sent: December 24, 2021 10:59 AM
To: Andrea Coppins
Subject: RE: Terms of Reference (ToR) for Functional Servicing - Tribute Rondeau, Cobourg (13806-001)

The GRCA has reviewed the TOR for the FSR EIS submitted by Cambium on November 15, 2021 and find it acceptable with the following comments:

1. The GRCA permits the field surveys to be conducted in the fall due to the fact that the majority of the works will be conducted within road allowance, which may result in existing disturbed areas, vegetation composed of pioneer/weedy/non-native species and unlikely to be suitable habitat for wildlife including SAR.
2. Trenchless method is the preferred option for servicing across watercourses.
 - a. The type of trenchless method shall be provided in the EIS with appropriate mitigation measures in place.
 - b. Trenchless methods shall occur at a minimum of 2.5m below the bed of the creek for cold water watercourses.
 - c. If for some reason a trench method is proposed it must be justified and a fluvial geomorphologist should be consulted to ensure the restoration of the watercourse is sound and provides a net ecological benefit to the watercourse system.
3. If works are to occur within the 30m setback to a wetland it shall be justified and a restoration plan shall be provided to mitigate the impacts

Regards,

Ken Thajer, MCIP, RPP
Planning and Regulations Coordinator



2216 County Road 28
Port Hope, ON L1A 3V8
905.885.8173 x. 245 / 905.885.9824 fax

kthajer@grca.on.ca / www.grca.on.ca



"Clean Water Healthy Lands for Healthy Communities"

Please note that due to COVID-19 concerns, the GRCA administration office is closed to the public. Please contact us by email or phone.

From: Andrea Coppins [mailto:andrea.coppins@cambium-inc.com]
Sent: December 23, 2021 2:33 PM
To: Ken Thajer <kthajer@grca.on.ca>
Cc: Lindsay Champagne <lchampagne@grca.on.ca>; Cambium Admin <file@cambium-inc.com>
Subject: RE: Terms of Reference (ToR) for Functional Servicing - Tribute Rondeau, Cobourg (13806-001)

Good afternoon Ken,

I'd like to follow up on GRCA's comments on the ToR I submitted for the External Servicing EIS for the Cobourg Trails development. The report is scheduled to be submitted in early January, and I'd like to include/address any GRCA comments with that submission. Would it be possible for you to forward along GRCA's comments as per Lindsay's email below?

Thank you kindly, and have a great holiday.
Andrea Coppins



Andrea Coppins, B.A. Hon., Dipl.
Project Manager/Senior Ecologist

Cambium - Peterborough

📞 705.768.1324

☎ 866.217.7900

🌐 cambium-inc.com

Happy Holidays From Cambium!

Our offices will be closed from December 27 - December 31.

We look forward to working with you in 2022 and hope you have a safe and healthy holiday season.

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From: Lindsay Champagne <lchampagne@grca.on.ca>
Sent: November 30, 2021 9:26 AM
To: Andrea Coppins <andrea.coppins@cambium-inc.com>
Subject: Re: Terms of Reference (ToR) for Functional Servicing - Tribute Rondeau, Cobourg (13806-001)

Hi Andrea,

I have already sent my comments to Ken, so you should have them shortly.

Lindsay Champagne, B.Sc.

Watershed Biologist



2216 County Rd 28, Port Hope

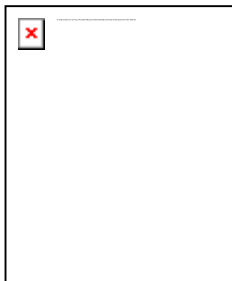
(905) 885-8173 ext. 229

From: Andrea Coppins <andrea.coppins@cambium-inc.com>
Sent: Monday, November 29, 2021 12:00 PM
To: Lindsay Champagne <lchampagne@grca.on.ca>
Cc: Cambium Admin <file@cambium-inc.com>; Ken Thajer <kthajer@grca.on.ca>
Subject: RE: Terms of Reference (ToR) for Functional Servicing - Tribute Rondeau, Cobourg (13806-001)

Hi Lindsay,

Just following up on the ToR that we submitted for review/approval. When we spoke on the phone you indicated that we would receive it shortly, but I haven't seen anything in my inbox. Thought I'd check in to make sure it didn't get lost in cyberspace.

Have a great day,
Andrea



Andrea Coppins, B.A. Hon., Dipl.

Project Manager/Senior Ecologist

Cambium - Peterborough

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☎ 866.217.7900

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Since 2006, our team has worked diligently to bring the insights needed for good decisions and collective success. We are grateful for what has been and is yet to come!



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From: Andrea Coppins
Sent: November 15, 2021 1:53 PM
To: kthajer@grca.on.ca; lchampagne@grca.on.ca

Cc: Cambium Admin <file@cambium-inc.com>

Subject: Terms of Reference (ToR) for Functional Servicing - Tribute Rondeau, Cobourg (13806-001)

Good afternoon Ken and Lindsay,

We have been retained to prepare an EIS for a functional servicing study that is currently underway in Cobourg. The proposed servicing path extends eastward on Densmore/Danforth, southwest through Phase 3-4 Tribute lands (EIS previously prepared by Niblett – 2016), extending along the north side of Elgin St. approximately 400m west and 500m east of Brook Rd. N/20, along the east side of Brook Rd. N, southeastward through JMCD Holdings lands (EIS previously prepared by Cambium) on the north side of the CP Railway, and ultimately extending south to connect with existing servicing on Willmott St. I have attached a basic sketch with the general layout (see JPEG below). For reference, Tribute/Rondeau is the developer, and CIMA+ is working on the design.

I'm writing to submit our Terms of Reference (ToR) for the EIS. Please note as you review our ToR, that the works are planned to occur within existing road allowance/right of ways, for the most part. There are a couple of short lengths that will pass through Tribute and JMCD Holdings lands, that are already in development with EIS reports prepared previously (Cambium and Niblett). The table below summarizes our scope of work, which will include all lands within 30m of the servicing path. The terrestrial field work was done in late September/early October, and the aquatic assessments are scheduled to occur later this week. Typically I would have submitted the ToR for review and approval prior to conducting the field work, but in this case since the work is occurring within active developing lands and road allowances, and in consideration that the routing plan was still in development we decided to proceed with the field work while seasonal conditions permitted. I have personally walked the entire servicing route, and no butternut trees, SAR habitat, or rare species were documented. Further, as a result of the location of the routing path along right of ways and through disturbed areas, vegetation in general is composed of pioneer/weedy/non-native species, and a substantial portion of the lands adjacent to the routing path are either currently under development or are agricultural fields.

Section	Field Study	Details
Densmore to Danforth Road, existing ROW	Vascular Plant Survey Ecological Land Classification (ELC) Butternut Survey Aquatic Habitat Assessment	Adjacent lands include 401 corridor and existing developed lands. Servicing path is within the south lane and road shoulder areas of Densmore/Danforth, and through lands currently under development (vegetation has been cleared). Two watercourse crossings (see WCC#1a and WCC#1b described below).
Unopened road allowance south of Midtown Creek to Elgin St E	Vascular Plant Survey ELC Butternut Survey Cavity Tree Survey	Adjacent lands include an active development that has been cleared of vegetation, and some row crops. Partially covered by Niblett EIS. One watercourse crossing along Brook Creek West tributary to occur in concert with creek restoration plan (prepared by Geomorphix)
Elgin Street E	Aquatic Habitat Assessment ELC (southwest corner only) Cavity Tree Survey (southwest corner only) Butternut Survey (southwest corner only)	Most terrestrial lands covered by Niblett EIS, with the exception of the southwest side of Elgin east of 20. Brook Creek West crossing (see WCC#2 described below)
Brook Rd North extending west toward D'Arcy St., south of the soccer fields.	Vascular Plant Survey ELC Butternut Survey Aquatic Habitat Survey	Adjacent lands include: recreation area (soccer fields), cultural thicket (buckthorn), partially covered by Niblett EIS. Brook Creek West tributary crossing (see WCC#3 below)
Brook Rd North, east side	Vascular Plant Survey ELC Woodland Assessment Butternut Survey Aquatic Habitat Assessment	Adjacent lands include: woodland at north end, south end covered by Cambium EIS, lands on west side of Brook Rd. N. covered by Niblett EIS). One watercourse crossing of Brook Creek East, on the east side of Brook Road north (see WCC#4 below)

JMCD North Holdings lands east of Brook Rd. N, north of CP Railway	General site conditions	Covered by Cambium EIS
Railway to Highway 2	Vascular Plant Survey Butternut Survey Cavity Tree Survey Wetland Confirmation**	**Routing has been revised to avoid a wetland area on the east side of the road allowance. New route will be through developing lands (vegetation has been cleared) to the east of the Willmott St. Rd allowance.
All Sections	Wildlife Habitat Surveys	Visual encounter survey

There are several water crossings required along the servicing path, which are summarized below.

- WCC# 1a: Beneath Densmore Rd (Midtown Creek) – Trenchless method. Alignment on right lane/shoulder.
- WCC# 1b: Beneath Danforth Rd (Midtown Creek) – Method TBD, but assumed to be open trench, unless flow is substantial. Alignment on right lane/shoulder, and through lands with development currently underway (no natural heritage concerns). DFO Request for Review and Notification (based on DFO CoP: Temporary Cofferdams and Diversion Channels) will be submitted.
- WCC# 2: Beneath Elgin St. E (Brook Creek West) – Trench method. To integrate details from creek restoration plan (Geomorphix), and staged appropriately through temporary culvert (free flow or pump). Alignment north shoulder. DFO Request for Review and Notification (based on DFO CoP: Temporary Cofferdams and Diversion Channels) will be submitted. The culvert outlets to a reed canary marsh on the south side of Elgin St.
- WCC# 3: Near recreation center (Brook Creek West), southwest corner of soccer fields – Trench method. Check dam/pump. DFO Request for Review and Notification (based on DFO CoP: Temporary Cofferdams and Diversion Channels).
- WCC# 4: Beneath Brook Rd. N (Brook Creek East) – Trenchless method; design will include avoidance measures for wetland area (i.e. directional installation from outside of wetland boundary). Alignment along east side of Brook Rd. N within shoulder/road allowance.
- Wetland area north of Willmott St.: design to avoid most of wetland area, but will traverse the 30 m buffer. Buffer area on west side of wetland is occupied by a moist area with Phragmites as a result of impeded drainage from adjacent site works (large soil stockpile).

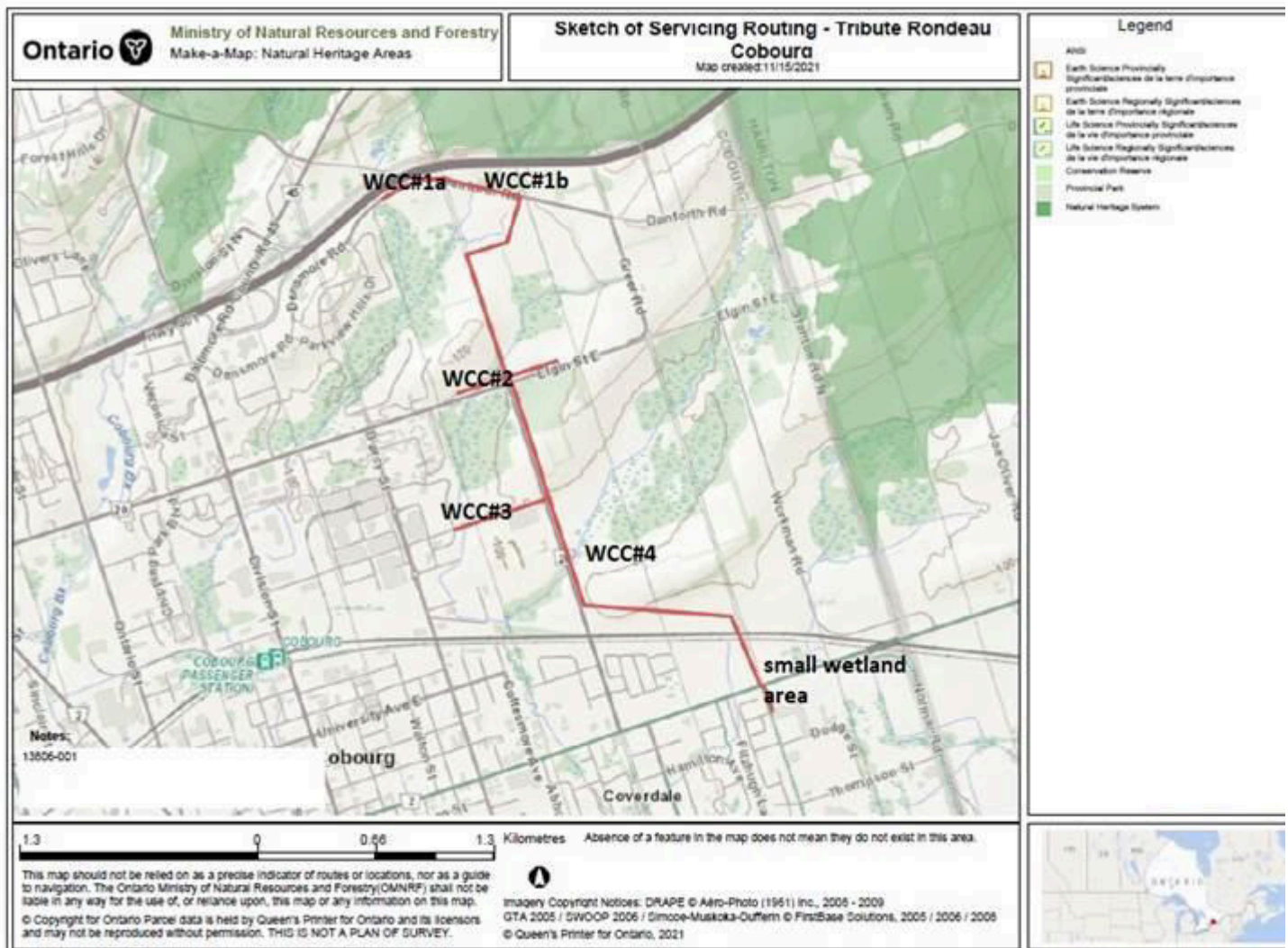
Overall, the ToR for the EIS, based on the scope above is summarized as:

- Field work to be conducted in autumn 2021 to document natural features along the routing path, including:
 - Assessment of natural heritage features within 30m of proposed routing location, as described in the detailed table above.
 - Classify existing vegetation communities according to the Ecological Land Classification System for Southern Ontario (Lee, et al., 1998), and evaluate them for sensitivity, rarity, and botanical quality. All ELC communities within 30m of the routing path will be illustrated on a map.
 - Document drainage connectivity and characteristics including riparian vegetation, erosion prone areas, and special habitat features, as appropriate.
 - Record observations of wildlife occurrences and assess wildlife habitat function, including SAR habitat. Cavity trees that may provide significant wildlife habitat will be marked with GPS. Any evidence of breeding, forage, shelter or nesting sites, and/or travel corridors will be noted. A habitat-based screening for SAR will be completed for the Site.
 - The assessment area will be screened for Butternut trees.

- An EIS report will be provided that meets the requirements of provincial and CA policies, based on information collected through the background review and field studies. The report will include detailed mapping of natural features present along the routing path. Recommendations included in the report will illustrate how the proposed development and site alteration can be carried out in a manner that ensures the protection of these features and their hydrologic functions. Should any endangered or threatened SAR or their habitat be identified, environmental constraint areas will be developed to protect the habitat of these species, as required under the Endangered Species Act, 2007.

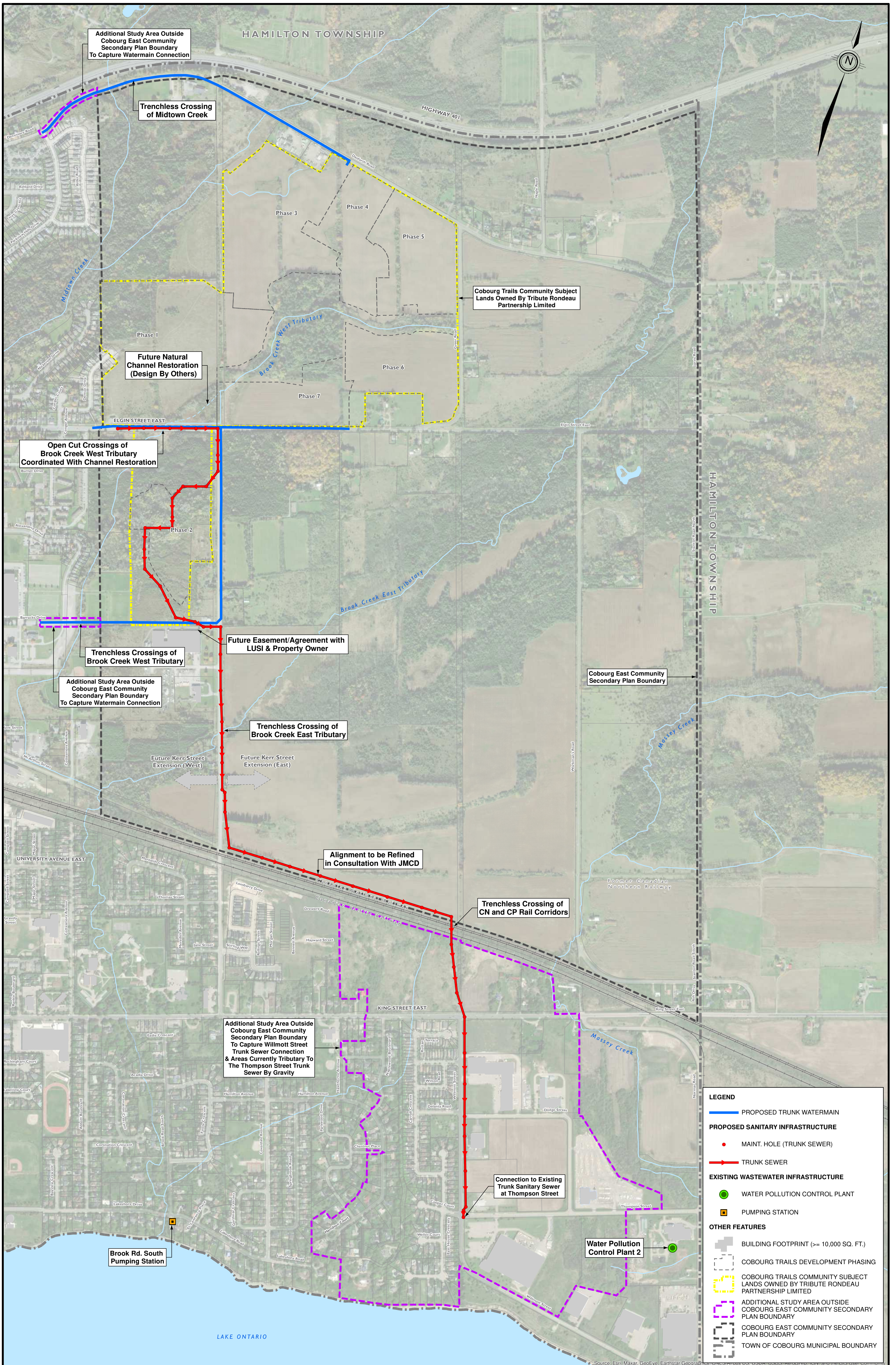
I apologize for the length of the email, and hope that the above information is clear. If you have any questions or comments, please contact me at your earliest opportunity. I would also appreciate notification of permit requirements from your office for projects of this nature. We will be contacting DFO for review of the watercourse crossings that involve potential HADD, or interference with these features.

Kindly,
Andrea Coppins





Appendix B
Conceptual Site Plans



LEGEND	
	PROPOSED TRUNK WATERMAIN
PROPOSED SANITARY INFRASTRUCTURE	
	MAINT. HOLE (TRUNK SEWER)
	TRUNK SEWER
EXISTING WASTEWATER INFRASTRUCTURE	
	WATER POLLUTION CONTROL PLANT
	PUMPING STATION
OTHER FEATURES	
	BUILDING FOOTPRINT (>= 10,000 SQ. FT.)
	COBOURG TRAILS DEVELOPMENT PHASING
	COBOURG TRAILS COMMUNITY SUBJECT LANDS OWNED BY TRIBUTE RONDEAU PARTNERSHIP LIMITED
	ADDITIONAL STUDY AREA OUTSIDE COBOURG EAST COMMUNITY SECONDARY PLAN BOUNDARY
	COBOURG EAST COMMUNITY SECONDARY PLAN BOUNDARY
	TOWN OF COBOURG MUNICIPAL BOUNDARY

CLIENT:

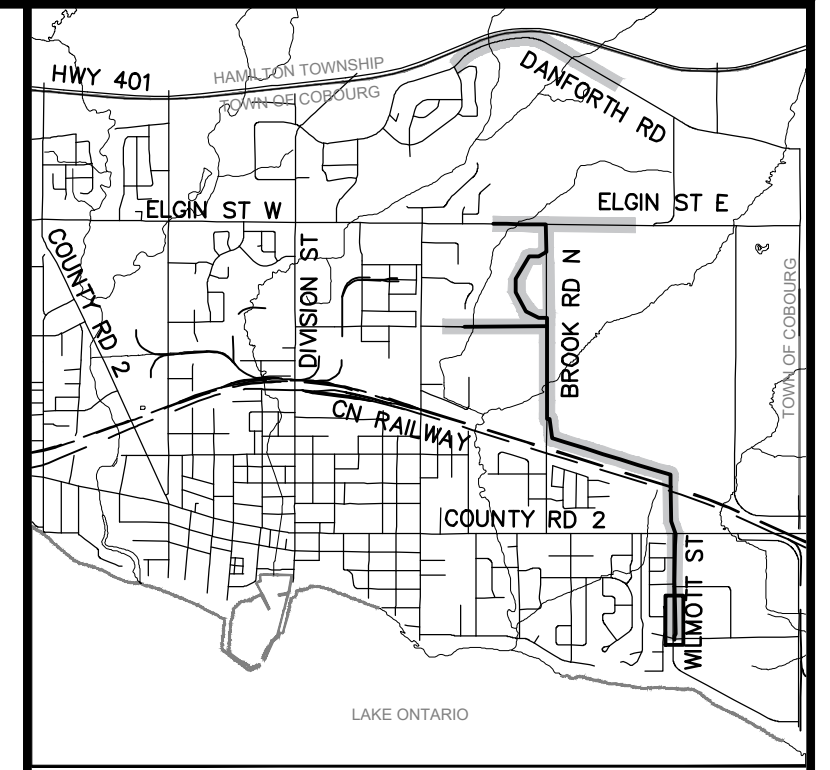
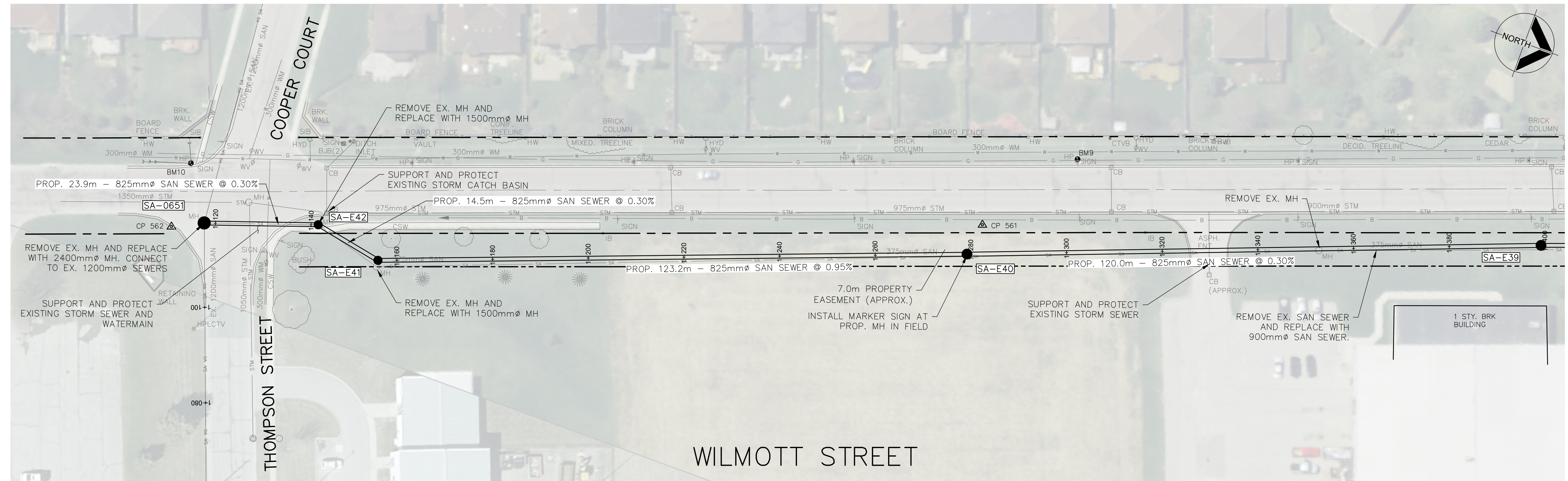
SCALE:

PROJECT NAME:
COBOURG TRAILS EXTERNAL SERVICING

SHEET TITLE:
OVERVIEW OF PROPOSED EXTERNAL SERVICING

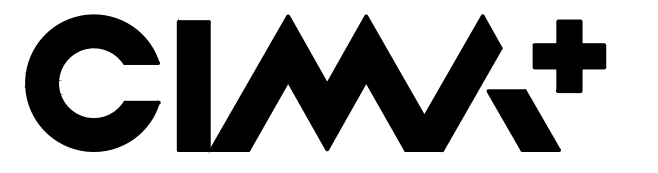
PROJECT No: C14-0454	DESIGNER: S. ELLIOTT	FIGURE No: 1.2
APPROVER: D. CAMPBELL	APPROVER: ---	
DATE: 1/26/2022		SHEET No: 1 of 1

CLIENT FILE No:



KEY PLAN (N.T.S.)
 BENCHMARK: BM XXXX
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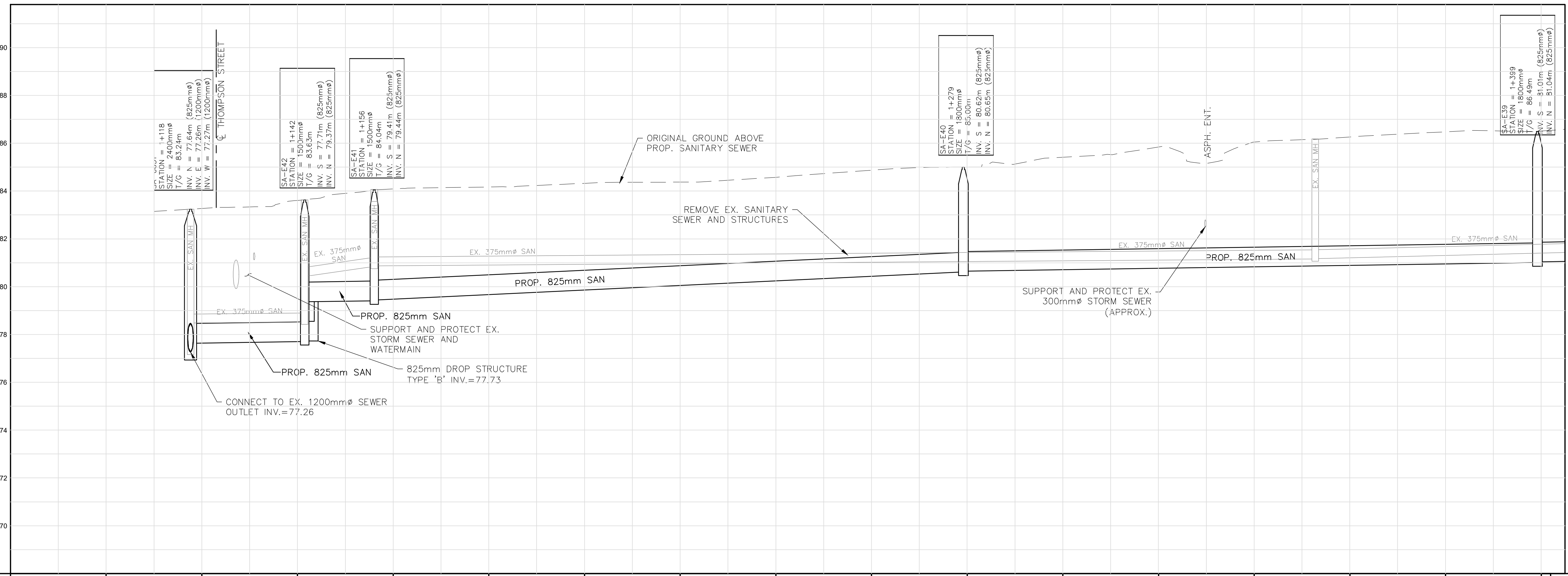
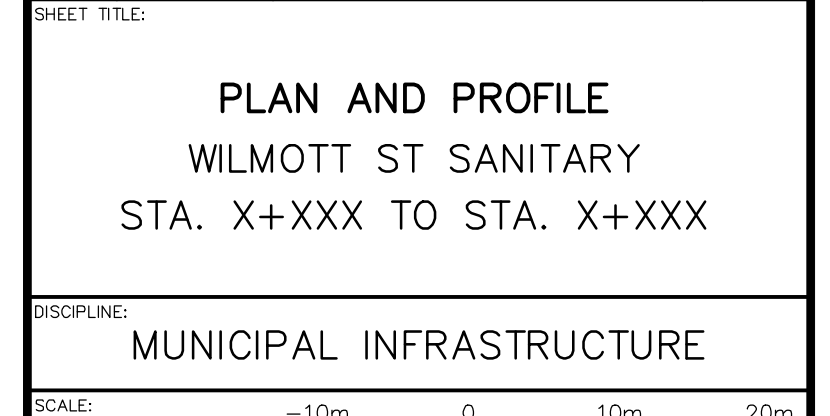
CLIENT: COBourg TRAILS EXTERNAL SERVICING

DESIGNED BY: _____ APPROVED BY: _____

01	FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description

SHEET TITLE: PLAN AND PROFILE WILMOTT ST SANITARY STA. X+XXX TO STA. X+XXX

DISCIPLINE: MUNICIPAL INFRASTRUCTURE



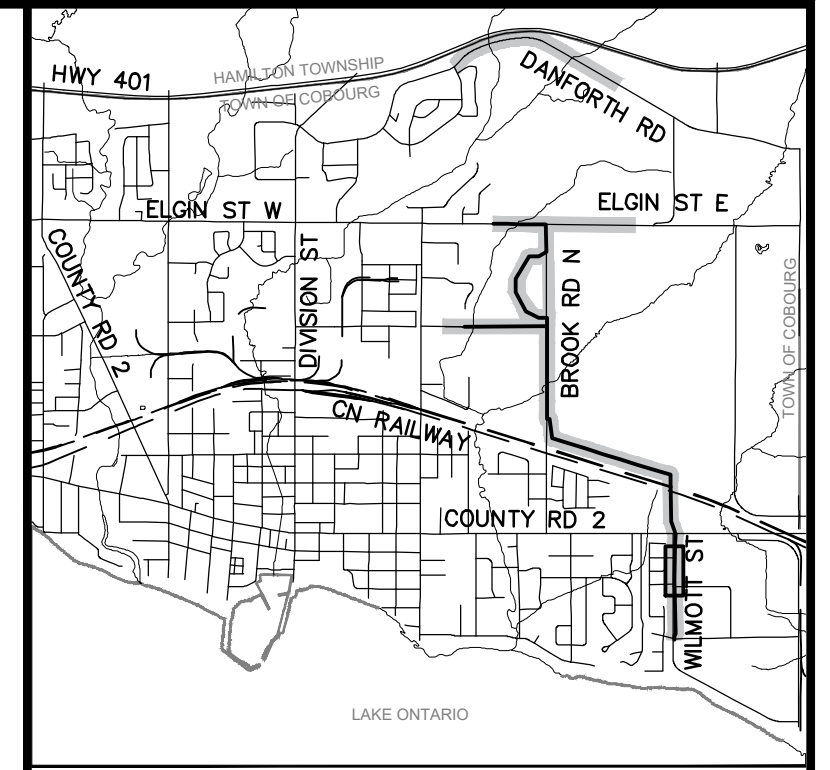
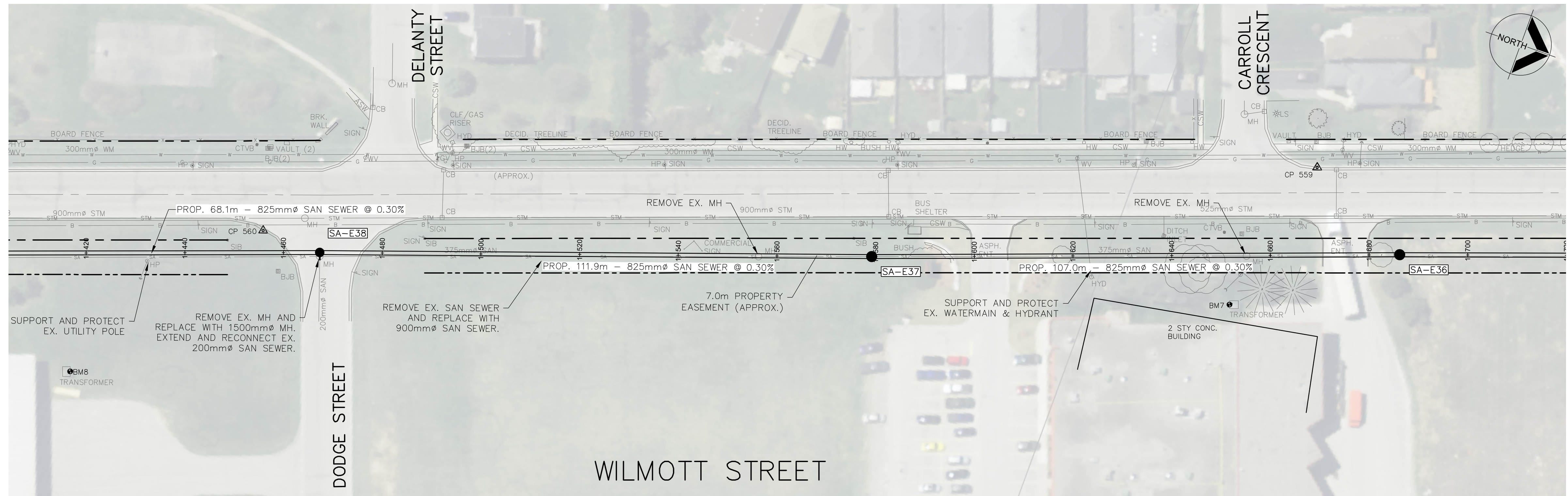
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CENTERLINE GRADE	83.00	83.11	83.27	83.60	84.09	84.17	84.32	84.37	84.57	84.87	85.00	85.41	85.84	86.04	86.26	86.46	86.51	CENTERLINE GRADE
SANITARY SEWER INVERT		PROP. 23.88m 825mm SANITARY SEWER @ 0.30%			PROP. 14.54m 825mm SANITARY SEWER @ 0.30%			PROP. 123.16m 825mm SANITARY SEWER @ 0.95%					PROP. 120.02m 825mm SANITARY SEWER @ 0.30%					SANITARY SEWER INVERT

PROJECT No: C14-0454 CLIENT File No: _____

DRAWER: G.M. DESIGNER: M.C. DRAWING No: PP-1

CHECKER: D.C. APPROVER: D.C.

DATE: August, 2021 SHEET No: ---- OF ----



KEY PLAN (N.T.S.)

BENCHMARK:
BMX
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PROJECT NAME:
**COBOURG TRAILS
EXTERNAL SERVICING**

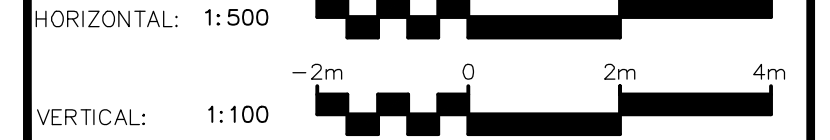
STAMPS:

DESIGNED BY	APPROVED BY

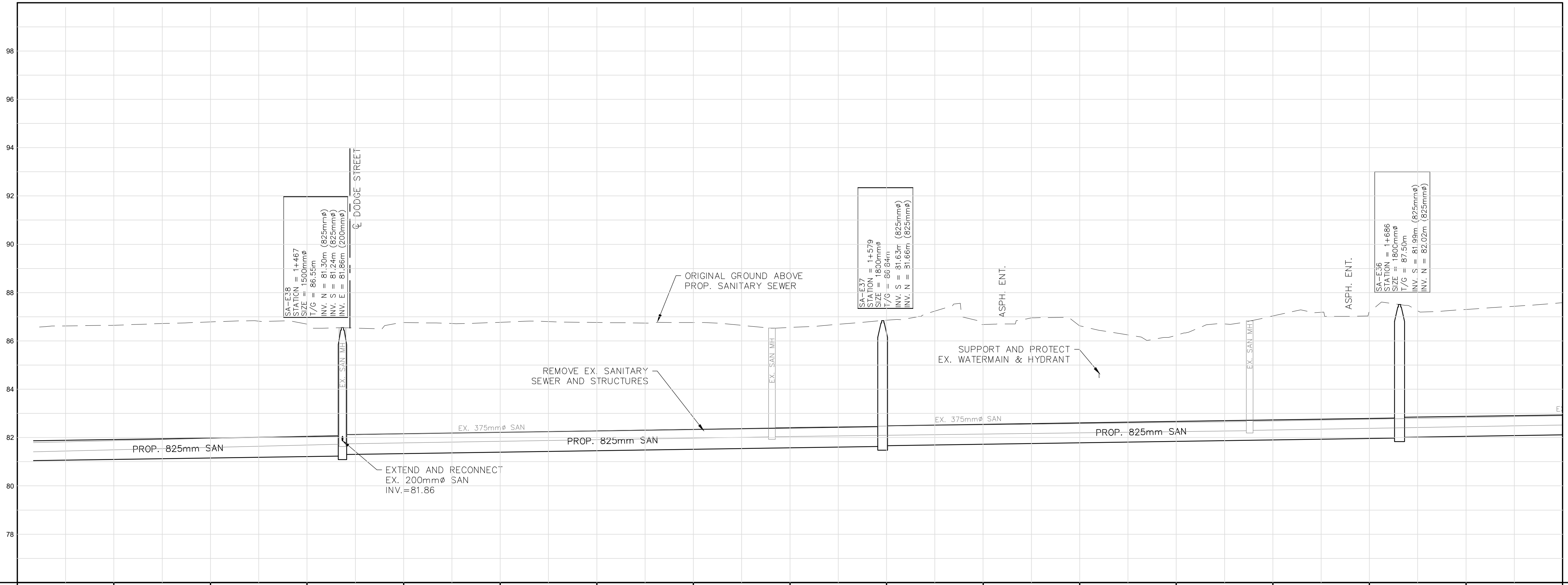
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No.	Date	Description	By

SHEET TITLE:
**PLAN AND PROFILE
WILMOTT STREET SANITARY
STA. X+XXX TO STA. X+XXX**

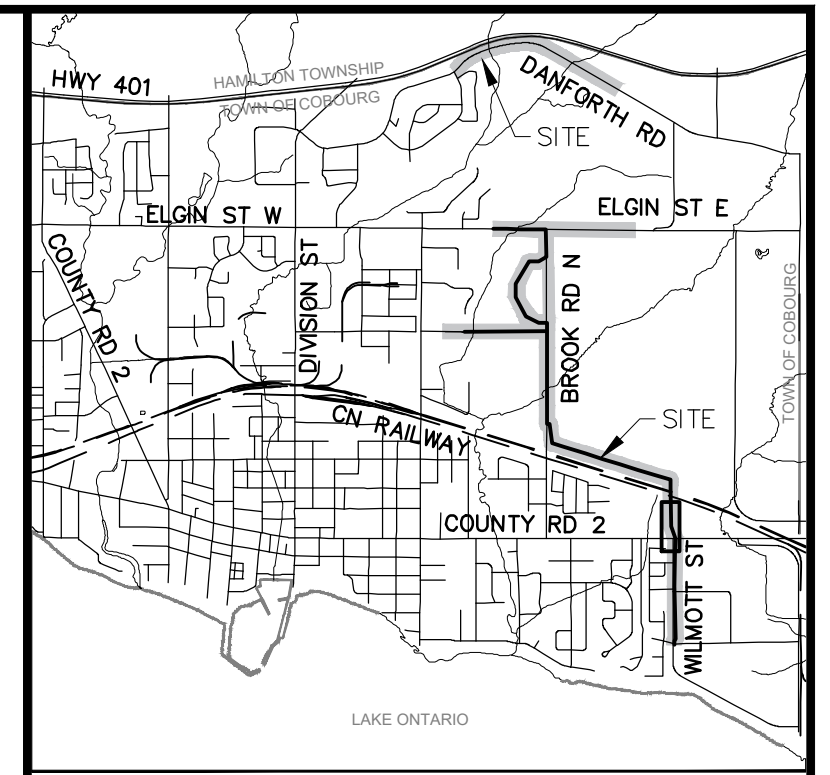
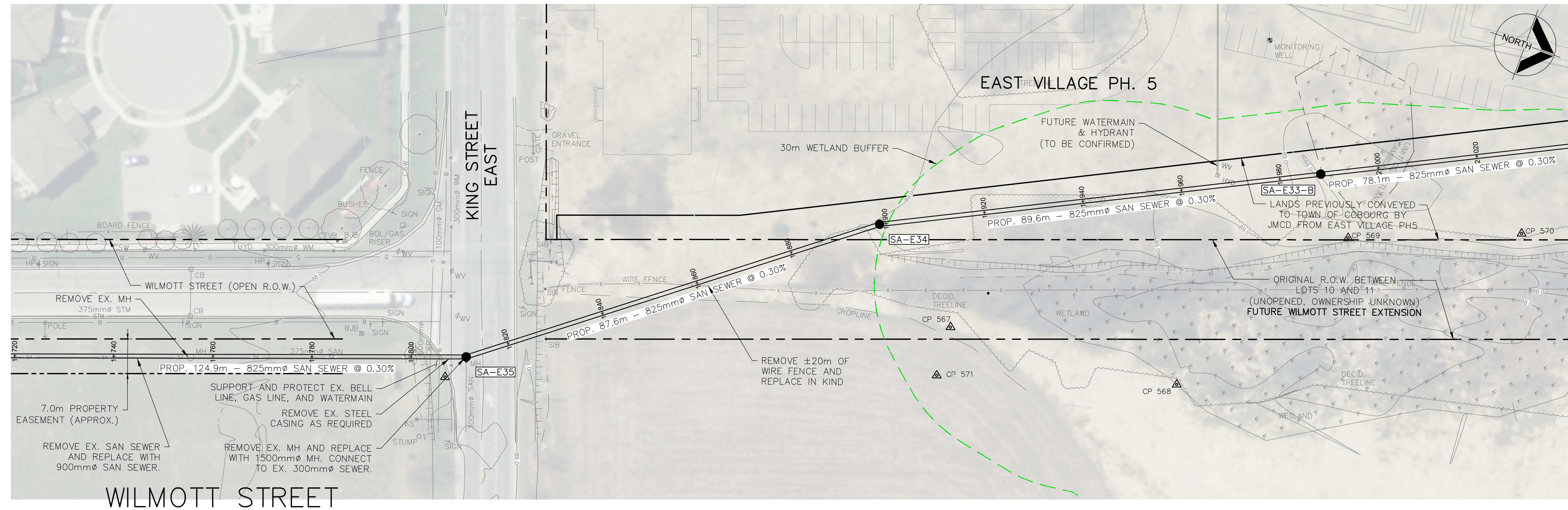
DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	SHEET No:	PP-2



STATION	1+420	1+440	1+460	1+480	1+500	1+520	1+540	1+560	1+580	1+600	1+620	1+640	1+660	1+680	1+700	1+720	STATION
CENTERLINE GRADE FINISHED EXISTING	86.65	86.79	86.70	86.77	86.77	86.76	86.76	86.56	86.86	86.68	86.63	86.23	87.03	87.20	87.30		CENTERLINE GRADE FINISHED EXISTING
SANITARY SEWER INVERT	PROP. 68.14m 825mmØ SANITARY SEWER @ 0.30%			PROP. 111.85m 825mmØ SANITARY SEWER @ 0.30%			PROP. 107.01m 825mmØ SANITARY SEWER @ 0.30%						PROP. 68.14m 825mmØ SANITARY SEWER @ 0.30%			SANITARY SEWER INVERT	



KEY PLAN (N.T.S.)

BENCHMARK: BM XXXX XXXX

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CIW+

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Phone: 905-907-4464 www.ciw.ca

CLIENT:

Tribute communities 35 YEARS

PROJECT NAME:

COBOURG TRAILS EXTERNAL SERVICING

STAMP:

DESIGNED BY	APPROVED BY

01	FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description

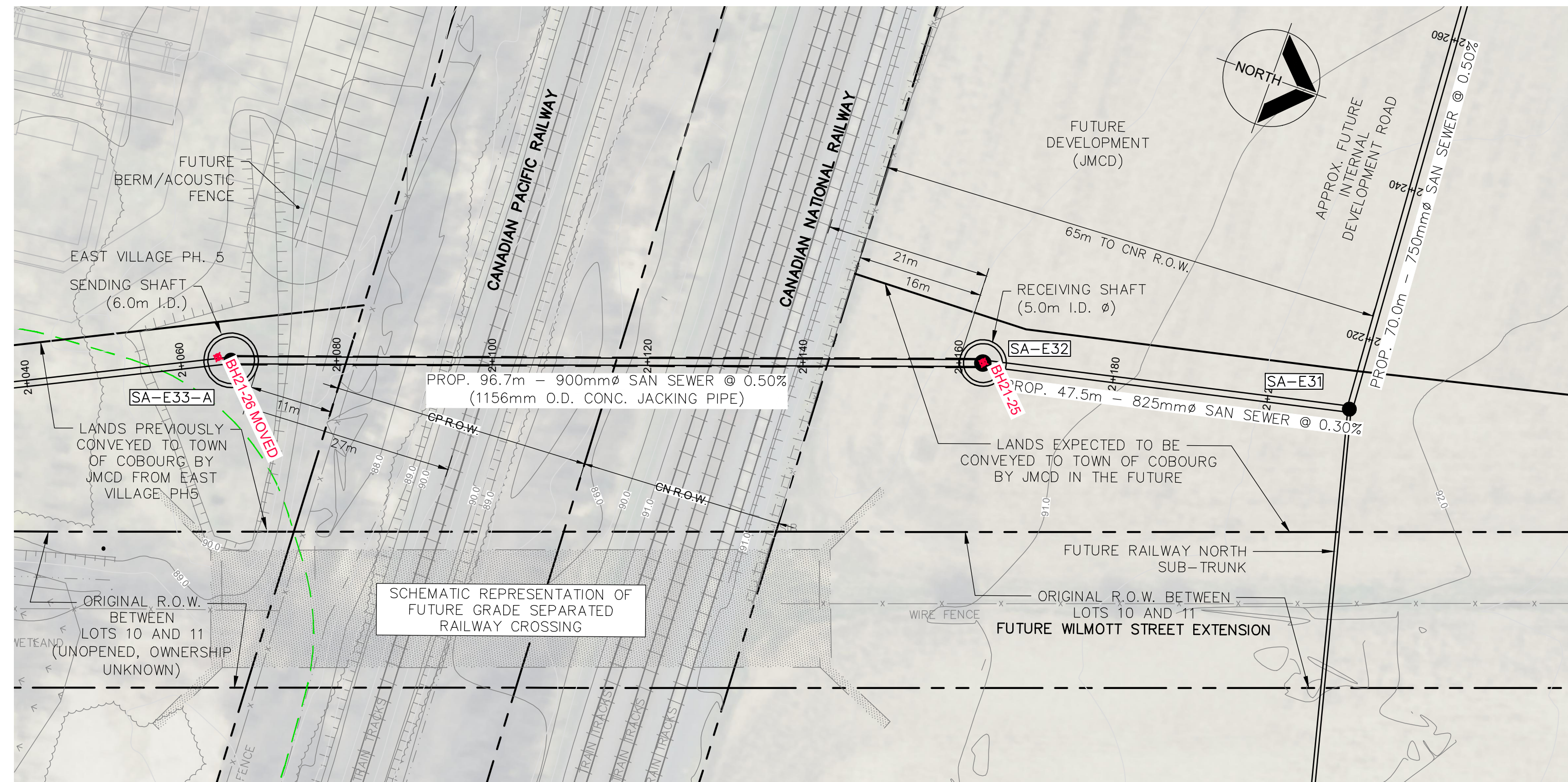
SHEET TITLE:

PLAN AND PROFILE WILMOTT STREET SANITARY STA. X+XXX TO STA. X+XXX

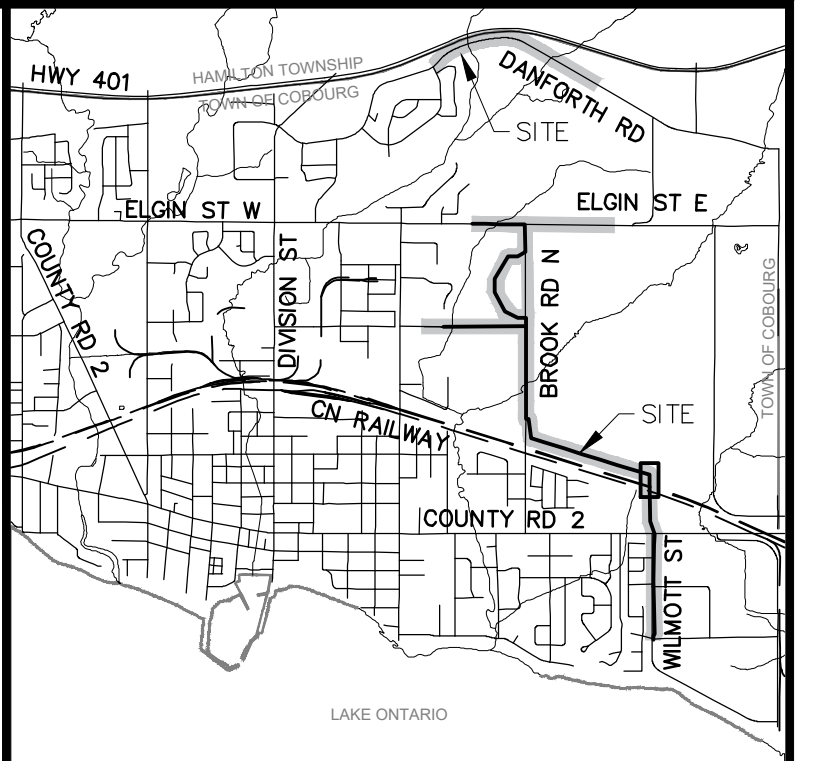
DISCIPLINE: MUNICIPAL INFRASTRUCTURE

SCALE: HORIZONTAL: 1:500 VERTICAL: 1:100

PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	SHEET No:	PP-3



PLACEHOLDER FOR RAIL CROSSING DETAIL



KEY PLAN (N.T.S.)

BENCHMARK:
 BM1
 XXXX
 XXXX

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

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PROJECT NAME:
COBOURG TRAILS EXTERNAL SERVICING

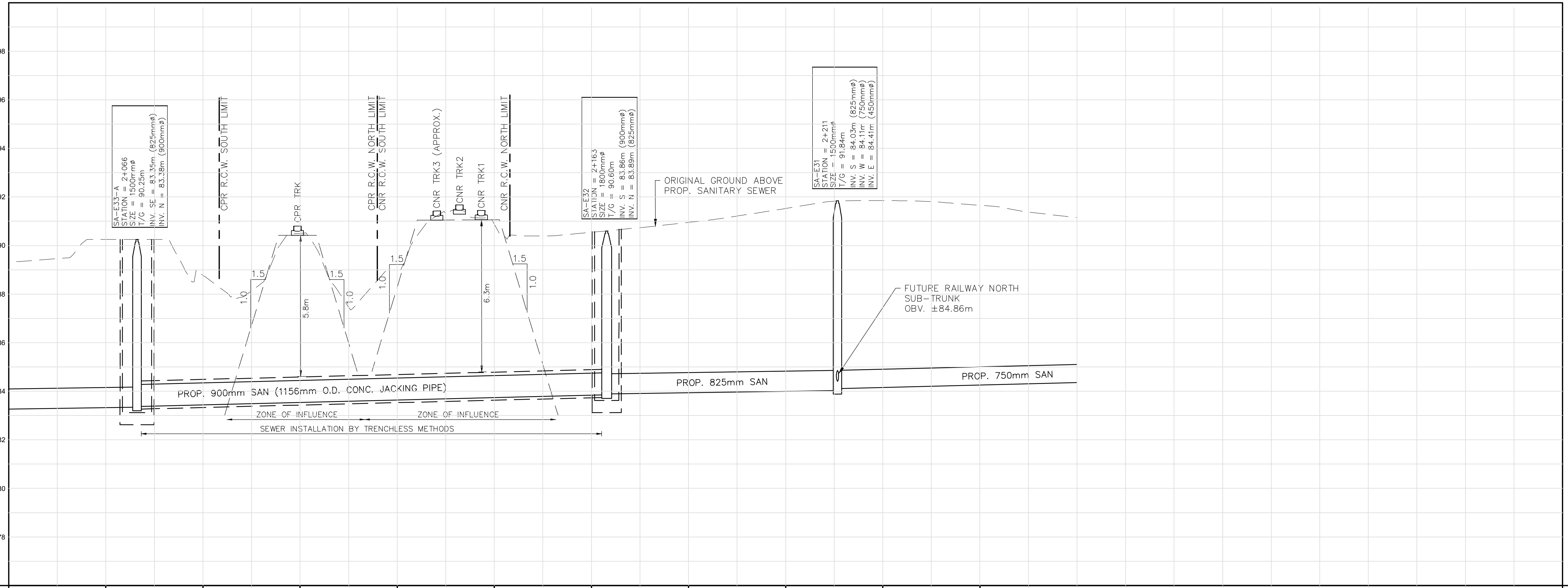
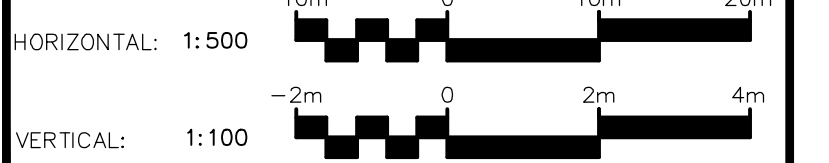
STAMPS:

DESIGNED BY	APPROVED BY

01	FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description

SHEET TITLE:
**PLAN AND PROFILE
 WILMOTT STREET SANITARY
 STA. X+XXX TO STA. X+XXX**

DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



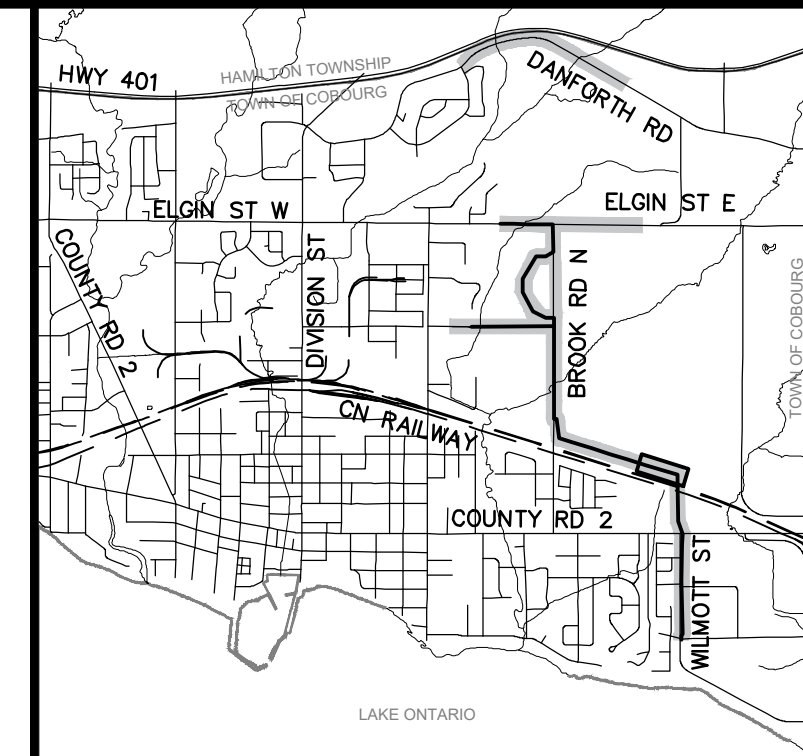
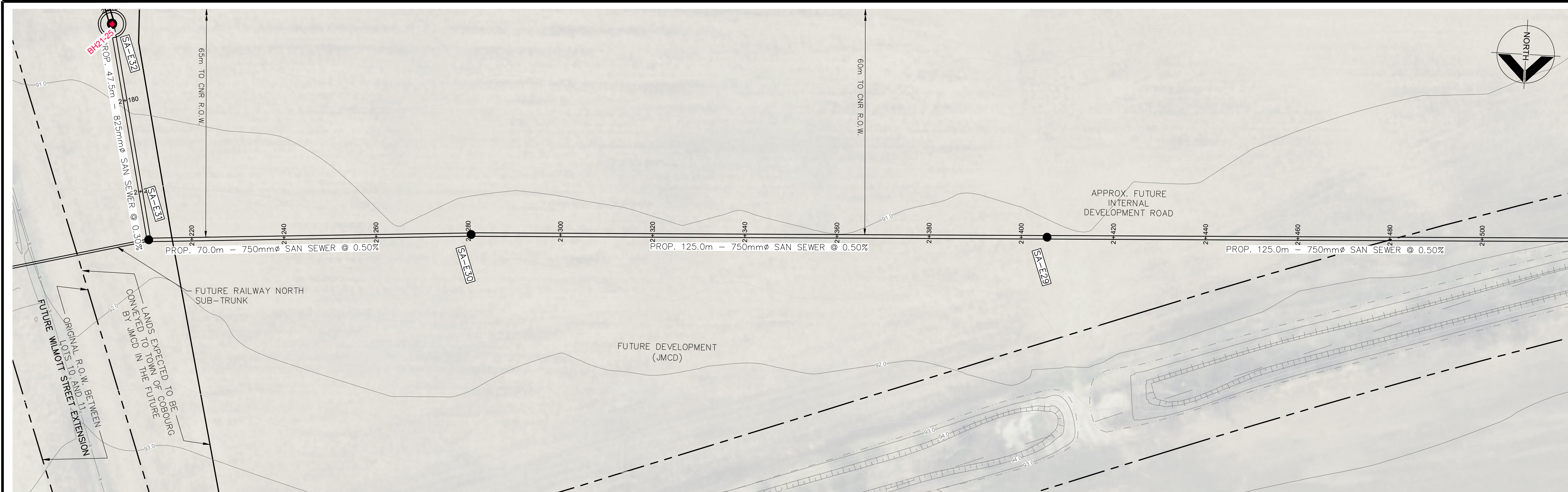
STATION	2+060	2+080	2+100	2+120	2+140	2+160	2+180	2+200	2+220	2+240	2+260	
CENTERLINE GRADE FINISHED DRAINING	89.31	90.25	88.77	90.50	88.00	90.88	90.05	90.95	91.53	91.85	91.86	
SANITARY SEWER INVERT	83.36 83.38	PROP. 96.70m 900mmØ SANITARY SEWER @ 0.50%				83.96 83.97	PROP. 47.52m 825mmØ SANITARY SEWER @ 0.30%			84.03 84.11	PROP. 69.97m 750mmØ SANITARY SEWER @ 0.50%	

STATION	2+060	2+080	2+100	2+120	2+140	2+160	2+180	2+200	2+220	2+240	2+260	
CENTERLINE GRADE FINISHED DRAINING	89.31	90.25	88.77	90.50	88.00	90.88	90.05	90.95	91.53	91.85	91.86	
SANITARY SEWER INVERT	83.36 83.38	PROP. 96.70m 900mmØ SANITARY SEWER @ 0.50%				83.96 83.97	PROP. 47.52m 825mmØ SANITARY SEWER @ 0.30%			84.03 84.11	PROP. 69.97m 750mmØ SANITARY SEWER @ 0.50%	

PROJECT No: C14-0454 CLIENT File No: ---
 DRAFTER: G.M. DESIGNER: M.C. DRAWING No: ---
 CHECKER: D.C. APPROVER: D.C. **PP-4**
 DATE: August, 2021 SHEET No: ---- OF ----

Dec. 16, 21

Z:\cma-C14\Projects\C14-0454-Tribute Cobourg E. Ext. Servicing (Tribute Communities)\00-Drawings and Sketches\1-D-WIP\AurCAD\C14-0454-Tribute Servicing-SHEETS-PP.dwg



KEY PLAN (N.T.S.)

BENCHMARK:
BM XXXX
XXXX

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CIM+
2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
Phone: 905-907-4464 www.cim.ca

CLIENT:
Tribute communities 35 YEARS

PROJECT NAME:
COBOURG TRAILS EXTERNAL SERVICING

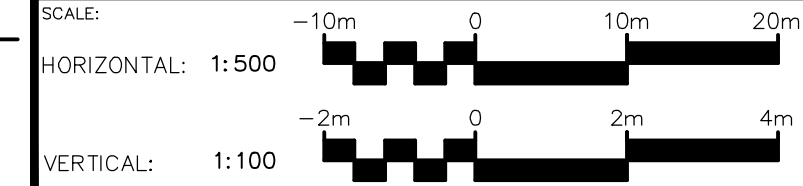
STAMPS:

DESIGNED BY	APPROVED BY

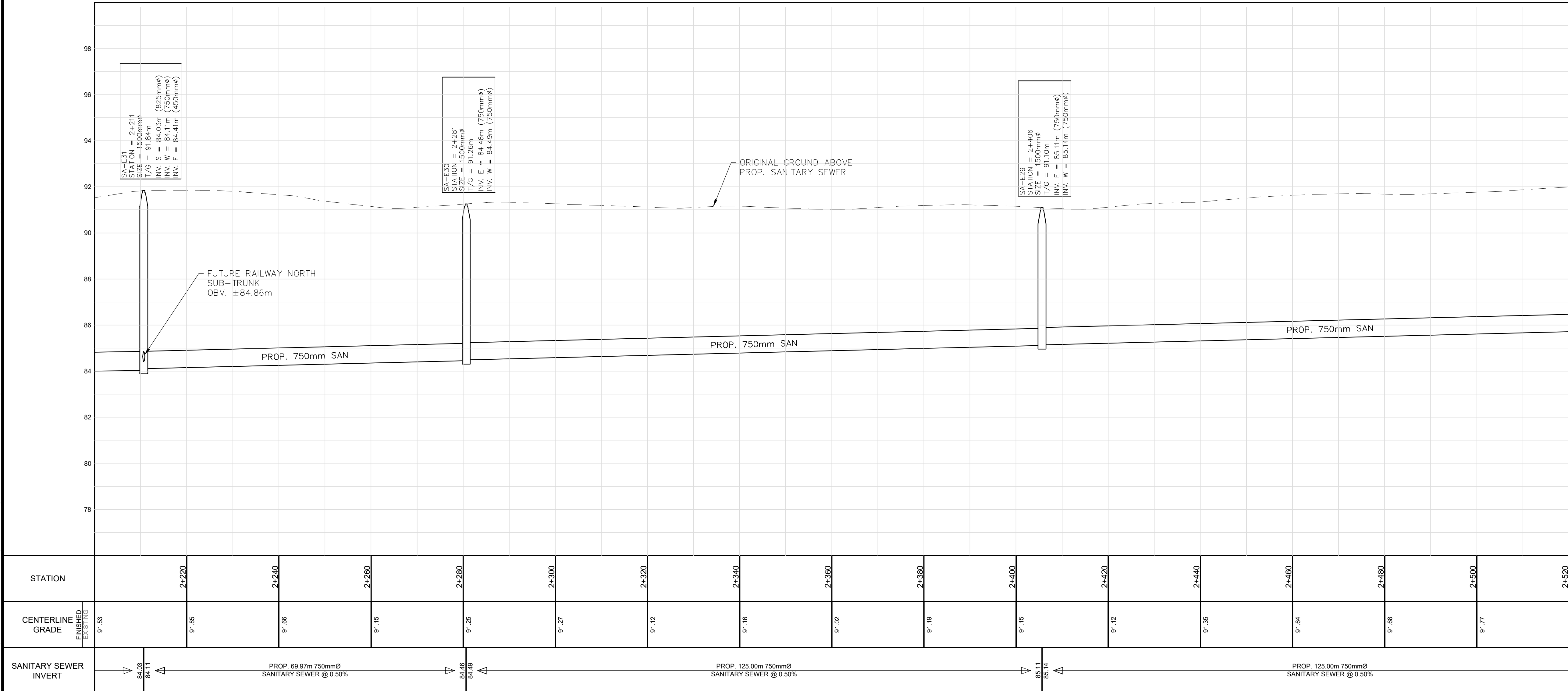
01		FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description	By

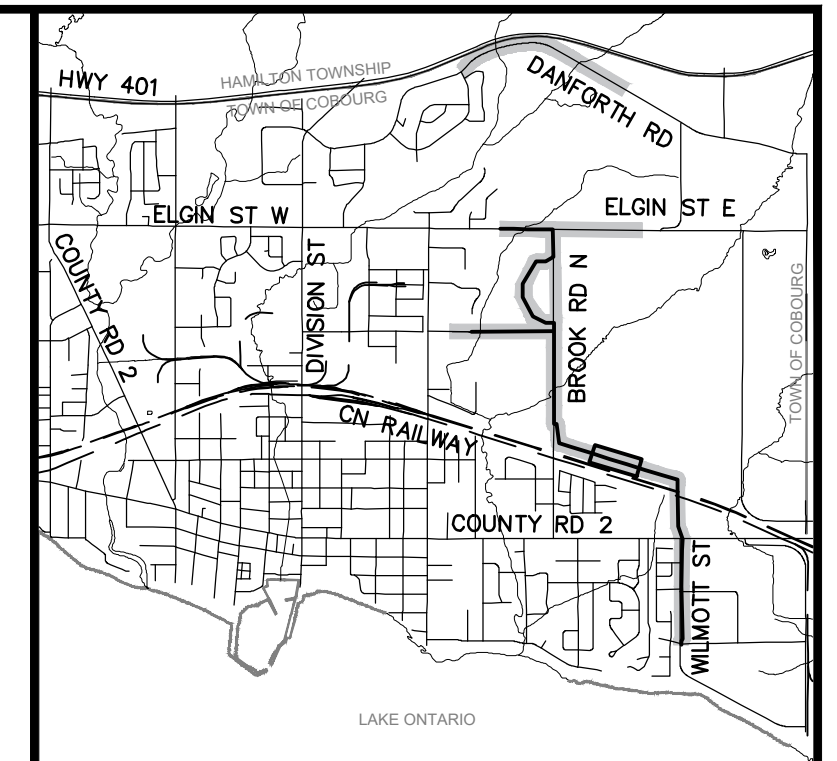
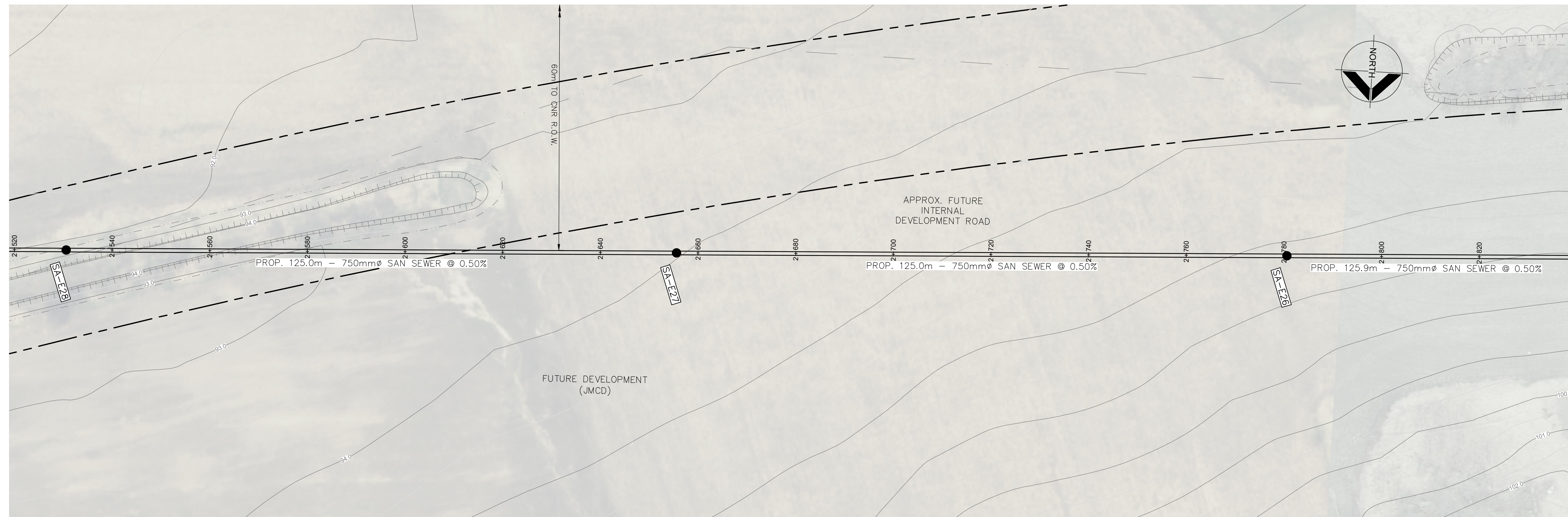
SHEET TITLE:
PLAN AND PROFILE RAILWAY SANITARY STA. X+XXX TO STA. X+XXX

DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-5
		SHEET No:	





KEY PLAN (N.T.S.)

BENCHMARK:
 BM
 XXXX

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

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PROJECT NAME:
**COBOURG TRAILS
 EXTERNAL SERVICING**

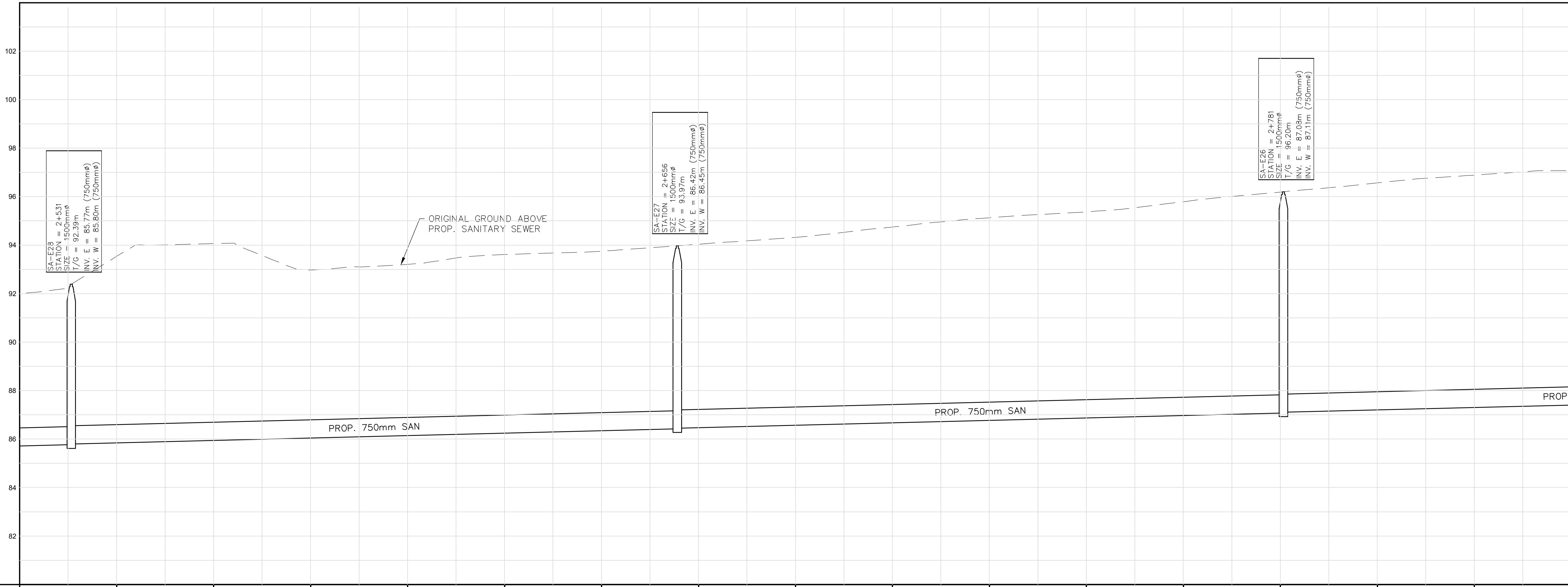
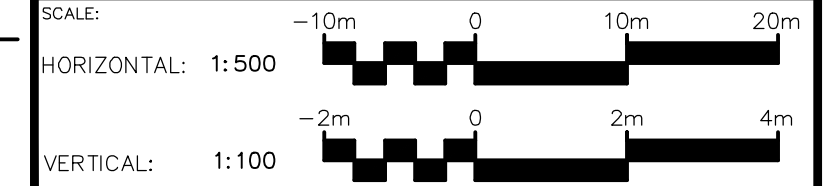
STAMP:

DESIGNED BY	APPROVED BY

01		FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description	By

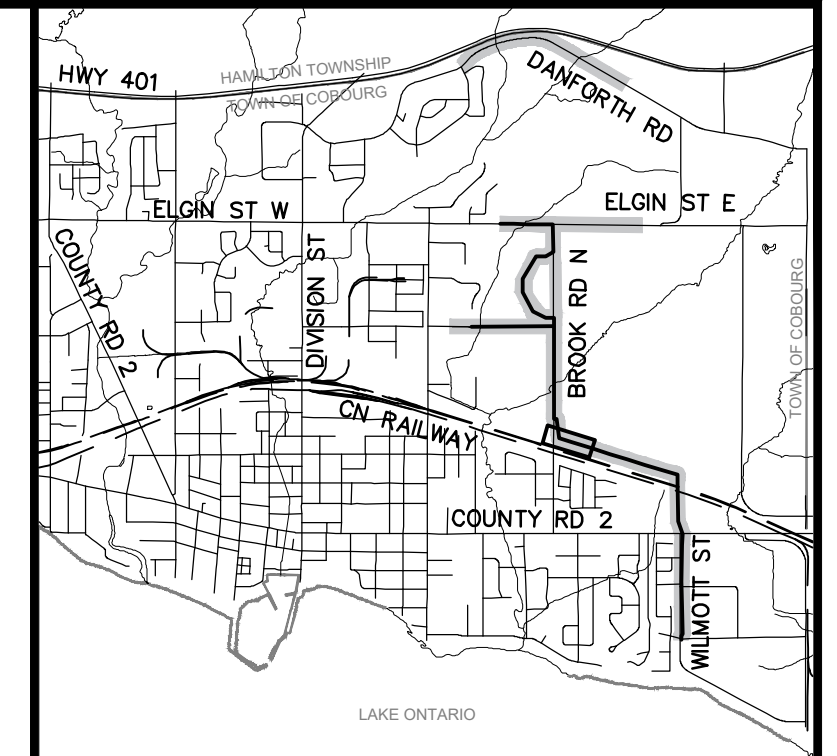
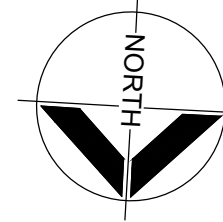
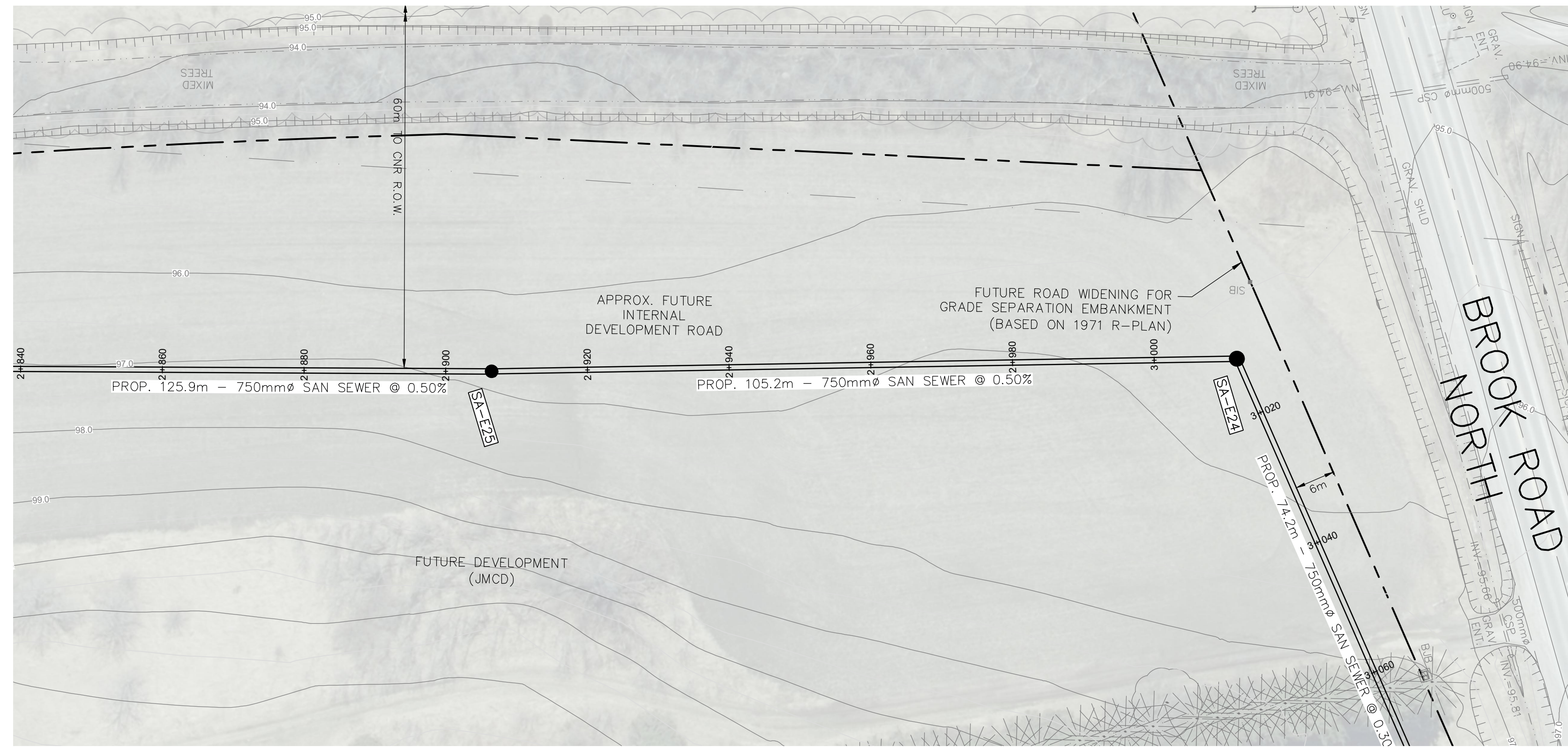
SHEET TITLE:
**PLAN AND PROFILE
 RAILWAY SANITARY
 STA. X+XXX TO STA. X+XXX**

DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



STATION	2+4500	2+5400	2+5600	2+5800	2+6000	2+6200	2+6400	2+6600	2+6800	2+7000	2+7200	2+7400	2+7600	2+7800	2+8000	2+8200	2+8400	STATION
CENTERLINE GRADE FINISHED EXISTING	92.00	93.54	94.07	92.97	93.21	93.81	93.75	94.04	94.32	94.75	95.13	95.37	95.79	96.19	96.57	96.89		CENTERLINE GRADE FINISHED EXISTING
SANITARY SEWER INVERT	85.77 85.80				PROP. 124.99m 750mmØ SANITARY SEWER @ 0.50%			86.42 86.45						87.05 87.11			PROP. SANITARY SEWER INVERT	

PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-6
		SHEET No:	



KEY PLAN (N.T.S.)

BENCHMARK:
BM XXXX
XXXX

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2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
Phone: 905-907-4464 www.ciw.ca



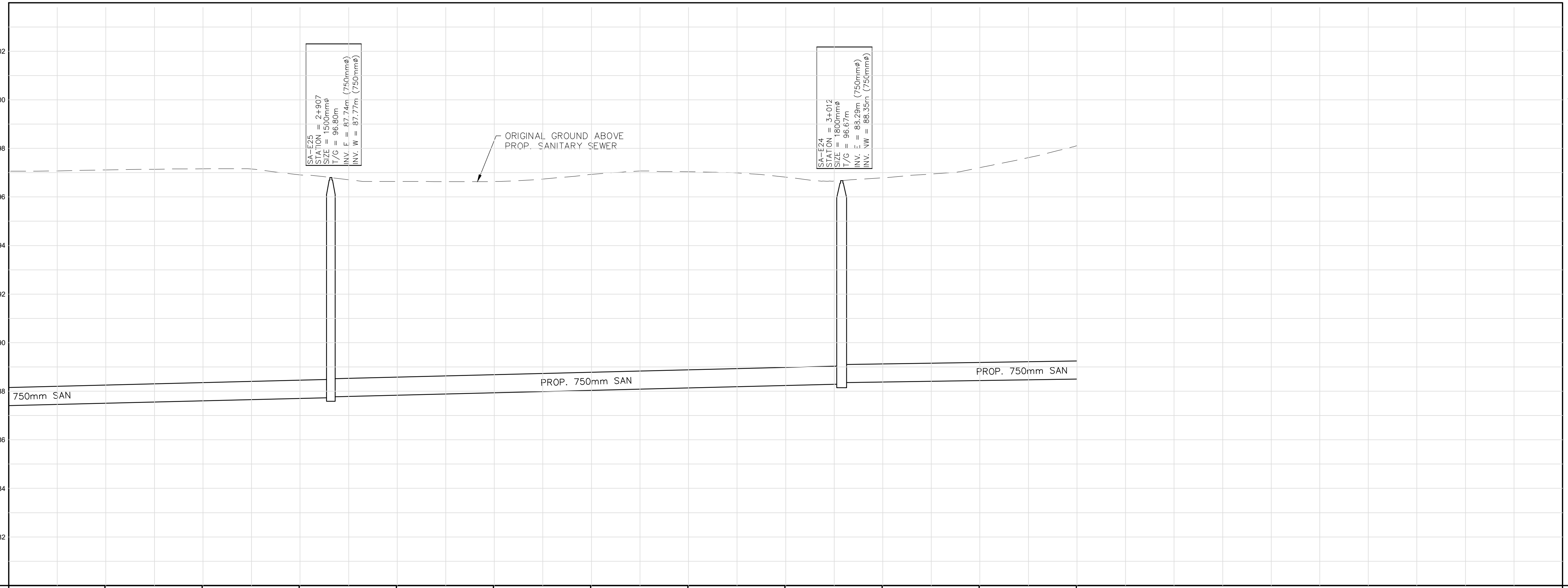
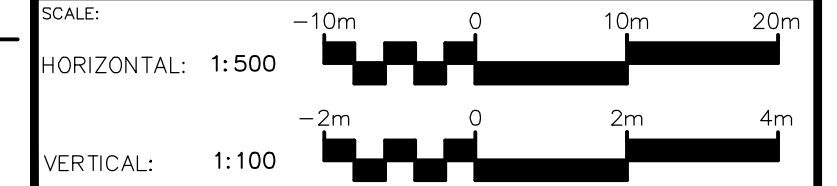
PROJECT NAME:
**COBOURG TRAILS
EXTERNAL SERVICING**

DESIGNED BY	APPROVED BY

01		FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description	By

SHEET TITLE:
**PLAN AND PROFILE
RAILWAY SANITARY
STA. X+XXX TO STA. X+XXX**

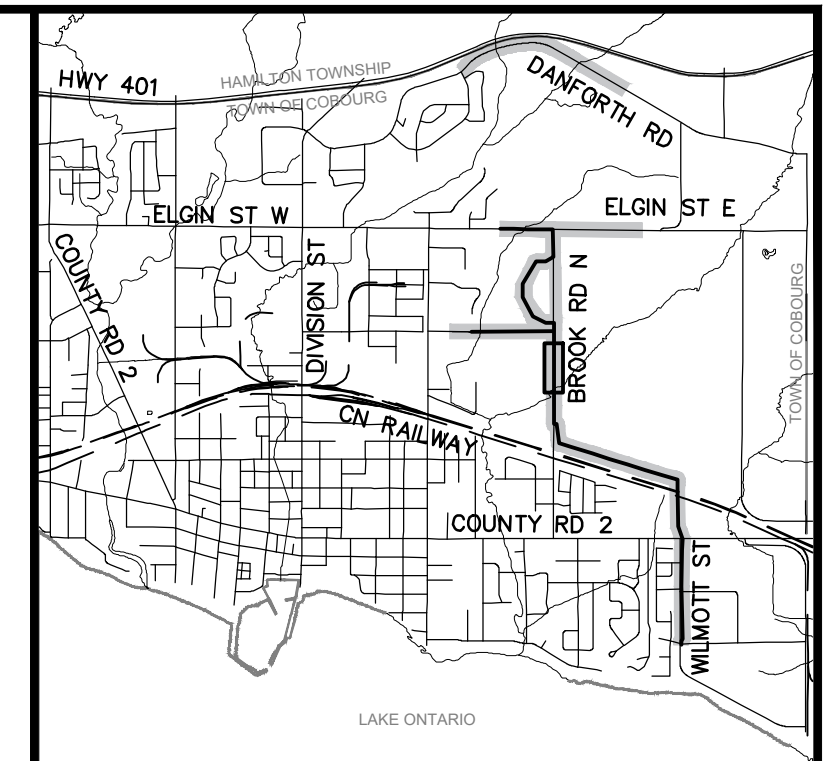
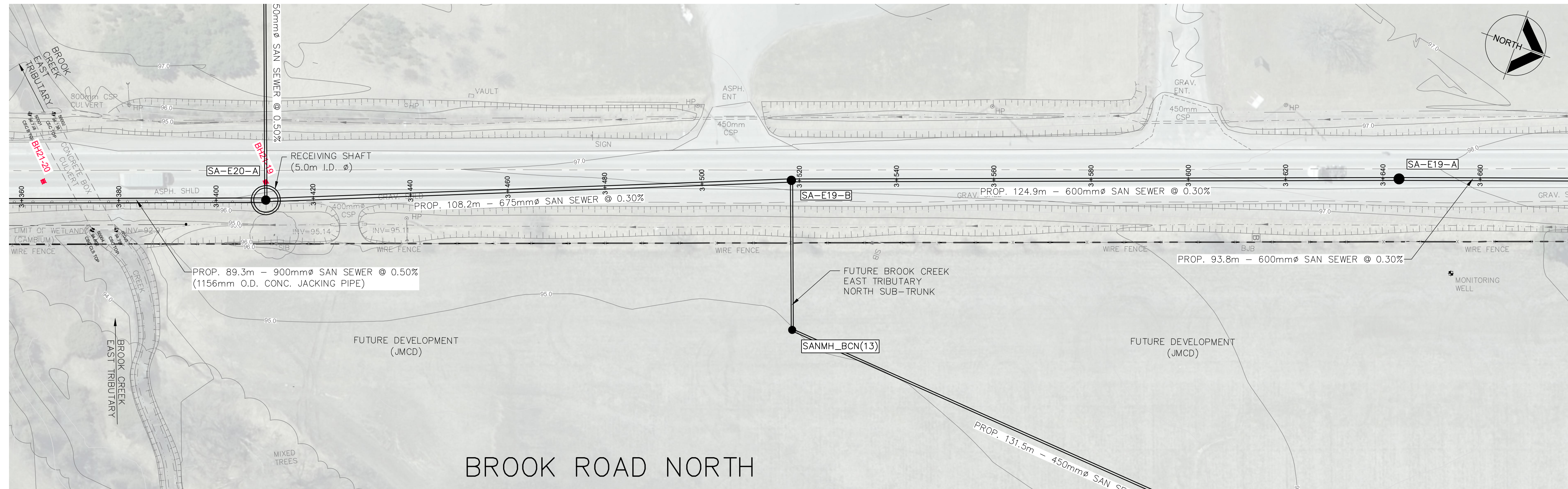
DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



STATION	2+860	2+880	2+900	2+920	2+940	2+960	2+980	3+000	3+020	3+040	3+060	
CENTERLINE GRADE FINISHED ELEVATION	97.07	97.11	97.16	96.91	96.64	96.63	96.02	97.04	96.82	96.79	97.20	
SANITARY SEWER INVERT	125.88m 750mmØ SEWER @ 0.50%			87.74 87.77	PROP. 105.18m 750mmØ SANITARY SEWER @ 0.50%				88.29 88.25	PROP. 74.19m 750mmØ SANITARY SEWER @ 0.30%		

STATION	
CENTERLINE GRADE FINISHED ELEVATION	
SANITARY SEWER INVERT	

PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-7
		SHEET No:	---- OF ----



KEY PLAN (N.T.S.)

BENCHMARK:
BM XXXX

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

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CLIENT: Tribute Communities

PROJECT NAME: COBOURG TRAILS EXTERNAL SERVICING

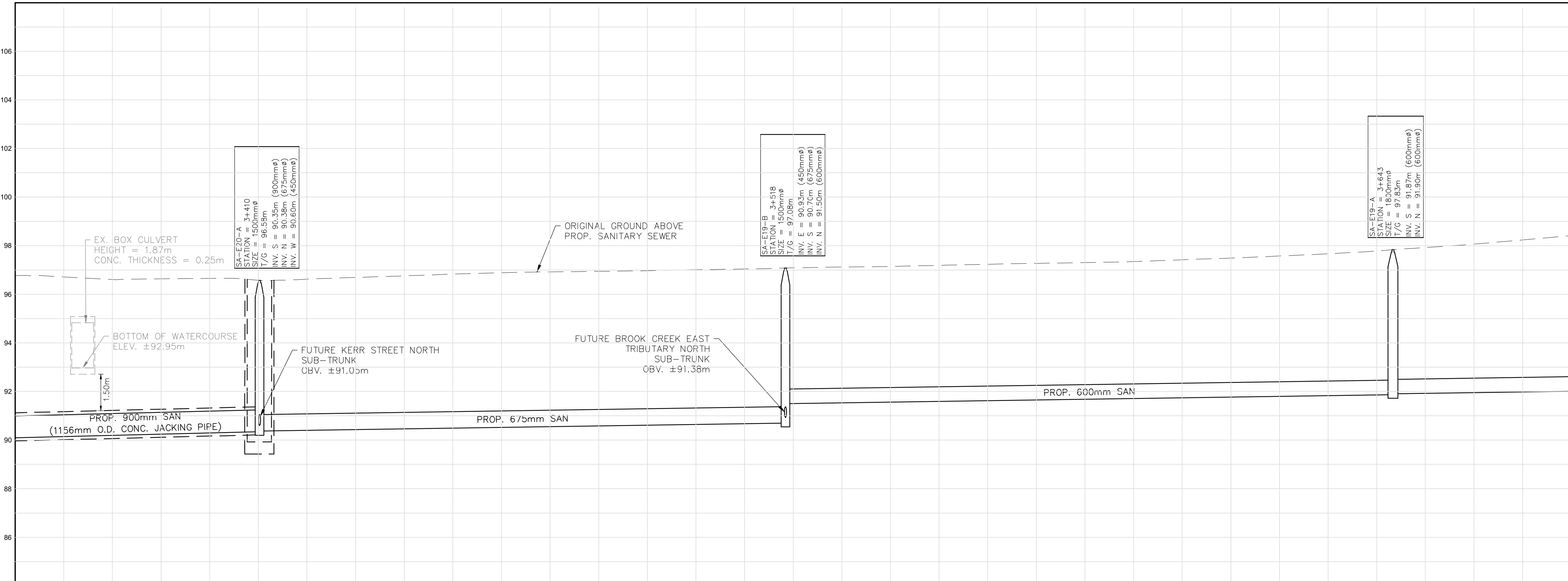
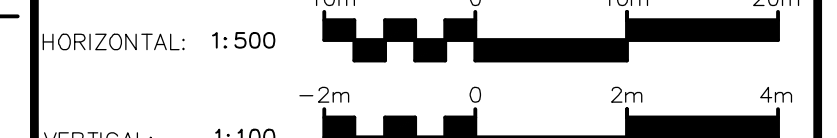
STAMPS:

DESIGNED BY	APPROVED BY

01	FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description

SHEET TITLE: PLAN AND PROFILE
BROOK RD N SANITARY
STA. X+XXX TO STA. X+XXX

DISCIPLINE: MUNICIPAL INFRASTRUCTURE



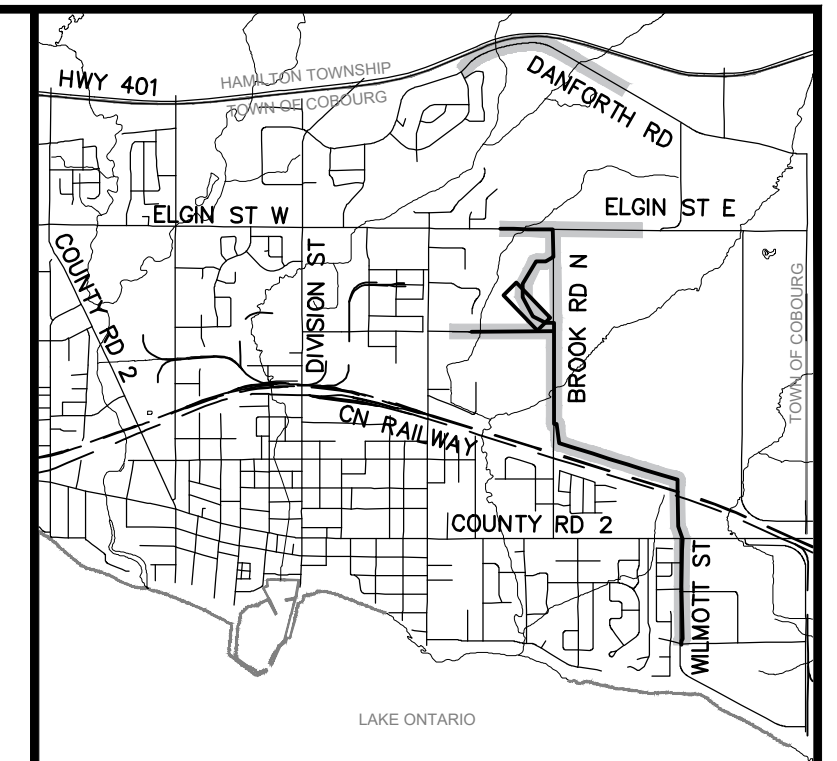
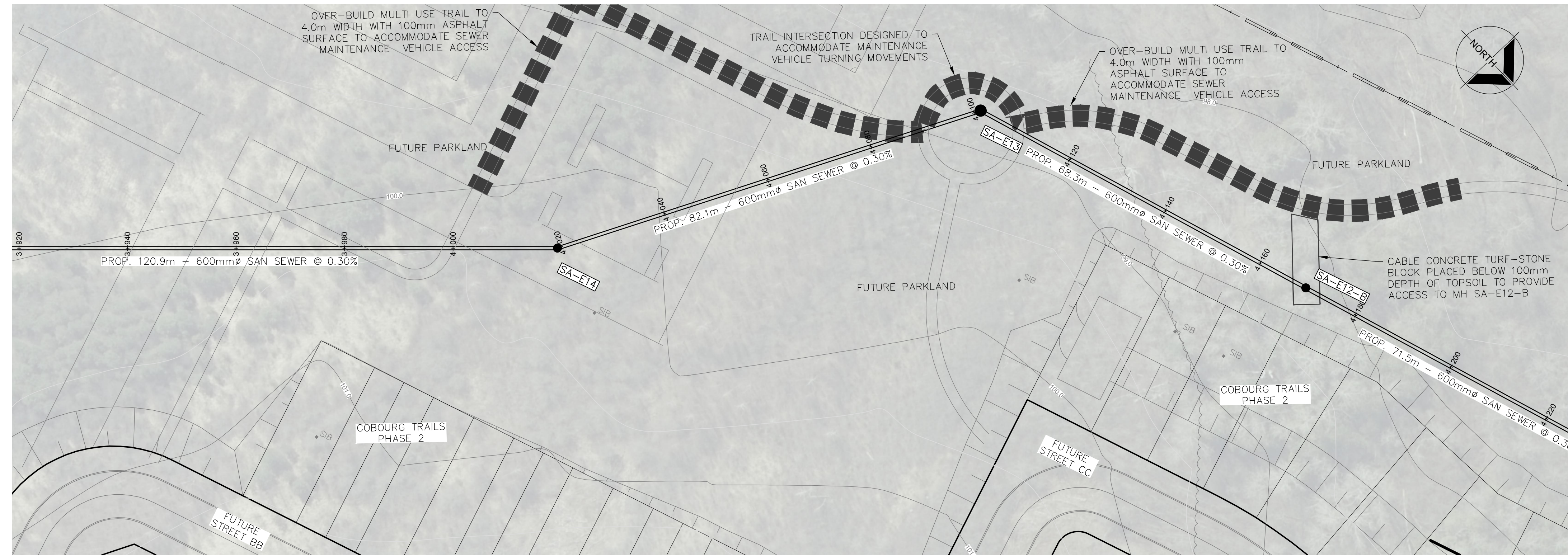
STATION	3+380	3+400	3+420	3+440	3+460	3+480	3+500	3+520	3+540	3+560	3+580	3+600	3+620	3+640	3+660	3+680	STATION
CENTERLINE GRADE	96.77	96.61	96.06	96.63	96.76	96.89	96.95	97.01	97.15	97.24	97.31	97.42	97.58	97.78	98.07	98.17	CENTERLINE GRADE
SANITARY SEWER INVERT	DP. 89.35m 900mmØ SANITARY SEWER @ 0.50%			PROP. 108.16m 675mmØ SANITARY SEWER @ 0.30%			PROP. 124.93m 600mmØ SANITARY SEWER @ 0.30%						PROP. 131.5m 450mmØ SAN SEWER @ 0.30%			SANITARY SEWER INVERT	

PROJECT No: C14-0454 CLIENT File No: ---

DRAWER: G.M. DESIGNER: M.C. DRAWING No: PP-9

CHECKER: D.C. APPROVER: D.C.

DATE: August, 2021 SHEET No: --- OF ---



KEY PLAN (N.T.S.)

BENCHMARK:
BM XXXX XXXX

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO, ALL UTILITIES SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GROUND BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

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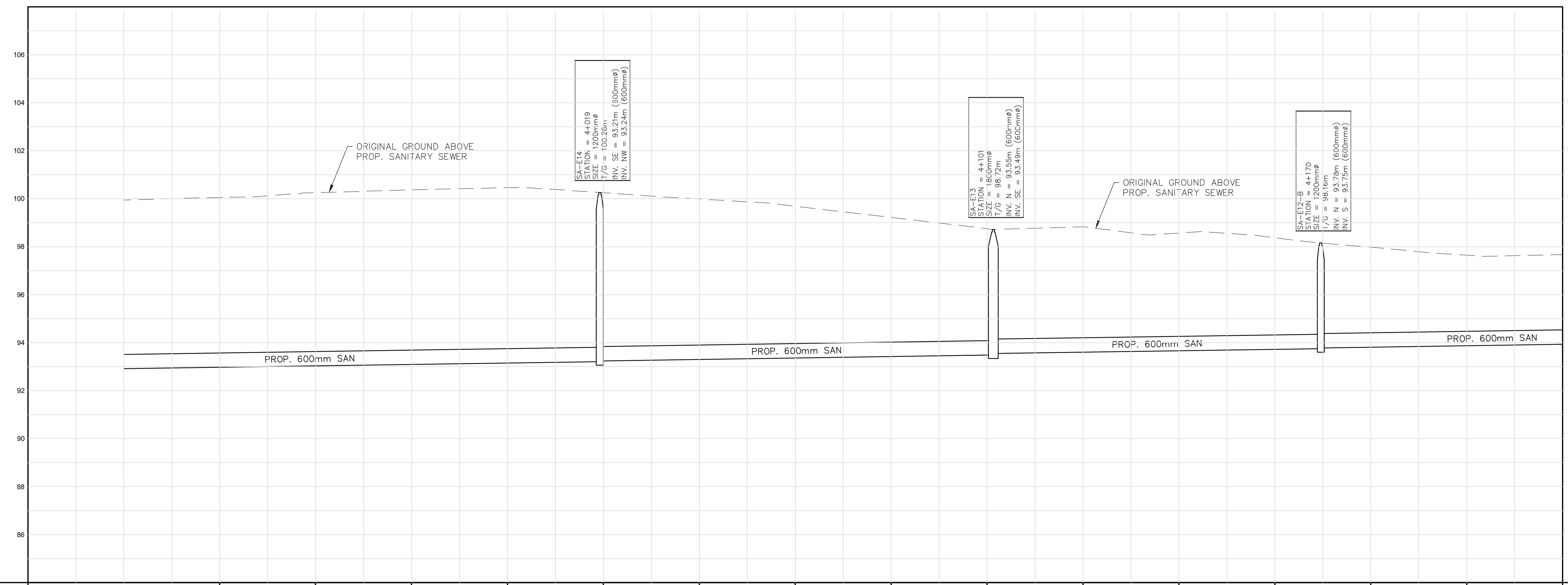
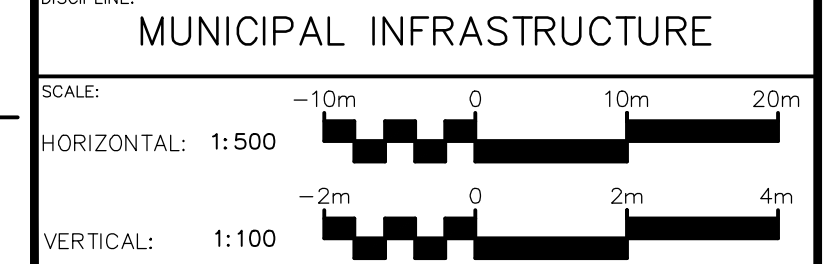
PROJECT NAME:
**COBOURG TRAILS
EXTERNAL SERVICING**

STAMP:

DESIGNED BY	APPROVED BY

01	FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description

SHEET TITLE:
**PLAN AND PROFILE
COBOURG TRAILS SANITARY
STA. X+XXX TO STA. X+XXX**



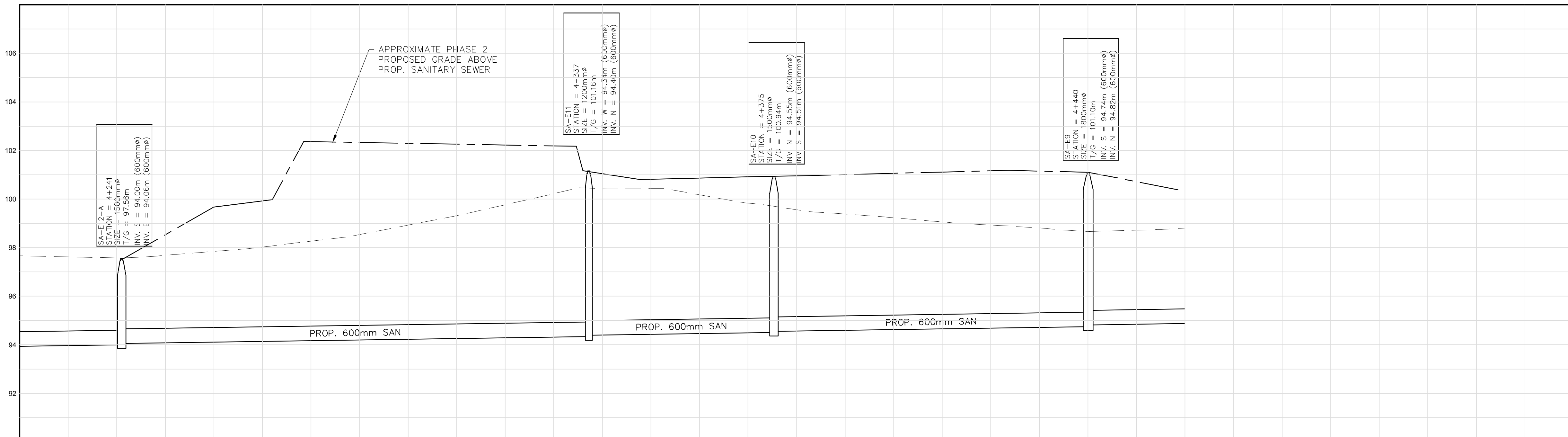
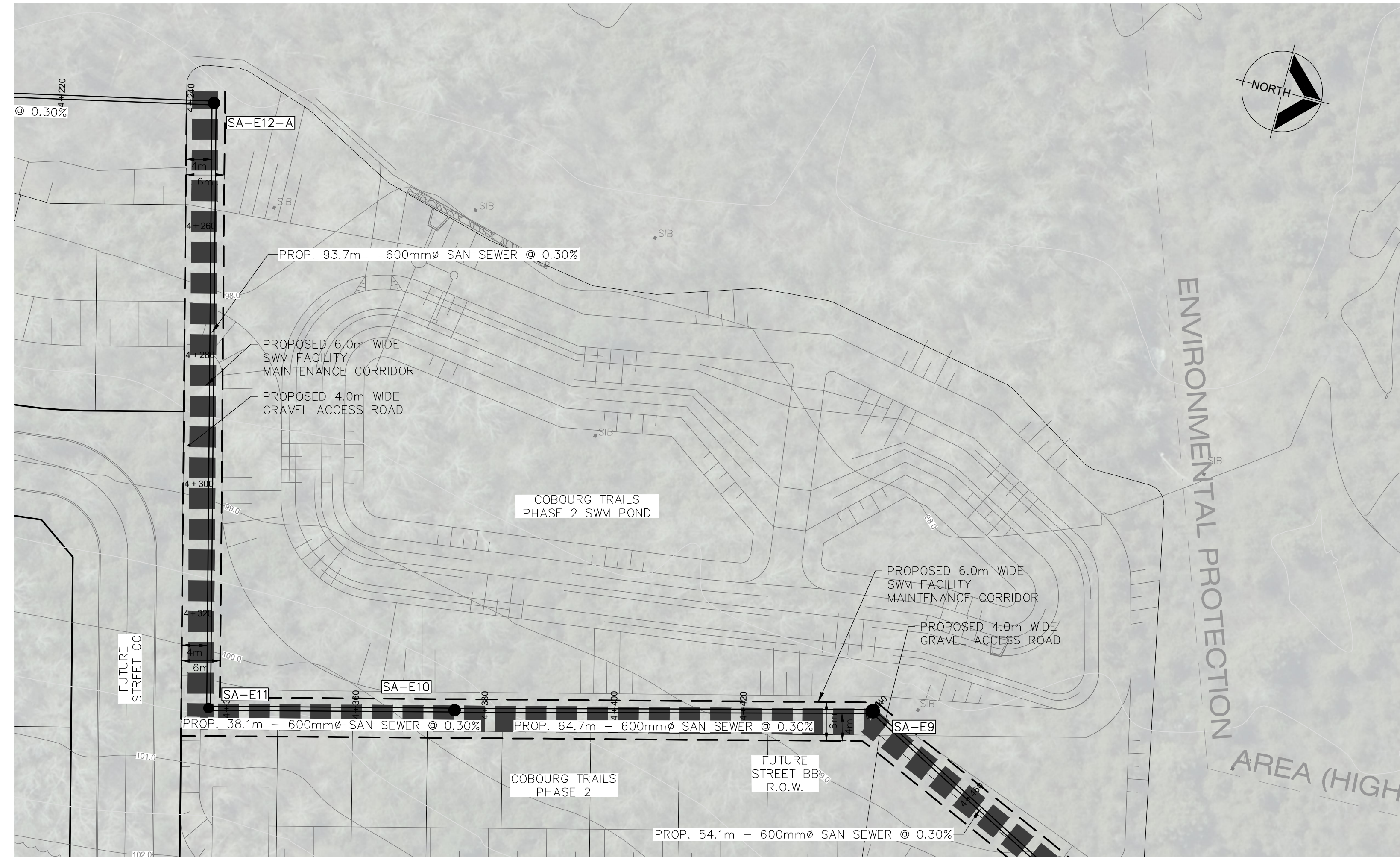
STATION	3+940	3+960	3+980	4+000	4+020	4+040	4+060	4+080	4+100	4+120	4+140	4+160	4+180	4+200	4+220	STATION				
CENTERLINE GRADE FINISHED EXISTING	99.95	100.05	100.25	100.37	100.25	99.89	99.89	99.22	98.75	98.83	98.57	98.37	97.98	97.84		CENTERLINE GRADE FINISHED EXISTING				
SANITARY SEWER INVERT	PROP. 120.94m 600mmØ SANITARY SEWER @ 0.30%				93.24	PROP. 82.05m 600mmØ SANITARY SEWER @ 0.30%				93.95	PROP. 68.25m 600mmØ SANITARY SEWER @ 0.30%				93.78	PROP. 71.46m 600mmØ SANITARY SEWER @ 0.30%				SANITARY SEWER INVERT

PROJECT No: C14-0454 CLIENT File No: PP-11

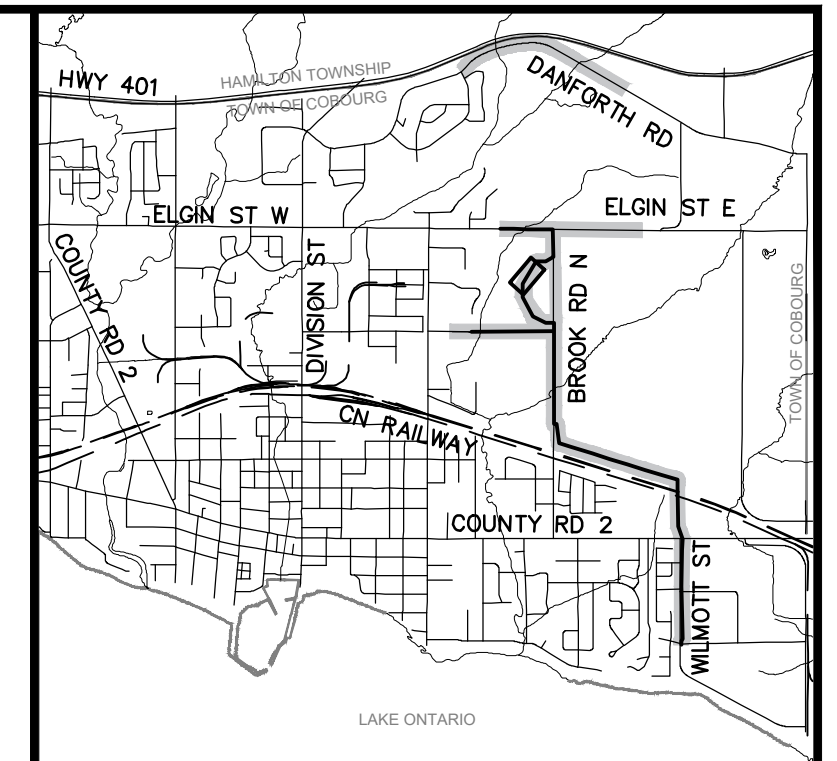
DRAWER: G.M. DESIGNER: M.C. DRAWING No: PP-11

CHECKER: D.C. APPROVER: D.C.

DATE: August, 2021 SHEET No: --- OF ---



STATION	4+240	4+260	4+280	4+300	4+320	4+340	4+360	4+380	4+400	4+420	4+440	4+460		
CENTERLINE GRADE FINISHED EASING	97.66	97.58	97.84	98.27	98.53	99.76	100.17	99.56	99.23	98.83	98.06			
SANITARY SEWER INVERT	94.00 94.06	PROP. 93.69m 600mmØ SANITARY SEWER @ 0.30%					94.34 94.40	PROP. 38.13m 600mmØ SANITARY SEWER @ 0.30%		94.51 94.55	PROP. 64.73m 600mmØ SANITARY SEWER @ 0.30%		94.74 94.82	SAI



KEY PLAN (N.T.S.)

BENCHMARK:
BM XXXX XXXX

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CIM+

2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
Phone: 905-937-4464 www.cim.ca

CLIENT:

Tribute communities 35 YEARS

PROJECT NAME:

COBOURG TRAILS EXTERNAL SERVICING

STAMP:

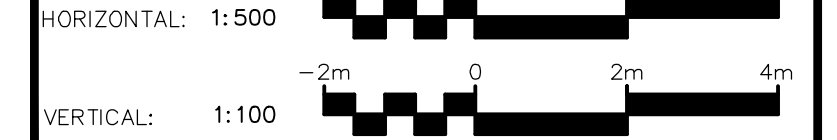
DESIGNED BY	APPROVED BY
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01	---	FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description	By

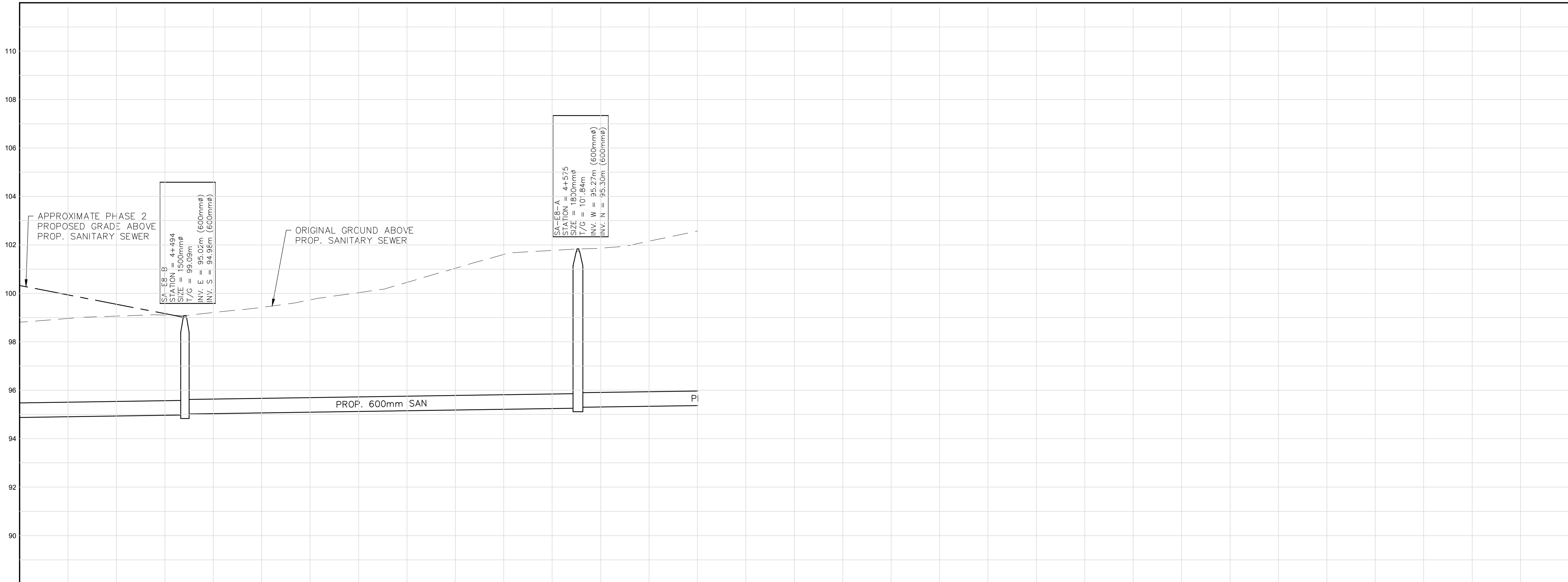
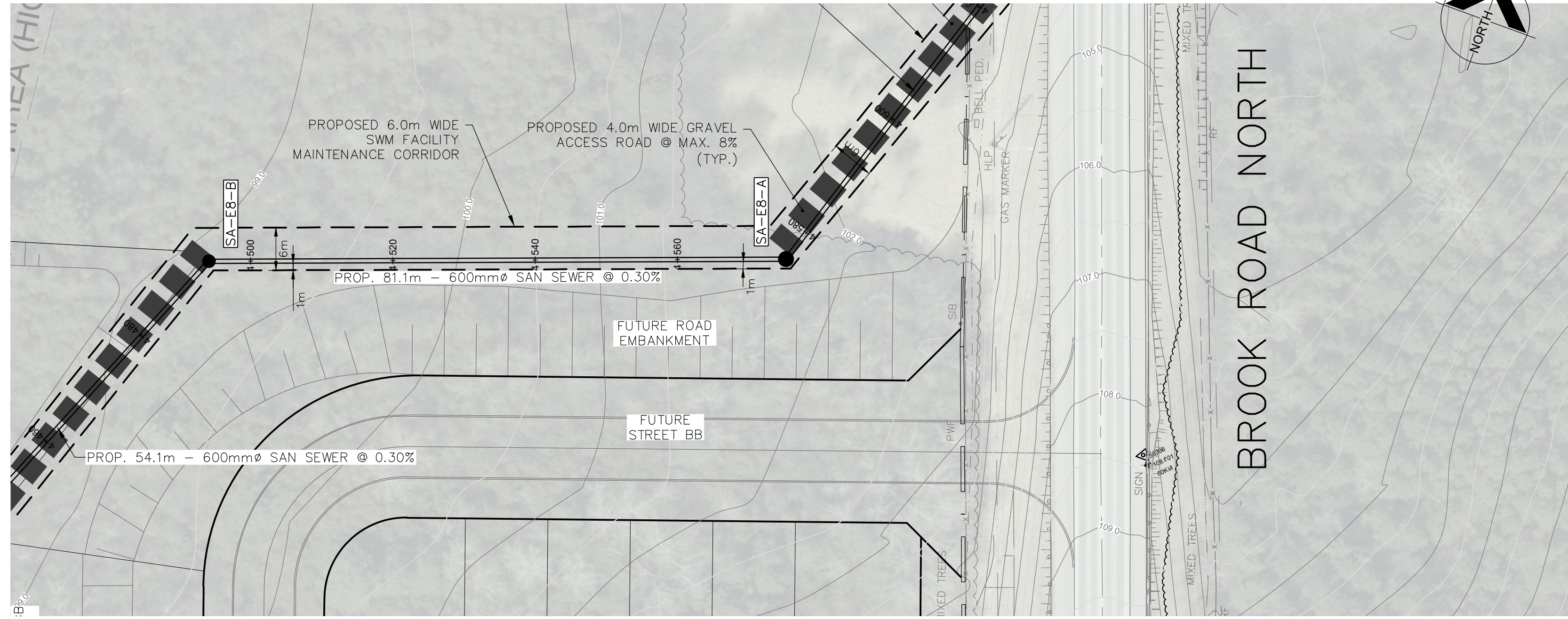
SHEET TITLE:

**PLAN AND PROFILE
COBOURG TRAILS SANITARY
STA. X+XXX TO STA. X+XXX**

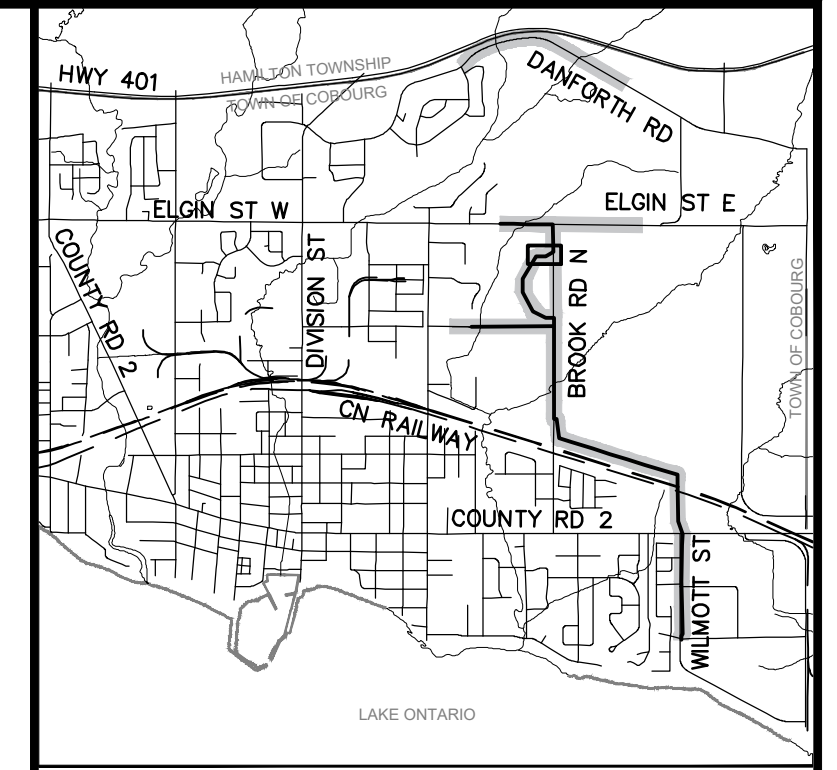
DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



PROJECT No:	C14-0454	CLIENT File No:	---
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-12
		SHEET No:	--- OF ---



STATION	4+480	4+500	4+520	4+540	4+560	4+580	4+600
CENTERLINE GRADE FINISHED ELEVATION	98.81	99.06	99.21	99.73	100.45	101.61	101.87
SANITARY SEWER INVERT	PROP. 54.13m 600mmØ SANITARY SEWER @ 0.30%		PROP. 81.13m 600mmØ SANITARY SEWER @ 0.30%				



KEY PLAN (N.T.S.)

BENCHMARK: BM XXXX XXXX

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

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CMA+

2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
Phone: 905-907-4464 www.cma.ca

CLIENT:

Tribute communities 35 YEARS

PROJECT NAME:

COBOURG TRAILS EXTERNAL SERVICING

STAMPS:

DESIGNED BY	APPROVED BY
---	---

No.	Date	Description	By
01	---	FUNCTIONAL SERVICING REPORT	D.C.

SHEET TITLE:

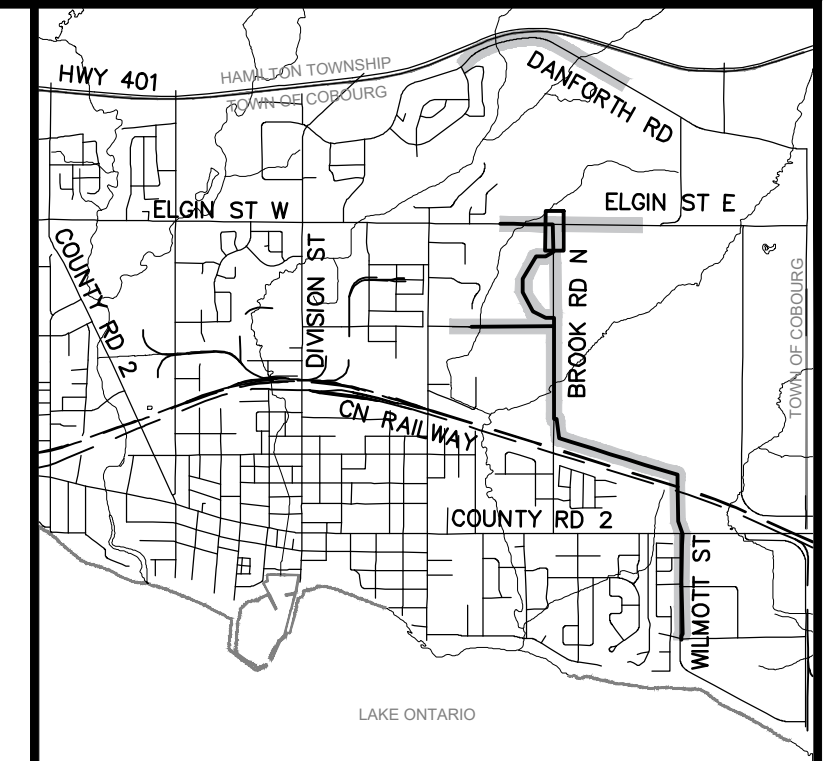
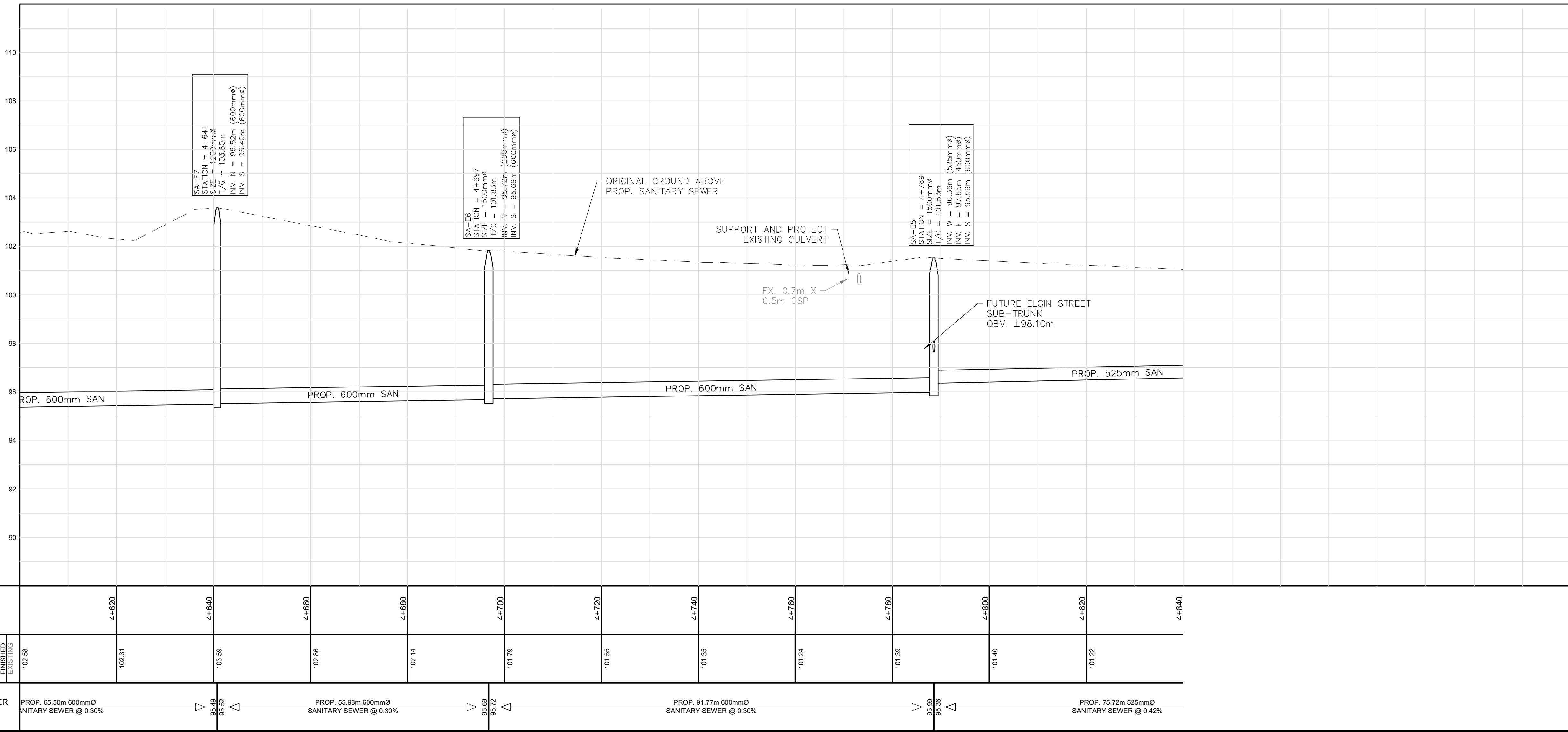
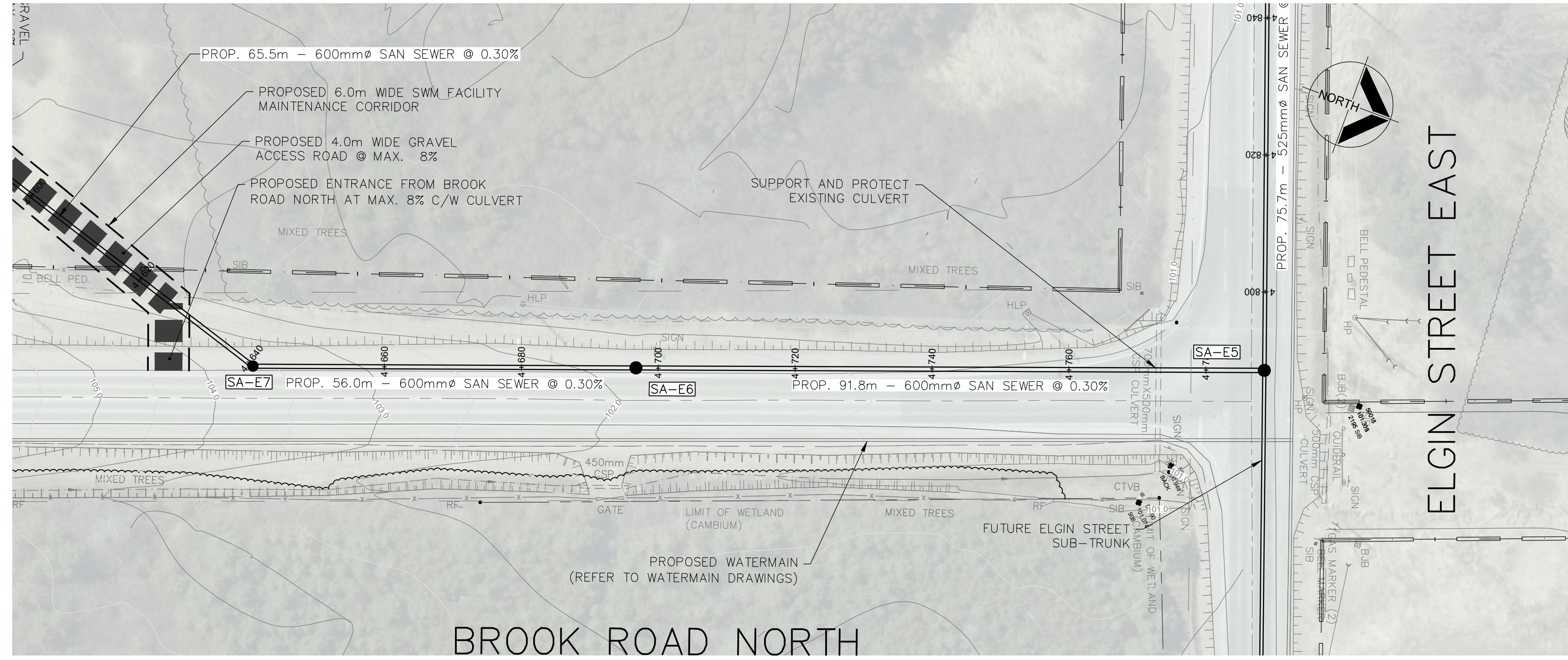
**PLAN AND PROFILE
COBOURG TRAILS SANITARY
STA. X+XXX TO STA. X+XXX**

DISCIPLINE:
MUNICIPAL INFRASTRUCTURE

SCALE:
HORIZONTAL: 1:500
VERTICAL: 1:100

PROJECT No:	C14-0454	CLIENT File No:	---
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-13
		SHEET No:	--- OF ---

Z:\Cma-C14\Projects\C14-0454-Tribute Cobourg E. Ext. Servicing (Tribute Communities)\00-Drawings and Sketches\110-WP\AutoCAD\C14-0454-Tribute Servicing-SHEETS-PP.dwg



BENCHMARK: BM XXXX

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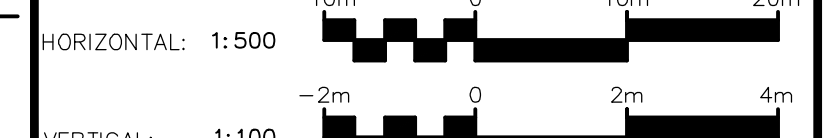
CLIENT: COBOURG TRAILS EXTERNAL SERVICING

DESIGNED BY	APPROVED BY

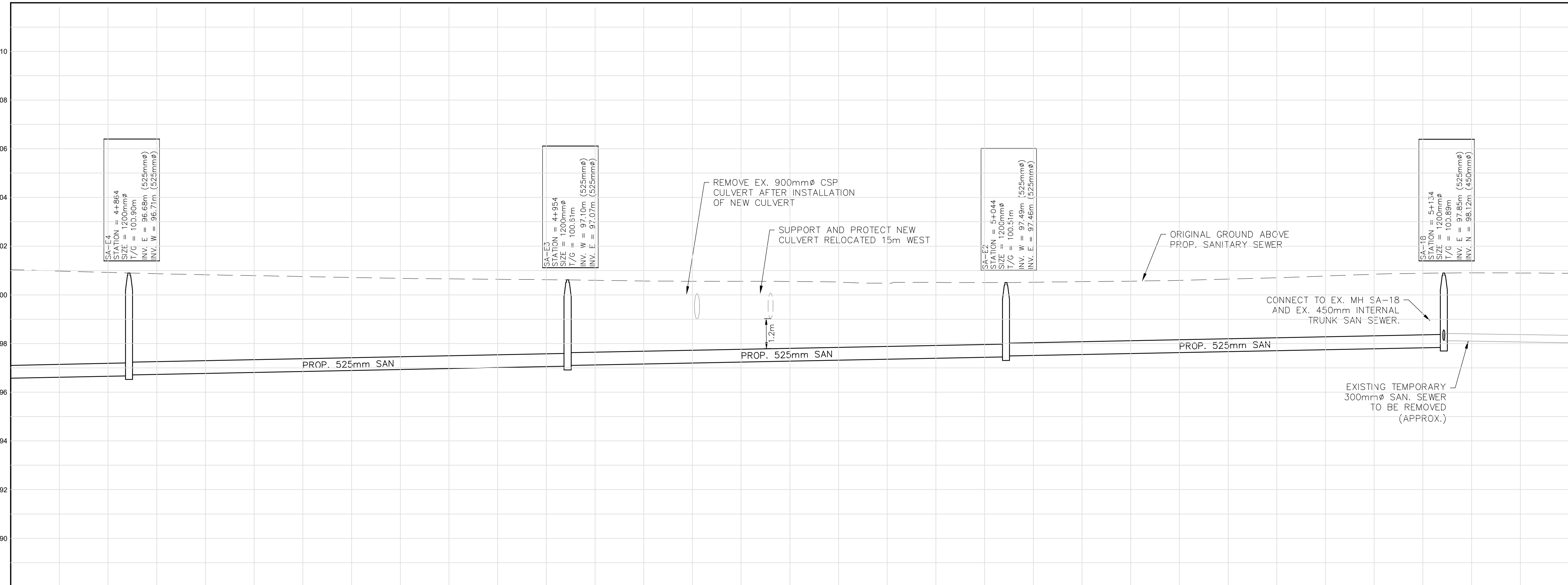
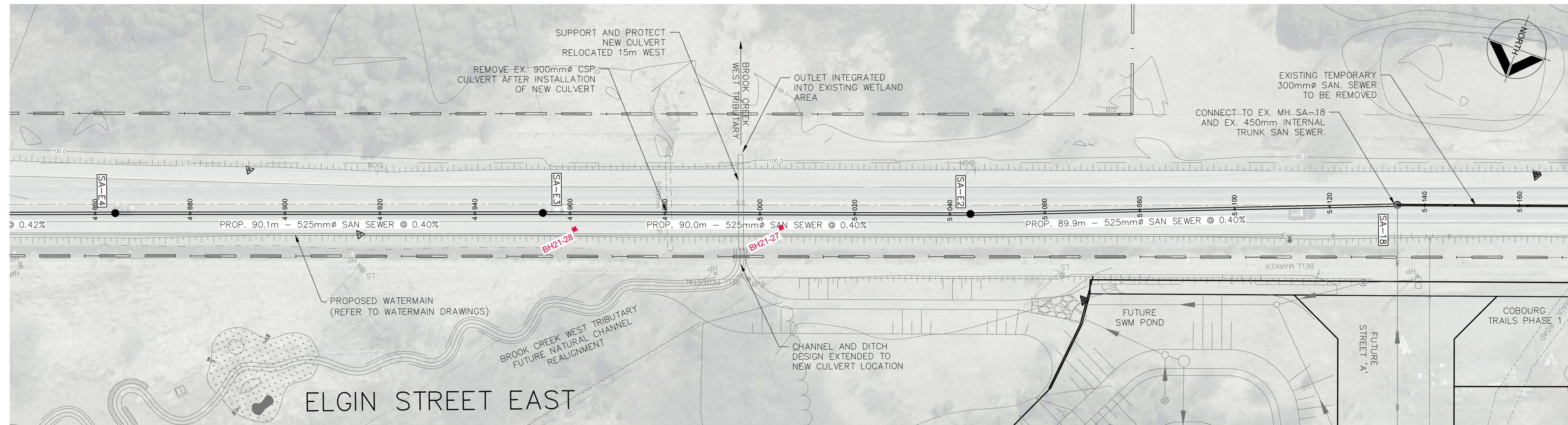
No.	Date	Description	By
01		FUNCTIONAL SERVICING REPORT	D.C.

SHEET TITLE: PLAN AND PROFILE BROOK RD N SANITARY STA. X+XXX TO STA. X+XXX

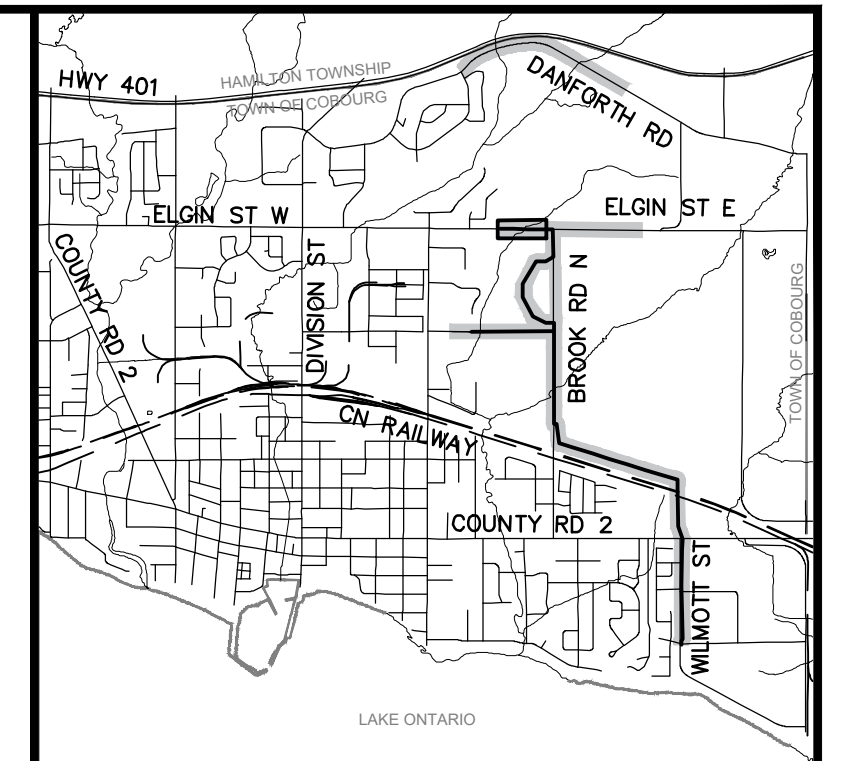
DISCIPLINE: MUNICIPAL INFRASTRUCTURE



PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-14
		SHEET No:	--- OF ---



STATION	4+860	4+880	4+900	4+920	4+940	4+960	4+980	5+000	5+020	5+040	5+060	5+080	5+100	5+120	5+140	5+160	STATION
CENTERLINE GRADE FINISHED EXISTING	101.04	100.92	100.83	100.75	100.68	100.64	100.60	100.56	100.55	100.48	100.54	100.60	100.70	100.85	100.91		CENTERLINE GRADE FINISHED EXISTING
SANITARY SEWER INVERT	98.97	98.97	98.97	98.97	98.97	98.97	98.97	98.97	98.97	98.97	98.97	98.97	98.97	98.97	98.97		SANITARY SEWER INVERT
PROP. 90.07m 525mmØ SANITARY SEWER @ 0.40%																	
PROP. 89.92m 525mmØ SANITARY SEWER @ 0.40%																	



KEY PLAN (N.T.S.)

BENCHMARK: BM XXXX XXXX

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CMA+

2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
Phone: 905-907-4464 www.cma.ca

CLIENT:

Tribute communities 35 YEARS

PROJECT NAME:

COBOURG TRAILS EXTERNAL SERVICING

STAMP:

DESIGNED BY	APPROVED BY

No.	Date	Description	By
01		FUNCTIONAL SERVICING REPORT	D.C.

SHEET TITLE:

**PLAN AND PROFILE
ELGIN ST E SANITARY
STA. X+XXX TO STA. X+XXX**

DISCIPLINE:

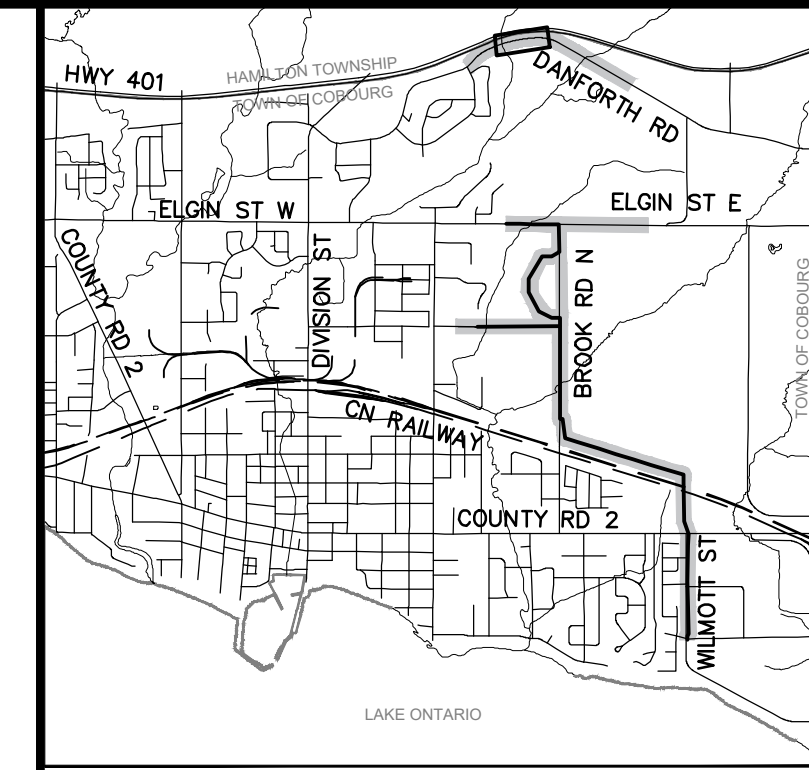
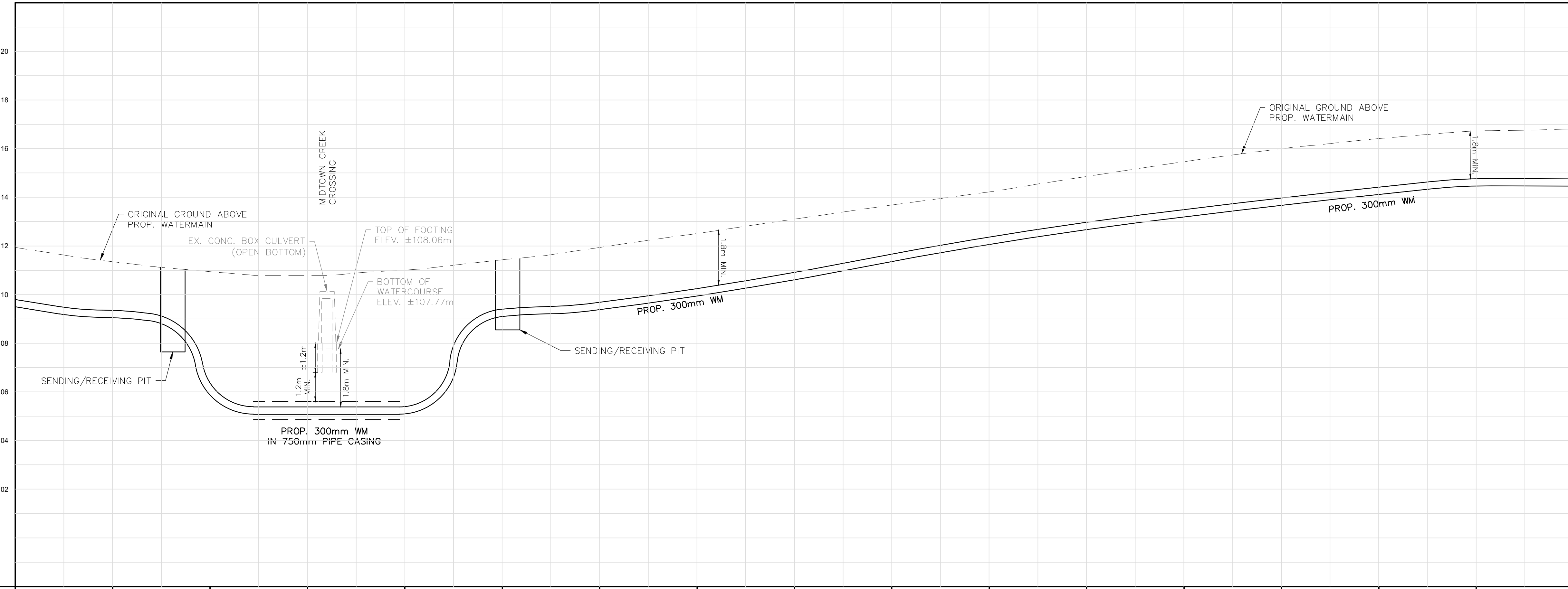
MUNICIPAL INFRASTRUCTURE

SCALE:

HORIZONTAL: 1:500

VERTICAL: 1:100

PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	SHEET No:	PP-15



KEY PLAN (N.T.S.)

BENCHMARK:
 BMx
 xxxx

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CIW+

2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
 Phone: 905-907-4464 www.ciw.ca

CLIENT:

Tribute communities 35 YEARS

PROJECT NAME:

**COBOURG TRAILS
 EXTERNAL SERVICING**

STAMP:

DESIGNED BY	APPROVED BY

01	2021-11-18	REF. FOR GEOTECHNICAL WORKS	D.C.
No.	Date	Description	By

SHEET TITLE:

**PLAN AND PROFILE
 DENSMORE ROAD WATERMAIN
 STA. X+XXX TO STA. X+XXX**

DISCIPLINE:
MUNICIPAL INFRASTRUCTURE

SCALE:
 HORIZONTAL: 1:500
 VERTICAL: 1:100

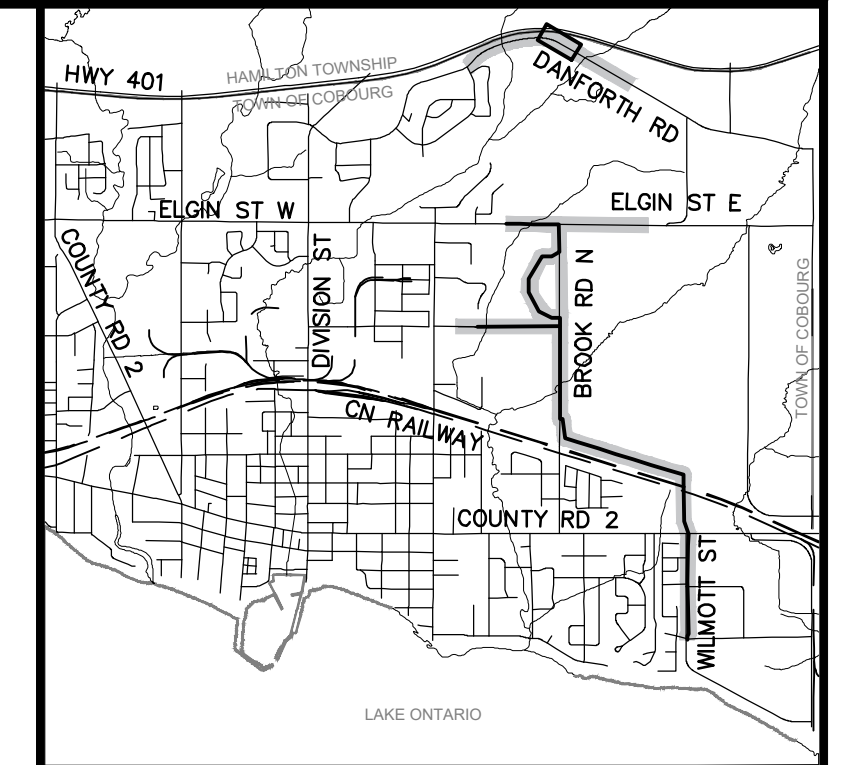
STATION	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	STATION
CENTERLINE GRADE	111.84	111.35	110.95	110.79	111.01	111.43	111.84	112.51	113.10	113.68	114.22	114.86	115.46	116.09	116.41	116.73	CENTERLINE GRADE
WATERMAIN DATA																	WATERMAIN DATA

PROJECT No: C14-0454 CLIENT File No: -

DRAWER: G.M. DESIGNER: M.C. DRAWING No: PP-W2

CHECKER: D.C. APPROVER: D.C.

DATE: August, 2021 SHEET No: --- OF ---



KEY PLAN (N.T.S.)

BENCHMARK:
BMX
XXXX XXXX

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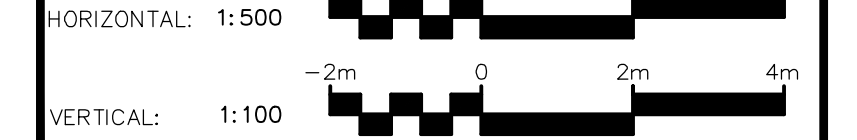
PROJECT NAME:
**COBOURG TRAILS
EXTERNAL SERVICING**

DESIGNED BY	APPROVED BY
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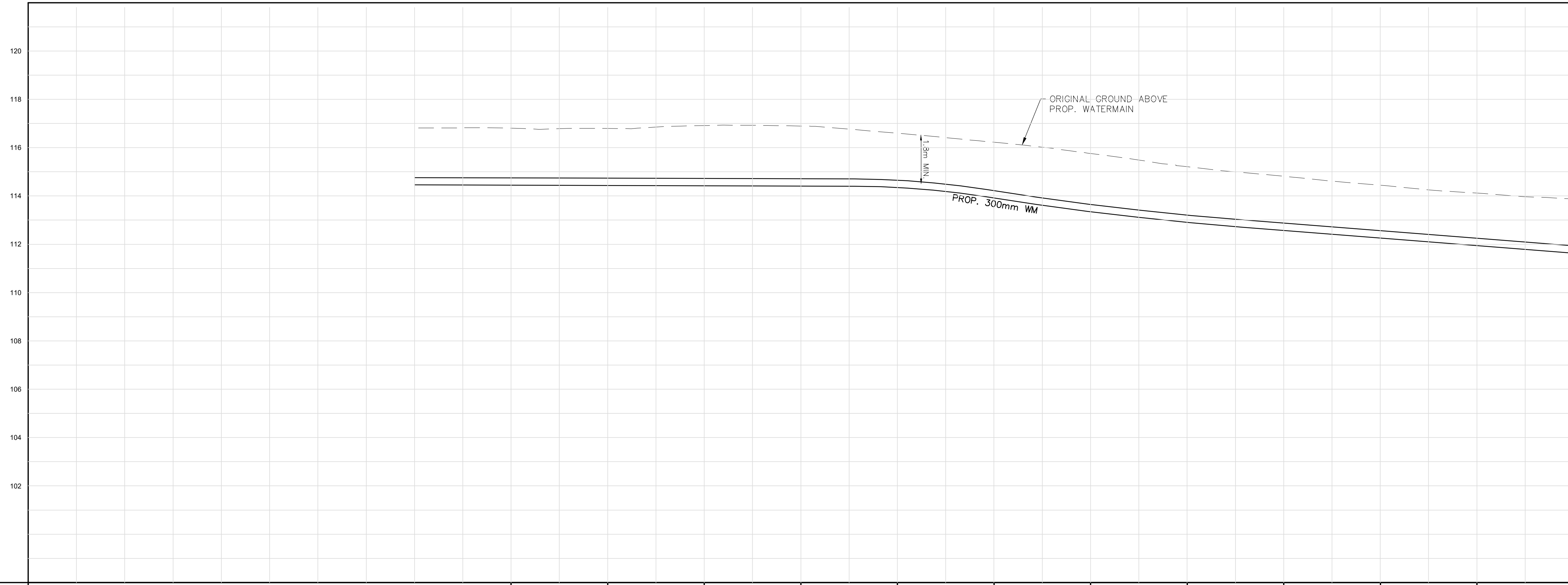
No.	Date	Description	By
01	2021-11-18	REF. FOR GEOTECHNICAL WORKS	D.C.

SHEET TITLE:
**PLAN AND PROFILE
DENSMORE ROAD WATERMAIN
STA. X+XXX TO STA. X+XXX**

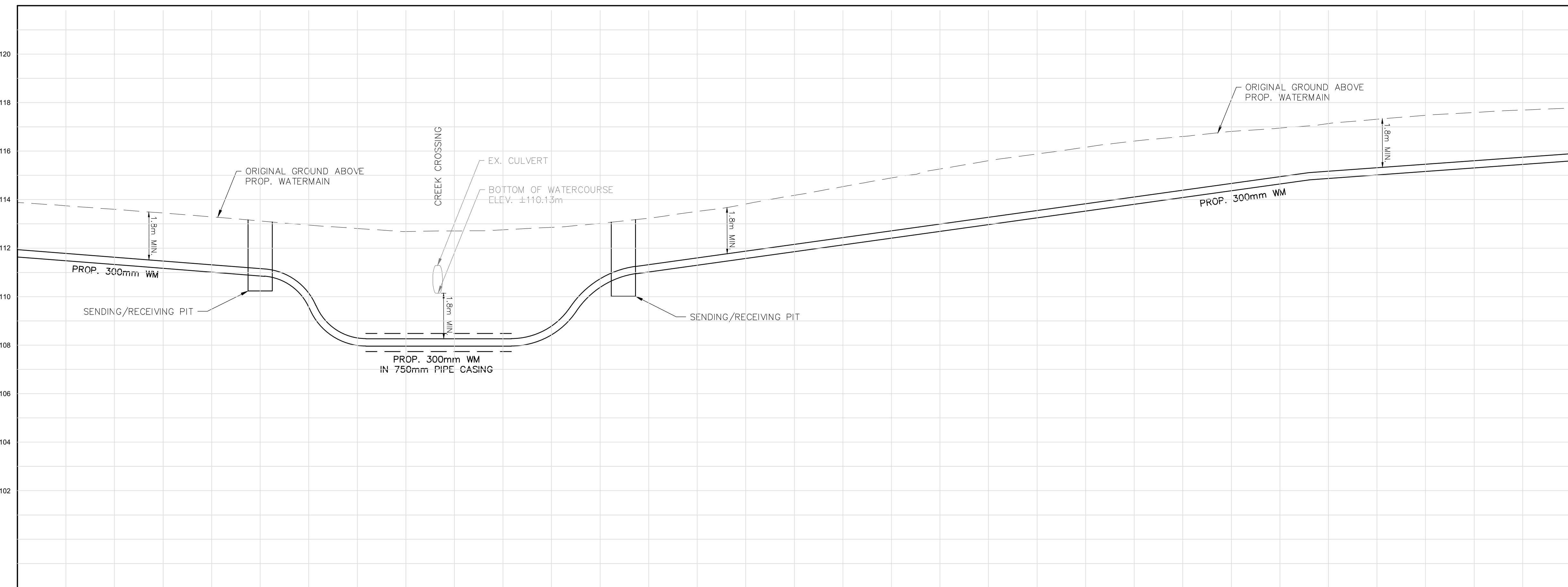
DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



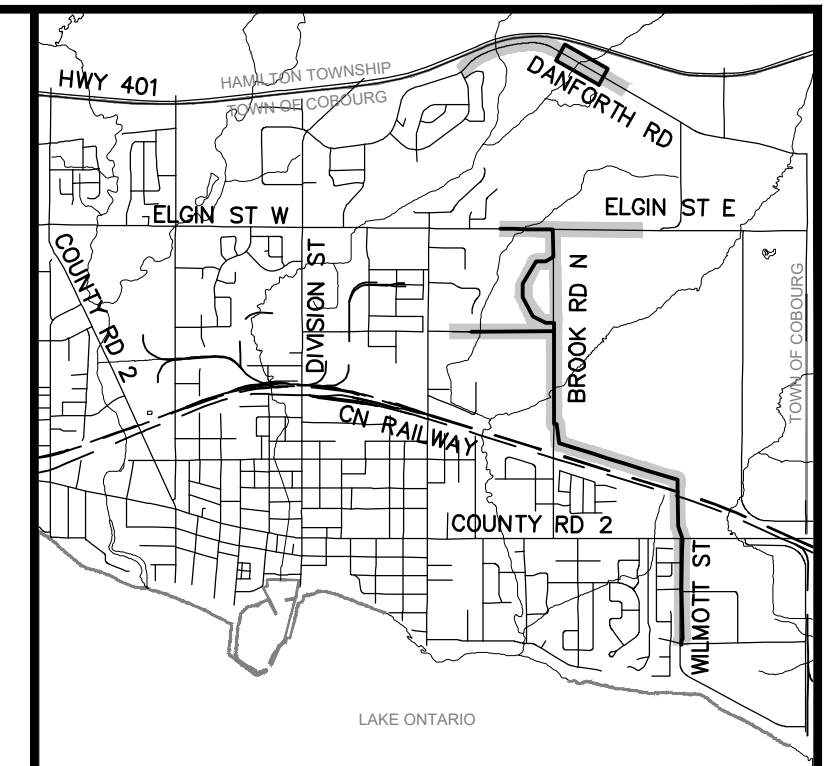
PROJECT No:	C14-0454	CLIENT File No:	---
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:		SHEET No:	
August, 2021		---- OF ----	



STATION	CENTERLINE GRADE FINISHED	WATERMAIN DATA	STATION	CENTERLINE GRADE FINISHED	WATERMAIN DATA
0+560	116.81		0+780	114.12	
0+580	116.79				
0+600	116.91				
0+620	116.89				
0+640	116.59				
0+660	116.22				
0+680	115.76				
0+700	115.21				
0+720	114.81				
0+740	114.44				



STATION	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	STATION
CENTERLINE GRADE	113.68	113.60	113.29	112.95	112.69	112.76	113.02	113.52	114.18	114.90	115.60	116.16	116.95	117.31	117.59		CENTERLINE GRADE
FINISHED EASING																	FINISHED EASING
WATERMAIN DATA																	WATERMAIN DATA



KEY PLAN (N.T.S.)

BENCHMARK:
 BMX XXXX

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CIW+

2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
 Phone: 905-907-4464 www.ciw.ca

CLIENT:

Tribute communities 35 YEARS

PROJECT NAME:

COBOURG TRAILS EXTERNAL SERVICING

STAMP:

DESIGNED BY	APPROVED BY

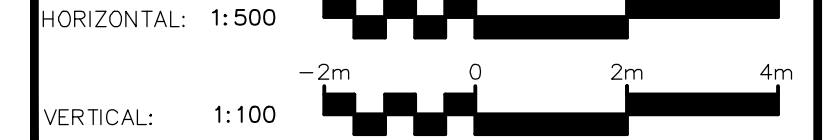
01	2021-11-18	REF. FOR GEOTECHNICAL WORKS	D.C.
No.	Date	Description	By

SHEET TITLE:

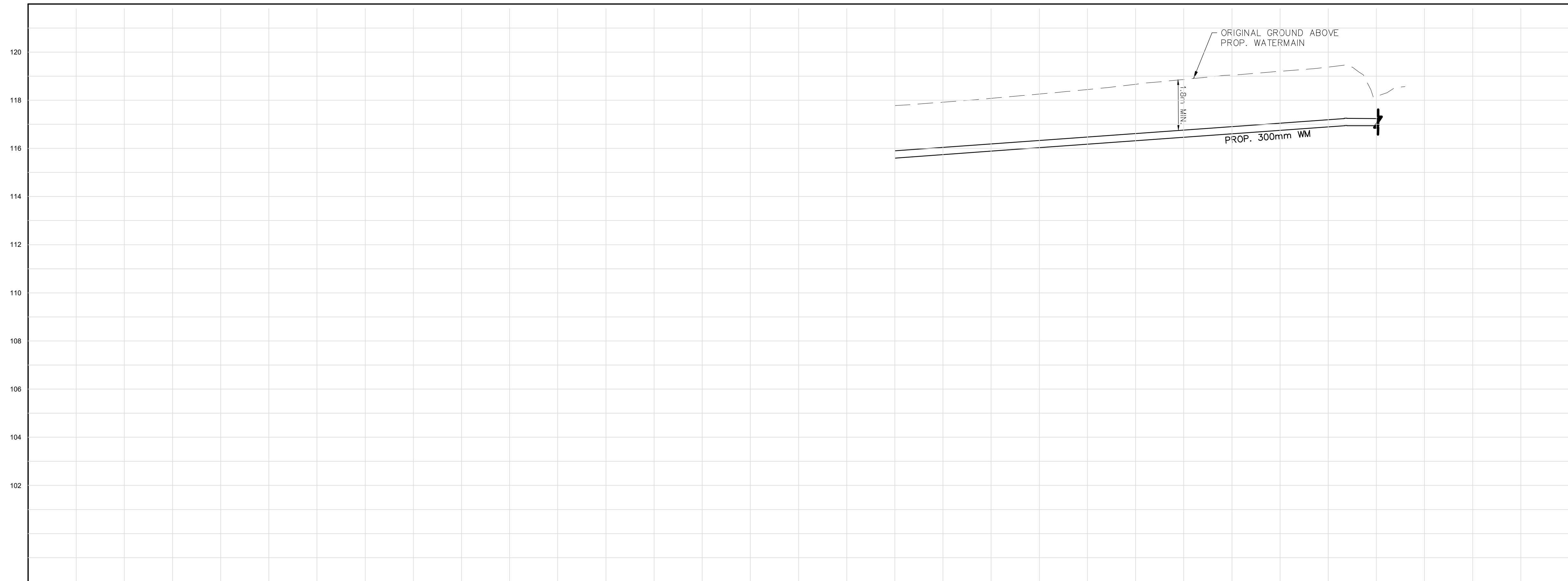
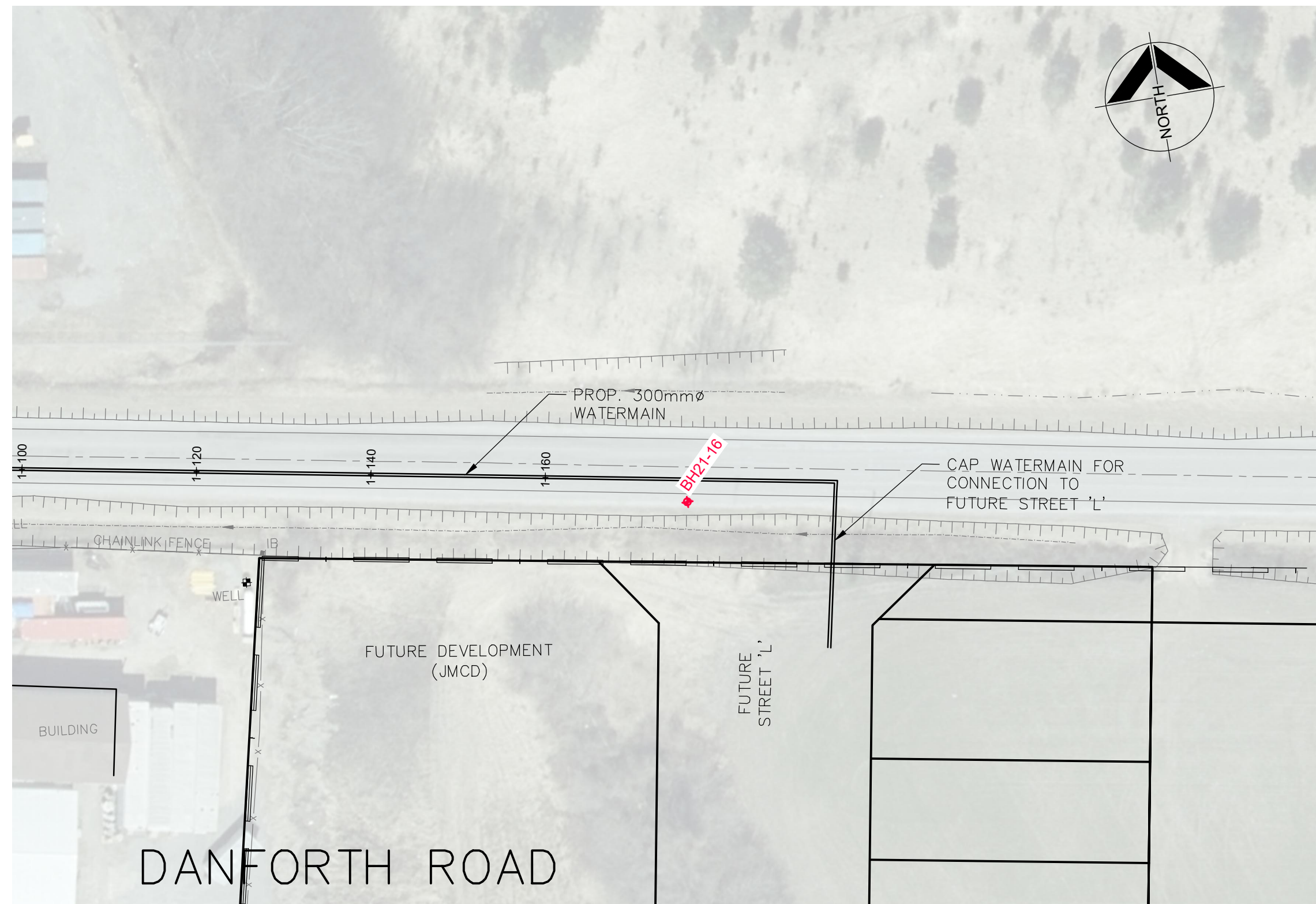
PLAN AND PROFILE DANFORTH ROAD WATERMAIN STA. X+XXX TO STA. X+XXX

DISCIPLINE:

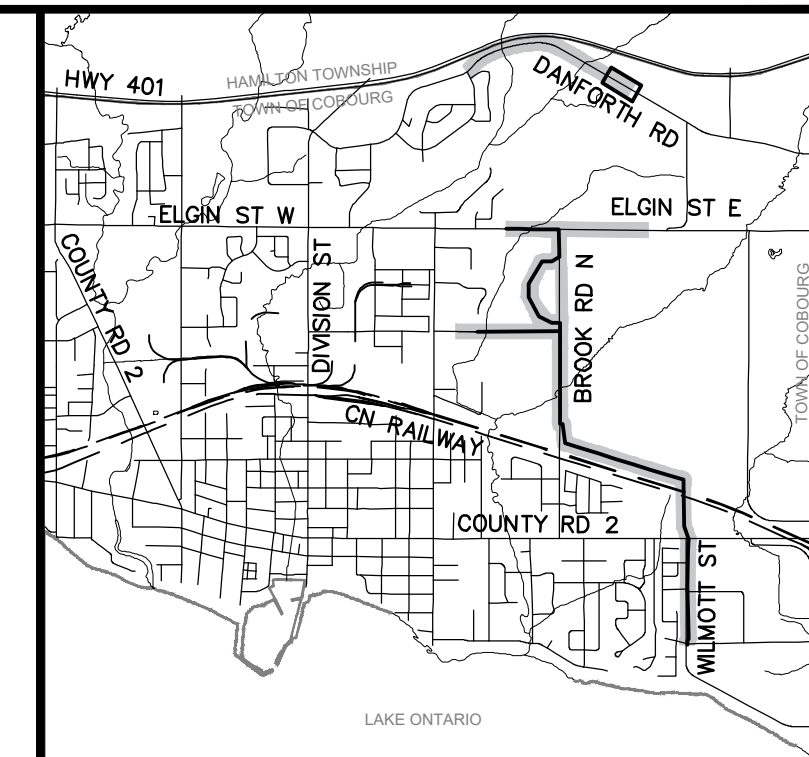
MUNICIPAL INFRASTRUCTURE



PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-W4
		SHEET No:	--- OF ---



STATION		1+120	1+140	1+160	1+180	1+200	
CENTERLINE GRADE	FINISHED EXISTING	118.07	118.44	118.86	119.20		
WATERMAIN DATA							



KEY PLAN (N.T.S.)

BENCHMARK:
BM XXXX XXXX

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CLIENT:

PROJECT NAME:
**COBOURG TRAILS
EXTERNAL SERVICING**

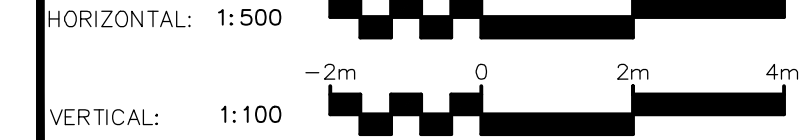
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DESIGNED BY	APPROVED BY

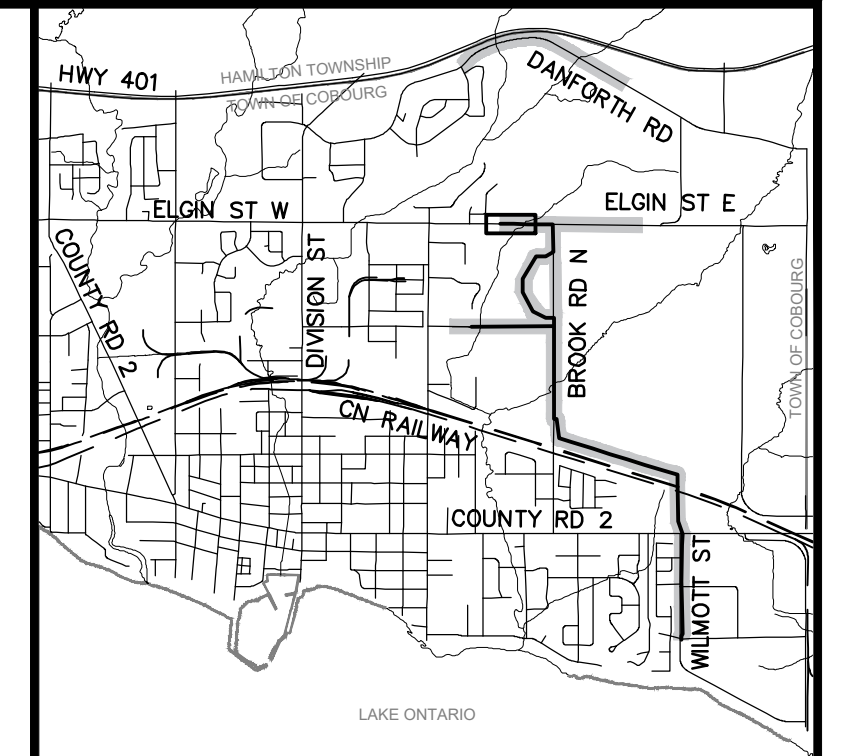
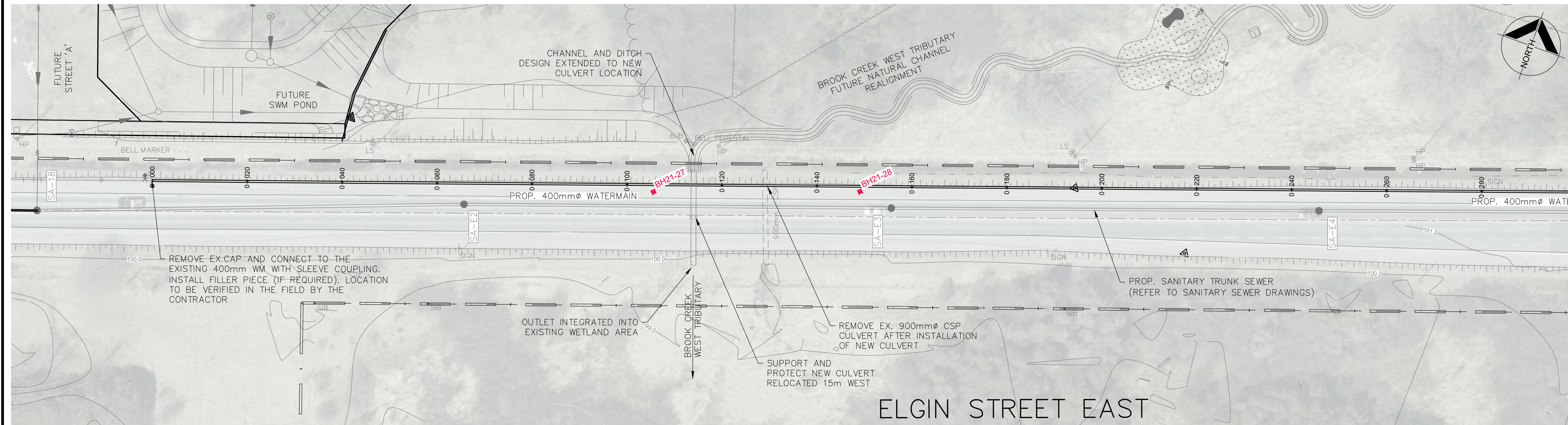
01	2021-11-18	REF. FOR GEOTECHNICAL WORKS	D.C.
No.	Date	Description	By

SHEET TITLE:
**PLAN AND PROFILE
DANFORTH ROAD WATERMAIN
STA. X+XXX TO STA. X+XXX**

DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-W5
		SHEET No:	--- OF ---



BENCHMARK:
BM XXXX XXXX

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PROJECT NAME:
COBOURG TRAILS EXTERNAL SERVICING

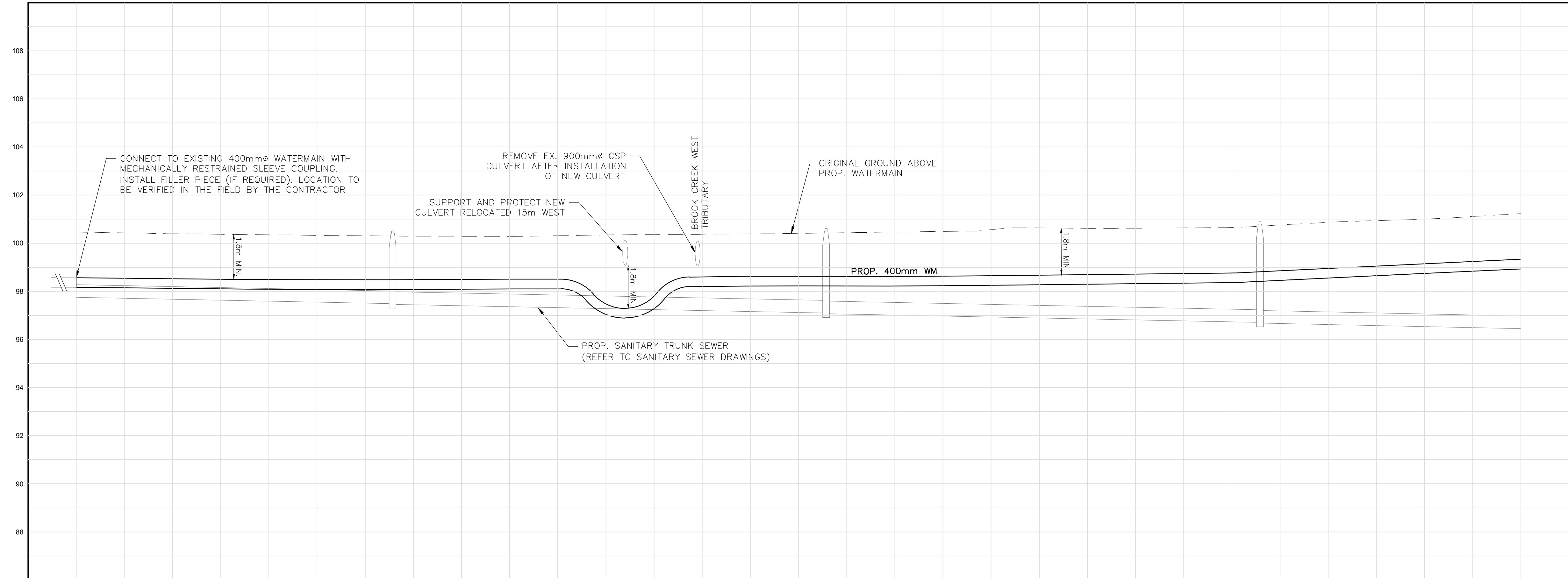
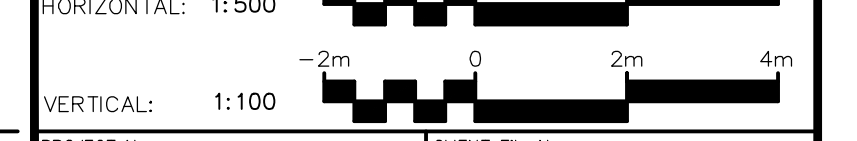
STAMPS:

DESIGNED BY	APPROVED BY

01		FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description	By

SHEET TITLE:
**PLAN AND PROFILE
ELGIN ST E WATERMAIN
STA. X+XXX TO STA. X+XXX**

DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



STATION	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300
CENTERLINE GRADE	100.47	100.40	100.35	100.31	100.29	100.31	100.36	100.39	100.44	100.49	100.64	100.63	100.65	100.87	101.01	
WATERMAIN DATA																

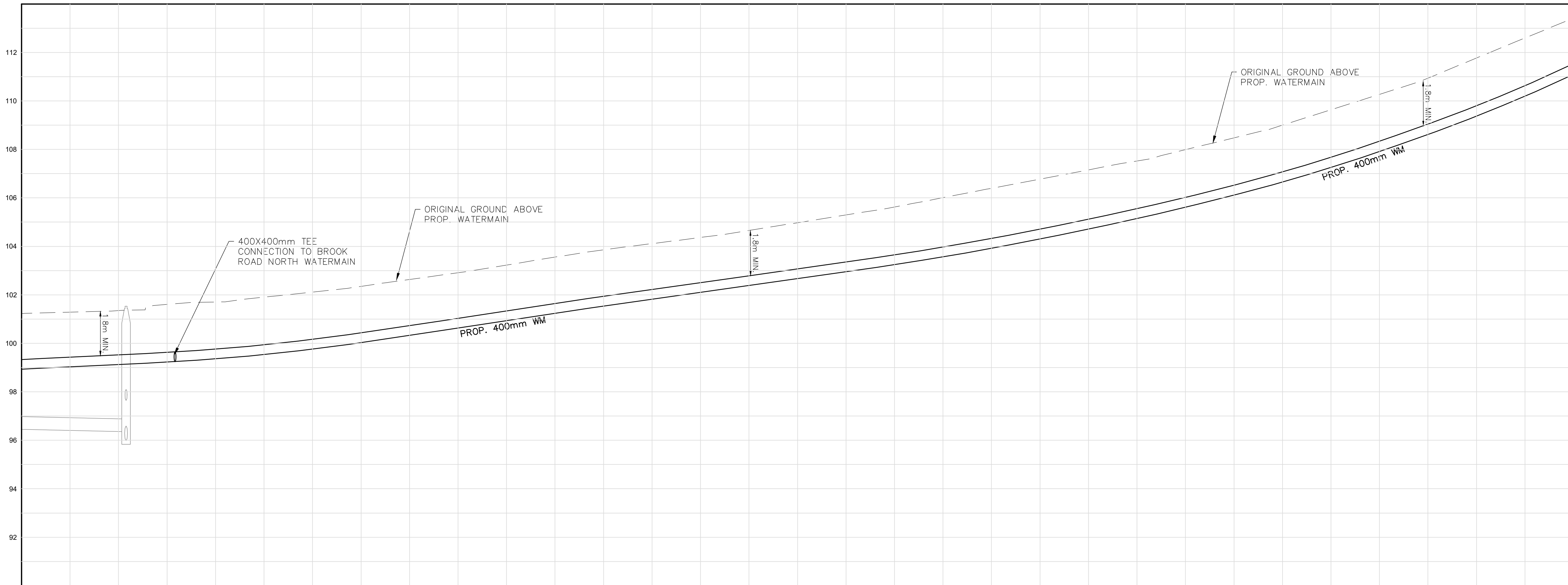
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CENTERLINE GRADE	100.47	100.40	100.35	100.31	100.29	100.31	100.36	100.39	100.44	100.49	100.64	100.63	100.65	100.87	101.01	
WATERMAIN DATA																

PROJECT No: C14-0454 CLIENT File No:

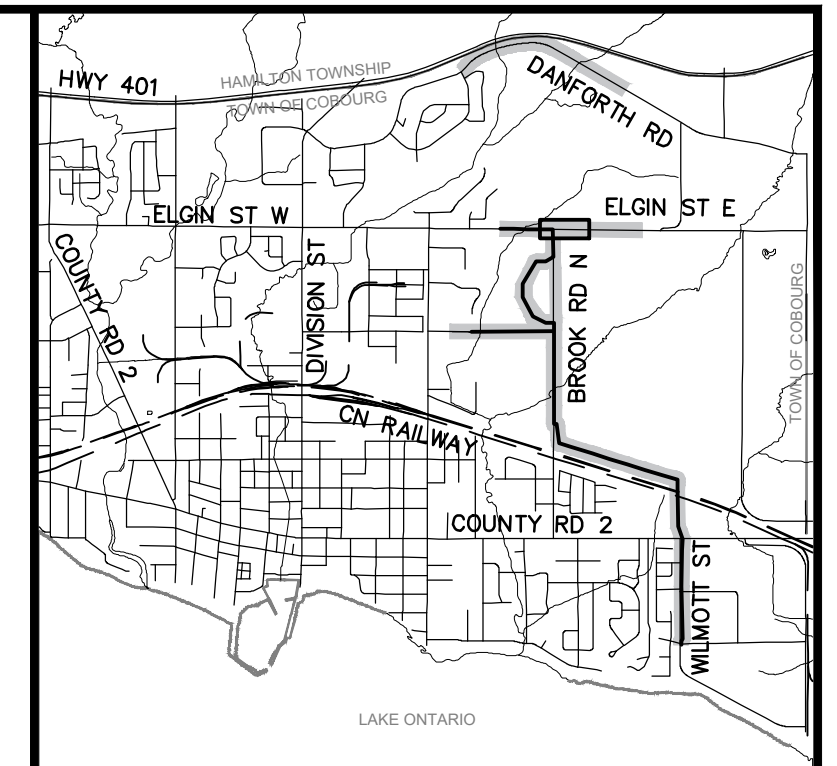
DRAFTER: G.M. DESIGNER: M.C. DRAWING No:

CHECKER: D.C. APPROVER: D.C. **PP-W6**

DATE: August, 2021 SHEET No: ---- OF ----



STATION	0+300	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	STATION
CENTERLINE GRADE FINISHED EASING	101.23	101.35	101.71	102.12	102.64	103.23	103.86	104.37	104.98	105.62	106.40	107.16	107.99	108.00	110.27	111.77	CENTERLINE GRADE FINISHED EASING
WATERMAIN DATA																	



KEY PLAN (N.T.S.)

BENCHMARK: BM XXXX XXXX

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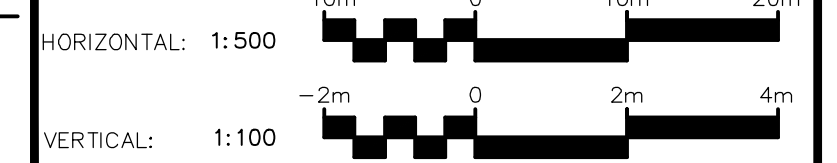
PROJECT NAME:
COBOURG TRAILS EXTERNAL SERVICING

DESIGNED BY	APPROVED BY

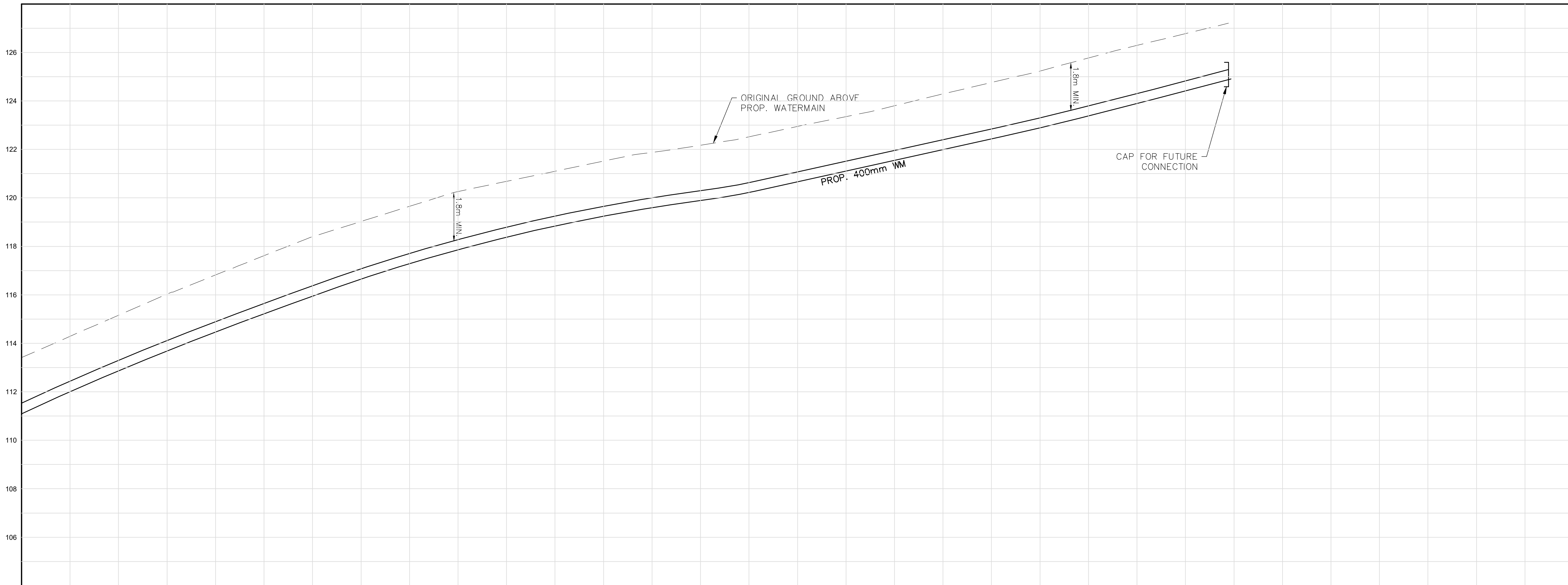
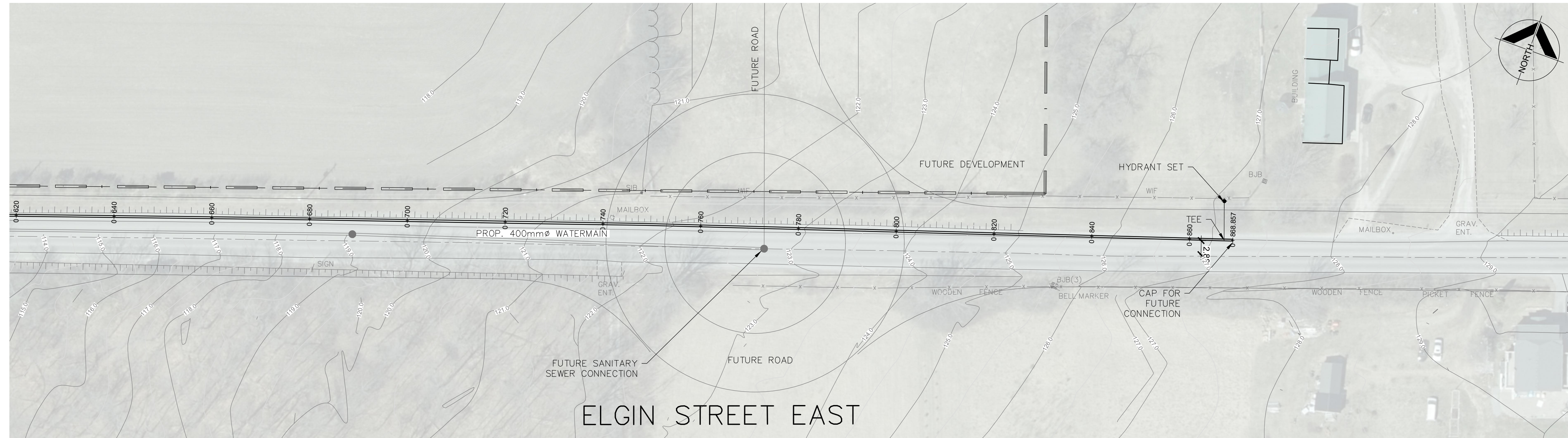
No.	Date	Description	By
01		FUNCTIONAL SERVICING REPORT	D.C.

SHEET TITLE:
**PLAN AND PROFILE
ELGIN ST E WATERMAIN
STA. X+XXX TO STA. X+XXX**

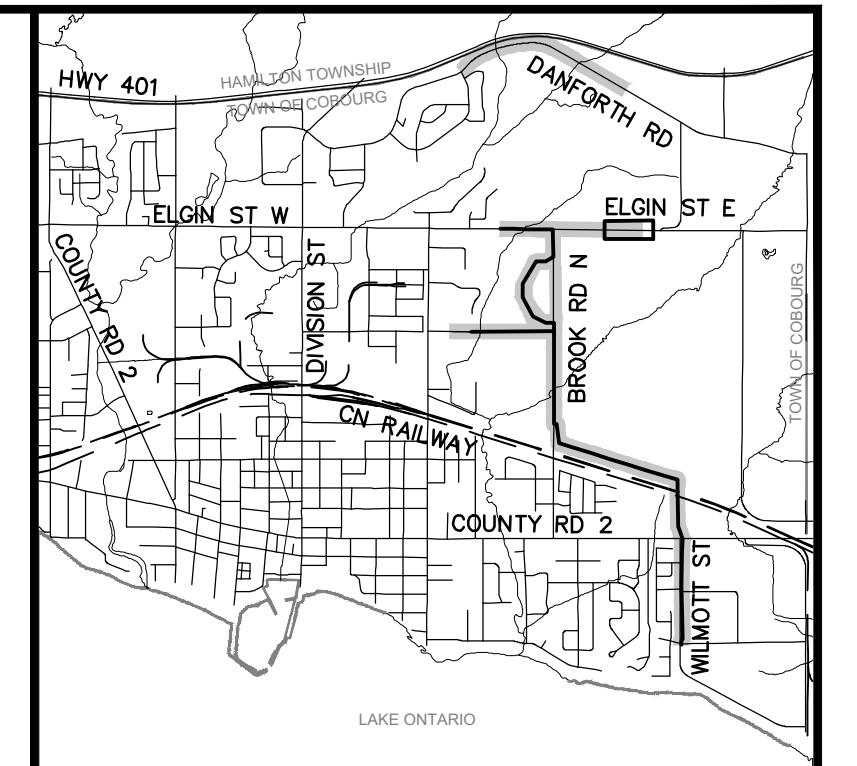
DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



PROJECT No: C14-0454	CLIENT File No: ---	
DRAFTER: G.M.	DESIGNER: M.C.	DRAWING No: PP-W7
CHECKER: D.C.	APPROVER: D.C.	
DATE: August, 2021	SHEET No: --- OF ---	



STATION	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880
CENTERLINE GRADE	113.42	115.16	116.82	118.40	119.65	120.68	121.52	122.17	122.95	123.80	124.76	125.77	126.77
WATERMAIN DATA													



KEY PLAN (N.T.S.)

BENCHMARK:
BM XXXX XXXX

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GROUND BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

WITH THE SOLE EXCEPTION OF THE BENCHMARK(S) SPECIFICALLY DESCRIBED FOR THIS PROJECT, NO ELEVATION INDICATED OR ASSUMED HEREON IS TO BE USED AS A REFERENCE ELEVATION FOR ANY PURPOSE.

ALL DIMENSIONS AND INFORMATION SHALL BE CHECKED AND VERIFIED ON THE JOB AND ANY DISCREPANCIES MUST BE REPORTED TO THE MUNICIPALITY BEFORE COMMENCING THE WORK. DRAWINGS ARE NOT TO BE SCALED.

CIM+
2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
Phone: 905-907-4464 www.cim.ca

CLIENT:
Tribute communities 35 YEARS

PROJECT NAME:
COBOURG TRAILS EXTERNAL SERVICING

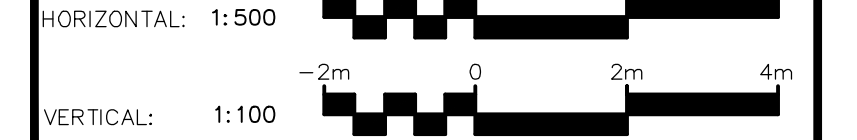
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DESIGNED BY	APPROVED BY

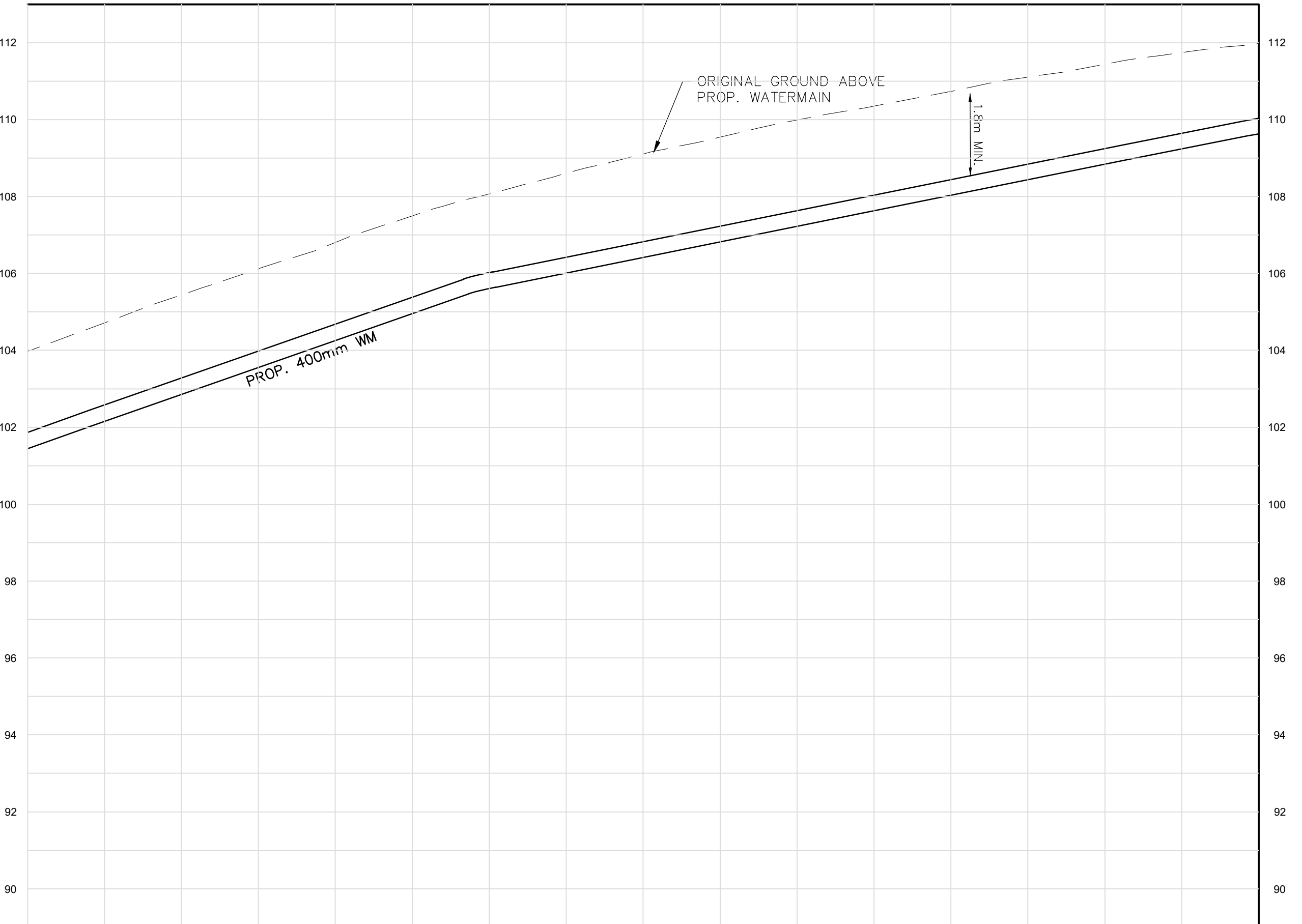
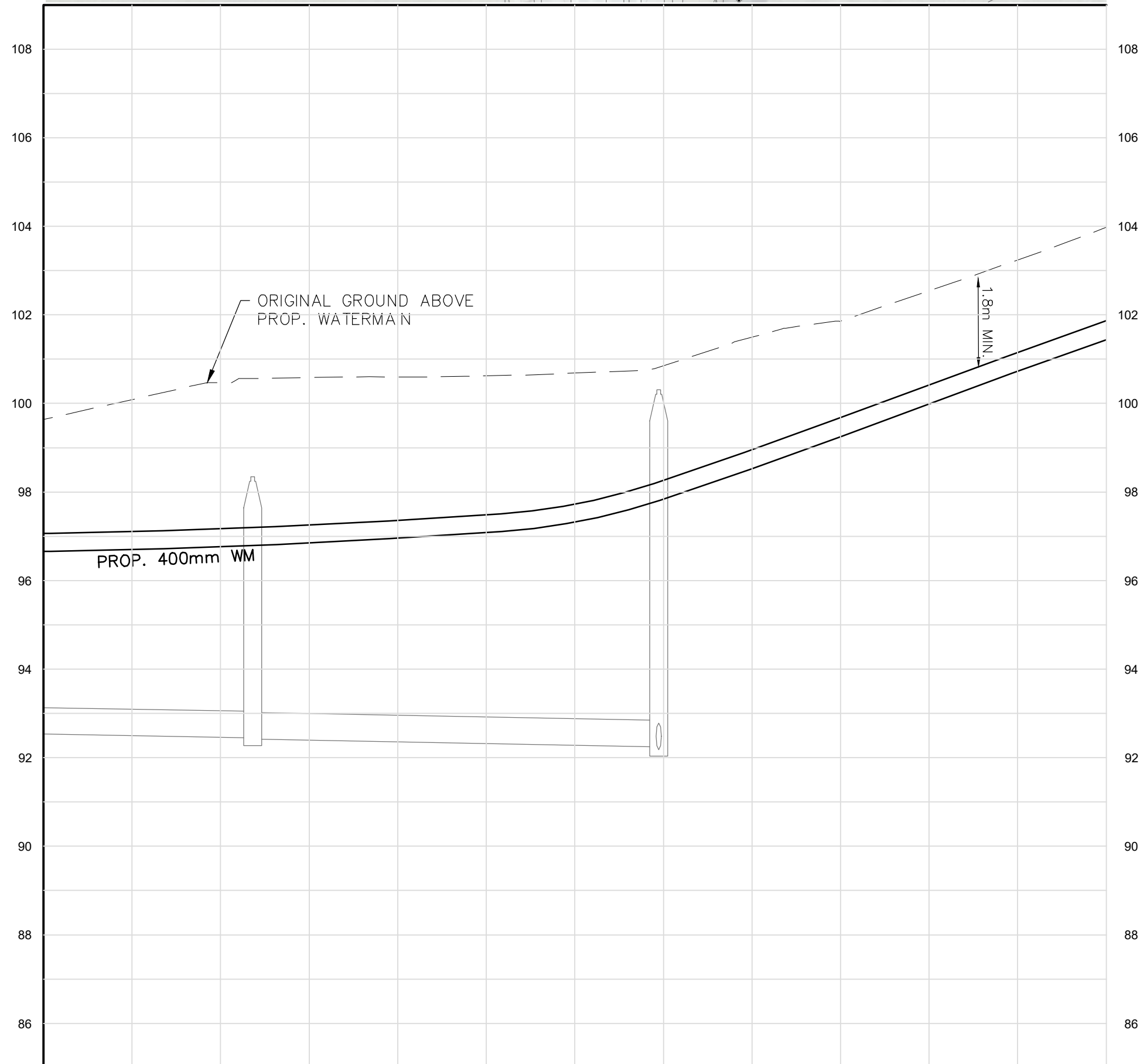
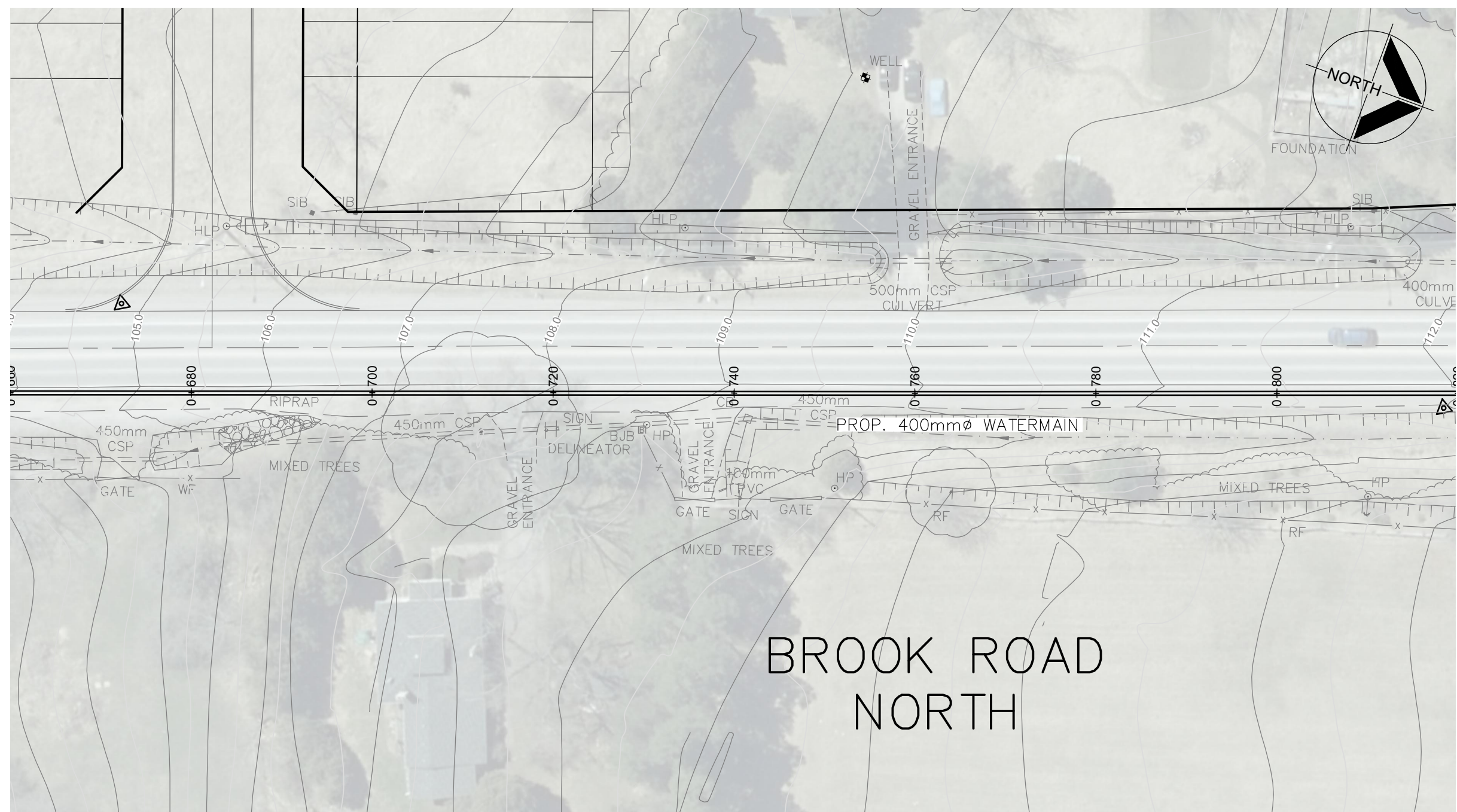
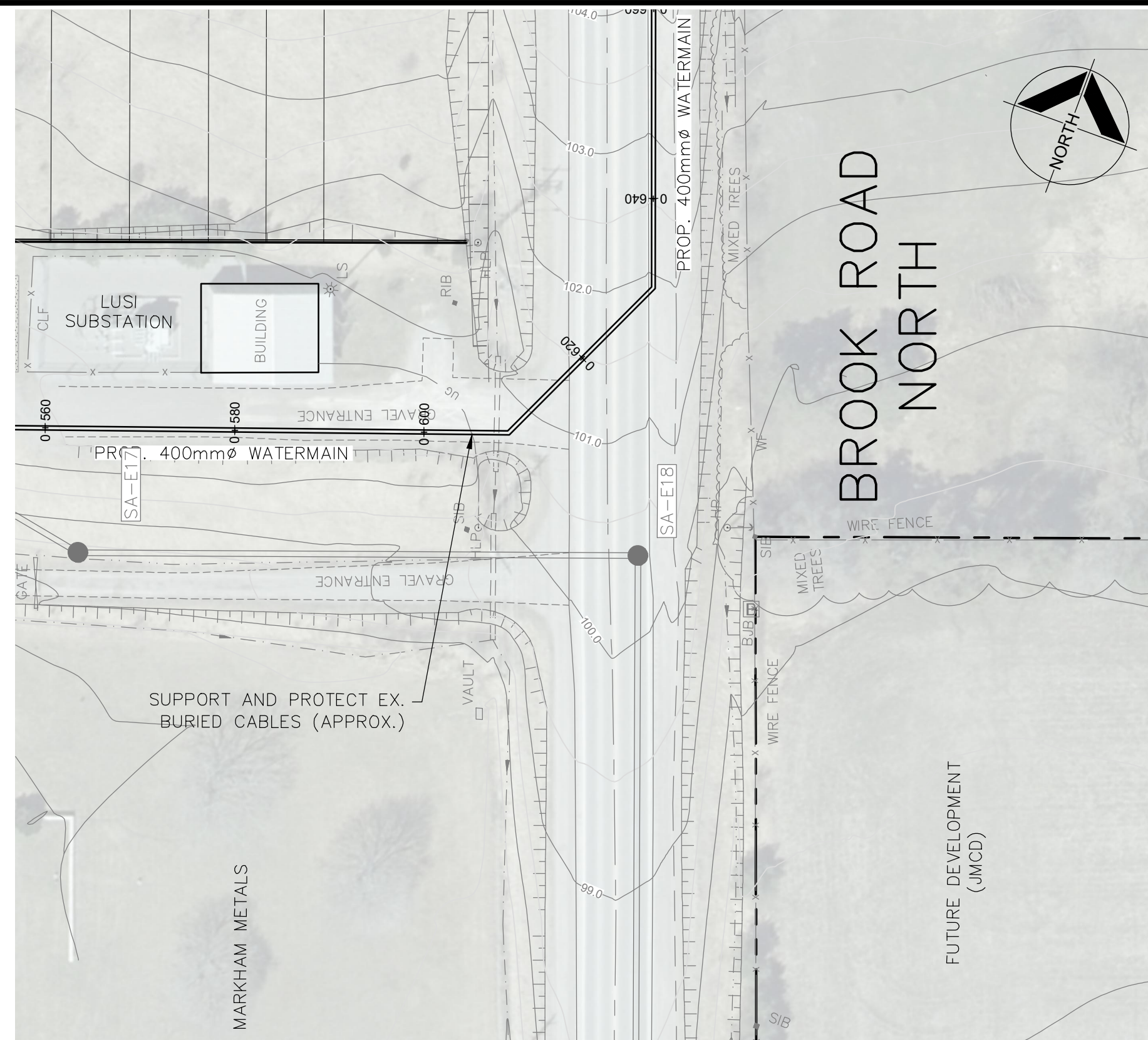
01	FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description

SHEET TITLE:
**PLAN AND PROFILE
ELGIN ST E WATERMAIN
STA. X+XXX TO STA. X+XXX**

DISCIPLINE:
MUNICIPAL INFRASTRUCTURE

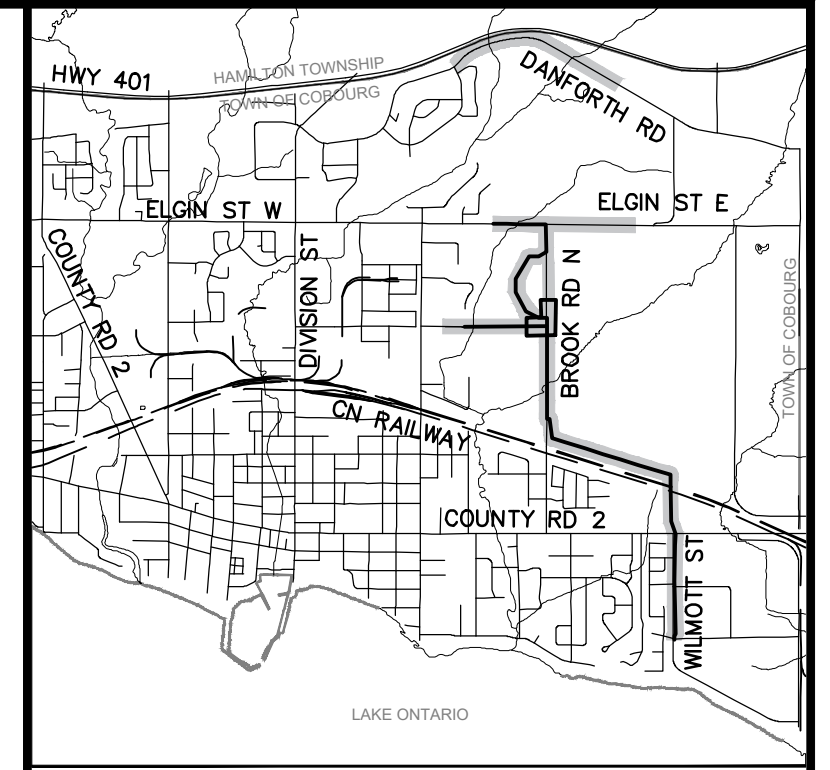


PROJECT No:	C14-0454	CLIENT File No:	
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-W8
		SHEET No:	---- OF ----



STATION	0+560	0+580	0+600	0+620	0+640	0+660
CENTERLINE GRADE FINISHED	99.64	100.47	100.60	100.68	101.50	102.55
WATERMAIN DATA						

STATION	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820
CENTERLINE GRADE FINISHED	103.98	105.44	106.81	108.07	109.11	108.99	110.73	111.44
WATERMAIN DATA								



KEY PLAN (N.T.S.)
 BENCHMARK:
 BM XXXX
 XXXX
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.
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 ALL DIMENSIONS AND INFORMATION SHALL BE CHECKED AND VERIFIED ON THE JOB AND ANY DISCREPANCIES MUST BE REPORTED TO THE MUNICIPALITY BEFORE COMMENCING THE WORK. DRAWINGS ARE NOT TO BE SCALED.

CIW+
 2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
 Phone: 905-907-4464 www.ciw.ca

CLIENT:
Tribute communities ³⁵ YEARS

PROJECT NAME:
COBOURG TRAILS EXTERNAL SERVICING

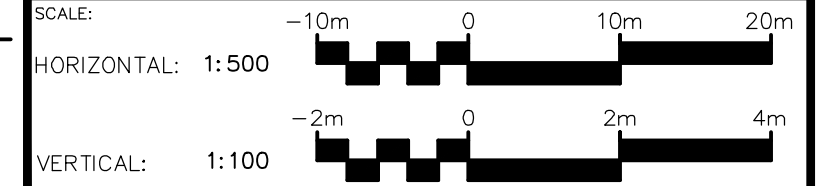
STAMP:

DESIGNED BY	APPROVED BY

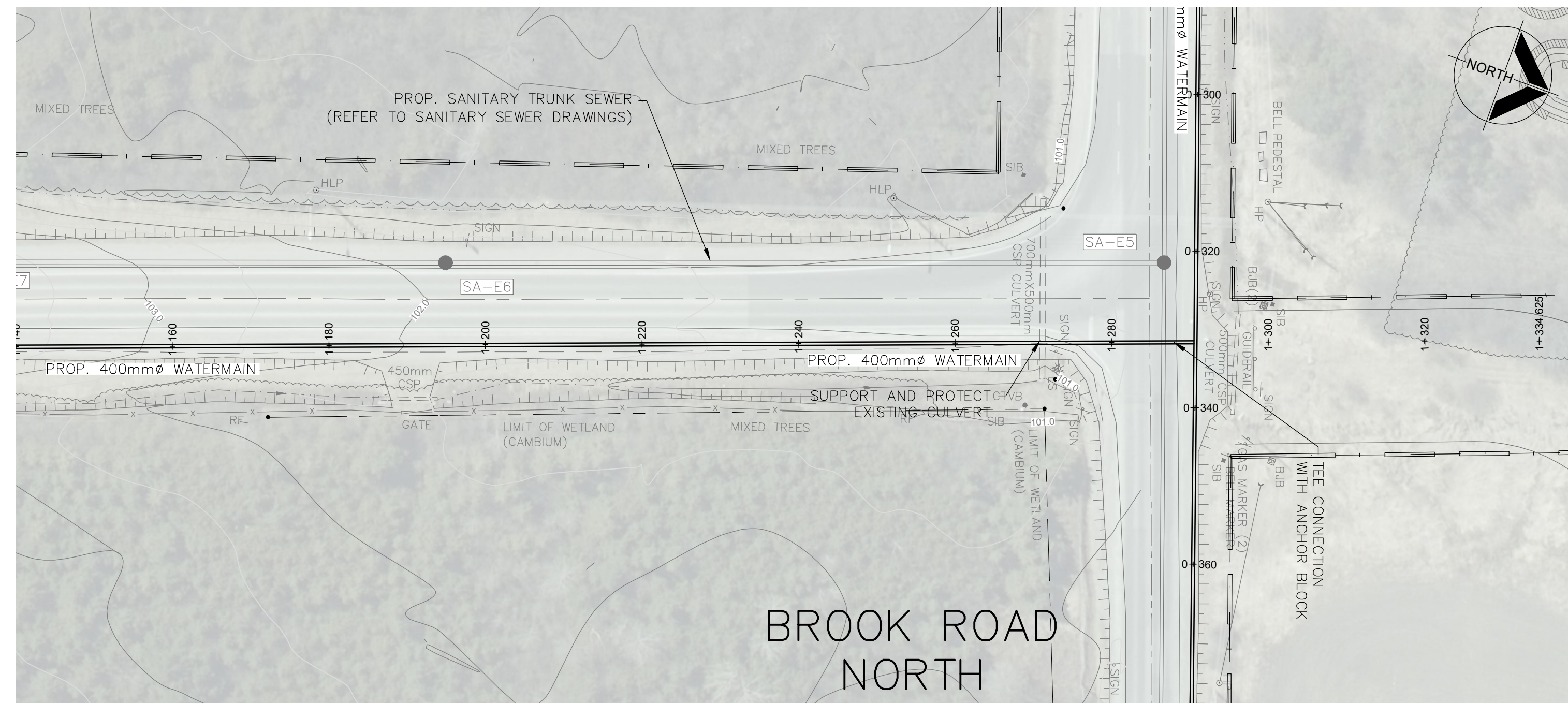
01		FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description	By

SHEET TITLE:
PLAN AND PROFILE COBOURG TRAILS WATERMAIN STA. X+XXX TO STA. X+XXX

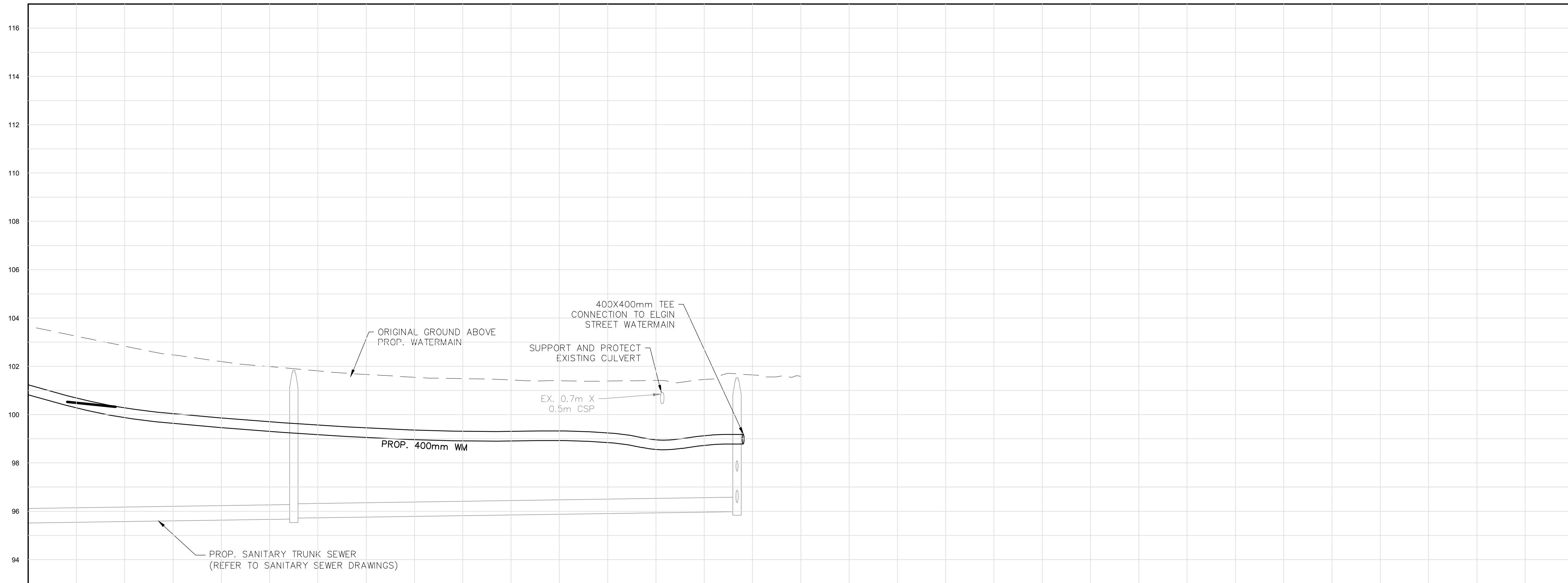
DISCIPLINE:
MUNICIPAL INFRASTRUCTURE



PROJECT No: C14-0454 CLIENT File No: ---
 DRAFTER: G.M. DESIGNER: M.C. DRAWING No: ---
 CHECKER: D.C. APPROVER: D.C. **PP-W11**
 DATE: August, 2021 SHEET No: ---- OF ----

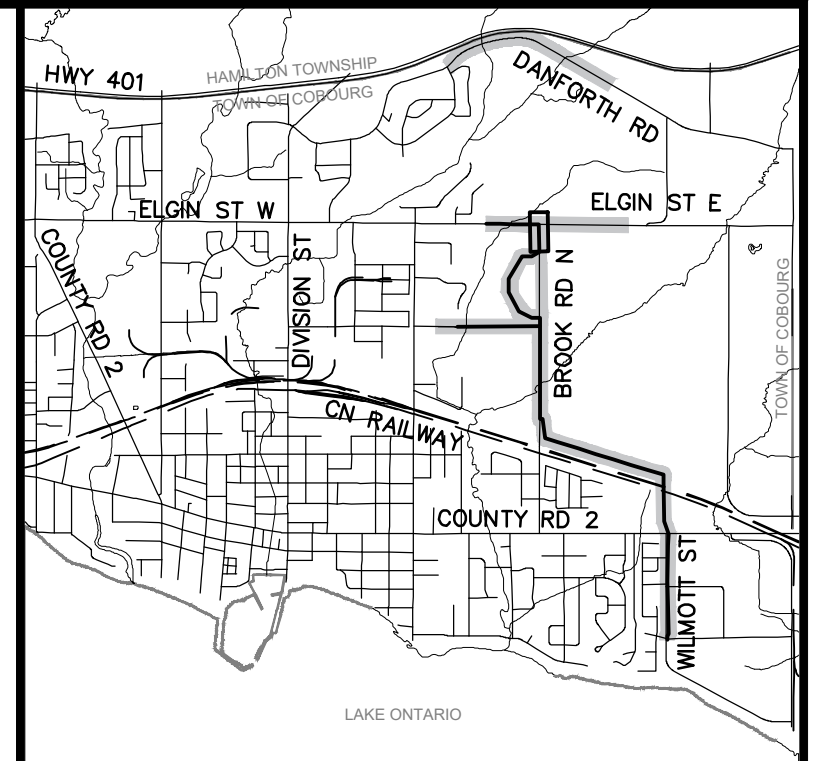


ELGIN STREET
EAST



STATION	1+160	1+180	1+200	1+220	1+240	1+260	1+280	1+300
CENTERLINE GRADE FINISHED ELEVATION	102.84	102.20	101.81	101.55	101.43	101.39	101.46	
WATERMAIN DATA								

STATION	1+160	1+180	1+200	1+220	1+240	1+260	1+280	1+300
CENTERLINE GRADE FINISHED ELEVATION	102.84	102.20	101.81	101.55	101.43	101.39	101.46	
WATERMAIN DATA								



KEY PLAN (N.T.S.)

BENCHMARK:
BM1
XXXX XXXX

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

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2nd Floor - 415 Baseline Road West, Bowmanville, ON L1C 5M2
Phone: 905-807-4464 www.ciwa.ca

CLIENT:

PROJECT NAME:
COBOURG TRAILS
EXTERNAL SERVICING

STAMPS:

DESIGNED BY	APPROVED BY

01	FUNCTIONAL SERVICING REPORT	D.C.
No.	Date	Description
		By

SHEET TITLE:
PLAN AND PROFILE
BROOK RD N WATERMAIN
STA. X+XXX TO STA. X+XXX

DISCIPLINE:
MUNICIPAL INFRASTRUCTURE

SCALE:
HORIZONTAL: 1:500
VERTICAL: 1:100

PROJECT No:	C14-0454	CLIENT File No:	---
DRAFTER:	G.M.	DESIGNER:	M.C.
CHECKER:	D.C.	APPROVER:	D.C.
DATE:	August, 2021	DRAWING No:	PP-W13
		SHEET No:	--- OF ---



Appendix C

Photographic Log



PROJECT 13806-
NUMBER: 001

DATE: October
05, 2021

LOCATION: Cobourg
Section 1

Field Staff: AC, TJ

Section 1

Site Overview



Phragmites along 401 E



Weeping willow, Little-leaf Linden roadside community



Box culvert under 401 at WCC#1a (WL#1)



401 embankment

Watercourses and Drainage Features:



Unevaluated wetland community on south side of Densmore (SWMM1-1 – WL#2)



Midtown Creek in Section 1, within WL#2



Watercourse same location looking upstream

Aquatic Assessment



Midtown Creek – flow to south through existing concrete box culvert at WCC#1a.



View from Densmore Road north toward 401



View to the south of Densmore Road at WCC#1a



View to the north at WCC#1b



View to the south at WCC#1b



View across Danforth Road from north to south at WCC#1b



PROJECT 13806-
NUMBER: 001

DATE: October
05, 2021

LOCATION: Cobourg
Section 2

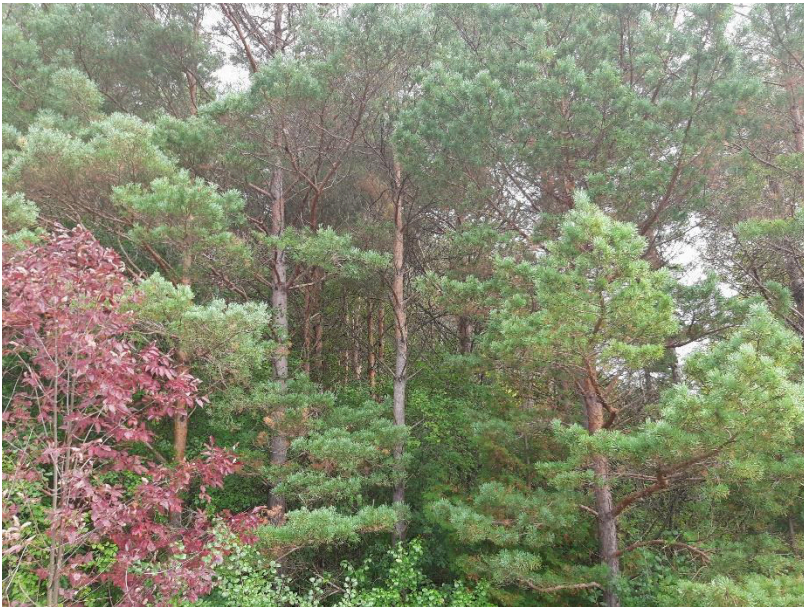
Field Staff: AC, TJ

Section 2

Watercourses and Drainage Features:



Culvert beneath unopened road allowance, Section 2



Coniferous forest (FOC) Community west of Site



Wetland community (SWDM4-5) adjacent to the road allowance trail. Standing water present.

Aquatic Assessment



View toward the east at WCC#2



View toward the west at WCC#2



PROJECT 13806-
NUMBER: 001

DATE: October
05, 2021

LOCATION: Cobourg

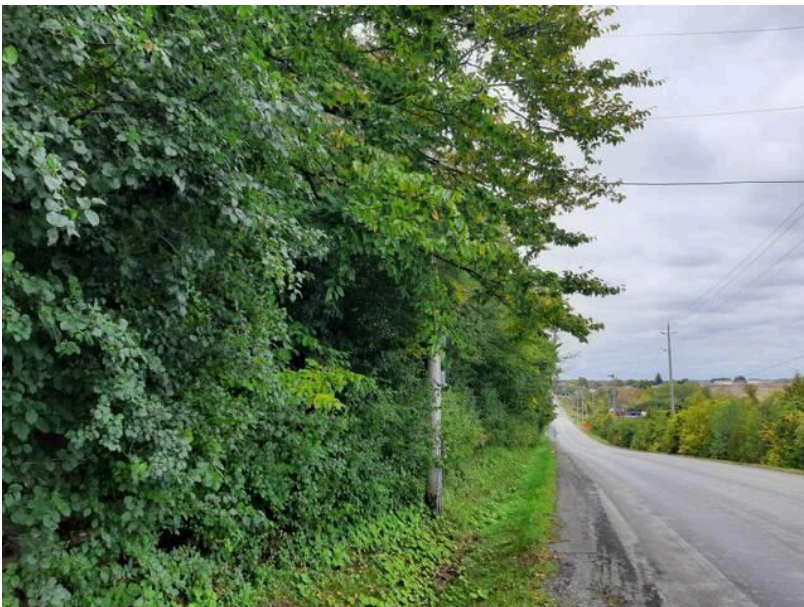
Field Staff: AC, TJ

Section 3

Site Overview



South side of Elgin Street, east of Brook Road North



Looking westward down south side of Elgin Street toward Brook Road North



North side of Elgin St, west of Brook Road North (MAS2-1)



South of side of Elgin St., west of Brook Road North (MAM2-10)

Aquatic Assessment



View toward the south at WCC#3 toward wetland community MAM2-10 (WL#6)



View toward the north at WCC#3 (area of Brook Creek West Restoration/Naturalization). WL#7



View toward south across Elgin Street East at WCC#3



View of culvert inlet on the north side of Elgin Street East at WCC#3



PROJECT 13806-
NUMBER: 001

DATE: October
05, 2021

LOCATION: Cobourg

Field Staff: AC, TJ

Section 4

Site Overview



Section 4 looking south along east side of Brook Road N, just south of the intersection with Elgin Street East. Adjacent to WL#5.



Section 4 west side of Brook Road N, south of Elgin Street



Typical roadside vegetation assemblage throughout Section 4.

Aquatic Assessment



View toward east at WCC#4. Brook Creek East tributary.



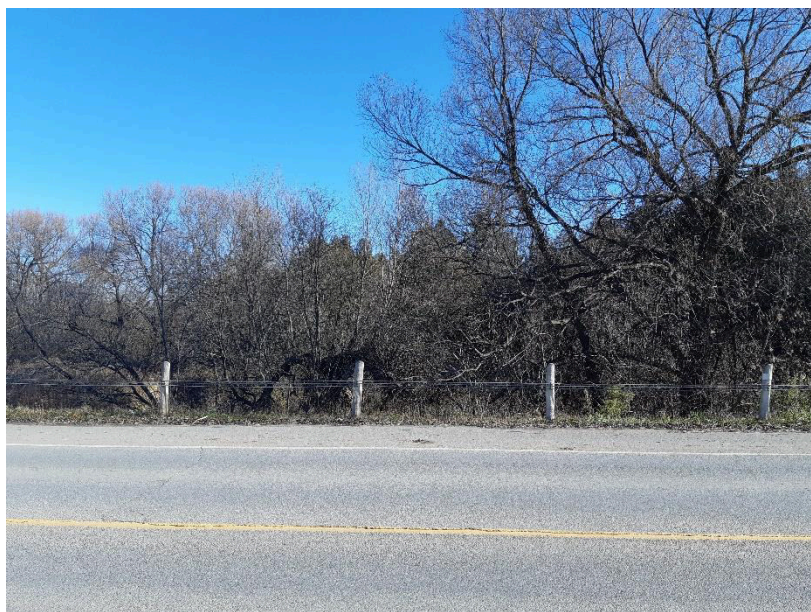
View of box culvert on east side of Brook Road North at WCC#4



View of box culvert on west side of Brook Road North at WCC#4



View toward west at WCC#4. Brook Creek East tributary.



View toward west across Brook Road North at WCC#4



PROJECT 13806-
NUMBER: 001

DATE: October
05, 2021

LOCATION: Cobourg

Field Staff: AC, TJ

Section 5

Site Overview



Looking west from Brook Road North, straight onto Section 5 alignment



Active development north of alignment (Niblett EIS area; Phase 2 lands)



Watercourse at west edge of Section 5 (WCC#5)



Cultural Meadow (CUM1-1) occupies most of the land to the south of the alignment in this Section.

Aquatic Assessment



View toward north at WCC#5. Brook Creek West tributary.



View toward south at WCC#5. Brook Creek West tributary.



PROJECT 13806-
NUMBER: 001

DATE: October
05, 2021

LOCATION: Cobourg

Field Staff: AC, TJ

Section 6

Site Overview



Ditch along north edge of Section 6, with drainage from CP/CN Railways.



Open field areas with active agriculture present throughout Section 4.



Open field with sporadic trees/hedgerows within.



Hedgerow along Brook Road North, east side.



PROJECT 13806-
NUMBER: 001

DATE: October
05, 2021

LOCATION: Cobourg

Field Staff: AC, TJ

Section 7

Site Overview



Deciduous swamp community (SWD2-2), with some shallow water areas dominated by narrow-leaved cattail.



Wet ground conditions within community SWD2-2.



View of the Cultural Thicket / Hedgerow community to the south of the CP/CN Railway.



View of Buckthorn Thicket within the field that will be traversed by the alignment, between the CP/CN Railway and King Street East.



Appendix D
Vegetation Species List



VEGETATION
COMMUNITY

CLASSIFICATION: CUM

COMMUNITY #: Various Sections

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 5, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA
Field Brome	<i>Bromus arvensis</i>	Poaceae	3				SNA
Smooth Brome	<i>Bromus inermis</i>	Poaceae	5				SNA
Bracken Fern	<i>Pteridium aquilinum</i>	Dennstaedtiaceae	3	2			S5
Red Raspberry	<i>Rubus idaeus</i>	Rosaceae	3	2			S5
Black Raspberry	<i>Rubus occidentalis</i>	Rosaceae	5	2			S5
Red Clover	<i>Trifolium pratense</i>	Fabaceae	3				SNA
Common Burdock	<i>Arctium minus</i>	Asteraceae	3				SNA
Canada Thistle	<i>Cirsium arvense</i>	Asteraceae	3				SNA
Bull Thistle	<i>Cirsium vulgare</i>	Asteraceae	3				SNA
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
Balsam Poplar	<i>Populus balsamifera</i>	Salicaceae	-3	4			S5
Common Dandelion	<i>Taraxacum officinale</i>	Asteraceae	3				SNA
Wild Strawberry	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	Rosaceae	3	2			S5
Field Mustard	<i>Brassica rapa</i>	Brassicaceae	5				SNA
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	Asteraceae	3	1			S5
Common Tansy	<i>Tanacetum vulgare</i>	Asteraceae	5				SNA
Common Ragweed	<i>Ambrosia artemisiifolia</i>	Asteraceae	3	0			S5
Annual Fleabane	<i>Erigeron annuus</i>	Asteraceae	3	0			S5
Oxeye Daisy	<i>Leucanthemum vulgare</i>	Asteraceae	5				SNA
White Poplar	<i>Populus alba</i>	Salicaceae	5				SNA
Field Sow-thistle	<i>Sonchus arvensis</i>	Asteraceae	3				SNA
Purple Crown-vetch	<i>Securigera varia</i>	Fabaceae	5				SNA
Field Milk-vetch	<i>Astragalus agrestis</i>	Fabaceae	-3				SH
Common Mullein	<i>Verbascum thapsus</i> ssp. <i>thapsus</i>	Scrophulariaceae	5				SNA
Canada Blackberry	<i>Rubus canadensis</i>	Rosaceae	5	2			S5

Common Mouse-ear Chickweed	<i>Cerastium fontanum</i> ssp. <i>vulgare</i>	Caryophyllaceae	3				SNA
-------------------------------	--	-----------------	---	--	--	--	-----



VEGETATION
COMMUNITY
CLASSIFICATION:

Roadside
Areas

COMMUNITY #:

Various
Sections

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 5,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Staghorn Sumac	Rhus typhina	Anacardiaceae	3	1			S5
European Buckthorn	Rhamnus cathartica	Rhamnaceae	0				SNA
Smooth Brome	Bromus inermis	Poaceae	5				SNA
Wild Carrot	Daucus carota	Apiaceae	5				SNA
Alfalfa	Medicago sativa ssp. sativa	Fabaceae	5				SNA
Tufted Vetch	Vicia cracca	Fabaceae	5				SNA
Purple Crown-vetch	Securigera varia	Fabaceae	5				SNA
Common Milkweed	Asclepias syriaca	Apocynaceae	5	0			S5
Oxeye Daisy	Leucanthemum vulgare	Asteraceae	5				SNA
Black-eyed Susan	Rudbeckia hirta var. pulcherrima	Asteraceae	3	0			S5
Common Juniper	Juniperus communis var. communis	Cupressaceae	3				SNA
Common Mullein	Verbascum thapsus ssp. thapsus	Scrophulariaceae	5				SNA
European Swallowwort	Vincetoxicum rossicum	Apocynaceae	5				SNA
Common Motherwort	Leonurus cardiaca ssp. cardiaca	Lamiaceae	5				SNA
Tall Goldenrod	Solidago altissima	Asteraceae	3	1			S5
Grey-stemmed Goldenrod	Solidago nemoralis ssp. nemoralis	Asteraceae	5	2			S5



VEGETATION
COMMUNITY

CLASSIFICATION: CUW

COMMUNITY #: Section 1

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Black Locust	<i>Robinia pseudoacacia</i>	Fabaceae	3				SNA
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	Asteraceae	3	1			S5
Common Lilac	<i>Syringa vulgaris</i>	Oleaceae	5				SNA
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Dunbar's Hawthorn	<i>Crataegus beata</i>	Rosaceae	5	4			S1
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
European Reed	<i>Phragmites australis</i> ssp. <i>australis</i>	Poaceae	-3				SNA
European Swallowwort	<i>Vincetoxicum rossicum</i>	Apocynaceae	5				SNA
Garden Asparagus	<i>Asparagus officinalis</i>	Liliaceae	3				SNA
Little-leaved Linden	<i>Tilia cordata</i>	Tiliaceae	5				SNA
New England Aster	<i>Symphotrichum novae-angliae</i>	Asteraceae	-3	2			S5
Poison Ivy	<i>Toxicodendron radicans</i>	Anacardiaceae	0	2			S5
Red Ash	<i>Fraxinus pennsylvanica</i>	Oleaceae	-3	3			S4
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Scots Pine	<i>Pinus sylvestris</i> var. <i>sylvestris</i>	Pinaceae	3				SNA
Smooth Brome	<i>Bromus inermis</i>	Poaceae	5				SNA
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Caprifoliaceae	3				SNA
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	Vitaceae	3	6			S4?
White Elm	<i>Ulmus americana</i>	Ulmaceae	-3	3			S5
White Heath Aster	<i>Symphotrichum ericoides</i> var. <i>ericoides</i>	Asteraceae	3	4			S5
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA
Wild Chicory	<i>Cichorium intybus</i>	Asteraceae	5				SNA

NOTES: Weeping willow. Roadside. Cultural Woodland, Sparse tree cover. Common roadside species.



VEGETATION
COMMUNITY
CLASSIFICATION:

CUW

COMMUNITY #: Section 1

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: MAS2-1

COMMUNITY #: Section 1

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: November 19,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Bittersweet Nightshade	<i>Solanum dulcamara</i>	Solanaceae	0				SNA
Crack Willow	<i>Salix euxina</i>	Salicaceae	0				SNA
Narrow-leaved Cattail	<i>Typha angustifolia</i>	Typhaceae	-5				SNA
Panicled Aster	<i>Symphotrichum lanceolatum</i>	Asteraceae	-3	3			S5
Purple Loosestrife	<i>Lythrum salicaria</i>	Lythraceae	-5				SNA
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
Reed Canarygrass	<i>Phalaris arundinacea</i> var. <i>arundinacea</i>	Poaceae	-3	0			S5
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Caprifoliaceae	3				SNA
Water Horsetail	<i>Equisetum fluviatile</i>	Equisetaceae	-5	7			S5

NOTES: Cattail Marsh



VEGETATION
COMMUNITY

CLASSIFICATION: MAS2-1

COMMUNITY #: 2

LOCATION: Cobourg

COORDINATES: 43.9910615, -
78.1549976

PROJECT NUMBER: 13806-001

DATE: November 19,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: SWDM4-5

COMMUNITY #: Section 1a

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: November 19, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Bebb's Willow	<i>Salix bebbiana</i>	Salicaceae	-3	4			S5
Bittersweet Nightshade	<i>Solanum dulcamara</i>	Solanaceae	0				SNA
Common Winterberry	<i>Ilex verticillata</i>	Aquifoliaceae	-3	5			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
European Swallowwort	<i>Vincetoxicum rossicum</i>	Apocynaceae	5				SNA
Highbush Cranberry	<i>Viburnum opulus</i> ssp. <i>trilobum</i> var. <i>americanum</i>	Caprifoliaceae	-3	5			S5
Narrow-leaved Cattail	<i>Typha angustifolia</i>	Typhaceae	-5				SNA
Red Ash	<i>Fraxinus pennsylvanica</i>	Oleaceae	-3	3			S4
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
Reed Canarygrass	<i>Phalaris arundinacea</i> var. <i>arundinacea</i>	Poaceae	-3	0			S5
Scots Pine	<i>Pinus sylvestris</i> var. <i>sylvestris</i>	Pinaceae	3				SNA
Sensitive Fern	<i>Onoclea sensibilis</i>	Dryopteridaceae	-3	4			S5
Spotted Joe Pye Weed	<i>Eutrochium maculatum</i> var. <i>maculatum</i>	Asteraceae	-5	3			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5

NOTES: Poplar deciduous swamp. Trees sparse near road.



VEGETATION
COMMUNITY

CLASSIFICATION: SWD4-5

COMMUNITY #: 1

LOCATION: Cobourg

COORDINATES: 44.3172857, -
78.305547

PROJECT NUMBER: 13806-001

DATE: November 19,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: MAS2-1

COMMUNITY #: Section 1

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Canada Thistle	<i>Cirsium arvense</i>	Asteraceae	3				SNA
Coltsfoot	<i>Tussilago farfara</i>	Asteraceae	3				SNA
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Common Pear	<i>Pyrus communis</i>	Rosaceae	5				SNA
European Reed	<i>Phragmites australis</i> ssp. <i>australis</i>	Poaceae	-3				SNA
Narrow-leaved Cattail	<i>Typha angustifolia</i>	Typhaceae	-5				SNA
New England Aster	<i>Symphyotrichum novae-angliae</i>	Asteraceae	-3	2			S5
Panicled Aster	<i>Symphyotrichum lanceolatum</i>	Asteraceae	-3	3			S5
Pussy Willow	<i>Salix discolor</i>	Salicaceae	-3	3			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Tufted Vetch	<i>Vicia cracca</i>	Fabaceae	5				SNA
White Spruce	<i>Picea glauca</i>	Pinaceae	3	6			S5
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA

NOTES: Marsh community near culvert. Some wetland species in ditch. GPS 50-51. Cattails dominate.



VEGETATION
COMMUNITY

CLASSIFICATION: MAS2-1

COMMUNITY #: Section 1

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: SWM1-1

COMMUNITY #: Section 1

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Balsam Poplar	<i>Populus balsamifera</i>	Salicaceae	-3	4			S5
Bittersweet Nightshade	<i>Solanum dulcamara</i>	Solanaceae	0				SNA
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	Asteraceae	3	1			S5
Coltsfoot	<i>Tussilago farfara</i>	Asteraceae	3				SNA
Common Yarrow	<i>Achillea millefolium</i>	Asteraceae	3				SNA
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
Meadow Horsetail	<i>Equisetum pratense</i>	Equisetaceae	-3	8			S5
Multiflora Rose	<i>Rosa multiflora</i>	Rosaceae	3				SNA
New England Aster	<i>Symphyotrichum novae- angliae</i>	Asteraceae	-3	2			S5
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Silver Maple	<i>Acer saccharinum</i>	Aceraceae	-3	5			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5

NOTES:



VEGETATION
COMMUNITY

CLASSIFICATION: SWM1-1

COMMUNITY #: Section 1

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: CUM

COMMUNITY #: Section 2

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Alfalfa	<i>Medicago sativa</i> ssp. <i>sativa</i>	Fabaceae	5				SNA
Black Locust	<i>Robinia pseudoacacia</i>	Fabaceae	3				SNA
Black Swallowwort	<i>Vincetoxicum nigrum</i>	Apocynaceae	5				SNA
Bouncing-bet	<i>Saponaria officinalis</i>	Caryophyllaceae	3				SNA
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	Asteraceae	3	1			S5
Common Evening-primrose	<i>Oenothera biennis</i>	Onagraceae	3	0			S5
Common Ragweed	<i>Ambrosia artemisiifolia</i>	Asteraceae	3	0			S5
Curled Dock	<i>Rumex crispus</i>	Polygonaceae	0				SNA
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
False Sunflower	<i>Heliopsis helianthoides</i> var. <i>helianthoides</i>	Asteraceae	3	3			SU
Field Mustard	<i>Brassica rapa</i>	Brassicaceae	5				SNA
Hairy Sunflower	<i>Helianthus hirsutus</i>	Asteraceae	5				SNA
New England Aster	<i>Symphyotrichum novae-angliae</i>	Asteraceae	-3	2			S5
Poison Ivy	<i>Toxicodendron radicans</i>	Anacardiaceae	0	2			S5
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
Reed Canarygrass	<i>Phalaris arundinacea</i> var. <i>arundinacea</i>	Poaceae	-3	0			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Smooth Brome	<i>Bromus inermis</i>	Poaceae	5				SNA
Staghorn Sumac	<i>Rhus typhina</i>	Anacardiaceae	3	1			S5
Stiff Sunflower	<i>Helianthus pauciflorus</i> ssp. <i>pauciflorus</i>	Asteraceae	5				SNA
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	Vitaceae	3	6			S4?
White Heath Aster	<i>Symphyotrichum ericoides</i> var. <i>ericoides</i>	Asteraceae	3	4			S5
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA



VEGETATION
COMMUNITY

CLASSIFICATION: CU

COMMUNITY #: Section 2a

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List



VEGETATION
COMMUNITY

CLASSIFICATION: FOMM7-2

COMMUNITY #: Section 2

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
Black Locust	<i>Robinia pseudoacacia</i>	Fabaceae	3				SNA
Scots Pine	<i>Pinus sylvestris</i> var. <i>syvestris</i>	Pinaceae	3				SNA
Staghorn Sumac	<i>Rhus typhina</i>	Anacardiaceae	3	1			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	Asteraceae	3	1			S5
Eastern White Pine	<i>Pinus strobus</i>	Pinaceae	3	4			S5
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
New England Aster	<i>Symphyotrichum novae-</i> <i>angliae</i>	Asteraceae	-3	2			S5
White Sweet-clover	<i>Melilotus albus</i>	Fabaceae	3				SNA
Garden Bird's-foot Trefoil	<i>Lotus corniculatus</i>	Fabaceae	3				SNA
Cottony Willow	<i>Salix eriocephala</i>	Salicaceae	-3	4			S5
Bebb's Willow	<i>Salix bebbiana</i>	Salicaceae	-3	4			S5
Common Self-heal	<i>Prunella vulgaris</i> ssp. <i>vulgaris</i>	Lamiaceae	0				SNA

NOTES:



VEGETATION
COMMUNITY

CLASSIFICATION: FOMM7-2

COMMUNITY #: Section 2

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: MAS2-1

COMMUNITY #: Section 2

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Common Boneset	<i>Eupatorium perfoliatum</i>	Asteraceae	-3	2			S5
Crack Willow	<i>Salix euxina</i>	Salicaceae	0				SNA
Narrow-leaved Cattail	<i>Typha angustifolia</i>	Typhaceae	-5				SNA
Nodding Beggarticks	<i>Bidens cernua</i>	Asteraceae	-5	2			S5
Panicled Aster	<i>Symphotrichum lanceolatum</i>	Asteraceae	-3	3			S5
Purple Loosestrife	<i>Lythrum salicaria</i>	Lythraceae	-5				SNA
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
Sensitive Fern	<i>Onoclea sensibilis</i>	Dryopteridaceae	-3	4			S5
Spotted Jewelweed	<i>Impatiens capensis</i>	Balsaminaceae	-3	4			S5
Spotted Joe Pye Weed	<i>Eutrochium maculatum</i> var. <i>maculatum</i>	Asteraceae	-5	3			S5

NOTES:



VEGETATION
COMMUNITY

CLASSIFICATION: MAS2-1

COMMUNITY #: Section 2

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: SWDM4-5

COMMUNITY #: Section 2

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
American Hog-peanut	<i>Amphicarpaea bracteata</i>	Fabaceae	0	4			S5
Coltsfoot	<i>Tussilago farfara</i>	Asteraceae	3				SNA
Common Dandelion	<i>Taraxacum officinale</i>	Asteraceae	3				SNA
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
Nodding Beggarticks	<i>Bidens cernua</i>	Asteraceae	-5	2			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Sensitive Fern	<i>Onoclea sensibilis</i>	Dryopteridaceae	-3	4			S5
Spotted Jewelweed	<i>Impatiens capensis</i>	Balsaminaceae	-3	4			S5
Spotted Joe Pye Weed	<i>Eutrochium maculatum</i> var. <i>maculatum</i>	Asteraceae	-5	3			S5
Stinging Nettle	<i>Urtica dioica</i>	Urticaceae	0	2			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
Virginia Clematis	<i>Clematis virginiana</i>	Ranunculaceae	0	3			S5
White Willow	<i>Salix alba</i>	Salicaceae	-3				SNA
Wild Parsnip	<i>Pastinaca sativa</i>	Apiaceae	5				SNA

NOTES:



VEGETATION
COMMUNITY

CLASSIFICATION: SWDM4-5

COMMUNITY #: Section 2

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: FODM5-2

COMMUNITY #: Section 3

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
American Beech	<i>Fagus grandifolia</i>	Fagaceae	3	6			S4
Beechdrops	<i>Epifagus virginiana</i>	Orobanchaceae	5	6			S5
Black Cherry	<i>Prunus serotina</i> var. <i>serotina</i>	Rosaceae	3	3			S5
Eastern Hop-hornbeam	<i>Ostrya virginiana</i>	Betulaceae	3	4			S5
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
European Mountain-ash	<i>Sorbus aucuparia</i>	Rosaceae	5				SNA
Paper Birch	<i>Betula papyrifera</i>	Betulaceae	3	2			S5
Sugar Maple	<i>Acer saccharum</i>	Aceraceae	3	4			S5
White Ash	<i>Fraxinus americana</i>	Oleaceae	3	4			S4
Zigzag Goldenrod	<i>Solidago flexicaulis</i>	Asteraceae	3	6			S5

NOTES: 4 standing dead beech approximately 6-10m tall within 10m of edge of road. No cavities or exfoliating bark visible. 1 suitable cavity tree observed and marked with GPS (Photo 3 below).



VEGETATION
COMMUNITY

CLASSIFICATION: FODM5-2

COMMUNITY #: Section 3

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: FODM5-2

COMMUNITY #: Section 3

LOCATION: Cobourg

COORDINATES: -

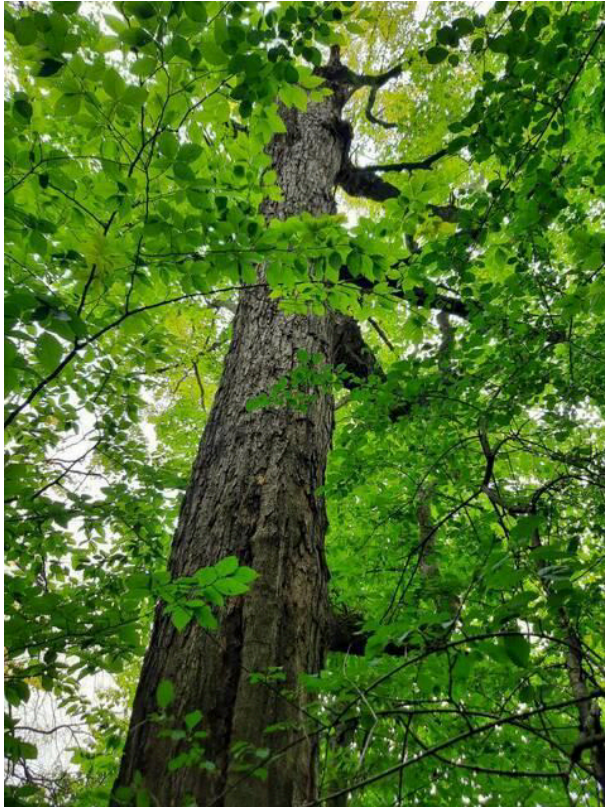
PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List





VEGETATION
COMMUNITY

CLASSIFICATION: FOMM4-3

COMMUNITY #: Section 3

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Black Walnut	<i>Juglans nigra</i>	Juglandaceae	3	5			S4?
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Paper Birch	<i>Betula papyrifera</i>	Betulaceae	3	2			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
Large-toothed Aspen	<i>Populus grandidentata</i>	Salicaceae	5	5			S5
Black Cherry	<i>Prunus serotina</i> var. <i>serotina</i>	Rosaceae	3	3			S5
Sugar Maple	<i>Acer saccharum</i>	Aceraceae	3	4			S5
White Ash	<i>Fraxinus americana</i>	Oleaceae	3	4			S4

NOTES: Minimal groundcover due to intense shading. Similar to SWMM1-1, but ground conditions are dry, and greater percentage of upland species present.



VEGETATION
COMMUNITY

CLASSIFICATION: SWMM1-1

COMMUNITY #: Section 3 & 4

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Black Walnut	<i>Juglans nigra</i>	Juglandaceae	3	5			S4?
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Nannyberry	<i>Viburnum lentago</i>	Caprifoliaceae	0	4			S5
Paper Birch	<i>Betula papyrifera</i>	Betulaceae	3	2			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5

NOTES: On gentle slope toward north/west

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: CUM1-1

COMMUNITY #: Section 4

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Common Apple	<i>Malus pumila</i>	Rosaceae	5				SNA
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
New England Aster	<i>Symphyotrichum novae-angliae</i>	Asteraceae	-3	2			S5
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5

NOTES: Trees in hedgerow

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: CUW

COMMUNITY #: Section 4

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: November 19, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Black Willow	<i>Salix nigra</i>	Salicaceae	-5	6			S4
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Caprifoliaceae	3				SNA
Purple Loosestrife	<i>Lythrum salicaria</i>	Lythraceae	-5				SNA
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
Eastern Red Cedar	<i>Juniperus virginiana</i>	Cupressaceae	3	4			S5
Highbush Cranberry	<i>Viburnum opulus</i> ssp. <i>trilobum</i> var. <i>americanum</i>	Caprifoliaceae	-3	5			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
European Swallowwort	<i>Vincetoxicum rossicum</i>	Apocynaceae	5				SNA

NOTES: Veg around watercourse. CUW



VEGETATION
COMMUNITY
CLASSIFICATION:

CUW

COMMUNITY #: Section 4

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: November 19,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: FOC4-1

COMMUNITY #: Section 4

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
202

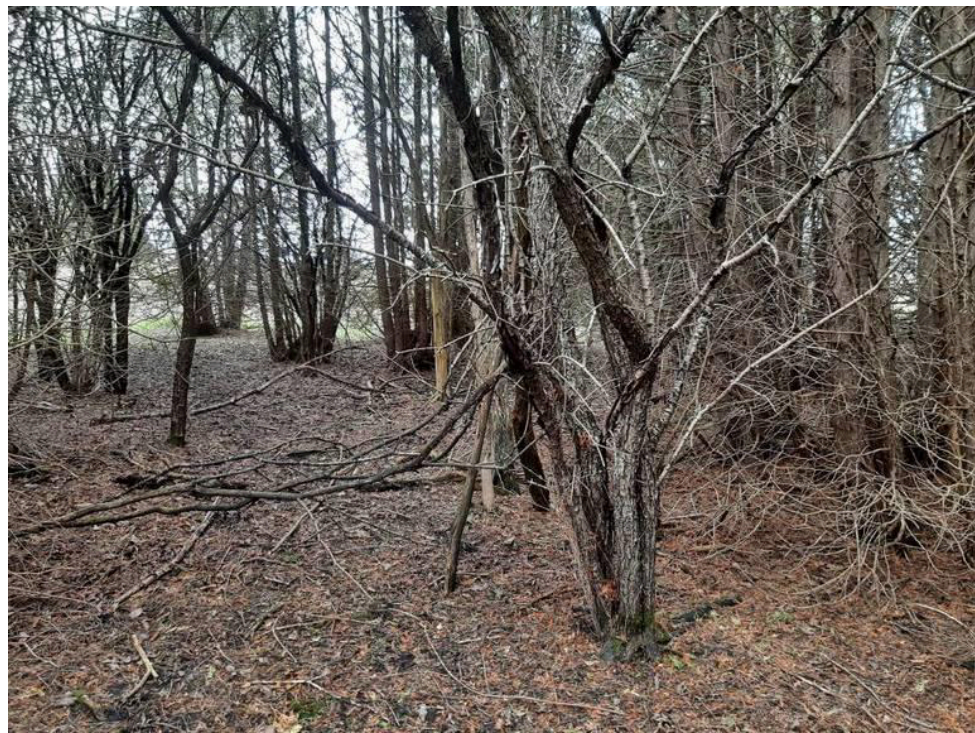
PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Red Ash	<i>Fraxinus pennsylvanica</i>	Oleaceae	-3	3			S4
Slippery Elm	<i>Ulmus rubra</i>	Ulmaceae	0	6			S5
White Elm	<i>Ulmus americana</i>	Ulmaceae	-3	3			S5

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: MAM2-9

COMMUNITY #: Section 4

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Field Horsetail	<i>Equisetum arvense</i>	Equisetaceae	0	0			S5
Common Scouring-rush	<i>Equisetum hyemale</i> ssp. <i>affine</i>	Equisetaceae	0	2			S5
Cottony Willow	<i>Salix eriocephala</i>	Salicaceae	-3	4			S5
Pussy Willow	<i>Salix discolor</i>	Salicaceae	-3	3			S5
Peach-leaved Willow	<i>Salix amygdaloides</i>	Salicaceae	-3	6			S5
Speckled Alder	<i>Alnus incana</i> ssp. <i>rugosa</i>	Betulaceae	-3	6			S5
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Yellow Marsh Marigold	<i>Caltha palustris</i>	Ranunculaceae	-5	5			S5
Reed Canarygrass	<i>Phalaris arundinacea</i> var. <i>arundinacea</i>	Poaceae	-3	0			S5
Spotted Joe Pye Weed	<i>Eutrochium maculatum</i> var. <i>maculatum</i>	Asteraceae	-5	3			S5
Spotted Jewelweed	<i>Impatiens capensis</i>	Balsaminaceae	-3	4			S5
Wild Parsnip	<i>Pastinaca sativa</i>	Apiaceae	5				SNA
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	Asteraceae	0	2			S5
Balsam Poplar	<i>Populus balsamifera</i>	Salicaceae	-3	4			S5
White Meadowsweet	<i>Spiraea alba</i> var. <i>alba</i>	Rosaceae	-3	3			S5
Bittersweet Nightshade	<i>Solanum dulcamara</i>	Solanaceae	0				SNA
Virginia Creeper	<i>Parthenocissus</i> <i>quinquefolia</i>	Vitaceae	3	6			S4?
Wild Cucumber	<i>Echinocystis lobata</i>	Cucurbitaceae	-3	3			S5
Swamp Milkweed	<i>Asclepias incarnata</i> ssp. <i>incarnata</i>	Apocynaceae	-5	6			S5
Red-tinged Bulrush	<i>Scirpus microcarpus</i>	Cyperaceae	-5	4			S5
Dark-green Bulrush	<i>Scirpus atrovirens</i>	Cyperaceae	-5	3			S5
Broad-leaved Cattail	<i>Typha latifolia</i>	Typhaceae	-5	1			S5
Three-parted Beggarticks	<i>Bidens tripartita</i>	Asteraceae	-3	5			S5?
Common Boneset	<i>Eupatorium perfoliatum</i>	Asteraceae	-3	2			S5

Purple-stemmed Aster	<i>Symphytotrichum puniceum</i> var. <i>puniceum</i>	Asteraceae	-5	6			S5
New England Aster	<i>Symphytotrichum novae-angliae</i>	Asteraceae	-3	2			S5
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	Asteraceae	3	1			S5
White Turtlehead	<i>Chelone glabra</i>	Scrophulariaceae	-5	7			S5
Spotted Lady's-thumb	<i>Persicaria maculosa</i>	Polygonaceae	-3				SNA
Purple Loosestrife	<i>Lythrum salicaria</i>	Lythraceae	-5				SNA

NOTES: Riparian area around creek

Canopy >20m

% Cover

Dominant Species

Sub-Canopy 10-20m

% Cover

Dominant Species

Understorey 0.5-10m

% Cover

Dominant Species

Groundcover <0.5m

% Cover

Dominant Species

Dominant Cover

VEGETATION COMMUNITY PHOTOS:



VEGETATION
COMMUNITY

CLASSIFICATION: FOCM6-3

COMMUNITY #: Section 4

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Balsam Poplar	<i>Populus balsamifera</i>	Salicaceae	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
White Spruce	<i>Picea glauca</i>	Pinaceae	3	6			S5
Black Locust	<i>Robinia pseudoacacia</i>	Fabaceae	3				SNA
Scots Pine	<i>Pinus sylvestris</i> var. <i>sylvestris</i>	Pinaceae	3				SNA
White Elm	<i>Ulmus americana</i>	Ulmaceae	-3	3			S5
Red Ash	<i>Fraxinus pennsylvanica</i>	Oleaceae	-3	3			S4
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5

NOTES: Infested with buckthorn. No ground cover.



VEGETATION
COMMUNITY

CLASSIFICATION: FOCM6-3

COMMUNITY #: Section 4

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: CVR_4

COMMUNITY #: Section 4

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Black Walnut	<i>Juglans nigra</i>	Juglandaceae	3	5			S4?
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Scots Pine	<i>Pinus sylvestris</i> var. <i>syvestris</i>	Pinaceae	3				SNA
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	Vitaceae	3	6			S4?

NOTES: Roadside area adjacent to rural residential property

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: CUM1-1

COMMUNITY #: Section 5

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	Asteraceae	3	1			S5
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Early Goldenrod	<i>Solidago juncea</i>	Asteraceae	5	3			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
New England Aster	<i>Symphotrichum novae-angliae</i>	Asteraceae	-3	2			S5
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Scots Pine	<i>Pinus sylvestris</i> var. <i>sylvestris</i>	Pinaceae	3				SNA
Common St. John's-wort	<i>Hypericum prolificum</i>	Clusiaceae	5	0			SNA
Smooth Brome	<i>Bromus inermis</i>	Poaceae	5				SNA
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Caprifoliaceae	3				SNA
Tufted Vetch	<i>Vicia cracca</i>	Fabaceae	5				SNA
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA

NOTES: Cultural meadow with some Scots Pine and tartarian honeysuckle



VEGETATION
COMMUNITY

CLASSIFICATION: CUM1-1

COMMUNITY #: Section 5

LOCATION: Cobourg

COORDINATES: -

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: CUW

COMMUNITY #: Section 5

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Andrews' Bottle Gentian	<i>Gentiana andrewsii</i>	Gentianaceae	-3	6			S4
Eastern Red Cedar	<i>Juniperus virginiana</i>	Cupressaceae	3	4			S5
Eastern White Pine	<i>Pinus strobus</i>	Pinaceae	3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	Asteraceae	0	2			S5
New England Aster	<i>Symphyotrichum novae-angliae</i>	Asteraceae	-3	2			S5
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Scots Pine	<i>Pinus sylvestris</i> var. <i>syvestris</i>	Pinaceae	3				SNA
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Caprifoliaceae	3				SNA
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
Tufted Vetch	<i>Vicia cracca</i>	Fabaceae	5				SNA
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA



VEGETATION
COMMUNITY

CLASSIFICATION: CUW

COMMUNITY #: Section 5

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: FODM7-3

COMMUNITY #: Section 5

LOCATION: Cobourg

COORDINATES: , ,

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

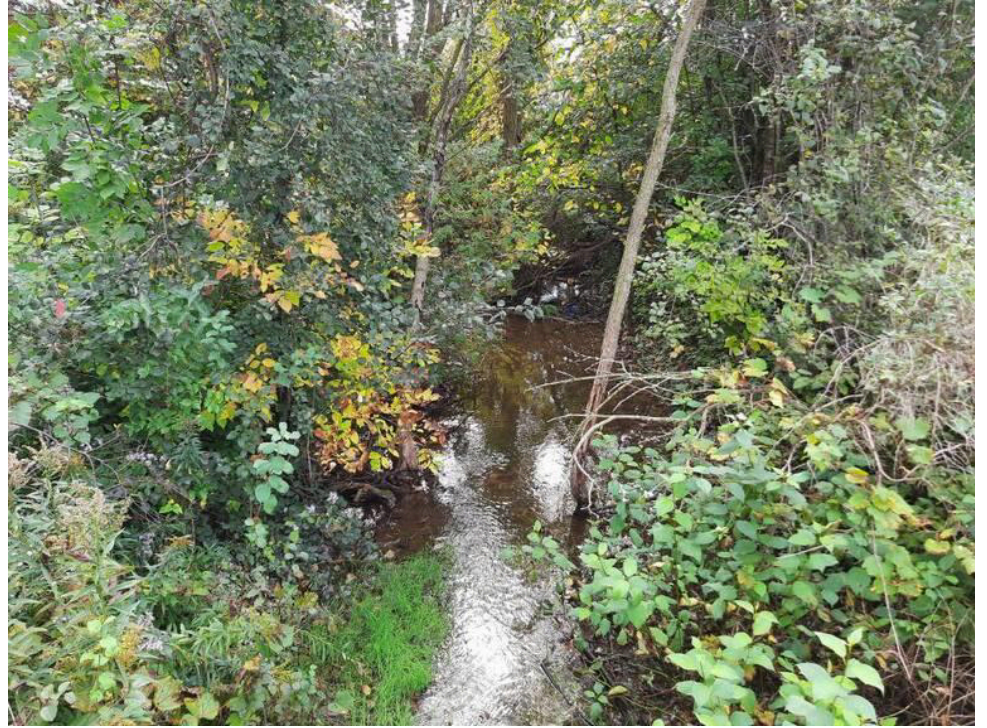
PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
White Willow	<i>Salix alba</i>	Salicaceae	-3	0			SNA
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Wild Raisin	<i>Viburnum nudum</i> var. <i>cassinoides</i>	Caprifoliaceae	-3	7			S5
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
New England Aster	<i>Symphyotrichum novae-</i> <i>angliae</i>	Asteraceae	-3	2			S5
White Heath Aster	<i>Symphyotrichum ericoides</i> var. <i>ericoides</i>	Asteraceae	3	4			S5
Reed Canarygrass	<i>Phalaris arundinacea</i> var. <i>arundinacea</i>	Poaceae	-3	0			S5
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Caprifoliaceae	3				SNA
Canada Avens	<i>Geum canadense</i>	Rosaceae	0	3			S5
Balsam Poplar	<i>Populus balsamifera</i>	Salicaceae	-3	4			S5
White Elm	<i>Ulmus americana</i>	Ulmaceae	-3	3			S5
Cranberry Viburnum	<i>Viburnum opulus</i> ssp. <i>opulus</i>	Caprifoliaceae	-3				SNA
English Hawthorn	<i>Crataegus monogyna</i> var. <i>monogyna</i>	Rosaceae	3				SNA
Common Burdock	<i>Arctium minus</i>	Asteraceae	3				SNA

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: FODM11

COMMUNITY #: Section 5

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 5,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
White Ash	<i>Fraxinus americana</i>	Oleaceae	3	4			S4
Basswood	<i>Tilia americana</i>	Tiliaceae	3	4			S5
Sugar Maple	<i>Acer saccharum</i>	Aceraceae	3	4			S5
Staghorn Sumac	<i>Rhus typhina</i>	Anacardiaceae	3	1			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	Vitaceae	3	6			S4?
Chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i>	Rosaceae	3	2			S5
Common Dandelion	<i>Taraxacum officinale</i>	Asteraceae	3				SNA
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA
Garlic Mustard	<i>Alliaria petiolata</i>	Brassicaceae	0				SNA
Tufted Vetch	<i>Vicia cracca</i>	Fabaceae	5				SNA
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Scots Pine	<i>Pinus sylvestris</i> var. <i>syvestris</i>	Pinaceae	3				SNA
Wild Strawberry	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	Rosaceae	3	2			S5
Bull Thistle	<i>Cirsium vulgare</i>	Asteraceae	3				SNA
Black Cherry	<i>Prunus serotina</i> var. <i>serotina</i>	Rosaceae	3	3			S5
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Caprifoliaceae	3				SNA
American Hog-peanut	<i>Amphicarpaea bracteata</i>	Fabaceae	0	4			S5
Broad-leaved Helleborine	<i>Epipactis helleborine</i>	Orchidaceae	3				SNA
European Swallowwort	<i>Vincetoxicum rossicum</i>	Apocynaceae	5				SNA
Poison Ivy	<i>Toxicodendron radicans</i>	Anacardiaceae	0	2			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
White Spruce	<i>Picea glauca</i>	Pinaceae	3	6			S5



VEGETATION
COMMUNITY

CLASSIFICATION: THDM2-6

COMMUNITY #: Section 4 & 5

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Basswood	<i>Tilia americana</i>	Tiliaceae	3	4			S5
Common Apple	<i>Malus pumila</i>	Rosaceae	5				SNA
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
European Swallowwort	<i>Vincetoxicum rossicum</i>	Apocynaceae	5				SNA
Poison Ivy	<i>Toxicodendron radicans</i>	Anacardiaceae	0	2			S5
Red Ash	<i>Fraxinus pennsylvanica</i>	Oleaceae	-3	3			S4
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Caprifoliaceae	3				SNA
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	Vitaceae	3	6			S4?
Zigzag Goldenrod	<i>Solidago flexicaulis</i>	Asteraceae	3	6			S5

NOTES: Buckthorn thicket



VEGETATION
COMMUNITY

CLASSIFICATION: THDM2-6

COMMUNITY #: Section 5

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Tyler Jamieson

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: FODM11

COMMUNITY #: Section 6

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 5, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Norway Spruce	<i>Picea abies</i>	Pinaceae	5				SNA
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
White Ash	<i>Fraxinus americana</i>	Oleaceae	3	4			S4
Basswood	<i>Tilia americana</i>	Tiliaceae	3	4			S5
Sugar Maple	<i>Acer saccharum</i>	Aceraceae	3	4			S5
Staghorn Sumac	<i>Rhus typhina</i>	Anacardiaceae	3	1			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	Vitaceae	3	6			S4?
Chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i>	Rosaceae	3	2			S5
Common Dandelion	<i>Taraxacum officinale</i>	Asteraceae	3				SNA
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA
Garlic Mustard	<i>Alliaria petiolata</i>	Brassicaceae	0				SNA
Tufted Vetch	<i>Vicia cracca</i>	Fabaceae	5				SNA
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Scots Pine	<i>Pinus sylvestris</i> var. <i>sylvestris</i>	Pinaceae	3				SNA
Wild Strawberry	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	Rosaceae	3	2			S5
Red Ash	<i>Fraxinus pennsylvanica</i>	Oleaceae	-3	3			S4
Bull Thistle	<i>Cirsium vulgare</i>	Asteraceae	3				SNA
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA
Wild Cucumber	<i>Echinocystis lobata</i>	Cucurbitaceae	-3	3			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Green Foxtail	<i>Setaria viridis</i>	Poaceae	5				SNA
Riverbank Grape	<i>Vitis riparia</i>	Vitaceae	0	0			S5
Black Cherry	<i>Prunus serotina</i> var. <i>serotina</i>	Rosaceae	3	3			S5
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Caprifoliaceae	3				SNA
Tufted Vetch	<i>Vicia cracca</i>	Fabaceae	5				SNA



VEGETATION
COMMUNITY

CLASSIFICATION: THDM2-6

COMMUNITY #: Section 7

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
White Ash	<i>Fraxinus americana</i>	Oleaceae	3	4			S4
Common Reed	<i>Phragmites australis</i>	Poaceae	-3	0			S4?
Reed Canarygrass	<i>Phalaris arundinacea</i> var. <i>arundinacea</i>	Poaceae	-3	0			S5
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Alfalfa	<i>Medicago sativa</i> ssp. <i>sativa</i>	Fabaceae	5				SNA
White Heath Aster	<i>Symphotrichum ericoides</i> var. <i>ericoides</i>	Asteraceae	3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
New England Aster	<i>Symphotrichum novae-angliae</i>	Asteraceae	-3	2			S5
Cup Plant	<i>Silphium perfoliatum</i> var. <i>perfoliatum</i>	Asteraceae	-3	9			S2*

NOTES: Phragmites patch adjacent to large soil storage pile, within THDM2-6 community

* Cup plant not native to this area – assumed escaped cultivar



VEGETATION
COMMUNITY
CLASSIFICATION: _____

COMMUNITY #: Section 7a

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: SWD2-2

COMMUNITY #: Section 7

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
White Willow	<i>Salix alba</i>	Salicaceae	-3				SNA
Wild Cucumber	<i>Echinocystis lobata</i>	Cucurbitaceae	-3	3			S5
Narrow-leaved Cattail	<i>Typha angustifolia</i>	Typhaceae	-5				SNA
Spotted Jewelweed	<i>Impatiens capensis</i>	Balsaminaceae	-3	4			S5
Green Ash	<i>Fraxinus pennsylvanica</i>	Oleaceae	-3	7			S3
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
Common Reed	<i>Phragmites australis</i>	Poaceae	-3	0			S4?
Virginia Clematis	<i>Clematis virginiana</i>	Ranunculaceae	0	3			S5
Marsh Horsetail	<i>Equisetum palustre</i>	Equisetaceae	-3	10			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
Swamp Agrimony	<i>Agrimonia parviflora</i>	Rosaceae	-3	4			S4

NOTES: Wetland. Standing water present



VEGETATION
COMMUNITY

CLASSIFICATION: SWD2-2

COMMUNITY #: Section 7

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: CUM

COMMUNITY #: Section 7

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA
Field Brome	<i>Bromus arvensis</i>	Poaceae	3				SNA
Smooth Brome	<i>Bromus inermis</i>	Poaceae	5				SNA
Bracken Fern	<i>Pteridium aquilinum</i>	Dennstaedtiaceae	3	2			S5
Red Raspberry	<i>Rubus idaeus</i>	Rosaceae	3	2			S5
Black Raspberry	<i>Rubus occidentalis</i>	Rosaceae	5	2			S5
Red Clover	<i>Trifolium pratense</i>	Fabaceae	3				SNA
Common Burdock	<i>Arctium minus</i>	Asteraceae	3				SNA
Canada Thistle	<i>Cirsium arvense</i>	Asteraceae	3				SNA
Bull Thistle	<i>Cirsium vulgare</i>	Asteraceae	3				SNA
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
Balsam Poplar	<i>Populus balsamifera</i>	Salicaceae	-3	4			S5
Common Dandelion	<i>Taraxacum officinale</i>	Asteraceae	3				SNA
Wild Strawberry	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	Rosaceae	3	2			S5
Field Mustard	<i>Brassica rapa</i>	Brassicaceae	5				SNA
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	Asteraceae	3	1			S5
Common Tansy	<i>Tanacetum vulgare</i>	Asteraceae	5				SNA
Common Ragweed	<i>Ambrosia artemisiifolia</i>	Asteraceae	3	0			S5
Annual Fleabane	<i>Erigeron annuus</i>	Asteraceae	3	0			S5
Oxeye Daisy	<i>Leucanthemum vulgare</i>	Asteraceae	5				SNA
White Poplar	<i>Populus alba</i>	Salicaceae	5				SNA
Field Sow-thistle	<i>Sonchus arvensis</i>	Asteraceae	3				SNA
Purple Crown-vetch	<i>Securigera varia</i>	Fabaceae	5				SNA
Field Milk-vetch	<i>Astragalus agrestis</i>	Fabaceae	-3				SH
Common Mullein	<i>Verbascum thapsus</i> ssp. <i>thapsus</i>	Scrophulariaceae	5				SNA
Canada Blackberry	<i>Rubus canadensis</i>	Rosaceae	5	2			S5

Common Mouse-ear Chickweed	<i>Cerastium fontanum</i> ssp. <i>vulgare</i>	Caryophyllaceae	3				SNA
European Common Reed							

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: CUT

COMMUNITY #: Section 7

LOCATION: Cobourg

COORDINATES: _____

PROJECT NUMBER: 13806-001

DATE: October 05, 2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
White Ash	<i>Fraxinus americana</i>	Oleaceae	3	4			S4
Common Reed	<i>Phragmites australis</i>	Poaceae	-3	0			S4?
Reed Canarygrass	<i>Phalaris arundinacea</i> var. <i>arundinacea</i>	Poaceae	-3	0			S5
Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Alfalfa	<i>Medicago sativa</i> ssp. <i>sativa</i>	Fabaceae	5				SNA
White Heath Aster	<i>Symphyotrichum ericoides</i> var. <i>ericoides</i>	Asteraceae	3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
Red-osier Dogwood	<i>Cornus sericea</i>	Cornaceae	-3	2			S5
New England Aster	<i>Symphyotrichum novae-angliae</i>	Asteraceae	-3	2			S5
Cup Plant	<i>Silphium perfoliatum</i> var. <i>perfoliatum</i>	Asteraceae	-3	9			S2*

NOTES: Phragmites patch adjacent to large soil storage pile, within CUT community

* Cup plant not native to this area – assumed escaped cultivar

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY
CLASSIFICATION: _____

COMMUNITY #: Section 7a

LOCATION: Cobourg

COORDINATES: ,

PROJECT NUMBER: 13806-001

DATE: October 05,
2021

PROJECT
MANAGER: Andrea Coppins

FIELD STAFF: Andrea Coppins

FIELD SHEET – Vegetation Species List



Appendix E
Aquatic Assessment Data



Table 1. Aquatic Assessment Data Summary

Location	Average Wetted Width (m)	Average Wetted Depth (m)	Average Bankfull Width (m)	Average Bankfull Depth (m)	Average Hydraulic Head (m)	Culvert Type and Size	Notes
WCC1a Densmore Road	1.850	0.160	0.470	3.900	0.015	Open Bottom Box Concrete, 2.5 m wide by 2 m height	Further north are two open bottom concrete box culverts, one potentially for overflow.
WCC1b Danforth Road	n/a	n/a	n/a	n/a	n/a	Corrugated steel pipe, completely submerged, could not collect dimensions. Could not find outlet south.	No defined channels. Pooled at inlet and outlet. Upstream pool 0.4 m deep, downstream pool 0.5 m deep.
WCC2 Unopened Road Allowance	2.00	0.45	3.50	1.00	No flow observed	Corrugated steel pipe, almost entirely emerged, 1.2 m diameter, partially compressed	Defined channel only along eastern side. Western side braids and has no defined channel. East pool 0.55m deep and west pool 0.40 m deep.
WCC3 Elgin Street E	0.705	0.145	1.750	0.375	0.010	Corrugated steel pipe, 1m diameter.	South channel braids, defined channel inexistent.
WCC4 Brook Road North	3.250	0.370	1.025	5.850	0.020	Open Bottom Box Concrete, 4.3m wide by 1.3m height	Conditions similar on both sides of culvert, including flow and substrates.
WCC5 Near Barrack's Drive	3.533	0.250	8.300	0.623	No flow observed	No culvert observed.	Drainage culvert nearby (Corrugate steel pipe 0.45 m diameter) outletting stormwater from parking area.



Appendix F

Species of Conservation Concern Screening



APPENDIX F: Species at Risk Screening - County of Northumberland

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Birds								
Bald Eagle	<i>Haliaeetus leucocephalus</i>	No Status	SC	S2N,S4B	The Bald Eagle is a bird of prey with a white head, neck and tail, a massive bright yellow beak, powerful legs, and a wingspan of over 2 m. It nests in a variety of habitats and forest types, almost always near a major lake or river where they do most of their hunting. These nests are usually on islands in freshwater lakes or in large trees such as the pine and poplar. During the winter, they may also be found near open bodies of water that do not freeze (1).	No	Known to occur in the general area	No further consideration required
Bank Swallow	<i>Riparia riparia</i>	THR	THR	S4B	The Bank Swallow is a small songbird of around 12 cm long with a distinctive dark breast band, that flies with quick and erratic wingbeats (1). It nests in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. This can include banks of rivers and lakes, bluffs, active sand and gravel pits, road cuts and stockpiles of soils. However, they prefer sand-silt substrates for excavating their nest burrows. They often use large wetlands as communal nocturnal roosts post-breeding or during wintering periods (2).	No	Known to occur in the general area	No further consideration required
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	S4B	The Barn Swallow is a mid-sized songbird with steel-blue backs and wings, glossy in males, and a line of white spots across its upper tail. It lives in a variety of open habitats for foraging, such as grassy fields, pastures, certain agricultural crops, shorelines, cottage areas, wetlands, or subarctic tundra (2). They prefer to nest within human made structures such as barns, bridges, and culverts. Barn Swallow nests are cup-shaped and made of mud, typically attached to horizontal beams or vertical walls underneath an overhang (1).	No	Known to occur in the general area	No further consideration required
Black Tern	<i>Chlidonias niger</i>	No Status	SC	S3B	The Black Tern is a small waterbird with a forked tail, straight pointed bill, slender shape, and black head during breeding season. It builds floating nests in loose colonies in shallow marshes, with a preference for cattails. They breed primarily in the marshes along the edges of the Great Lakes, but may also use wetlands further north if suitable (1).	No	Known to occur in the general area	No further consideration required
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	S4B	The Bobolink is a mid-sized songbird of tan colour with black stripes, except for males during summer breeding season who are black with a white back and yellow collar. It prefers tall, grassy meadows, hayfields and some croplands, and feeds (largely on insects) on the ground in dense grasses (1). It tends to nest in forage crops: hayfields and pastures dominated by species including clover, bluegrass, and broadleaf plants (2).	No	Known to occur in the general area	No further consideration required
Canada Warbler	<i>Cardellina canadensis</i>	THR	SC	S4B	The Canada Warbler is a small songbird with bright yellow underparts and bluish-grey back and tail (1). It can be found in a variety of forest types, but is most abundant in moist, mixed forests with a well-developed, dense shrub layer. Nests are usually located on or near the ground on mossy logs, and along stream banks (3).	No	Known to occur in the general area	No further consideration required
Cerulean Warbler	<i>Setophaga cerulea</i>	END	THR	S3B	The Cerulean Warbler, a small songbird, is blue-green with white eyebrows and two prominent white wing bars (1). It requires relatively large tracts of mature deciduous forest (>100 ha), and nests in older, second-growth deciduous forests. During breeding season, it is found in relatively large tracts of mature deciduous forests that feature large, tall trees and an open understorey (4).	No	Known to occur in the general area	No further consideration required
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR	S4B,S4N	The Chimney Swift is a small bird, between 12 and 14 cm, with a brown, cigar-shaped body, slender wings, and an erratic flight pattern. Prior to settlement, the Chimney Swift would mainly nest in cave walls and hollow trees. Now, it is found mostly near urban and suburban areas where the presence of chimneys or other manmade structures provide nesting and roosting habitat. They also tend to stay in habitat close to the water (1).	No	Known to occur in the general area	No further consideration required
Common Nighthawk	<i>Chordeiles minor</i>	THR	SC	S4B	The Common Nighthawk is a medium-sized bird with long, pointed wings, a long tail with a notch, and large eyes. Its plumage of dark brown with black and white specks blends with its roost site. It is typically found in open areas such as gravel beaches, rock outcrops and burned woodlands, that have little to no ground vegetation. This species can also be found in highly disturbed locations such as clear cuts, mine tailing areas, cultivated fields, urban parks, gravel roads, and orchards (1).	No	Known to occur in the general area	No further consideration required



APPENDIX F: Species at Risk Screening - County of Northumberland

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	S4B	The Eastern Meadowlark is a medium-sized migratory songbird with a bright yellow throat and belly, a black V shape on its chest, and a pointed bill. It prefers pastures and hayfields, but is also found to breed in orchards, shrubby fields, human-use areas such as airports and roadsides, or other open areas. The Eastern Meadowlark can nest from early May to mid-August, in nests that are built on the ground and well-camouflaged with a roof woven from grasses (1).	No	Known to occur in the general area	No further consideration required
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4B	The Eastern Wood-pewee is a species of 'flycatcher', a bird that eats flying insects. It grows to approximately 15 cm, has greyish-olive upper parts and pale bars on its wings. This species lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It prefers intermediate-age forest stands with little understory vegetation (1). It typically creates nests on tree branches 2-12 m in height (2).	No	Known to occur in the general area	No further consideration required
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	No Status	SC	S4B	The Evening Grosbeak is a large songbird with a thick greenish bill. It is a social bird that is often found in flocks, particularly during the winter months. Their preferred habitat is thick coniferous forest. During their breeding season, they are generally found in open, mature mixed forests dominated by Firs, White Spruce, or Trembling Aspen (1).	No	Known to occur in the general area	No further consideration required
Golden Winged Warbler	<i>Vermivora chrysoptera</i>	THR	SC	S4B	The Golden-winged Warbler is a small songbird with distinctive yellow wing patches and patches behind their eyes. It inhabits early successional habitat of old fields and favour areas where trees are spread out or forest edges to use for perching, singing, and searching for food. They seem to prefer regeneration zones with young shrub growth, surrounded by mature forest, locations that have recently been disturbed, such as field edges, hydro or utility right-of-ways, or logged areas for their breeding sites; often frequenting clusters of herbaceous plants and low bushes (1).	No	Known to occur in the general area	No further consideration required
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	SC	SC	S4B	The Grasshopper Sparrow is a small songbird with a streaked back, a white stripe down the center of its crown, a flattish head, and a conical beak. It inhabits open grasslands and prairies with well-drained soil, preferring areas that are sparsely vegetated. It will also nest in hayfields and pastures, as well as alvars and occasionally grain crops such as barley (1).	No	Known to occur in the general area	No further consideration required
King Rail	<i>Rallus elegans</i>	END	END	S2B	The King Rail is a large bird, standing at around 40 cm tall, with a long, curved bill, orange chest and neck, and black sides with vertical white bars. This species prefers densely vegetated freshwater marshes with open shallow water and shrub thicket areas. Current records for Ontario suggest that these birds prefer sites within coastal marshes of the Great Lakes. Most breeding pairs left in Ontario are found in wetlands bordering Lake St Clair or coastal marshes along Lakes Erie and Ontario (1).	No	Known to occur in the general area	No further consideration required
Least Bittern	<i>Ixobrychus exilis</i>	THR	THR	S4B	The Least Bittern is a small member of the heron family, reaching around 30 cm in length. It has brown and beige plumage with chestnut patches on its wings (1). The species nests in marshes (> 5 - 10 ha) and swamps dominated by emergent vegetation, preferably cattails, interspersed with patches of woody vegetation and open water. They require dense vegetation and open water with stable levels within 10 m for nesting, and access to clear, open water for foraging (4).	No	Known to occur in the general area	No further consideration required
Louisiana Waterthrush	<i>Parkesia motacilla</i>	SC	THR	S3B	The Louisiana Waterthrush is a large wood warbler with brown upper parts, cream-coloured breasts and flanks with dark streaks, and a long bill. It is typically found along fast moving streams and creeks, in deeply forested ravines. It nests along stream banks, in the roots of fallen trees, and under logs and other large woody debris. Although less frequently, the Louisiana Waterthrush has been known to inhabit heavily wooded, deciduous swamps and open water areas. In Ontario, its breeding ground is mostly found in woodlands along Lake Erie and along the Niagara Escarpment (1).	No	Known to occur in the general area	No further consideration required
Northern Bobwhite	<i>Colinus virginianus</i>	END	END	S1	The Northern Bobwhite, a small quail, has a round body and stubby tail. They have a head pattern described as a bright white eyebrow and throat patch divided by a black mask. This species is found in open grasslands, meadows, abandoned farmlands and savannahs throughout the year, occasionally foraging in forested areas during harsh winter conditions (1). They require an early successional habitat although in Ontario, they are now usually associated with cultivated lands (2).	No	Known to occur in the general area	No further consideration required



APPENDIX F: Species at Risk Screening - County of Northumberland

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Olive-sided Flycatcher	<i>Contopus cooperi</i>	THR	SC	S4B	The Olive-sided Flycatcher is a medium-sized songbird with olive colouring, often seen perching on top of tall trees waiting to catch their prey. It prefers open areas along natural mature forest edges, forest edges near natural openings such as rivers or swamps, human-made openings, or burned forest openings with numbers of dead trees. Breeding habitat usually consists of coniferous or mixed forests adjacent to rivers or wetlands, in Ontario often nesting in White and Black Spruce, Jack Pine, and Balsam Fir (1).	No	Known to occur in the general area	No further consideration required
Piping plover	<i>Charadrius melodus</i>	END	END	S1B	The Piping Plover is a small shorebird with light colouring, a stubby orange bill and orange legs. This species almost exclusively nests on dry sandy or gravelly beaches above the high-water mark to avoid waves. It can be found pecking the sand, searching for small pools of water for insects and small crustaceans to consume. Although not particularly common in Ontario, it is found along the shores of the Great Lakes, and in the Lake of the Woods in northwestern Ontario (1).	No	Known to occur in the general area	No further consideration required
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	THR	SC	S4B	The Red-headed Woodpecker is a mid-sized bird, at around 20 cm long, with a vivid red head, neck and breast as well as a strong bill. The species can be found in open woodland and woodland edges, often near man-made landscapes such as parks, golf courses and cemeteries. These areas must contain a large number of dead trees for perching and nesting (1).	No	Known to occur in the general area	No further consideration required
Short-eared owl	<i>Asio flammeus</i>	SC	SC	S2N,S4B	The Short-eared Owl has a large round head with small tufts of feathers, long wings, a short tail, and cryptic colouring of brown streaks. This species is found in scattered pockets across the province where suitable open habitat, including grasslands, tundra, peat bogs and marsh, can be found in sufficient quantities. Adults build nests on the ground in grassy areas and occasionally agricultural fields (1). The main factor influencing their choice in habitat is believed to be an abundance of their food source, primarily rodents and other small mammals (2).	No	Known to occur in the general area	No further consideration required
Wood Thrush	<i>Hylocichla mustelina</i>	THR	SC	S4B	The Wood Thrush is a medium-sized songbird of around 20 cm with rusty brown coloured upper parts and white underparts with large dark spots. It breeds in deciduous and mixed forests with moderate understories, shade and abundant leaf litter where it forages for food, including larval and adult insects as well as plant material. They prefer moist stands of trees with well-developed undergrowth and tall trees for perches (1).	No	Known to occur in the general area	No further consideration required
Yellow Rail	<i>Coturnicops noveboracensis</i>	SC	SC	S4B	The Yellow Rail is a small, quail-like marsh bird with a short yellow or black bill, short tail, with yellowish and black streaks on its back and white wing patches. This species is mainly found in the Hudson Bay Lowlands region, and is only found in localized marshes in southern Ontario. It is a secretive bird that lives deep within the reeds, sedges, and marshes of shallow wetlands which nest on the ground in areas that have an overlying mat of dry vegetation that can be used for nest building (1).	No	Known to occur in the general area	No further consideration required
Fish								
American Eel	<i>Anguilla rostrata</i>	No Status	END	S1?	The American Eel is a long, slender bodied fish, with one long fin extending down the back and around the tail, and two small pectoral fins. It has thick lips, and a protruding lower jaw that extends out above the upper jaw. At the juvenile stage, they swim up the St. Lawrence River to reach Lake Ontario and connected tributaries where they will remain for 8 to 23 years before migrating back to their spawning grounds. In Ontario, the American eel prefers mud, sand or gravel substrates during the juvenile stage when they reside primarily in the benthic zone of waterbodies. More mature eels are able to thrive in most environments provided there is available cover during daylight hours, and the habitat is accessible (2).	No	Known to occur in the general area	No further consideration required



APPENDIX F: Species at Risk Screening - County of Northumberland

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Lake Sturgeon	<i>Acipenser fulvescens</i>	No Status	END	S2	The Lake Sturgeon, a large freshwater fish, has an extended snout with four whisker-like organs hanging near the mouth and is dark to light brown or grey on its back and sides with a lighter belly. In Ontario, this fish is found in the rivers of the Hudson Bay Basin, the Great Lakes basin, and their connecting waterways. Lake Sturgeon's live almost exclusively in freshwater lakes and rivers with soft bottoms of mud, sand or gravel and are usually found at depths of 5 to 20 m. They spawn in relatively shallow, fast-flowing water or if available deeper water habitat as well (1).	No	Known to occur in the general area	No further consideration required
Herptiles								
Blanding's Turtle	<i>Emydoidea blandingii</i>	THR	THR	S3	Blanding's Turtles are identifiable by their bright yellow throat and chin and domed shell. They spend the majority of their life cycle in the aquatic environment, usually in large wetlands or shallow lakes with high densities of water plants (1). These turtles prefer shallow, nutrient rich water with organic sediment and dense vegetation. They use terrestrial sites for travel between habitat patches and to lay clutches of eggs, often going hundreds of meters from their nearest water body. Blanding's Turtles nest in dry coniferous and mixed forest habitats, as well as fields and roadsides (2). From late October until the end of April, they hibernate in the mud at the bottom of permanent water bodies (1).	No	Known to occur in the general area	No further consideration required
Eastern Musk Turtle	<i>Sternotherus odoratus</i>	SC	SC	S3	The Eastern Musk Turtle is small with a narrow carapace, a dark brown body and two light stripes on each side of their head (5). It is a small freshwater turtle found primarily in slow moving water bodies with abundant emergent vegetation and mucky bottoms along the southern edge of the Canadian Shield within which they burrow into overwinter. Nesting sites vary, but must be close to the water and exposed to direct sunlight (1).	No	Known to occur in the general area	No further consideration required
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	SC	-	S4	The Midland Painted Turtle has a olive to black carapace with red or dark orange markings on the marginal scutes, as well as red and yellow stripes on the head and neck. The species uses a variety of waterbodies including, ponds, marshes, lakes and slow-moving creeks with a soft bottom and an abundance of basking sites and aquatic vegetation. This species usually hibernates on the bottom of waterbodies (5).	Yes: on-site and adjacent lands	Known to occur in the general area	No further consideration required
Northern Map Turtle	<i>Graptemys geographica</i>	SC	SC	S3	The Northern Map Turtle is a medium sized turtle identified by its carapace's map contour-like patterning. It lives in larger lakes and rivers, requiring high water quality to support their primary prey species: molluscs. This species can often be seen in large groups basking together on rocks and logs. In the winter, the Northern Map Turtle can be found hibernating on the bottom of slow-moving rivers (1).	No	Known to occur in the general area	No further consideration required
Snapping Turtle	<i>Chelydra serpentina</i>	SC	SC	S3	The Snapping Turtle, with its large serrated carapace, small plastron, and spiked tail, is Canada's largest freshwater turtle (5). It spends the majority of its life in water, preferring shallow water with soft mud and leaf litter, and will travel upland to gravel or sandy embankments, roadsides, along railway lines or beaches to lay their eggs (1).	Yes: on-site and adjacent lands	Known to occur in the general area	No further consideration required
Spotted Turtle	<i>Clemmys guttata</i>	END	END	S2	The Spotted Turtle is named after the distinct yellow spots on its carapace. The species is semi-aquatic and prefers ponds, marshes, bogs and even ditches with slow-moving, unpolluted water and an abundant supply of aquatic vegetation. This species usually hibernates in wetlands or seasonally wet areas with structures such as overhanging banks, hummocks, tree roots, or aquatic animal burrows (1).	No	Known to occur in the general area	No further consideration required
Wood Turtle	<i>Glyptemys insculpta</i>	THR	END	S2	The Wood Turtle has orange coloured front legs, neck and chin and a sculpted carapace with raised, pyramidal scutes (5). They prefer clear rivers and streams that have moderate current, and sandy or gravelly substrates. This species spends more time on land than other turtle species including in meadows, swamps and fields. Wooded areas are an essential habitat component, and the species uses aquatic habitats for hibernation and mating. Nesting occurs in areas with sandy soil and abundant light (1).	No	Known to occur in the general area	No further consideration required



APPENDIX F: Species at Risk Screening - County of Northumberland

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	THR	THR	S3	The Eastern Hog-nosed Snake can be a variety of colours and patterns so is most easily identified by its flattened, upturned nose. They prefer sandy well-drained habitats such as beaches and dry forests because they lay their eggs, hibernate and burrow in these areas. The main diet of this snake is toads and frogs, so they usually stay close to water including marshes and swamps, where they have an increased chance of finding their preferred prey (1).	No	Known to occur in the general area	No further consideration required
Eastern Milksnake	<i>Lampropeltis triangulum</i>	SC	NAR	S4	The Eastern Milksnake's colouration is grey or tan with reddish alternating blotches outlines in black along its back and sides (5). It has recently been delisted from being a species at risk in Ontario (1). This species tends to use open habitats such as rocky outcrops, fields and forest edges. The preferred prey of milksnakes are mice, small rodents, and ground nesting birds which are amply found in and surrounding agricultural outbuildings. The milksnake is secretive and is not likely to be encountered during the day or at night while hunting (5).	No	Known to occur in the general area	No further consideration required
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	SC	SC	S4	The Eastern Ribbonsnake is slender with three bright yellow stripes running down its back and sides and a white crescent in front of each eye. This snake is usually found close to water as they are strong swimmers, often fleeing predators by diving into shallow water. It prefers wetland habitats where its prey species, frogs and small fish, are abundant. Over winter, they congregate in underground burrows or rock crevices to hibernate (1).	Yes: on-site and adjacent lands	Known to occur in the general area	No further consideration required
Gray Ratsnake (Great Lakes/ St. Lawrence population)	<i>Pantherophis spiloides</i>	THR	THR	S3	The Gray Ratsnake, which can grow to 2.5 m in length, is black with faint patterning and a white checkerboard patterned belly (5). The Great Lakes/St. Lawrence population uses a variety of habitat types including deciduous forests, wetlands, agricultural fields and rocky outcrops that provide suitable sites for sunning and winter hibernation below ground (1). They may spend the summer in more open areas such as old fields and meadows (5).	No	Known to occur in the general area	No further consideration required
Western Chorus Frog	<i>Pseudacris triseriata</i>	THR	-	S3	The Western Chorus Frog is small with a dark stripe running through its eye and a light stripe underneath (5). It is primarily a lowland terrestrial species that requires access to terrestrial and aquatic habitats in close proximity to one another. Relying on marshes and wooded wetlands adjacent to forested habitats, this species also requires isolated, predator free pools for breeding. Temporary pools, such as vernal pools in wooded areas, are preferred. This species hibernates terrestrially in a variety of environments, including leaf litter, wood debris, and vacant animal burrows (2).	No	Known to occur in the general area	No further consideration required
Invertebrates								
Monarch Butterfly	<i>Danaus plexippus</i>	SC	SC	S2N,S4B	The Monarch is an orange and black butterfly with small white spots and a wingspan of around 10 cm. It relies on milkweed plants as a food source for growing caterpillars, but the adult butterflies forage in diverse habitats for nectar from wildflowers (1).	No	Known to occur in the general area	No further consideration required
West Virginia White	<i>Pieris virginiensis</i>	No Status	SC	S3	The West Virginia White is a small, dingy white butterfly. This species is found in moist deciduous woods, and requires a supply of toothwort, a small, spring-blooming plant, which provides the only source of food for its larvae. The West Virginia White is found mostly in the central and southern parts of Ontario, but its range extends north to Manitoulin and St. Joseph islands (1).	No	Known to occur in the general area	No further consideration required
Mammals								
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	END	S3?	The Tri-colored Bat is small, with pale brown with orange-red forearms, muzzle, and ears. It is named for the black, yellow, and brown hairs on its back. It is considered rare in this region of Ontario which is at the northernmost limit of the natural range. These bats prefer to nest in foliage, tree cavities and woodpecker holes, but are occasionally found in buildings; though this is not their preferred habitat. Winter hibernation takes place in caves, mines and deep crevices. Tri-colored Bats prefer an open forest habitat type in proximity to water (6).	Yes: adjacent lands only	Known to occur in the general area	No further consideration required



APPENDIX F: Species at Risk Screening - County of Northumberland

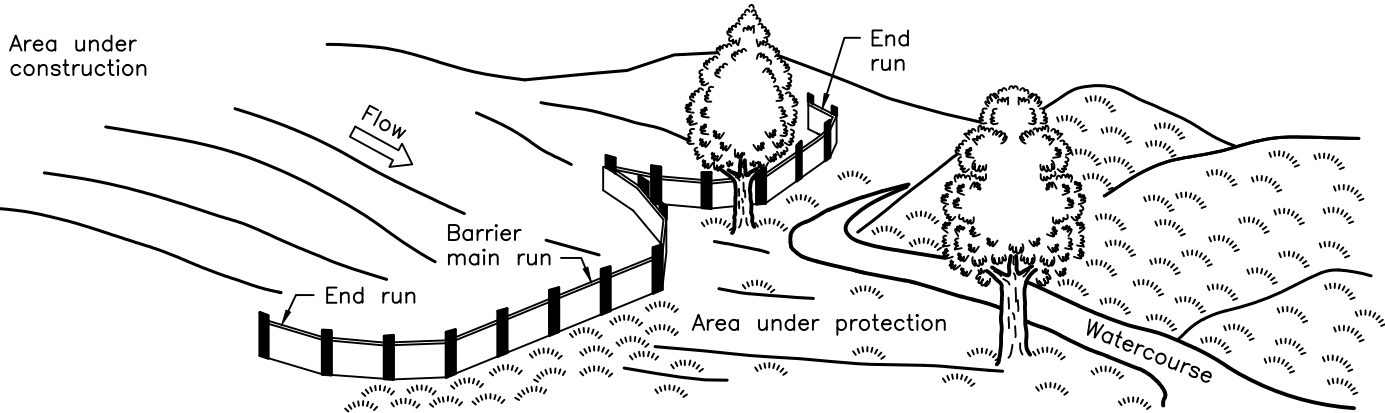
COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Eastern Small-footed Myotis	<i>Myotis leibii</i>	No Status	END	S2S3	The Eastern Small-footed Myotis has fur with black roots and shiny brown tips as well as very small feet. In the spring and summer, the Eastern Small-footed Myotis will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. They change their roosting locations daily and hunt at night for insects. They hibernate in winter, often in caves and abandoned mines choosing colder and drier sites than other similar bats (1).	Yes: adjacent lands only	Known to occur in the general area	No further consideration required
Little Brown Myotis	<i>Myotis lucifugus</i>	END	END	S4	The Little Brown Myotis has glossy brown fur and a fleshy projection covering the entrance to its ears. This species roosts in trees and buildings, often selecting attics, abandoned buildings and barns for summer colonies where they can raise their young. Little Brown Bats hibernate from October/November to March/April, most often in caves or abandoned mines that are humid and remain above freezing (1).	Yes: adjacent lands only	Known to occur in the general area	No further consideration required
Northern Myotis	<i>Myotis septentrionalis</i>	END	END	S3	The Northern Myotis has dull yellow-brown fur with pale bellies and long, rounded ears. This species is found in boreal forests, roosting under loose bark and in the cavities of trees. These bats hibernate from October/November to March/April, most often in caves or abandoned mines (1).	Yes: adjacent lands only	Known to occur in the general area	No further consideration required
Trees, plants, fungi and lichens								
American Ginseng	<i>Panax quinquefolius</i>	END	END	S2	American Ginseng is a perennial plant which grows up to 60 centimetres in height. The leaves typically have five leaflets arranged in a whorl at the end of the leaf stem. The root looks like a gnarly parsnip. The flowers are an inconspicuous green-white in colour, but the berries are bright red and arranged in a cluster. In Ontario, the American Ginseng typically grows in rich, moist, and mature deciduous woods dominated by Sugar Maple, White Ash, and American Basswood. It typically grows in deep, nutrient rich soil over limestone or marble bedrock (1).	No	Known to occur in the general area	No further consideration required
Black Ash	<i>Fraxinus nigra</i>	No status	No status	-	The Black Ash is a smaller-sized tree with a narrow crown, light grey and scaly bark, and green, oval leaflets on a central stalk. It grows everywhere in Ontario except for the Far north, preferring moist climates and soils such as swampy woodlands or bogs (1).	Yes: on-site and adjacent lands	Known to occur in the general area	No further consideration required
Butternut	<i>Juglans cinerea</i>	END	END	S2?	The Butternut is a medium sized tree reaching 30 m in height. It has large compound leaves with 11 to 17 leaflets. The fruit is oval, fuzzy and sticky. In Ontario, the Butternut prefers moist, well-drained soil, often along streams, or occasionally well-drained gravel sites. It grows alone or in small groups in deciduous forests (1).	Yes: adjacent lands only	Known to occur in the general area	No further consideration required
Eastern Prairie Fringed-orchid	<i>Platanthera leucophaea</i>	END	END	S2	The Eastern Prairie Fringed-Orchid has distinctive fringed white flowers with a deep "nectar spur" containing nectar and a flat, fringed "lip" serving as a platform for pollinating insects. It may lie dormant for years before flowering. It can be found in areas of tallgrass prairie or fen throughout the province and in some tamarack swamps of the Bruce Peninsula and Ottawa Area (1).	No	Known to occur in the general area	No further consideration required
References								

1. Ministry of Environment, Conservation and parks. (2019). Species at risk in Ontario. Retrieved from <https://www.ontario.ca/page/species-risk-ontario>
2. Government of Canada. (2019). Species at risk public registry. Retrieved from <https://species-registry.canada.ca/index-en.html#/species?ranges=5&sortBy=commonNameSort&sortDirection=asc&pageSize=10>
3. Committee on the Status of Endangered Wildlife in Canada. (2008).
4. Environment Canada. (2018).
5. Ontario Nature. (2020). Reptiles and amphibians. Retrieved from <https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/>
6. University of Michigan Museum of Zoology. (2004).

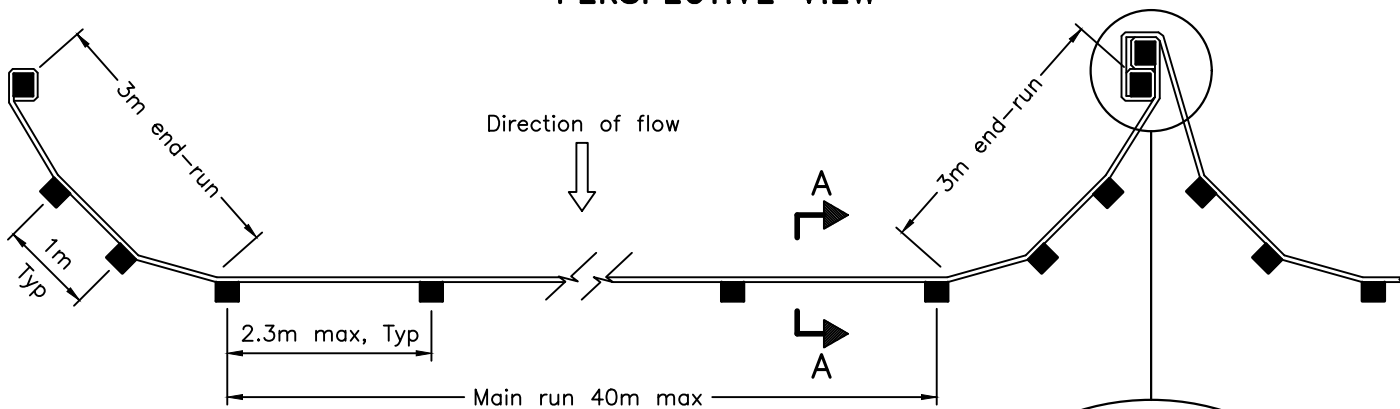


Appendix G

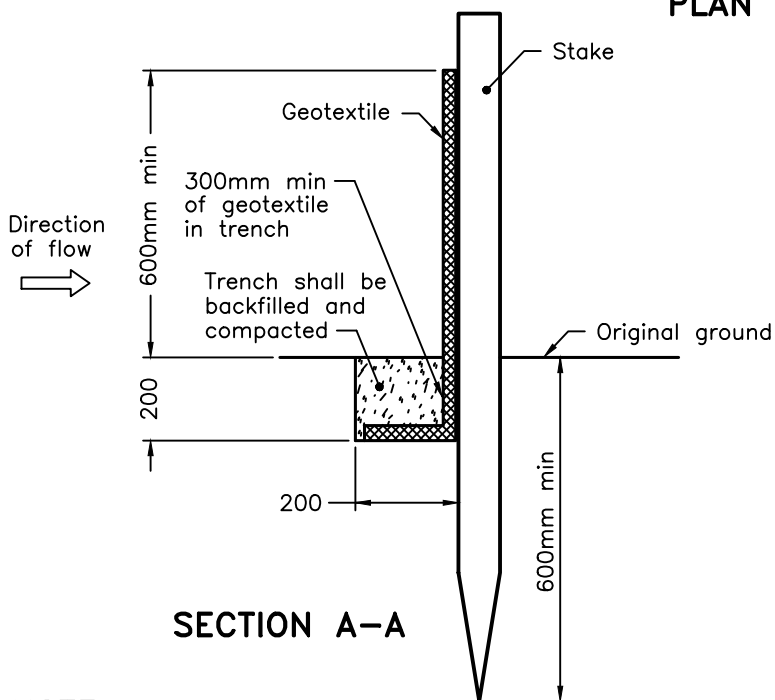
ESC Measures



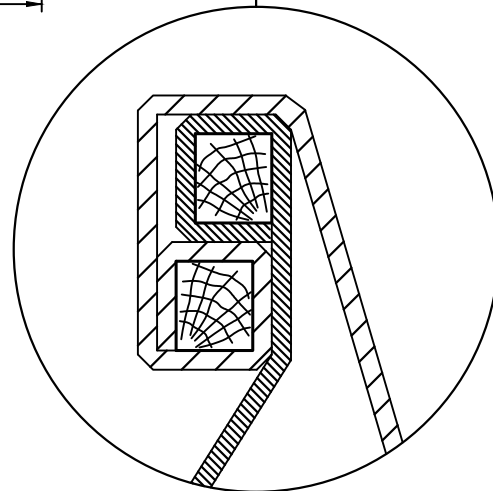
PERSPECTIVE VIEW



PLAN



SECTION A-A



JOINT DETAIL

NOTE:

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING

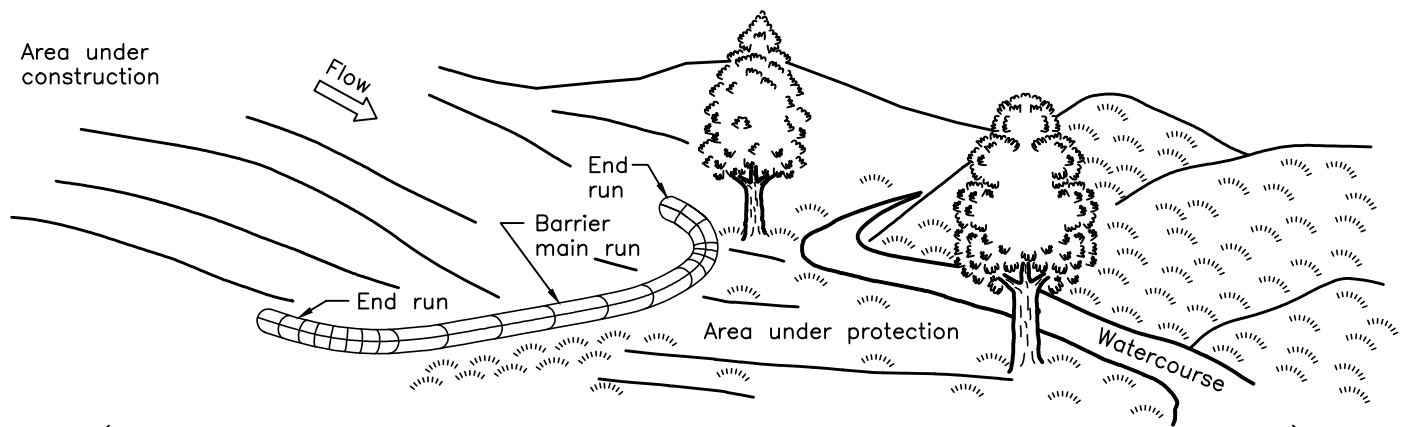
Nov 2021

Rev 3

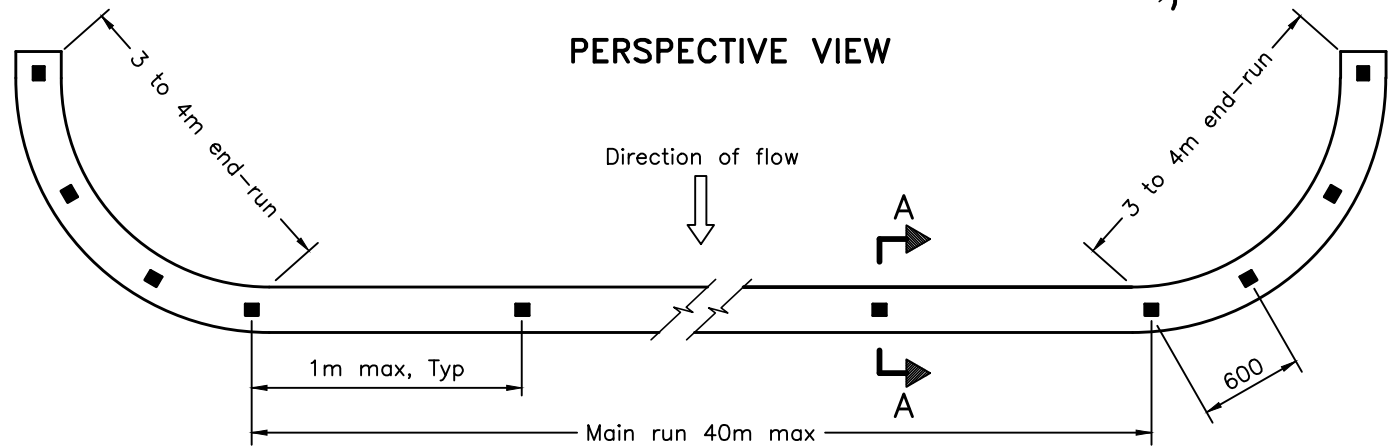
LIGHT-DUTY
SILT FENCE BARRIER

OPSD 219.110

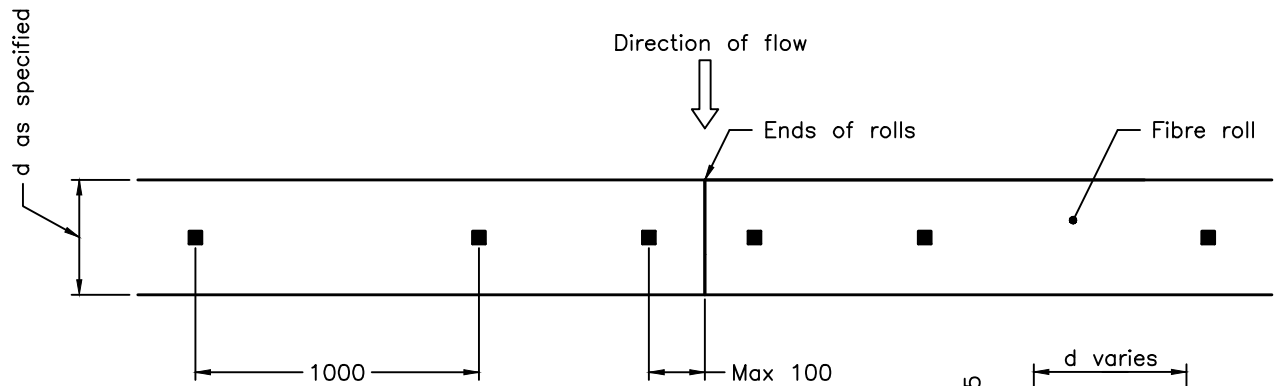




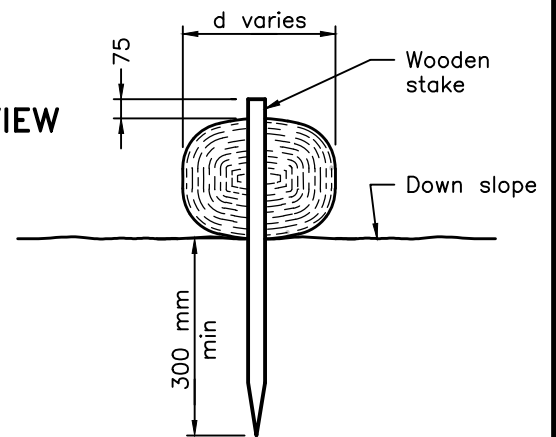
PERSPECTIVE VIEW



PLAN



FIBRE ROLL PLAN VIEW



SECTION A-A

NOTES:

- 1 Remove all surface obstructions greater than 50mm from ground surface.
- 2 Ends of rolls shall be butted tightly together.
- A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING

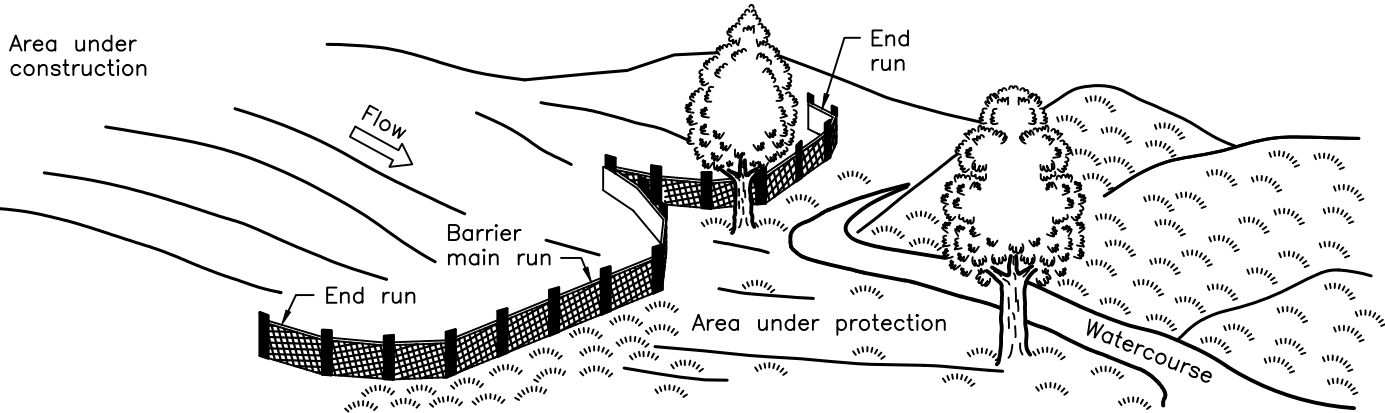
Nov 2021

Rev 1

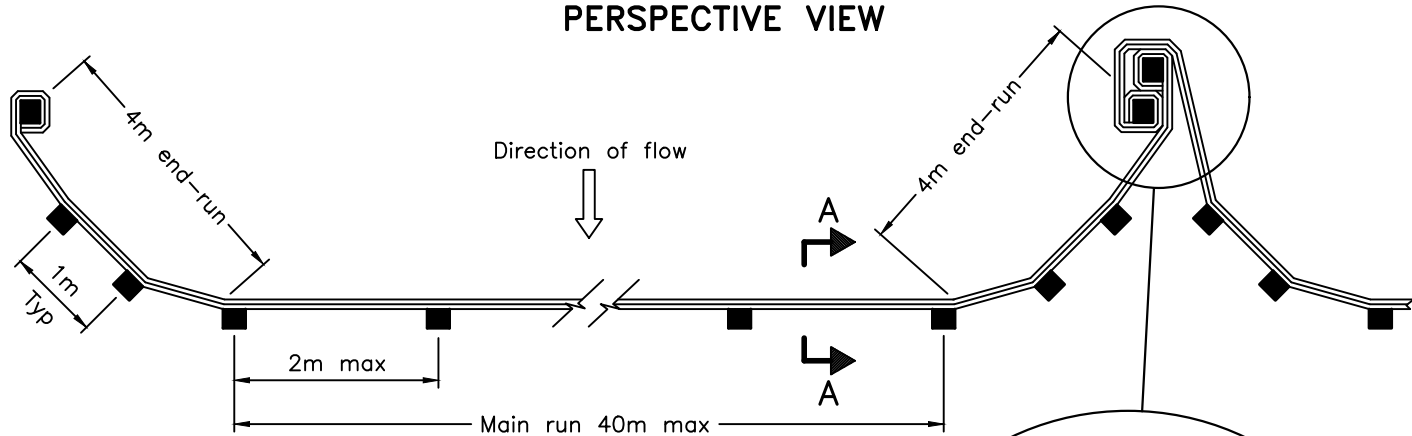
LIGHT-DUTY
FIBRE ROLL BARRIER



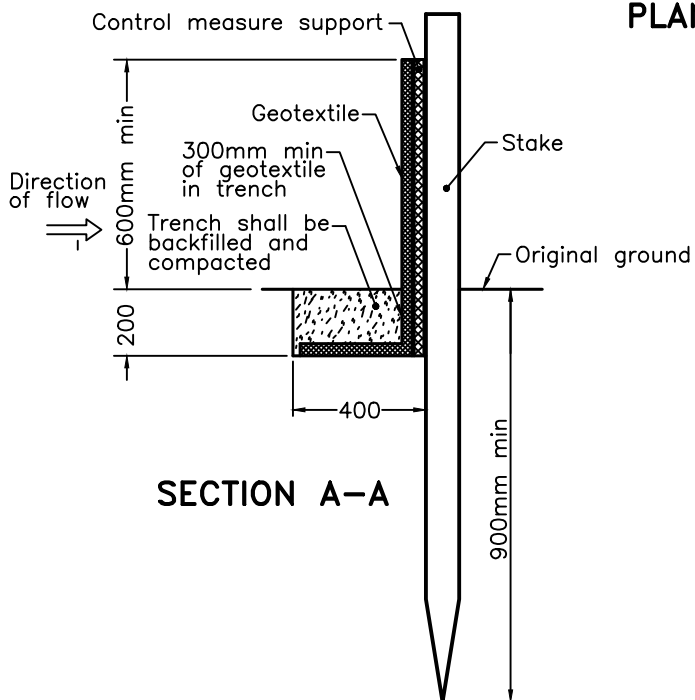
OPSD 219.120



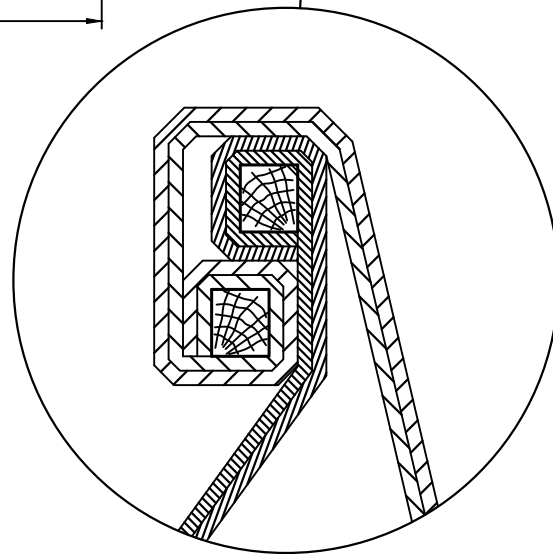
PERSPECTIVE VIEW



PLAN



SECTION A-A



JOINT DETAIL

NOTE:

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING

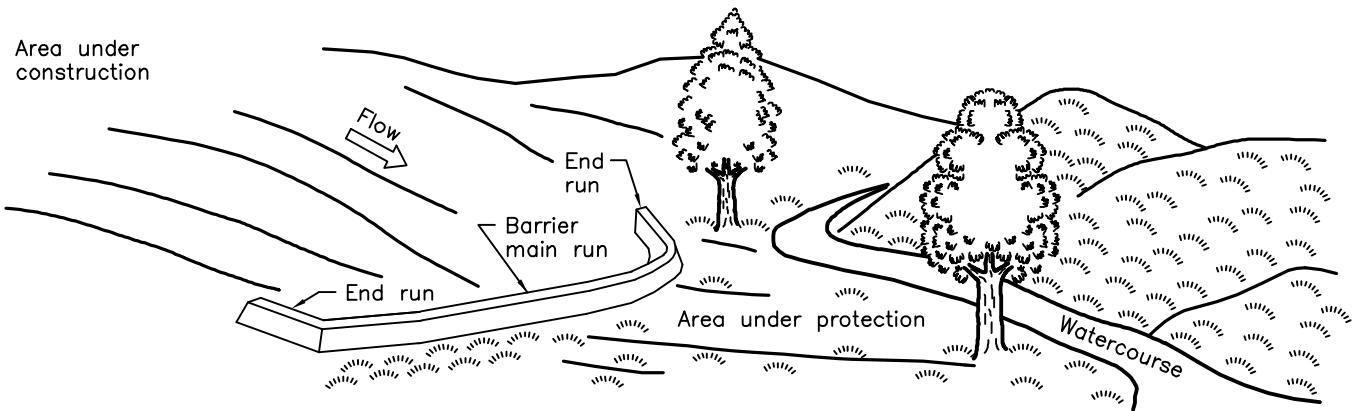
Nov 2021

Rev 3

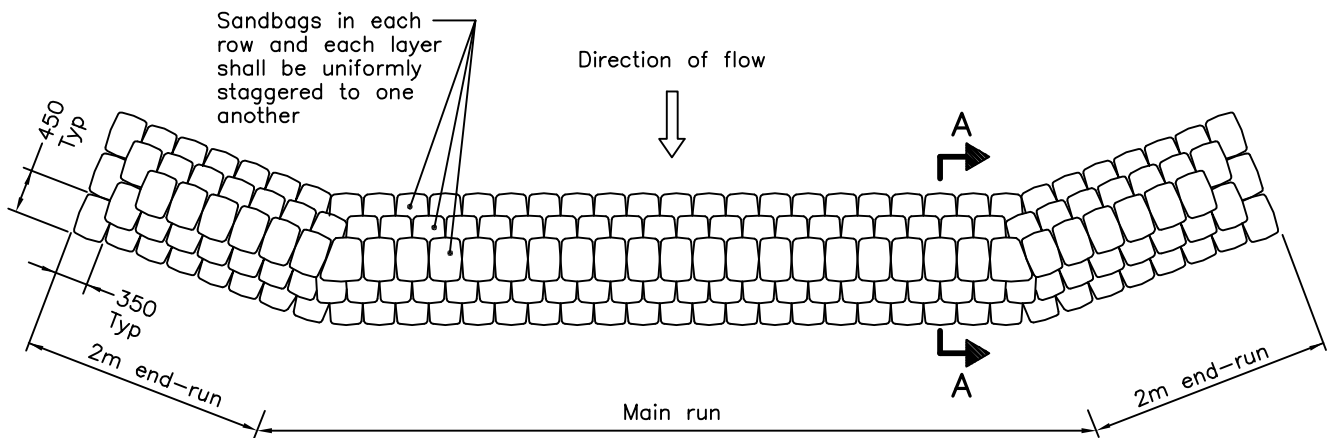
HEAVY-DUTY
SILT FENCE BARRIER



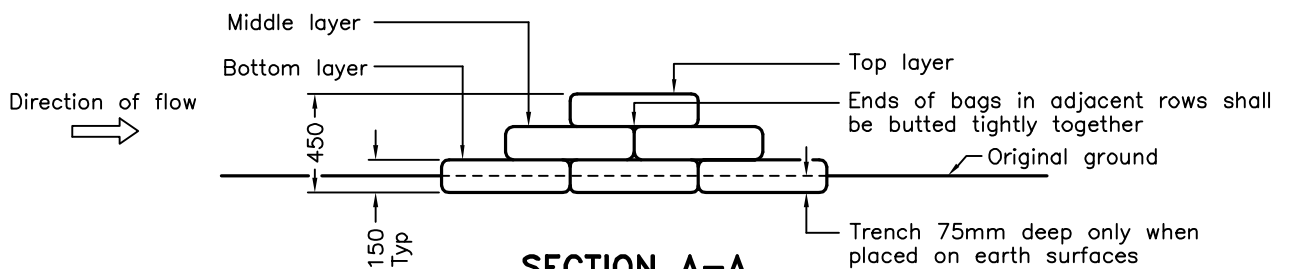
OPSD 219.130



PERSPECTIVE VIEW



PLAN



SECTION A-A

NOTE:

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING

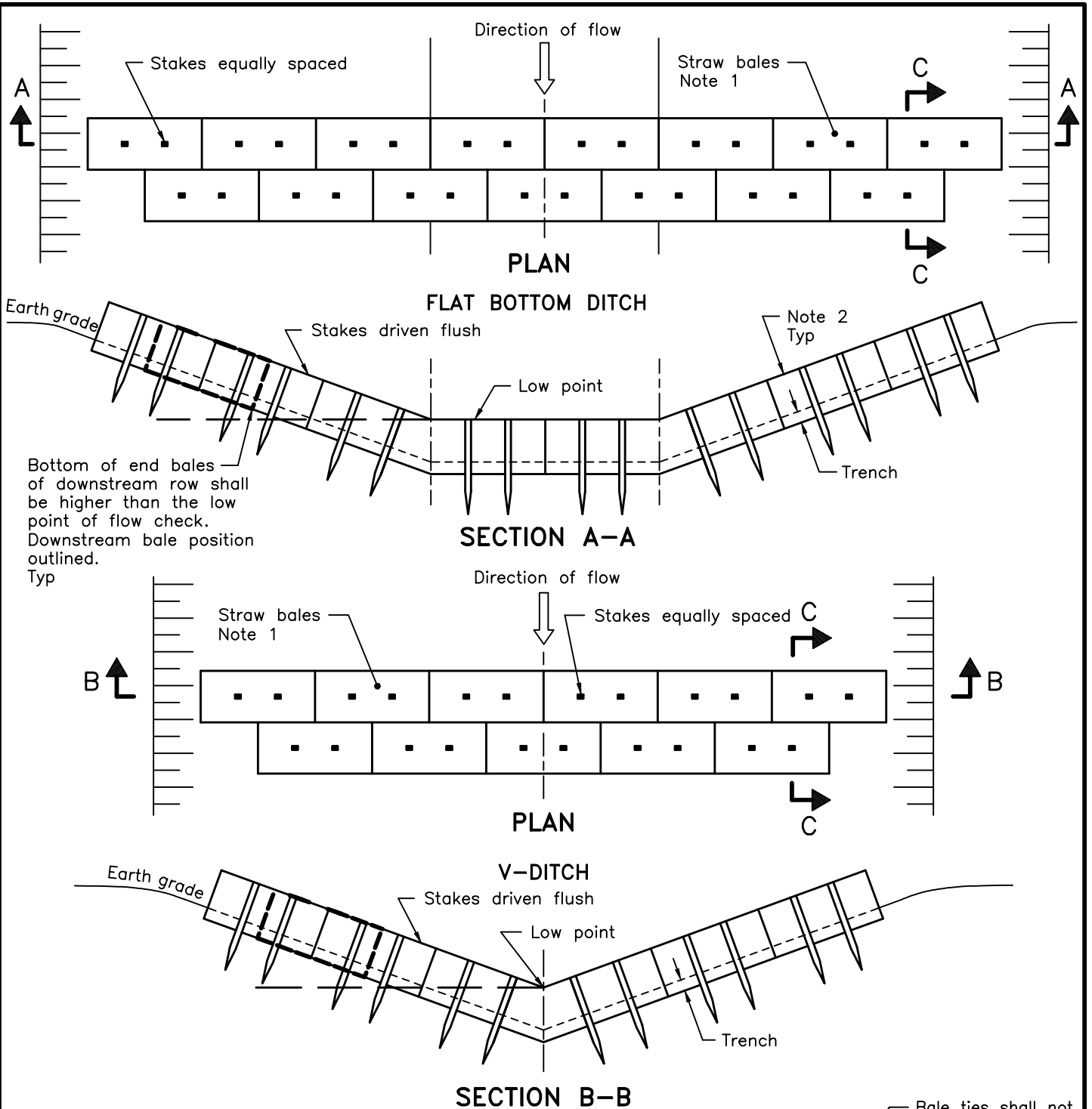
Nov 2015

Rev 2

SANDBAG BARRIER



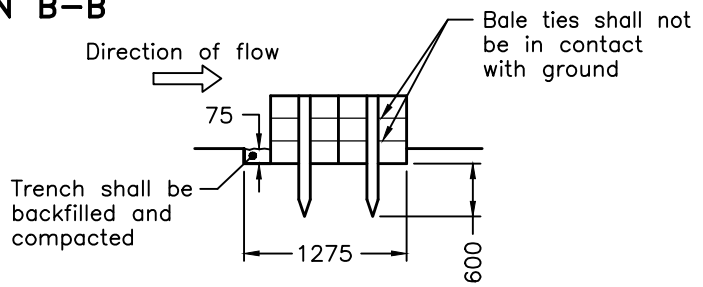
OPSD 219.150



NOTES:

- 1 Number of bales varies and shall suit ditch.
- 2 Straw bales shall be butted tightly against adjoining bales and shaped to conform to the sides of the ditch to prevent water flow through barrier.

A Fill and compact gaps with loose straw.
 B All dimensions are in millimetres unless otherwise shown.



SECTION C-C

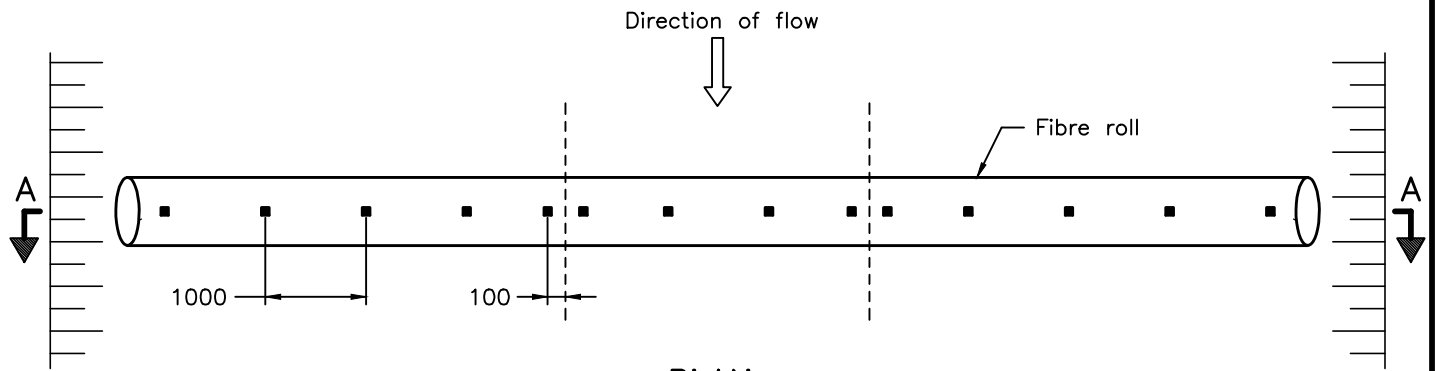
ONTARIO PROVINCIAL STANDARD DRAWING

Nov 2021 | Rev | 3

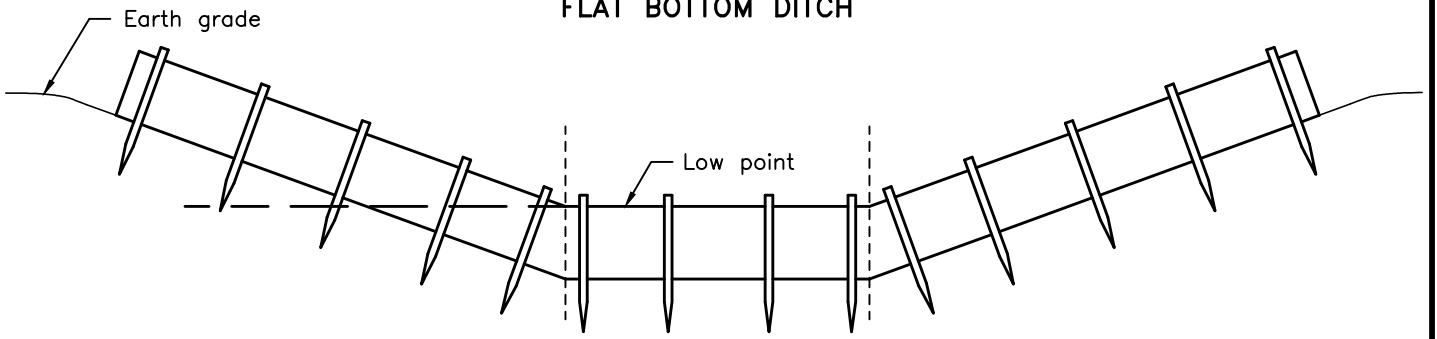
STRAW BALE FLOW CHECK DAM



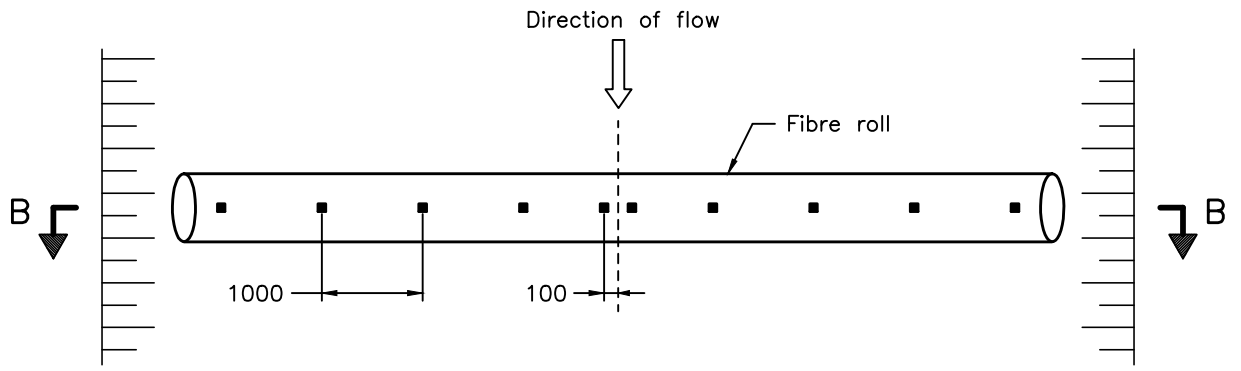
OPSD 219.180



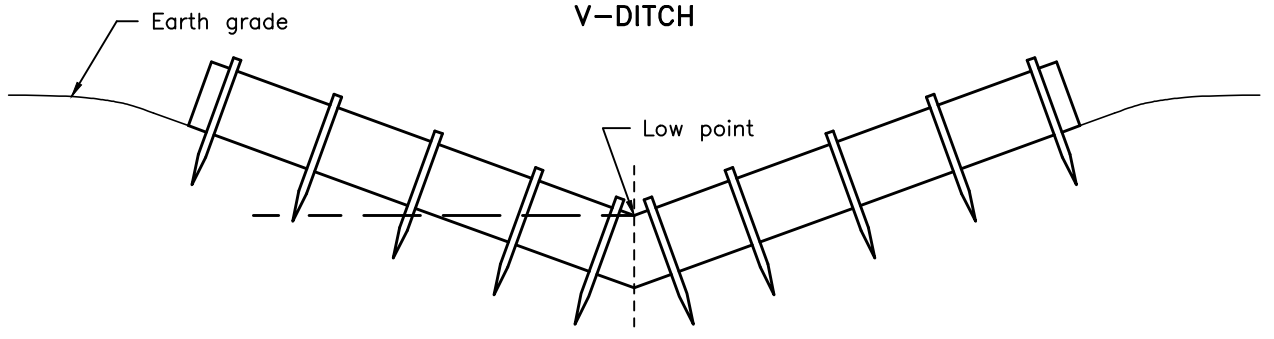
**PLAN
FLAT BOTTOM DITCH**



SECTION A-A



**PLAN
V-DITCH**



SECTION B-B

NOTES:

- A Refer to OPSD 219.120 Section A-A installation detail.
- B All dimensions are in millimetres unless otherwise shown.

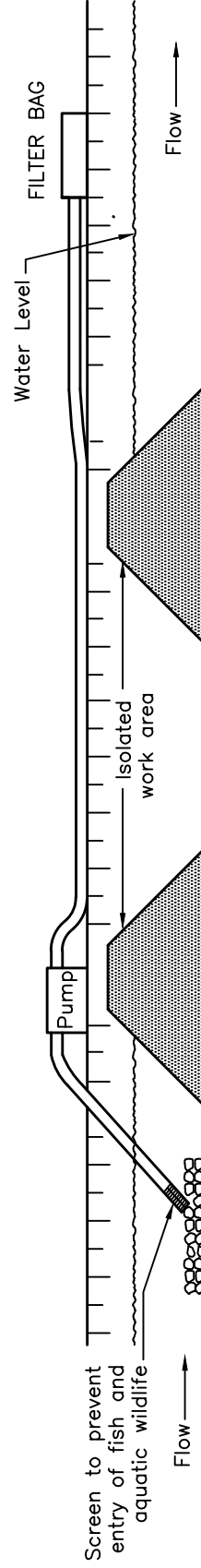
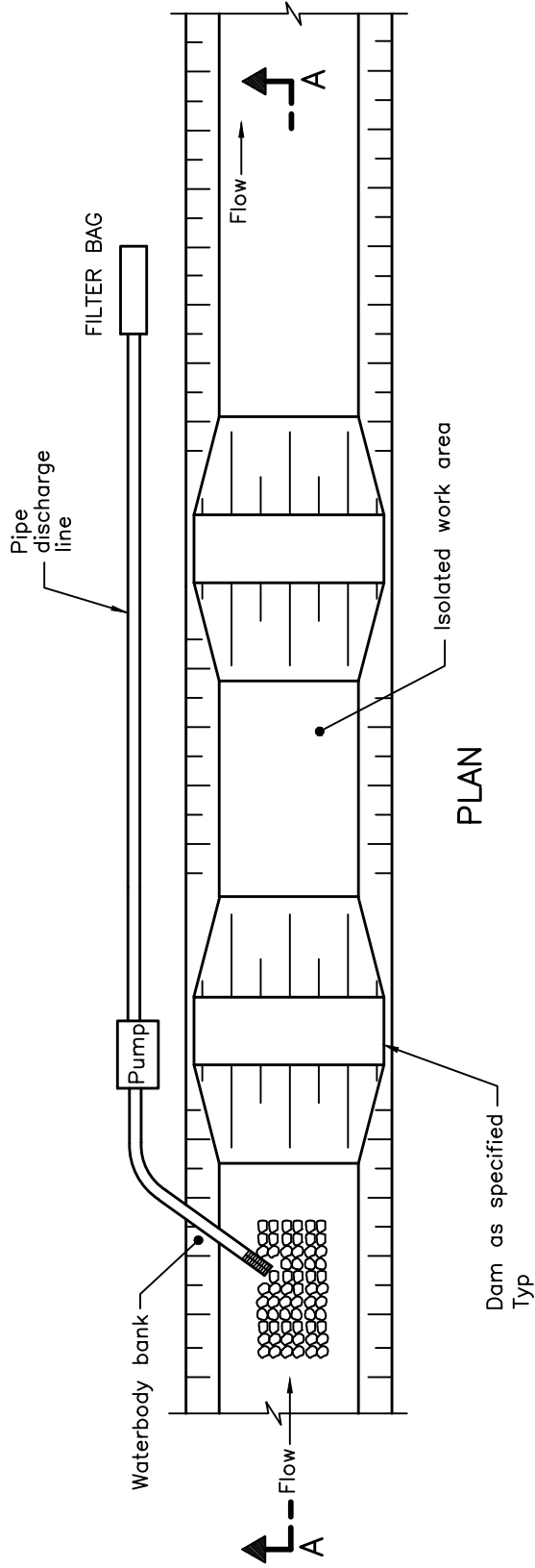
ONTARIO PROVINCIAL STANDARD DRAWING

Nov 2021 | Rev | 1

FIBRE ROLL FLOW CHECK DAMS



OPSD 219.191



NOTE:

A Schematic only.

ONTARIO PROVINCIAL STANDARD DRAWING

Nov 2021 Rev 1

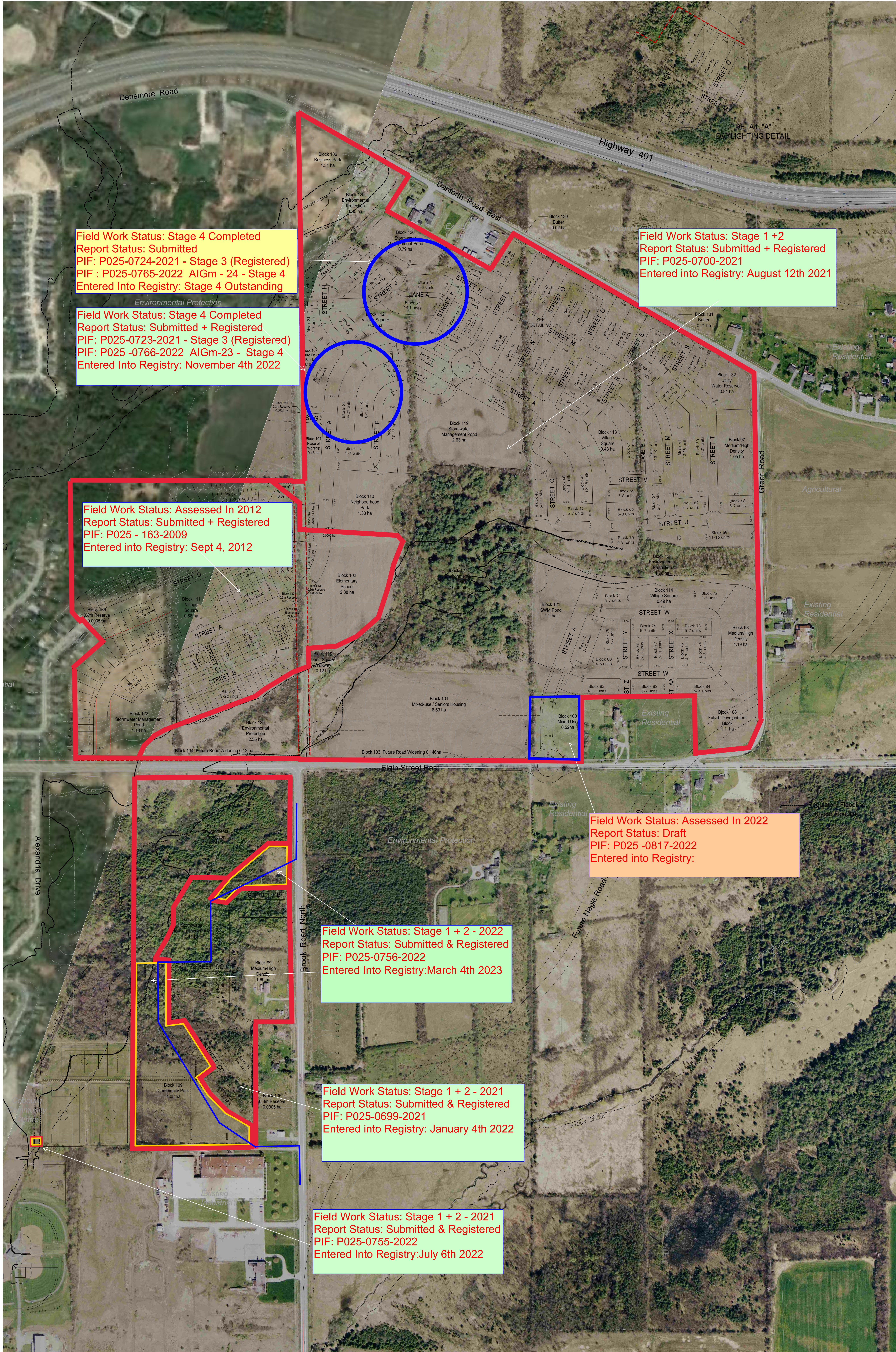
TEMPORARY FLOW PASSAGE SYSTEM
PUMPING AND PIPING



OPSD 221.020

B

Appendix B: Archaeological Clearance Letters



Field Work Status: Stage 4 Completed
 Report Status: Submitted
 PIF: P025-0724-2021 - Stage 3 (Registered)
 PIF: P025-0765-2022 AIGm - 24 - Stage 4
 Entered Into Registry: Stage 4 Outstanding

Field Work Status: Stage 4 Completed
 Report Status: Submitted + Registered
 PIF: P025-0723-2021 - Stage 3 (Registered)
 PIF: P025 -0766-2022 AIGm-23 - Stage 4
 Entered Into Registry: November 4th 2022

Field Work Status: Assessed In 2012
 Report Status: Submitted + Registered
 PIF: P025 - 163-2009
 Entered into Registry: Sept 4, 2012

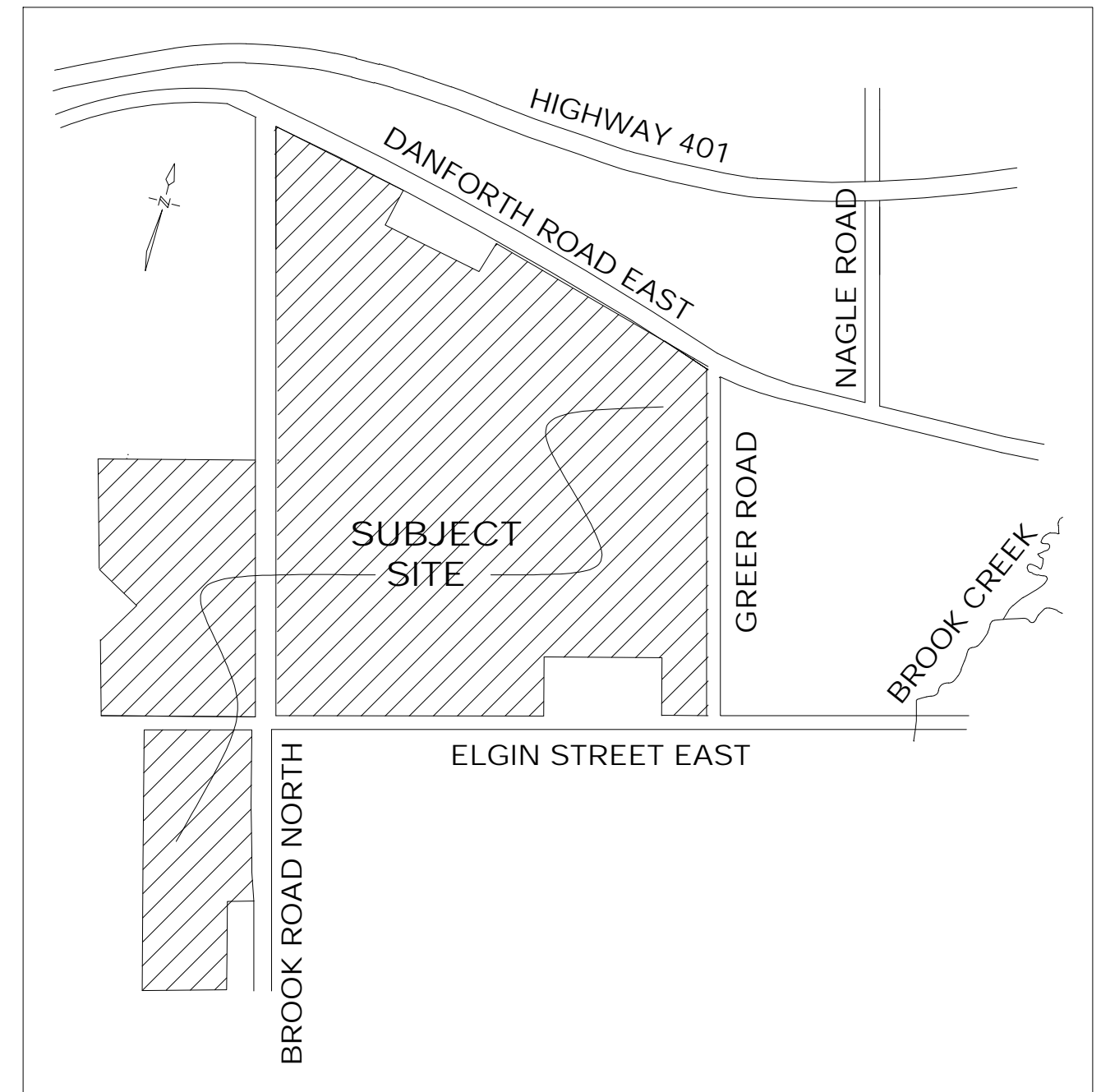
Field Work Status: Stage 1 +2
 Report Status: Submitted + Registered
 PIF: P025-0700-2021
 Entered into Registry: August 12th 2021

Field Work Status: Assessed In 2022
 Report Status: Draft
 PIF: P025 -0817-2022
 Entered into Registry:

Field Work Status: Stage 1 + 2 - 2022
 Report Status: Submitted & Registered
 PIF: P025-0756-2022
 Entered Into Registry: March 4th 2023

Field Work Status: Stage 1 + 2 - 2021
 Report Status: Submitted & Registered
 PIF: P025-0699-2021
 Entered into Registry: January 4th 2022

Field Work Status: Stage 1 + 2 - 2021
 Report Status: Submitted & Registered
 PIF: P025-0755-2022
 Entered Into Registry: July 6th 2022



Key Map NTS

DRAFT PLAN OF SUBDIVISION

- Section 51, Planning Act
- a) As shown on the draft plan
 - b) As shown on the draft plan
 - c) As shown on the draft plan
 - d) As shown on the Land Use Table
 - e) As shown on the draft plan
 - f) As shown on the draft plan
 - g) As shown on the draft plan
 - h) Municipal piped water
 - i) Sandy Loam
 - j) As shown on the draft plan
 - k) Full Municipal services
 - l) As shown on the draft plan

Land Use Table	Lot/Block No.	Area (ha)
Single Detached	Blocks 1-92	31.29
Semi-Detached	Blocks 93-96	0.41
Townhouse	Blocks 97-99	3.93
Part Lots	Blocks 100-101	7.05
Medium/High Density	Blocks 102-103	2.45
Mixed Use	Blocks 104-105	0.52
Elementary School	Block 106	1.31
Place of Worship	Blocks 107-108	1.27
Business Park	Block 109	4.08
Future Development	Block 110	1.33
Community Park	Blocks 111-114	2.01
Neighbourhood Park	Blocks 115-118	0.53
Village Square	Blocks 119-123	6.86
Open Space/Walkway	Blocks 124-129	26.67
Stormwater Management	Blocks 130-131	0.23
Environmental Protection	Block 132	0.81
Buffer/Trail	Blocks 133-134	0.27
Utility - Water Reservoir	Blocks 135-142	0.004
Future Road Widening	---	16.28
Public Right-of-Way	---	16.28
TOTAL		107.30 ha

Unit Table	No. of Units
12.8m Single-Detached	Range of units 644 - 966
11.0m Single-Detached	
16.5m Semi-Detached	
7.3m Townhouse	
Subtotal	644 - 966 units
Medium/High Density @ 75 u/ha	295
Mixed Use @ 125 u/ha	65
Mixed Use/Seniors @ 150 u/ha	600
Subtotal	960
TOTAL	1,604 - 1,926 units

R.O.W.	Length (m)	Area (ha)
26.0m Collector	327.69	0.85
24.5m Minor Collector	1,829.04	4.48
20.0m Local	268.37	0.54
17.0m Local	5,898.51	10.0
8.5m Lane	249.88	0.21
Roundabout	---	0.20
TOTAL	8,573.49 metres	16.28 ha

Owners Authorization
 We being the registered owners of the subject lands hereby authorize THE PLANNING PARTNERSHIP to prepare a draft plan of subdivision and to make application to the Town of Cobourg for approval thereof:

May 20, 2016 Signed:
 Richard Rondeau, President
 Rondeau (Cobourg) LTD.
 513 Westney Road S.
 Ajax, ON L1S 6W8

Surveyor's Certificate
 I hereby certify that the boundaries of the land to be subdivided and their relationship to the adjacent lands are accurately and correctly shown on this plan.

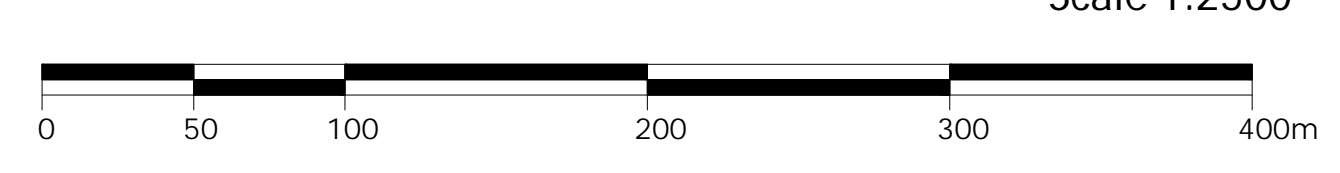
Date: May 20, 2016 Signed:
 Surveyor
 DFP Surveyors
 1101 Boundary Rd.
 Oshawa, ON L1J 8P8

Drawing No.	Date	Description
A	May 2016	New Draft Plan 'A'
B	May 2017	New Draft Plan 'B'. Revisions based on Town comments.
C	Sept. 2017	New Draft Plan 'C'. Revisions based on Town and agency comments.
D	Apr. 2018	REV Draft Plan 'D'. Revisions based on Town and agency comments.

Revised Draft Plan of Subdivision Rondeau (Cobourg) Ltd. 14T-06001-R

Part of Lots 11, 12, and 13,
 Concessions A and 1
 Block D Registered Plan 277
 Town of Cobourg
 County of Northumberland

METRIC: DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.



The Planning 1225, Bay Street, Suite 500 Toronto, Ontario, Canada M5R 2A9	Job No. 1613	Designed: SLM	Drawing No. D
	Date: April 9, 2018	Drawn: SLM	
	Scale: 1:2500	Checked: DHL	

**Ministry of Heritage, Sport, Tourism, and
Culture Industries**

Archaeology Program Unit
Programs and Services Branch
Heritage, Tourism and Culture Division
5th Floor, 400 University Ave.
Toronto ON M7A 2R9
Tel.: (416) 219-6078
Email: Michelle.Davies@ontario.ca

**Ministère des Industries du patrimoine, du sport, du
tourisme et de la culture**

Unité des programme d'archéologie
Direction des programmes et des services
Division du patrimoine, du tourisme et de la culture
5e étage, 400 ave. University
Toronto ON M7A 2R9
Tél. : (416) 219-6078
Email: Michelle.Davies@ontario.ca



Jan 4, 2022

Lawrence Jackson (P025)
Northeastern Archaeological Associates Ltd.
PO BOX 493 Port Hope ON L1A 3Z4

**RE: Review and Entry into the Ontario Public Register of Archaeological Reports:
Archaeological Assessment Report Entitled, "STAGE 1 AND 2 ARCHAEOLOGICAL
ASSESSMENT OF PART LOT 13, CONCESSION A, REGISTERED PLAN 277,
TOWNSHIP OF HAMILTON, COUNTY OF NORTHUMBERLAND, TOWN OF
COBOURG, ONTARIO", Dated Aug 23, 2021, Filed with MHSTCI Toronto Office on
Dec 10, 2021, MHSTCI Project Information Form Number P025-0699-2021, MHSTCI
File Number 0014561**

Dear Dr. Jackson:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18.¹ This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 *Standards and Guidelines for Consultant Archaeologists* set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the assessment/mitigation of the study area as depicted in Map 10.5 of the above titled report and recommends the following:

Based on the Stage 2 assessment results it is the recommendation of Northeastern Archaeological Associates Ltd. that part Lot 13, Concession A, Registered Plan 277, Township of Hamilton, County of Northumberland, Town of Cobourg, Ontario does not possess any cultural heritage value or interest, and that no further archaeological work is required within the subject property. If any archaeological resources should be discovered during the course of development, all excavation must stop immediately, and an archaeologist must be contacted.

Additionally, if the land assumed by the Municipality of Cobourg are to be developed, the lands will require a Stage 2 assessment in the form of shovel test pitting survey at 5m intervals as per Section 2.1.2 (MTCS 2011) to be carried out by a licenced archaeologist prior to any of the lands being impacted.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

Michelle Davies
Archaeology Review Officer

cc. Archaeology Licensing Officer
Jeff Solly, Tribute Communities
Glenn McGlashon, Town of Cobourg

¹*In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.*

Ministry of Tourism, Culture and Sport (MTCS)

Archaeology Program Unit
Programs and Services Branch
Heritage, Tourism and Culture Division
5th Floor, 400 University Ave.
Toronto ON M7A 2R9
Tel.: (416) 418-0949
Email: Zeeshan.Abedin@ontario.ca

Ministère du Tourisme, de la Culture et du Sport (MTCS)

Unité des programme d'archéologie
Direction des programmes et des services
Division du patrimoine, du tourisme et de la culture
5e étage, 400 ave. University
Toronto ON M7A 2R9
Tél. : (416) 418-0949
Email: Zeeshan.Abedin@ontario.ca



Jul 26, 2022

Lawrence Jackson (P025)
Northeastern Archaeological Associates Ltd.
PO BOX 493 Port Hope ON L1A 3Z4

RE: Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT OF BROOK CREEK WEST CROSSING, PART LOT 14, CONCESSION A, GEOGRAPHIC TOWNSHIP OF HAMILTON, MUNICIPALITY OF COBOURG, NORTHUMBERLAND COUNTY, ONTARIO", Dated Jul 22, 2022, Filed with MHSTCI Toronto Office on N/A, MHSTCI Project Information Form Number P025-0755-2022, MHSTCI File Number 0017246

Dear Dr. Jackson:

The above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18, has been entered into the Ontario Public Register of Archaeological Reports without technical review.¹

Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require further information, please do not hesitate to send your inquiry to Archaeology@Ontario.ca

cc. Archaeology Licensing Officer
Paul Watson, Tribute Communities
Dave Hancock, Town of Cobourg

¹In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.

Ministry of Citizenship and Multiculturalism (MCM)

Archaeology Program Unit
Heritage Branch
Citizenship, Inclusion and Heritage Division
5th Floor, 400 University Ave.
Toronto ON M7A 2R9
Tel.: (437) 339-9197
Email: Andrea.Williams@ontario.ca

Ministère des Affaires civiques et du Multiculturalisme (MCM)

Unité des programme d'archéologie
Direction du patrimoine
Division de la citoyenneté, de l'inclusion et du patrimoine
5e étage, 400 ave. University
Toronto ON M7A 2R9
Tél. : (437) 339-9197
Email: Andrea.Williams@ontario.ca



Mar 4, 2023

Lawrence Jackson (P025)
Northeastern Archaeological Associates Ltd.
PO BOX 493 Port Hope ON L1A 3Z4

RE: Review and Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT OF ADDITIONAL LANDS OF PART LOT 13, CONCESSION A, REGISTERED PLAN 277, TOWNSHIP OF HAMILTON, COUNTY OF NORTHUMBERLAND, TOWN OF COBOURG, ONTARIO", Dated Dec 1, 2022, Filed with MCM Toronto Office on Dec 7, 2022, MCM Project Information Form Number P025-0756-2022, MCM File Number 0014561

Dear Dr. Jackson:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18.¹ This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 *Standards and Guidelines for Consultant Archaeologists* set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the assessment of the study area as depicted in Maps 10.2, 10.3 and 10.5 of the above titled report [excluding Block 15 of Draft Plan of Subdivision Coburg Trails Phase 2, 1613-16] and recommends the following:

Based on the Stage 2 assessment results it is the recommendation of Northeastern Archaeological Associates Ltd. That the assessed additional lands at part Lot 13, Concession A, Registered Plan 277, Township of Hamilton, County of Northumberland, Town of Cobourg, Ontario do not possess any cultural heritage value or interest, and that no further archaeological work is required within these sections of the subject property. If any archaeological resources should be discovered during the course of development, all excavation must stop immediately, and an archaeologist must be contacted. Additionally, if the land assumed by the Municipality of Cobourg is to be developed, it will require a Stage 2 assessment by a licenced archaeologist prior to any of the lands being impacted.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 *Standards and Guidelines for*

Consultant Archaeologists and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

Andrea Williams
Archaeology Review Officer

cc. Archaeology Licensing Officer
Paul Watson, Tribute Communities
Dave Hancock, Town of Cobourg

¹*In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.*

C

Appendix C: Stakeholder List

Cobourg East Community SP WWW Municipal Servicing Class EA Study

Agency Contact List

Last Updated: 18-May-23

Contact information for members of the public has been redacted

First Name	Last Name	Company/Organization	Street	City	Province	Postal Code	Email
FEDERAL AGENCIES							
To Whom It May Concern		Indigenous Services Canada					aadnc.infopubs.aandc@canada.ca
To Whom It May Concern		Fisheries and Oceans Canada	200 Kent St, Station 13E228	Ottawa	ON	K1A 0E6	info@dfo-mpo.gc.ca
Kitty	Ma	Health Canada	180 Queen Street West	Toronto	ON	M5V 3X3	kitty.ma@canada.ca
Wesley	Plant	Environment and Climate Change Canada	4905 Dufferin St	Downsview	ON	M3H5T4	wesley.plant@ec.gc.ca
PROVINCIAL AGENCIES							
		Ministry of the Environment, Conservation and Parks	Notices required by email only				eanotification.eregion@ontario.ca
Jon	Orpana	Ministry of the Environment, Conservation and Parks	Kingston Regional Office PO Box 22032, 1259 Gardiners Rd	Kingston	ON	K7M 8S5	jon.orpana@ontario.ca
Michael	Elms	Ministry of Municipal Affairs and Housing	Rockwood House, 8 Estate Lane	Kingston	ON	K7M 9A8	michael.elms@ontario.ca
Laura	Hatcher	Ministry of Tourism, Culture and Sport	Suite 1800, 401 Bay St	Toronto	ON	M7A 0A7	Laura.E.Hatcher@ontario.ca
Dawn	Irish	Ministry of Transportation	Garden City Tower 2nd Flr., 301 St. Paul St.	St. Catherines	ON	L2R7R4	dawn.irish@ontario.ca
Robert	Greene	Ministry of the Solicitor General	25 Grosvenor Street, 13th Flr	Toronto	ON	M7A1Y6	robert.greene@ontario.ca
		Infrastructure Ontario	Notices required by email only				noticereview@infrastructureontario.ca
Ainsley	Davidson	Infrastructure Ontario	1 Dundas Street West, Suite 200	Toronto	ON	M5G 2L5	ainsley.davidson@infrastructureontario.ca
Joanna	Craig	Infrastructure Ontario	1 Dundas Street West, Suite 200	Toronto	ON	M5G 2L5	joanna.craig@infrastructureontario.ca
Jocelyn	Beatty	Ministry of Agriculture, Food and Rural Affairs	6484 Wellington Road 7, Unit 10	Elora	ON	N0B 1S0	jocelyn.beatty@ontario.ca
Keith	Johnston	Ministry of Natural Resources and Forestry	99 Wellesley St W, Whitney Block Rm 5520	Toronto	ON	M7A 1W3	keith.johnston@ontario.ca
Catherine	Warren	Ministry of Natural Resources and Forestry	South Tower, 1st Floor 300 Water St, PO Box 7000	Peterborough	ON	K9J8M5	catherine.warren@ontario.ca
Sam	Short	Ministry of Natural Resources and Forestry - Land Use and Strategic Issues Section	300 Water Street	Peterborough	ON	K9J 3C7	Sam.Short@ontario.ca
CONSERVATION AUTHORITIES							
Ken	Thajer	Ganaraska Region Conservation Authority	10585 Cold Springs Camp Road	Campbellcroft	ON	L0A 1B0	kthajer@grca.on.ca
Leslie	Benson	Ganaraska Region Conservation Authority	10585 Cold Springs Camp Road	Campbellcroft	ON	L0A 1B0	lbenson@grca.on.ca
Lindsay	Champagne	Ganaraska Region Conservation Authority	10585 Cold Springs Camp Road	Campbellcroft	ON	L0A 1B0	lchampagne@grca.on.ca

Cobourg East Community SP WWW Municipal Servicing Class EA Study

Agency Contact List

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First Name	Last Name	Company/Organization	Street	City	Province	Postal Code	Email
TOWN REPRESENTATIVES							
Dereck	Paul	Lakefront Utilities Services Inc.	207 Division Street PO Box 577	Cobourg	ON	K9A 4L3	DPaul@lusi.on.ca
Larry	Spyrka	Lakefront Utilities Services Inc.	207 Division Street PO Box 577	Cobourg	ON	K9A 4L3	lspyrka@lusi.on.ca
Adam	Taggart	Lakefront Utilities Services Inc.	207 Division Street PO Box 577	Cobourg	ON	K9A 4L3	ataggart@lusi.on.ca
Tracey	Vaughan	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	tvaughan@cobourg.ca
Brent	Larmer	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	blarmer@cobourg.ca
Anne	Taylor Scott	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	ataylorscott@cobourg.ca
Laurie	Wills	Town of Cobourg	740 Division Street, Building 7	Cobourg	ON	K9A 0H6	lwills@cobourg.ca
Gudrun	Ludorf-Weaver	Sustainable Cobourg	703 Carlisle St	Cobourg	ON	K9A 5E4	info@sustainablecobourg.ca
Lucas	Cleveland	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	lcleveland@cobourg.ca
Nicole	Beatty	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	nbeatty@cobourg.ca
Adam	Bureau	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	abureau@cobourg.ca
Brian	Darling	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	bdarling@cobourg.ca
Aaron	Burchat	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	aburchat@cobourg.ca
Miriam	Mutton	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	mmutton@cobourg.ca
Randy	Barber	Town of Cobourg	55 King Street West	Cobourg	ON	K9A 2M2	rbarber@cobourg.ca
UTILITY PROVIDERS							
		Bell Canada	100 Borough Drive, Floor F5	Toronto	ON	M1P 4W2	bell.moc@telecon.ca
Barry	Cunningham	Cogeco	297 Front Street, P.O. Box 149	Belleville	ON	K8N 4Z9	barry.cunningham@cogeco.com
		Enbridge Gas Distribution	500 Consumers Road, 4th Floor, Post A2 - VPC	North York	ON	M2J 1P8	mark-ups@enbridge.com
RAILWAYS							
Michael	Vallins	Canadian National Railway	1 Administration Road P.O. Box 1000	Concord	ON	L4K 1B9	Michael.Vallins@cn.ca
		Canadian Pacific Railway	1290 Central Parkway West, Suite 700	Mississauga	ON	L5C 4R3	
SCHOOLS							
Jordan	Hoogendam	Northumberland Christian School	8861 Danforth Rd E	Cobourg	ON	K9A 4J8	jordan@zonengineering.com
Wilma	Van Barneveld	Northumberland Christian School	8861 Danforth Rd E	Cobourg	ON	K9A 4J8	office@northumberlandchristian.ca
LOCAL GROUPS / ASSOCIATIONS							
David	Kuhnke	Sustainable Cobourg / EV Society Northumberland	137 Carroll Cres	Cobourg	ON		dkuhnke1@gmail.com
Jonathan	Brown	Volunteer - Sustainable Cobourg	249 Parkview Hills Dr.	Cobourg	ON	K9A 5S2	jonabrow@gmail.com

Cobourg East Community SP WWW Municipal Servicing Class EA Study

Agency Contact List

Last Updated: 18-May-23

Contact information for members of the public has been redacted

First Name	Last Name	Company/Organization	Street	City	Province	Postal Code	Email
PUBLIC / PROPERTY OWNERS							
			225 Albert Street	Cobourg	ON	K9A 2R6	
			1032 Elgin Street East	Cobourg	ON	K9A 0S1	
			516 Wilson Road	Cobourg	ON	K9A 5P7	
			450 Brook Rd N	Cobourg	ON	K9A 0R8	
			265 Fred Pratt St.	Cobourg	ON	K9A 3P1	
			226 Carroll Cres	Cobourg	ON	K9A 5P8	
			719 Elgin St E	Cobourg	ON		
			743 Elgin St	Cobourg	ON	K9A 4J8	
			995 Elgin St. E.	Cobourg	ON	K9A 4J8	
			453 Brook Rd N	Cobourg	ON	K9A 4J8	
			8943 Danforth Rd	Cobourg	ON	K9A 4J8	
			135 East House Cres	Cobourg	ON	K9A 5K5	
			9019 Minifie Rd	Cobourg	ON	K9A 4J9	
			2009 Greer Rd	Cobourg	ON	K9A 4J8	
			728 Brook Rd N	Cobourg	ON	K9A 4J8	
			647 Elgin St E	Cobourg	ON	K9A 4J8	
			8817 Danforth Rd E	Cobourg	ON	K9A 4J8	
			8963 Danforth Rd E	Cobourg	ON	K9A 4J8	
			50 Springbrook Dr	Cobourg	ON	K9A 4H7	

Cobourg East Community SP WWW Municipal Servicing Class EA Study

Indigenous Communities Contact List

Last Updated: 18-May-23

First Nation	First	Last	Title	Address 1	City	Province	Postal Code	Phone	Email
Alderville First Nation	Dave	Mowat	Chief	11696 Line Road 2	Roseneath	ON	K0K 2X0	905-352-2011	dmowat@alderville.ca
Beausoleil First Nation	Joanne	Sandy	Chief	11 O-Gemma Mikan	Christian Island	ON	L9M 0A9	705-247-2051	consultation@chimnissing.ca
Curve Lake First Nation	Keith	Knott	Chief	22 Winookeedaa Road	Curve Lake	ON	K0L 1R0	705-760-4935	keithk@curvelake.ca
	Kaitlin	Hill	Lands and Resources Consultation Liaison	22 Winookeedaa Road	Curve Lake	ON	K0L 1R0		kaitlinh@curvelake.ca
	Dr. Julie	Kapryka	Lands and Resources Consultation Liaison	22 Winookeedaa Road	Curve Lake	ON	K0L 1R0		juliek@curvelake.ca
Francis Chua Consulting (for Curve Lake)	Kayla	Wright	Indigenous & Community Relations Advisor						kayla@francischua.com
Chippewas of Georgina Island	Donna	Big Canoe	Chief	RR#2 P.O. Box N-13	Sutton West	ON	L9E 1R0	705-437-1337	donna.bigcanoe@georginaisland.com
Hiawatha First Nation	Laurie	Carr	Chief	431 Hiawatha Line	Hiawatha	ON	K9J 0E6	705-295-4421	chiefcarr@hiawathafn.ca
	Tom	Cowie	Lands/Resource Consultation	431 Hiawatha Line	Hiawatha	ON	K9J 0E6	705-295-4421 ext. 216	tcowie@hiawathafn.ca
	Sean	Davison	Lands/Resource Consultation	431 Hiawatha Line	Hiawatha	ON	K9J 0E6	705-295-4421 ext. 215	sdavison@hiawathafn.ca
Scugog Island First Nation	Kelly	LaRocca	Chief	22521 Island Road RR #5	Port Perry	ON	L9L 1B6		klarocca@scugogfirstnation.com
	Tom	Turoczi	Consultation Coordinator	22521 Island Road RR #5	Port Perry	ON	L9L 1B6		tturoczi@scugogfirstnation.com
									consultation@scugogfirstnation.com
Chippewas of Rama First Nation	Edward	Williams	Chief	5884 Rama Road	Rama	ON	L0K 1T0	705-325-3611 ext. 1240	chief@ramafirstnation.ca
	Samantha	Craig-Curnow	Associate General Counsel, Legal						consultation@ramafirstnation.ca
Williams Treaties First Nation	Karry	Sandy McKenzie	Barrister & Solicitor	8 Creswick Court	Barrie	ON	L4M 2J7	705-792-5087	k.a.sandy-mckenzie@rogers.com
Mohawks of the Bay of Quinte	Charlotte	Gurnsey		24 Meadow Drive	Tyendinaga Moh	ON	K0K 1X0	613-396-3424	consultation@mbq-tmt.org
Kawartha Nishnawbe	Kris	Nahrgang		257 Big Cedar Lake Rd.	Big Cedar	ON	K0L 2H0		rknahrgang@gmail.com

D

Appendix D: Consultation Correspondence



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From: [Elysia Friedl](#)
To: [Dave Mowat](#)
Cc: thoekstra@cobourg.ca; [Chad Stephen](#); k.a.sandy-mckenzie@rogers.com
Subject: Information Package - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area, Town of Cobourg
Date: Tuesday, February 7, 2023 4:09:00 PM
Attachments: [Cobourg East Servicing EA-Info Package.pdf](#)
[Cobourg East WWW Notice of PIC.pdf](#)

Good Afternoon Chief Mowat,

As a follow up to our previous correspondence about the Cobourg East Community Secondary Plan Area Municipal Servicing Class EA, the Project Team would like to let you know that we are hosting a Public Information Centre (PIC) for the project on February 8, 2023. The purpose of the PIC is to introduce the study and gather feedback on the study background, existing conditions, problems and opportunities, alternative solutions, the recommended preferred solution and the next steps in the study.

For your information and review, we have attached a copy of the Notice of PIC and the presentation slides.

If there is anything you wish to review with the Project Team, please reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Chad Stephen.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Chad Stephen, P.Eng., PMP
CIMA+
chad.stephen@cima.ca

Respectfully,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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CONFIDENTIALITY WARNING This email is confidential. If you are not the intended recipient, please notify the sender immediately and delete it in its entirety.

From: Elysia Friedl
Sent: Thursday, September 29, 2022 11:00 AM
To: Dave Mowat <dmowat@alderville.ca>; consultation@alderville.ca
Cc: Paul Turner <Paul.Turner@cima.ca>; thoekstra@cobourg.ca; inquiries@williamstreatiesfirstnations.ca; k.a.sandy-mckenzie@rogers.com
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East

Community Secondary Plan Area

Good Morning Chief Mowat,

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments..

CIMA+ is assisting in completing this study, which is following the Schedule B process of the Municipal Class EA (2000, as amended 2015).

Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL

Project Coordinator, Infrastructure

~~T 905-697-4464 ext. 6930~~

415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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To: [Dave Mowat](#); consultation@alderville.ca
Cc: [Paul Turner](#); thoekstra@cobourg.ca; inquiries@williamstreatiesfirstnations.ca; k.a.sandy-mckenzie@rogers.com
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area
Date: Thursday, September 29, 2022 11:00:00 AM
Attachments: [Cobourg East WWW Notice of Study Commencement_Sep 29 2022.pdf](#)

Good Morning Chief Mowat,

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Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator, Infrastructure

T 905-697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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From: [Elysia Friedl](#)
To: ["consultation@mbq-tmt.org"](mailto:consultation@mbq-tmt.org)
Cc: thoekstra@cobourg.ca; [Chad Stephen](#)
Subject: Information Package - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area, Town of Cobourg
Date: Tuesday, February 7, 2023 4:09:00 PM
Attachments: [Cobourg East Servicing EA-Info Package.pdf](#)
[Cobourg East WWW Notice of PIC.pdf](#)

Good Afternoon,

As a follow up to our previous correspondence about the Cobourg East Community Secondary Plan Area Municipal Servicing Class EA, the Project Team would like to let you know that we are hosting a Public Information Centre (PIC) for the project on February 8, 2023. The purpose of the PIC is to introduce the study and gather feedback on the study background, existing conditions, problems and opportunities, alternative solutions, the recommended preferred solution and the next steps in the study.

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Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Chad Stephen, P.Eng., PMP
CIMA+
chad.stephen@cima.ca

Respectfully,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
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From: Elysia Friedl
Sent: Wednesday, November 23, 2022 2:23 PM
To: 'consultation@mbq-tmt.org' <consultation@mbq-tmt.org>
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

Good Afternoon,

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Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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To: ["consultation@mbq-tmt.org"](mailto:consultation@mbq-tmt.org)
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area
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Attachments: [Cobourg East WWW Notice of Study Commencement Sep 29 2022.pdf](#)

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Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Chad Stephen, P.Eng., PMP
CIMA+
chad.stephen@cima.ca

Respectfully,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
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From: Elysia Friedl
Sent: Thursday, September 29, 2022 11:00 AM
To: consultation@chimissing.ca
Cc: Paul Turner <Paul.Turner@cima.ca>; thoekstra@cobourg.ca; k.a.sandy-mckenzie@rogers.com; inquiries@williamstreatiesfirstnations.ca
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East

Community Secondary Plan Area

Good Morning,

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments..

CIMA+ is assisting in completing this study, which is following the Schedule B process of the Municipal Class EA (2000, as amended 2015).

Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL

Project Coordinator, Infrastructure

~~T 905-697-4464 ext. 6930~~

415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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Do you really need to print this email? Let's protect the environment!

CONFIDENTIALITY WARNING This email is confidential. If you are not the intended recipient, please notify the sender immediately and delete it in its entirety.

From: [Elysia Friedl](#)
To: consultation@chimissing.ca
Cc: [Paul Turner](mailto:Paul.Turner@cobourg.ca); thoekstra@cobourg.ca; k.a.sandy-mckenzie@rogers.com; inquiries@williamstreatiesfirstnations.ca
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area
Date: Thursday, September 29, 2022 11:00:00 AM
Attachments: [Cobourg East WWW Notice of Study Commencement Sep 29 2022.pdf](#)

Good Morning,

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments..

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Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

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Project Coordinator, Infrastructure

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Elysia Friedl

From: Chad Stephen
Sent: Friday, April 21, 2023 8:32 AM
To: Kayla Wright
Cc: Julie Kapyrka; KaitlinH@curvelake.ca; paigew@curvelake.ca; Katie Young-Haddlesey; KeithK@curvelake.ca; Francis M. Chua; Elysia Friedl; thoekstra@cobourg.ca; Paul Turner; 'Pat Becker'; Jeff Solly; Jeff Mycyk
Subject: RE: CLFN Response to: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Kayla,

We are in receipt of the email below and associated letter attachment.

Firstly, we would like to advise Curve Lake Nation that they will be provided the requested File Fee of \$250. The File Fee will be paid for by Cobourg East Development Owners Group (CEDOG) and will be sent separately.

We have been continuing with the project, being the Cobourg East Community Secondary Plan Area Municipal Servicing Class Environmental Assessment Study. The study involves determining the preferred alternative for the water and wastewater servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area. The need to provide municipal water and wastewater services to the Cobourg East Secondary Plan Area was identified in the Town of Cobourg's Secondary Plan. The municipal water and wastewater trunk services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments.

The letter attached to the email requested a summary to address several potential concerns to the First Nation's and we are providing some brief comment as follows:

Possible impacts to our drinking water: Any potential impacts to groundwater will be only construction related impacts and will be temporary.

Endangerment to fish and wild game: Creek crossing will be completed using trenchless methods (no in-water works) to mitigate impacts to fish and wild game.

Impact on Aboriginal heritage and cultural values: Alternatives developed as part of the study avoided heritage and cultural features. In addition, we will include mitigation measures if any archaeological resources are found during construction. Refer to the comment below regarding completion of the archaeological assessments.

Endangered Species, lands: During the study, no impacts to species at risk were identified that will be impacted by the proposed water or wastewater infrastructure.

In further reference to the above noted comments, Public Information Centre Boards were provided to the attention of Curve Lake Nation via email on February 7, 2023 that can be referred to for further detailed information on the project. In addition, the PIC boards are available for viewing on the Town of Cobourg website at the following link:

<https://www.cobourg.ca/en/resources/Public-Works/Cobourg-East-Community-Environmental-Assessment-Overview.pdf>

We acknowledge Curve Lake Nation providing assistance for the archaeological process. However, the archaeological work for the project has been undertaken and will be documented in the Project File Report with the appropriate MCM clearance letters.

The Project File Report is currently being compiled for the study and looking to be completed late May 2023. A copy of the Project File Report will be provided to Curve Lake Nation for review and comment.

If you have any questions or comments on the above, please let us know. As well, feel free to contact us if you would prefer to have a meeting to further discuss this project.

Thanks,

CHAD STEPHEN, P. Eng., PMP
Associate Partner / Director / Linear Infrastructure

T 905 697-4464 ext. 6913 M 647-220-2456
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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CONFIDENTIALITY WARNING This email is confidential. If you are not the intended recipient, please notify the sender immediately and delete it in its entirety.

From: Kayla Wright <kayla@francischua.com>
Sent: November 1, 2022 5:59 PM
To: Elysia Friedl <Elysia.Friedl@cima.ca>; thoeckstra@cobourg.ca; Paul Turner <Paul.Turner@cima.ca>
Cc: Julie Kapyrka <JulieK@curvelake.ca>; KaitlinH@curvelake.ca; paigew@curvelake.ca; Katie Young-Haddlesey <KatieYH@curvelake.ca>; KeithK@curvelake.ca; Francis M. Chua <francis@francischua.com>
Subject: CLFN Response to: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

EXTERNAL EMAIL

Good day Elysia, Terry & Paul,

On behalf of Curve Lake First Nation, please see attached letter regarding your project.

Many thanks,

Kayla Wright, c.Tech.
Environment & Sustainability,

Indigenous & Community Relations Advisor
Francis Chua Consulting
kayla@francischua.com

From: Elysia Friedl <Elysia.Friedl@cima.ca>

Sent: September 29, 2022 11:01 AM

To: Keith Knott <KeithK@curvelake.ca>; Kaitlin Hill <KaitlinH@curvelake.ca>; Julie Kapyrka <JulieK@curvelake.ca>

Cc: Paul Turner <Paul.Turner@cima.ca>; thoekstra@cobourg.ca; inquiries@williamstreatiesfirstnations.ca; k.a.sandy-mckenzie@rogers.com

Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

Good Morning Chief Knott,

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments..

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Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL

Project Coordinator, Infrastructure

T ~~905-697-4464 ext. 6930~~

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From: [Elysia Friedl](#)
To: keithk@curvelake.ca; kaitlinH@curvelake.ca; juliek@curvelake.ca
Cc: thoekstra@cobourg.ca; [Chad Stephen](#); k.a.sandy-mckenzie@rogers.com
Subject: Information Package - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area, Town of Cobourg
Date: Tuesday, February 7, 2023 4:09:00 PM
Attachments: [Cobourg East Servicing EA-Info Package.pdf](#)
[Cobourg East WWW Notice of PIC.pdf](#)

Good Afternoon Chief Knott,

As a follow up to our previous correspondence about the Cobourg East Community Secondary Plan Area Municipal Servicing Class EA, the Project Team would like to let you know that we are hosting a Public Information Centre (PIC) for the project on February 8, 2023. The purpose of the PIC is to introduce the study and gather feedback on the study background, existing conditions, problems and opportunities, alternative solutions, the recommended preferred solution and the next steps in the study.

For your information and review, we have attached a copy of the Notice of PIC and the presentation slides.

If there is anything you wish to review with the Project Team, please reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Chad Stephen.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Chad Stephen, P.Eng., PMP
CIMA+
chad.stephen@cima.ca

Respectfully,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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From: Elysia Friedl
Sent: Thursday, September 29, 2022 11:01 AM
To: keithk@curvelake.ca; kaitlinH@curvelake.ca; juliek@curvelake.ca
Cc: Paul Turner <Paul.Turner@cima.ca>; thoekstra@cobourg.ca; inquiries@williamstreatiesfirstnations.ca; k.a.sandy-mckenzie@rogers.com
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East

Community Secondary Plan Area

Good Morning Chief Knott,

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Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator, Infrastructure

~~T 905 697 4464 ext. 6030~~
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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Government Services Building
22 Winookeedaa Road
Curve Lake, Ontario K0L1R0



Phone: 705.657.8045
Fax: 705.657.8708
www.curvelakefirstnation.ca

November 1, 2022
VIA E-MAIL

Terry Hoekstra
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner
CIMA+
415 Baseline Road West, 2nd Floor
Bowmanville, ON L1C 5M2 CANADA
Paul.turner@cima.ca

CC: Elysia.Friedl@cima.ca

RE: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

Dear Terry & Paul,

I would like to acknowledge receipt of correspondence, which was received on September 29, 2022, regarding the above noted project. As you may be aware, the area in which your project is proposed is situated within the Traditional Territory of Curve Lake First Nation. Our First Nation's Territory is incorporated within the Williams Treaties Territory and was the subject of a claim under Canada's Specific Claims Policy, which has now been settled. All 7 First Nations within the Williams Treaties have had their harvesting rights legally re-affirmed and recognized through this settlement.

Curve Lake First Nation is requiring a File Fee for this project in the amount of \$250.00 as outlined in our *Consultation and Accommodation Standards*. This Fee includes project updates as well as review of standard material and project overviews. Depending on the amount of documents to be reviewed by the Consultation Department, additional fees may apply. **Please make this payment to Curve Lake First Nation Consultation Department and please indicate the project name or number on the cheque.**

If you do not have a copy of *Curve Lake First Nation's Consultation and Accommodation Standards* they are available at <https://curvelakefirstnation.ca/lands-resources-consultation/>. Hard copies are available upon request.

Based on the information that you have provided us with respect to Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area. Curve Lake First Nation may

Government Services Building
22 Winookeedaa Road
Curve Lake, Ontario K0L1R0



Phone: 705.657.8045
Fax: 705.657.8708
www.curvelakefirstnation.ca

require a Special Consultation Framework for this project. Information on this Framework can be found on page 9 of our *Consultation and Accommodation Standards* document.

In order to assist us in providing you with timely input, it would be appreciated if you could provide a summary statement indicating how the project will address the following areas that are of concern to our First Nation within our Traditional and Treaty Territory: possible environmental impact to our drinking water; endangerment to fish and wild game; impact on Aboriginal heritage and cultural values; and to endangered species; lands; savannas etc. We are interested in receiving any project documentation (e.g., project plans, reports, memos, drawings, etc.) in draft or in final version to get a better understanding of the project itself, the assessments and studies conducted, the mitigations identified, etc. This will give us better insight and understanding on what is being proposed.

After the information is reviewed it is expected that you or a representative will be in contact to make arrangements to discuss this matter in more detail and possibly set up a date and time to meet with Curve Lake First Nation in person (or virtually).

Although we have not conducted exhaustive research nor have we the resources to do so, there may be the presence of burial or archaeological sites in your proposed project area. Please note, that we have particular concern for the remains of our ancestors. Should excavation unearth bones, remains, or other such evidence of a native burial site or any other archaeological findings, we must be notified without delay. In the case of a burial site, Council reminds you of your obligations under the *Cemeteries Act* to notify the nearest First Nation Government or other community of Aboriginal people which is willing to act as a representative and whose members have a close cultural affinity to the interred person. As I am sure you are aware, the regulations further state that the representative is needed before the remains and associated artifacts can be removed. Should such a find occur, we request that you contact our First Nation immediately.

Furthermore, Curve Lake First Nation also has available, trained Cultural Heritage Liaisons who are able to actively participate in the archaeological assessment process as a member of a field crew, the cost of which will be borne by the proponent. **Curve Lake First Nation expects engagement at Stage 1 of an archaeological assessment** so that we may include Indigenous Knowledge of the land in the process. We insist that at least one of our Cultural Heritage Liaisons be involved in any Stage 2-4 assessments, including test pitting, and/or pedestrian surveys to full excavation.

Although we may not always have representation at all stakeholder meetings, as rights holders', it is our wish to be kept apprised throughout all phases of this project. Please note that this letter does not constitute consultation, but it does represent the initial engagement process.

Should you have further questions or if you wish to hire a Liaison for a project, please contact Julie Kapyrka or Kaitlin Hill, Lands and Resources Consultation Liaisons, at 705-657-8045 or via email at JulieK@Curvelake.ca and KaitlinH@Curvelake.ca.

Government Services Building
22 Winookedaa Road
Curve Lake, Ontario K0L1R0



Phone: 705.657.8045
Fax: 705.657.8708
www.curvelakefirstnation.ca

Yours sincerely,

A handwritten signature in black ink that reads "Keith Knott". The signature is written in a cursive, flowing style.

Chief Keith Knott
Curve Lake First Nation

From: [Kayla Wright](#)
To: [Elysia Friedl](#); thoekstra@cobourg.ca; [Paul Turner](#)
Cc: [Julie Kapyrka](#); KaitlinH@curvelake.ca; paigew@curvelake.ca; [Katie Young-Haddlesey](#); KeithK@curvelake.ca; [Francis M. Chua](#)
Subject: CLFN Response to: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area
Date: Wednesday, November 2, 2022 8:00:58 AM
Attachments: [image005.jpg](#)
[CLFN Level 2 Letter - MCEA for Cobourg East Community Secondary Plan Area.pdf](#)

EXTERNAL EMAIL

Good day Elysia, Terry & Paul,

On behalf of Curve Lake First Nation, please see attached letter regarding your project.

Many thanks,

Kayla Wright, c.Tech.

Environment & Sustainability,
Indigenous & Community Relations Advisor
Francis Chua Consulting
kayla@francischua.com

From: Elysia Friedl <Elysia.Friedl@cima.ca>
Sent: September 29, 2022 11:01 AM
To: Keith Knott <KeithK@curvelake.ca>; Kaitlin Hill <KaitlinH@curvelake.ca>; Julie Kapyrka <JulieK@curvelake.ca>
Cc: Paul Turner <Paul.Turner@cima.ca>; thoekstra@cobourg.ca; inquiries@williamstreatiesfirstnations.ca; k.a.sandy-mckenzie@rogers.com
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

Good Morning Chief Knott,

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Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL

Project Coordinator, Infrastructure

T ~~905-697-4464 ext. 6930~~

415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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From: [Elysia Friedl](#)
To: ["donna.bigcanoe@georginaisland.com"](mailto:donna.bigcanoe@georginaisland.com)
Cc: [Chad Stephen](#); ["thoekstra@cobourg.ca"](mailto:thoekstra@cobourg.ca); ["k.a.sandy-mckenzie@rogers.com"](mailto:k.a.sandy-mckenzie@rogers.com)
Subject: Information Package- Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area, Town of Cobourg
Date: Tuesday, February 7, 2023 4:09:00 PM
Attachments: [Cobourg East Servicing EA-Info Package.pdf](#)
[Cobourg East WWW Notice of PIC.pdf](#)

Good Afternoon Chief Big Canoe,

As a follow up to our previous correspondence about the Cobourg East Community Secondary Plan Area Municipal Servicing Class EA, the Project Team would like to let you know that we are hosting a Public Information Centre (PIC) for the project on February 8, 2023. The purpose of the PIC is to introduce the study and gather feedback on the study background, existing conditions, problems and opportunities, alternative solutions, the recommended preferred solution and the next steps in the study.

For your information and review, we have attached a copy of the Notice of PIC and the presentation slides.

If there is anything you wish to review with the Project Team, please reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Chad Stephen.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Chad Stephen, P.Eng., PMP
CIMA+
chad.stephen@cima.ca

Respectfully,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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From: Elysia Friedl
Sent: Thursday, September 29, 2022 11:01 AM
To: donna.bigcanoe@georginaisland.com
Cc: Paul Turner <Paul.Turner@cima.ca>; thoekstra@cobourg.ca; k.a.sandy-mckenzie@rogers.com; inquiries@williamstreatiesfirstnations.ca
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East

Community Secondary Plan Area

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Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL

Project Coordinator, Infrastructure

T 905-697-4464 ext. 6930

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Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area
Date: Thursday, September 29, 2022 11:00:00 AM
Attachments: [Cobourg East WWW Notice of Study Commencement Sep 29 2022.pdf](#)

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Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator, Infrastructure

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From: [Elysia Friedl](#)
To: "[chiefcarr@hiawathafn.ca](#)"; "[tcowie@hiawathafn.ca](#)"; "[sdavison@hiawathafn.ca](#)"
Cc: [Chad Stephen](#); "[thoekstra@cobourg.ca](#)"; "[k.a.sandy-mckenzie@rogers.com](#)"
Subject: Information Package - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area, Town of Cobourg
Date: Tuesday, February 7, 2023 4:09:00 PM
Attachments: [Cobourg East Servicing EA-Info Package.pdf](#)
[Cobourg East WWW Notice of PIC.pdf](#)

Good Afternoon Chief Carr,

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Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Chad Stephen, P.Eng., PMP
CIMA+
chad.stephen@cima.ca

Respectfully,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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From: Elysia Friedl
Sent: Thursday, September 29, 2022 11:01 AM
To: 'chiefcarr@hiawathafn.ca' <chiefcarr@hiawathafn.ca>; tcowie@hiawathafn.ca; sdavison@hiawathafn.ca
Cc: Paul Turner <Paul.Turner@cima.ca>; thoekstra@cobourg.ca; inquiries@williamstreatiesfirstnations.ca; k.a.sandy-mckenzie@rogers.com
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East

Community Secondary Plan Area

Good Morning Chief Carr,

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments..

CIMA+ is assisting in completing this study, which is following the Schedule B process of the Municipal Class EA (2000, as amended 2015).

Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator, Infrastructure

~~T 905 697 4464 ext. 6030~~
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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From: [Elysia Friedl](#)
To: "[chiefcarr@hiawathafn.ca](#)"; [tcowie@hiawathafn.ca](#); [sdavison@hiawathafn.ca](#)
Cc: [Paul Turner](#); [thoekstra@cobourg.ca](#); [inquiries@williamstreatiesfirstnations.ca](#); [k.a.sandy-mckenzie@rogers.com](#)
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area
Date: Thursday, September 29, 2022 11:00:00 AM
Attachments: [Cobourg East WWW Notice of Study Commencement Sep 29 2022.pdf](#)

Good Morning Chief Carr,

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thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

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Elysia Friedl

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From: [Elysia Friedl](#)
To: ["rknahrgang@gmail.com"](mailto:rknahrgang@gmail.com)
Cc: [Chad Stephen](#); ["thoekstra@cobourg.ca"](mailto:thoekstra@cobourg.ca)
Subject: Information Package - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area, Town of Cobourg
Date: Tuesday, February 7, 2023 4:09:00 PM
Attachments: [Cobourg East Servicing EA-Info Package.pdf](#)
[Cobourg East WWW Notice of PIC.pdf](#)

Good Afternoon,

As a follow up to our previous correspondence about the Cobourg East Community Secondary Plan Area Municipal Servicing Class EA, the Project Team would like to let you know that we are hosting a Public Information Centre (PIC) for the project on February 8, 2023. The purpose of the PIC is to introduce the study and gather feedback on the study background, existing conditions, problems and opportunities, alternative solutions, the recommended preferred solution and the next steps in the study.

For your information and review, we have attached a copy of the Notice of PIC and the presentation slides.

If there is anything you wish to review with the Project Team, please reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Chad Stephen.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Chad Stephen, P.Eng., PMP
CIMA+
chad.stephen@cima.ca

Respectfully,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

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inquiries@williamstreatiesfirstnations.ca

Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

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Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL

Project Coordinator, Infrastructure

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Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

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**Ministry of the Environment,
Conservation and Parks**

**Ministère de l'Environnement,
de la Protection de la nature
et des Parcs**

Environmental Assessment
Branch

Direction des évaluations
environnementales

1st Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Télééc. : 416 314-8452

November 23, 2022

Terry Hoekstra, C.E.T., LET
Manager, Engineering
Public Works Division, Engineering Department
The Corporation of the Town of Cobourg

BY EMAIL ONLY

Re: **NOTICE OF STUDY COMMENCEMENT
Cobourg East Community Secondary Plan Area
Municipal Servicing Class EA**

Dear Terry Hoekstra,

This letter is in response to the Notice of Commencement (issued September 29, 2022) for the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the proponent has indicated that the study is following the approved environmental planning process for a Schedule B project under the Municipal Class Environmental Assessment (Class EA).

Study Background

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to

extend and support the full build-out needs of Cobourg East for ongoing and future developments.

The Study is being conducted in accordance with the planning and design process for Schedule B projects, as outlined in the Municipal Class Environmental Assessment (EA) process. The Class EA includes opportunities for public, Indigenous community and stakeholder discussion and feedback.

The **updated (February 2021)** attached “Areas of Interest” document provides guidance regarding the ministry’s interests with respect to the Class EA process. Please address all areas of interest in the EA documentation at an appropriate level for the EA study. Proponents who address all the applicable areas of interest can minimize potential delays to the project schedule. **Further information is provided at the end of the Areas of Interest document relating to recent changes to the Environmental Assessment Act through Bill 197, Covid-19 Economic Recovery Act 2020.**

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

The proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada’s *Constitution Act* 1982. Where the Crown’s duty to consult is triggered in relation to the proposed project, **the MECP is delegating the procedural aspects of rights-based consultation to the proponent through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information provided to date and the Crown’s preliminary assessment the proponent is required to consult with the following communities who have been identified as potentially affected by the proposed project:

- **Mohawks of the Bay of Quinte**

Williams Treaties First Nations:

- **Chippewas of Georgina Island**
- **Chippewas of Rama First Nation**
- **Chippewas of Beausoleil First Nation**
- **Alderville First Nation**

- **Curve Lake First Nation**
- **Hiawatha First Nation**
- **Mississaugas of Scugog Island First Nation**

For the above Williams Treaties communities, please cc Karry Sandy McKenzie, William Treaties First Nations Process Co-ordinator, inquiries@williamstreatiesfirstnations.ca

- **Kawartha Nishnawbe**

If the proponent has undertaken archeological studies and are required to undertake any work related to archeological resources, they should also include:

- **Huron-Wendat**

Steps that the proponent may need to take in relation to Aboriginal consultation for the proposed project are outlined in the "[Code of Practice for Consultation in Ontario's Environmental Assessment Process](#)". Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments.

Please also refer to the attached document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information, including the MECP's expectations for EA report documentation related to consultation with communities.

The proponent must contact the Director of Environmental Assessment Branch (EABDirector@ontario.ca) under the following circumstances subsequent to initial discussions with the communities identified by the MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities;
- You have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right;
- Consultation with Indigenous communities or other stakeholders has reached an impasse; or
- A Section 16 Order request is expected on the basis of impacts to Aboriginal or treaty rights

The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play should additional steps and activities be required.

A draft copy of the report should be sent directly to me prior to the filing of the final report, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments.

Please also ensure a copy of the final notice is sent to the ministry's Eastern Region EA notification email account (eanotification.eregion@ontario.ca) after the draft report is reviewed and finalized.

Should you or any members of your project team have any questions regarding the material above, please contact me at jon.orpana@ontario.ca.

Sincerely,



Jon K. Orpana

Regional Environmental Planner – Eastern Region

Cc:

Jacqueline Fuller, Water Compliance Supervisor, Peterborough District Office, MECP

Email: jacqueline.fuller@ontario.ca

Paul Turner, P. Eng

Director, Partner / Transportation

CIMA+

Email: Paul.Turner@cima.ca

Encl. Areas of Interest

AREAS OF INTEREST (v. February 2021)

It is suggested that you check off each section after you have considered / addressed it.

Planning and Policy

- Projects located in MECP's Eastern Region. Parts of the study area may also be subject to the [Oak Ridges Moraine Conservation Plan](#) (2017), [Niagara Escarpment Plan](#) (2017), [Greenbelt Plan](#) (2017) or [Lake Simcoe Protection Plan](#) (2014). Applicable plans and the applicable policies should be identified in the report, and the proponent should describe how the proposed project adheres to the relevant policies in these plans.
- The [Provincial Policy Statement \(2020\)](#) contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the report, and the proponent should describe how the proposed project is consistent with these policies.
- In addition to the provincial planning and policy level, the report should also discuss the planning context at the municipal and federal levels, as appropriate.

Source Water Protection

The *Clean Water Act*, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e. systems that are not municipal residential systems). MEA Class EA projects may include activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity that is a threat to drinking water) and

prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

- In October 2015, the MEA Parent Class EA document was amended to include reference to the Clean Water Act (Section A.2.10.6) and indicates that proponents undertaking a Municipal Class EA project must identify early in their process whether a project is or could potentially be occurring with a vulnerable area. **Given this requirement, please include a section in the report on source water protection.**
 - The proponent should identify the source protection area and should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed. Specifically, the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area.
 - If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.
- While most source protection plans focused on including policies for significant drinking water threats in the WHPAs and IPZs it should be noted that even though source protection plan policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to impacts and within these areas, activities may impact the quality of sources of drinking water for systems other than municipal residential systems.
- In order to determine if this project is occurring within a vulnerable area, proponents can use this mapping tool: <http://www.applications.ene.gov.on.ca/swp/en/index.php>. Note that various layers (including WHPAs, WHPA-Q1 and WHPA-Q2, IPZs, HVAs, SGRAs, EBAs, ICAs) can be turned on through the “Map Legend” bar on the left. The mapping tool will also provide a link to the appropriate source protection plan in order to identify what policies may be applicable in the vulnerable area.
- For further information on the maps or source protection plan policies which may relate to their project, proponents must contact the appropriate source protection authority. **Please consult with the local source protection authority to discuss potential impacts on drinking water. Please document the results of that consultation within the report and include all communication documents/correspondence.**

More Information

For more information on the *Clean Water Act*, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to [Conservation Ontario's website](#) where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in [section 1.1 of Ontario Regulation 287/07](#) made under the *Clean Water Act*. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional "local" threat activities, as approved by the MECP.

Climate Change

The document "[Considering Climate Change in the Environmental Assessment Process](#)" (Guide) is now a part of the Environmental Assessment program's Guides and Codes of Practice. The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. Proponents should review this Guide in detail.

• **The MECP expects proponents of Class EA projects to:**

1. Consider during the assessment of alternative solutions and alternative designs, the following:
 - a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
 - b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).
2. Include a discrete section in the report detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered.

- The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "[Community Emissions Reduction Planning: A Guide for Municipalities](#)" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

□ Air Quality, Dust and Noise

- If there are sensitive receptors in the surrounding area of this project, a quantitative air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern. **Please contact this office for further consultation on the level of Air Quality Impact Assessment required for this project if not already advised.**
- If a quantitative Air Quality Impact Assessment is not required for the project, the MECP expects that the report contain a qualitative assessment which includes:
 - A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;
 - A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
 - A discussion of local air quality impacts that could arise from this project during both construction and operation; and
 - A discussion of potential mitigation measures.
- As a common practice, "air quality" should be used as an evaluation criterion for all road projects.
- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.
- The MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures that could be applied, refer to [Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities](#) report prepared for Environment Canada. March 2005.
- The report should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

□ **Ecosystem Protection and Restoration**

- Any impacts to ecosystem form and function must be avoided where possible. The report should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.
- Natural heritage and hydrologic features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:
 - Key Natural Heritage Features: Habitat of endangered species and threatened species, fish habitat, wetlands, areas of natural and scientific interest (ANSIs), significant valleylands, significant woodlands; significant wildlife habitat (including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars.
 - Key Hydrologic Features: Permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands.
 - Other natural heritage features and areas such as: vegetation communities, rare species of flora or fauna, Environmentally Sensitive Areas, Environmentally Sensitive Policy Areas, federal and provincial parks and conservation reserves, Greenland systems etc.

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features. In addition, you may consider the provisions of the Rouge Park Management Plan if applicable.

□ **Species at Risk**

- The Ministry of the Environment, Conservation and Parks has now assumed responsibility of Ontario's Species at Risk program. Information, standards, guidelines, reference materials and technical resources to assist you are found at <https://www.ontario.ca/page/species-risk>.
- The Client's Guide to Preliminary Screening for Species at Risk (Draft May 2019) has been attached to the covering email for your reference and use. Please review this document for next steps.
- For any questions related to subsequent permit requirements / considerations for SAR, please contact SAROntario@ontario.ca.

□ **Surface Water**

- The report must include enough information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.
- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's [Stormwater Management Planning and Design Manual \(2003\)](#) should be referenced in the report and utilized when designing stormwater control methods. **A Stormwater Management Plan should be prepared as part of the Class EA process** that includes:
 - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
 - Watershed information, drainage conditions, and other relevant background information
 - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
 - Information on maintenance and monitoring commitments.
- Ontario Regulation 60/08 under the *Ontario Water Resources Act* (OWRA) applies to the Lake Simcoe Basin, which encompasses Lake Simcoe and the lands from which surface water drains into Lake Simcoe. If the proposed sewage treatment plant is listed in Table 1 of the regulation, the report should describe how the proposed project and its mitigation measures are consistent with the requirements of this regulation and the OWRA.
- Any potential approval requirements for surface water taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, except for certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the [Water Taking User Guide for EASR](#) for more information. Additionally, an Environmental Compliance Approval under the OWRA is required for municipal stormwater management works.

□ **Groundwater**

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the report.
- If the potential construction or decommissioning of water wells is identified as an issue, the report should refer to Ontario Regulation 903, Wells, under the OWRA.
- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.
- Any potential approval requirements for groundwater taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the [Water Taking User Guide for EASR](#) for more information.
- Consultation with the railroad authorities is necessary wherever there is a plan to use construction dewatering in the vicinity of railroad lines or where the zone of influence of the construction dewatering potentially intercepts railroad lines.

□ **Excess Materials Management**

- In December 2019, MECP released a new regulation under the Environmental Protection Act, titled “On-Site and Excess Soil Management” (O. Reg. 406/19) to support improved management of excess construction soil. This regulation is a key step to support proper management of excess soils, ensuring valuable resources don’t go to waste and to provide clear rules on managing and reusing excess soil. New risk-based standards referenced by this regulation help to facilitate local beneficial reuse which in turn will reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health

and the environment. The new regulation is being phased in over time, with the first phase in effect on January 1, 2021. For more information, please visit <https://www.ontario.ca/page/handling-excess-soil>.

- The report should reference that activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the MECP's current guidance document titled "[Management of Excess Soil – A Guide for Best Management Practices](#)" (2014).
- All waste generated during construction must be disposed of in accordance with ministry requirements

Contaminated Sites

- Any current or historical waste disposal sites should be identified in the report. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites. We recommend referring to the [MECP's D-4 guideline](#) for land use considerations near landfills and dumps.
 - Resources available may include regional/local municipal official plans and data; provincial data on [large landfill sites](#) and [small landfill sites](#); Environmental Compliance Approval information for waste disposal sites on [Access Environment](#).
- Other known contaminated sites (local, provincial, federal) in the study area should also be identified in the report (Note – information on federal contaminated sites is found on the Government of Canada's [website](#)).
- The location of any underground storage tanks should be investigated in the report. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.
- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act* (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. Please contact the appropriate MECP District Office for further consultation if contaminated sites are present.

□ **Servicing, Utilities and Facilities**

- The report should identify any above or underground utilities in the study area such as transmission lines, telephone/internet, oil/gas etc. The owners should be consulted to discuss impacts to this infrastructure, including potential spills.
- The report should identify any servicing infrastructure in the study area such as wastewater, water, stormwater that may potentially be impacted by the project.
- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with MECP's Environmental Permissions Branch to determine whether a new or amended ECA will be required for any proposed infrastructure.
- We recommend referring to the ministry's [environmental land use planning guides](#) to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

□ **Mitigation and Monitoring**

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the report and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly.
- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.
- The proponent's construction and post-construction monitoring plans must be documented in the report, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.

□ **Consultation**

- The report must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the report that identifies concerns that

were raised and **describes how they have been addressed by the proponent** throughout the planning process. The report should also include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments (as directed by the Class EA to include full documentation).

- Please include the full stakeholder distribution/consultation list in the documentation.

□ **Class EA Process**

- If this project is a Master Plan: there are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. **The Master Plan should clearly indicate the selected approach for conducting the plan**, by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to Part II Order Requests under the Environmental Assessment Act, although the plan itself would not be. **Please include a description of the approach being undertaken (use Appendix 4 as a reference).**
- If this project is a Master Plan: Any identified projects should also include information on the MCEA schedule associated with the project.
- The report should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.
- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment (including planning, natural, social, cultural, economic, technical). The report should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments, cultural heritage assessments) such that all potential impacts can be identified, and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the report.
- Please include in the report a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, MTO permits and approvals under the *Impact Assessment Act*, 2019.
- Ministry guidelines and other information related to the issues above are available at <http://www.ontario.ca/environment-and-energy/environment-and-energy>. We encourage you to review all the available guides and to reference any relevant information in the report.

Amendments to the EAA through the Covid-19 Economic Recovery Act, 2020

Once the EA Report is finalized, the proponent must issue a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the proponent. The Notice of Completion must be sent to the appropriate MECP Regional Office email address (for projects in MECP Eastern Region, the email is eanotification.eregion@ontario.ca).

The public has the ability to request a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights. In addition, the Minister may issue an order on his or her own initiative within a specified time period. The Director (of the Environmental Assessment Branch) will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent. Once the requested information has been received, the Minister will have 30 days within which to make a decision or impose conditions on your project.

Therefore, the proponent cannot proceed with the project until at least 30 days after the end of the comment period provided for in the Notice of Completion. Further, the proponent may not proceed after this time if:

- a Section 16 Order request has been submitted to the ministry regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, or
- the Director has issued a Notice of Proposed order regarding the project.

Please ensure that the Notice of Completion advises that outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Section 16 Order requests on those matters should be addressed in writing to:

Minister
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

From: [Pat Becker](#)
To: [Chad Stephen](#)
Cc: [Elysia Friedl](#); [Paul Turner](#)
Subject: Re: Cobourg East Secondary Plan Area
Date: Tuesday, November 22, 2022 12:15:17 PM

EXTERNAL EMAIL

I just finished chatting with Jon Orpana about the Cobourg Class EA. He was a bit confused and thought given the large study area that we should be doing a Master Plan, especially since we have water and wastewater servicing needed. I explained that it was 2 specific projects (water and wastewater combined together) and it was not a Master Plan level of study needed. The larger study area was just to allow consideration of the alignment for the wastewater on the east side. After explaining the start and end points of the water and wastewater and that the rest of the servicing needs would be watermains and sewers within developments he agreed that it didn't fall under a master Plan requirement.

He noted that he will have his MECP letter (which is the generic one they always send out) to us by next week and it will include the names of the Indigenous communities that we need to consult with.

Pat

On Nov 22, 2022, at 11:13 AM, Pat Becker <pbecker@pathcom.com> wrote:

Sounds good and I will call Jon now.

Pat

On Nov 22, 2022, at 11:09 AM, Chad Stephen <Chad.Stephen@cima.ca> wrote:

Hi Pat,

I am now pretty much tied up in meetings the rest of today, and I believe Paul is pretty tied up as well before he leaves on vacation EOD for the rest of the week.

So, in that respect, I might suggest that you contact Jon directly. You are likely the best one to address any of his concerns anyhow.

If Jon needs a meeting, I can make myself available later this week, as need be, just let me know.

Let us know if this is okay.

Thanks,

Chad

From: Pat Becker <pbecker@pathcom.com>
Sent: November 22, 2022 10:39 AM
To: Paul Turner <Paul.Turner@cima.ca>
Cc: Chad Stephen <Chad.Stephen@cima.ca>; Elysia Friedl <Elysia.Friedl@cima.ca>
Subject: Re: Cobourg East Secondary Plan Area

EXTERNAL EMAIL

I am available today if you want me to chat with MECP regarding the Class EA. Let me know and I can contact Jon directly.

Pat

On Nov 22, 2022, at 10:21 AM, Orpana, Jon (MECP) <Jon.Orpana@ontario.ca> wrote:

Hello Paul,

I had a chance to chat with one of my colleagues earlier today and would like to chat with your folks regarding your approach as a singular schedule B project under the MEA.

If you can make time today that would be great but it would have to be before lunch.

Otherwise I can meet with Pat and Chad later in the week.

Let me know.

Jon

Jon K. Orpana
Regional Environmental Planner
Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
Kingston Regional Office
PO Box 22032, 1259 Gardiners Road
Kingston, Ontario
K7M 8S5
Phone: (613) 548-6918
Fax: (613) 548-6908
Email: jon.orpana@ontario.ca

From: Paul Turner <Paul.Turner@cima.ca>
Sent: November 21, 2022 3:47 PM
To: Orpana, Jon (MECP) <Jon.Orpana@ontario.ca>
Cc: Chad Stephen <Chad.Stephen@cima.ca>; 'Pat Becker' <pbecker@pathcom.com>; Elysia Friedl <Elysia.Friedl@cima.ca>
Subject: RE: Cobourg East Secondary Plan Area

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Jon,

I just left you a voicemail. Please feel free to give me a call back at your convenience on my mobile phone.

FYI – I'll be away on vacation Wednesday to Friday of this week.

Thanks,

PAUL TURNER, P.Eng.
Director, Partner / Transportation

T 905 697-4464 ext. 6902 M 905 926-2483
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA

CIMA+

From: Orpana, Jon (MECP) <Jon.Orpana@ontario.ca>
Sent: Friday, November 18, 2022 1:09 PM
To: Paul Turner <Paul.Turner@cima.ca>
Subject: Cobourg East Secondary Plan Area

EXTERNAL EMAIL

Hello Mr. Turner,

I have a couple of questions regarding the above mentioned project as the EA coordinator for this project for MECP.

I am putting together a response letter and would like to clarify a few items.

Thanks in advance.

Jon

Jon K. Orpana
Regional Environmental Planner
Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
Kingston Regional Office
PO Box 22032, 1259 Gardiners Road
Kingston, Ontario
K7M 8S5

Phone: (613) 548-6918

Fax: (613) 548-6908

Email: jon.orpana@ontario.ca

Ministry of Natural Resources and Forestry

Land Use Planning and Strategic Issues
Section
Southern Region

Regional Operations Division
300 Water Street
Peterborough, ON K9J 3C7
Tel.: 705 761-4839

Ministère des Richesses naturelles et des Forêts

Section de l'aménagement du territoire et des questions stratégiques
Région du Sud

Division des opérations régionales
300, rue Water
Peterborough (ON) K9J 3C7
Tél. : 705 761-4839



October 25, 2022

The Corporation of the Town of Cobourg
740 Division Street, Building #7
Cobourg, ON K9A 0H6

To Terry Hoekstra

SUBJECT: Notice of Study Commencement – Cobourg East Community Secondary Plan Area Municipal Servicing Class EA

The Ministry of Natural Resources and Forestry (MNRF) received the Notice of Study Commencement for the Cobourg East Community Secondary Plan Area Municipal Servicing Project on September 29, 2022. Thank you for circulating this to our office. Please note that we have not completed a screening of natural heritage or other resource values for the project at this time. This response, however, does provide information to guide you in identifying and assessing natural features and resources as required by applicable policies and legislation, as well as engaging with the Ministry for advice as needed.

Please also note that it is the proponent's responsibility to be aware of, and comply with, all relevant federal or provincial legislation, municipal by-laws or other agency approvals.

Natural Heritage

MNRF's natural heritage and natural resources GIS data layers can be obtained through the Ministry's [Land Information Ontario \(LIO\)](#) website. You may also view natural heritage information online (e.g., Provincially Significant Wetlands, ANSI's, woodlands, etc.) using the [Make a Map: Natural Heritage Areas](#) tool.

We recommend that you use the above-noted sources of information during the review of your project proposal.

Natural Hazards

A series of natural hazard technical guides developed by MNRF are available to support municipalities and conservation authorities implement the natural hazard policies in the Provincial Policy Statement (PPS). For example, standards to address flood risks and the potential impacts and costs from riverine flooding are addressed in the *Technical Guide River and Stream Systems: Flooding Hazard Limit (2002)*. We recommend that you consider these technical guides as you assess specific improvement projects that can be undertaken to reduce the risk of flooding.

Petroleum Wells & Oil, Gas and Salt Resources Act

There may be petroleum wells within the proposed project area. Please consult the Ontario Oil, Gas and Salt Resources Library website (www.ogsrlibrary.com) for the best-known data on any wells recorded by MNRF. Please reference the 'Definitions and Terminology Guide' listed in the publications on the library website to better understand the well information available. Any oil and gas wells in your project area are regulated by the *Oil, Gas and Salt Resource Act*, and the supporting regulations and operating standards. If any unanticipated wells are encountered during development of the project, or if the proponent has questions regarding petroleum operations, the proponent should contact the Petroleum Operations Section at POSRecords@ontario.ca or 519-873-4634.

Fish and Wildlife Conservation Act

Please note, that should the project require:

- The relocation of fish outside of the work area, a Licence to Collect Fish for Scientific Purposes under the *Fish and Wildlife Conservation Act* will be required.
- The relocation of wildlife outside of the work area (including amphibians, reptiles, and small mammals), a Wildlife Collector's Authorization under the *Fish and Wildlife Conservation Act* will be required.

Public Lands Act & Lakes and Rivers Improvement Act

Some Project may be subject to the provisions of the *Public Lands Act* or *Lakes and River Improvement Act*. Please review the information on MNRF's web pages provided below regarding when an approval is, or is not, required. Please note that many of the authorizations under the *Lakes and Rivers Improvement Act* are administered by the local Conservation Authority.

- For more information about the *Public Lands Act*: <https://www.ontario.ca/page/crown-land-work-permits>
- For more information about the *Lakes and Rivers Improvement Act*: <https://www.ontario.ca/page/lakes-and-rivers-improvement-act-administrative-guide>

After reviewing the information provided, if you have not identified any of MNRF's interests stated above, there is no need to circulate any subsequent notices to our office. If you have identified any of MNRF's interests and/or may require permit(s) or further technical advice, please direct your specific questions to the undersigned.

If you have any questions or concerns, please feel free to contact me.

Best Regards,



Sam Short
Regional Planner
sam.short@ontario.ca
Ph: 705-772-9329
Land Use Planning and Strategic Issues Section – Southern Region
Ministry of Natural Resources and Forestry

From: [Elysia Friedl](#)
To: klarocca@scugogfirstnation.com; consultation@scugogfirstnation.com; tturoczi@scugogfirstnation.com
Cc: [Chad Stephen](#); thoekstra@cobourg.ca; k.a.sandy-mckenzie@rogers.com
Subject: Information Package - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area, Town of Cobourg
Date: Tuesday, February 7, 2023 4:09:00 PM
Attachments: [Cobourg East Servicing EA-Info Package.pdf](#)
[Cobourg East WWW Notice of PIC.pdf](#)

Good Afternoon Chief LaRocca,

As a follow up to our previous correspondence about the Cobourg East Community Secondary Plan Area Municipal Servicing Class EA, the Project Team would like to let you know that we are hosting a Public Information Centre (PIC) for the project on February 8, 2023. The purpose of the PIC is to introduce the study and gather feedback on the study background, existing conditions, problems and opportunities, alternative solutions, the recommended preferred solution and the next steps in the study.

For your information and review, we have attached a copy of the Notice of PIC and the presentation slides.

If there is anything you wish to review with the Project Team, please reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Chad Stephen.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Chad Stephen, P.Eng., PMP
CIMA+
chad.stephen@cima.ca

Respectfully,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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CONFIDENTIALITY WARNING This email is confidential. If you are not the intended recipient, please notify the sender immediately and delete it in its entirety.

From: Elysia Friedl
Sent: Thursday, September 29, 2022 11:01 AM
To: klarocca@scugogfirstnation.com; msanford@scugogfirstnation.com; consultation@scugogfirstnation.com
Cc: Paul Turner <Paul.Turner@cima.ca>; thoekstra@cobourg.ca; k.a.sandy-mckenzie@rogers.com; inquiries@williamstreatiesfirstnations.ca
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

Good Morning Chief LaRocca,

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments..

CIMA+ is assisting in completing this study, which is following the Schedule B process of the Municipal Class EA (2000, as amended 2015).

Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL

Project Coordinator, Infrastructure

T 905-697-4464 ext. 6930

415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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From: [Elysia Friedl](#)
To: klarocca@scugogfirstnation.com; msanford@scugogfirstnation.com; consultation@scugogfirstnation.com
Cc: [Paul Turner](mailto:Paul.Turner@scugogfirstnation.com); thoekstra@cobourg.ca; k.a.sandy-mckenzie@rogers.com; inquiries@williamstreatiesfirstnations.ca
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area
Date: Thursday, September 29, 2022 11:00:00 AM
Attachments: [Cobourg East WWW Notice of Study Commencement_Sep 29 2022.pdf](#)

Good Morning Chief LaRocca,

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments..

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Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator, Infrastructure

T 905-697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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Elysia Friedl

From: Terry Hoekstra <thoekstra@cobourg.ca>
Sent: Wednesday, November 16, 2022 11:57 AM
To: Pat Becker
Cc: Paul Turner; Elysia Friedl
Subject: FW: Cobourg East Community Secondary Plan Area - Municipal Servicing Class EA

EXTERNAL EMAIL

Interested person below. Thx

Regards,



Terry Hoekstra, C.E.T., LET, rcca
Manager, Engineering

The Corporation of the Town of Cobourg
Public Works Division, Engineering Department
740 Division Street, Building #7, Cobourg, ON, K9A 0H6
P: 905-372-9971 x 4371 | cobourg.ca



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****Due to the COVID-19 pandemic, please be advised that The Town of Cobourg has closed public access to most Municipal Buildings to ensure the health and safety of the public and employees. Town staff remain committed to moving the business of the municipality forward and encourage all business to be done through email, phone, video-conferencing or courier. In-person appointments can also be made upon request.*

*For deliveries and other activities requiring direct access to municipal buildings, the Town of Cobourg has established strict screening and sign-in protocols for all visitors in the name of health and safety. Please contact our office to determine if alternatives are possible. We will make this transition as seamless as possible to minimize any service disruptions. For a complete list of Program and Service updates visit www.cobourg.ca/covid19 ****

From: Jordan Hoogendam <jordan@zonengineering.com>
Sent: November 16, 2022 11:36 AM
To: Paul.Turner@cima.ca; Terry Hoekstra <thoekstra@cobourg.ca>
Subject: (EXTERNAL SOURCE) Cobourg East Community Secondary Plan Area - Municipal Servicing Class EA

Good Morning Paul & Terry,

I am a board member at Northumberland Christian School located at 8861 Danforth Rd, Cobourg, ON K9A 4J8. We are in the early planning stages of building expansion plans and would like to be added to the mailing list for this study so that we can participate.

If there is any other information beyond the 1 page summary provided on the Town website, please let me know.

Sincerely
Jordan

--

Jordan Hoogendam, P.Eng.
President, Senior Engineer
Renewable Energy | Buildings

Zon Engineering Inc.
421 Ontario St., Cobourg, ON K9A 3C1
t: 1-888-338-6363 x701
f: 1-888-448-2605
c: 1-519-998-6238
jordan@zonengineering.com
www.zonengineering.com

February 22, 2023

To the Terry Hoekstra, Chad Stephen, and Mayor Cleveland.

There were questions I asked at the Public Information Centre meeting that were not answered to my satisfaction, so, I did some research and I have additional questions. Some of the answers provided, do not line up with my research.

My key question was: Why is Brook Road North extension not being opened to run the sewer line up to the citizens on Danforth Road?

All of the rest of my questions stem from the three main answers I got to this question.

1. There is a stream course and wet area that we can't put a road through.

In reality, there is a road through that very wetland already. It is so well built that heavy machinery can drive on it and is wide enough for 2 cars. The map the town has been using does not represent what is actually there. The map shows 2 tributaries flowing from the east side of the green road and joining together



This is where the stream comes to the road than turns south to the culvert.



on the west side (green circle on map). The north tributary of the stream was already diverted decades ago when the green road was built. Since then, the stream has run along the road to the culvert that was put in where the south tributary crosses the road. The map the next page shows this in detail. No more damage can be done that isn't already done to the natural environment there since the contractor has already replaced the old culvert and widened the green road to double what it was before. Fortunately, the

width was added to the western side of the green road so as not to further harm the stream where it runs along the road. Why can this road not be upgraded to a full road?



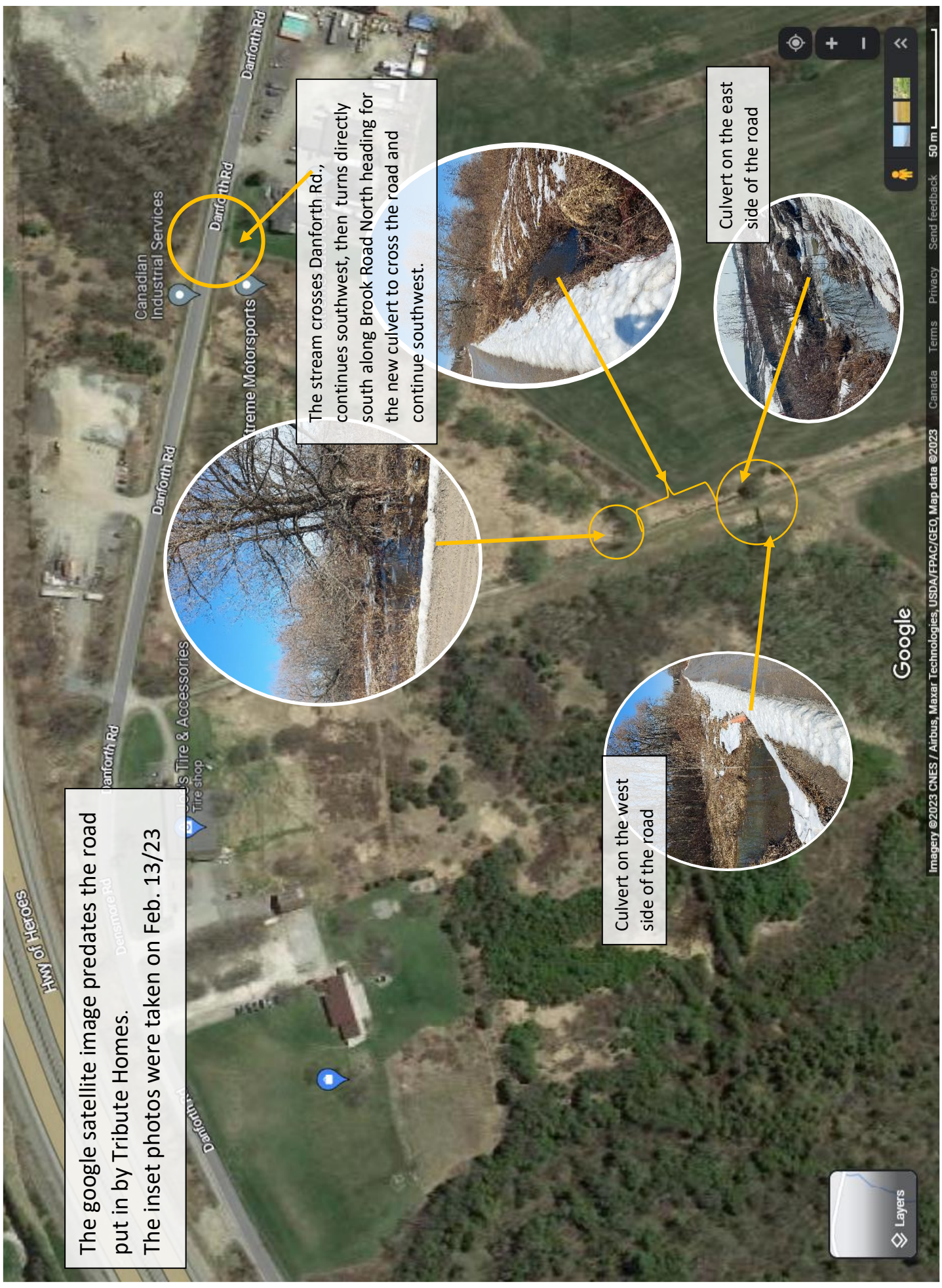
The new culvert put in to allow the road expansion.

The google satellite image predates the road put in by Tribute Homes. The inset photos were taken on Feb. 13/23

The stream crosses Danforth Rd., continues southwest, then turns directly south along Brook Road North heading for the new culvert to cross the road and continue southwest.

Culvert on the west side of the road

Culvert on the east side of the road



Google



I was also told that this is a temporary road. What makes it temporary? How long is temporary? If Tribute Homes only has permission, to build on the Elgin Street section first, and the rest will be several years in the works because of the upgrades needed for the wastewater system, how is this road temporary? I was also told that Tribute homes will be required to “put it back the way it was before”. They could argue that is the same as before because they only widened the existing road through a wetland. I wonder who is responsible to monitor how they return it to what it was before this road was put in.

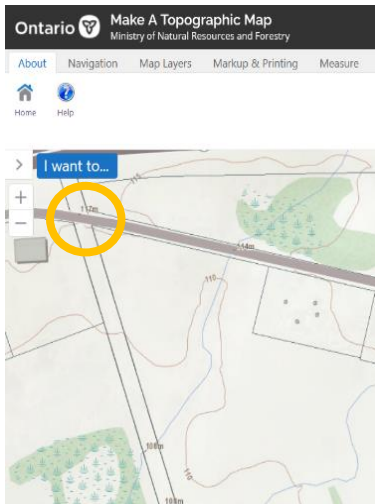
In the same conversation I was told that if the green road is closed and the land is transferred to Tribute Homes, they do not have to “put it back” because it is theirs to do as they please.

I was also told that transferring a closed road allowance is generally assigned to one or the other of the adjoining properties. It is not divided between properties. If the land is transferred to Tribute Homes, how is the owner of the property on the other side of the road to gain access? That property is directly south of the three properties on Danforth Rd., west of Brook Road North (blue rectangle on the map). I believe deliberately land-locking a property is against the law, although I could be wrong.

The only area of that property that is not wetland and could have a building on it is in the south east corner. If the road is transferred to that property, the road would need to be there. If an easement is granted to access that property, is that not the same as the road that is already there? In all of these cases, the Brook Road North extension will continue to be there regardless of what I was told.



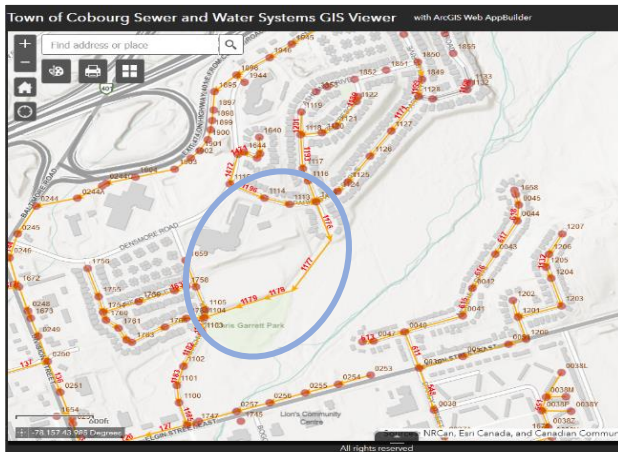
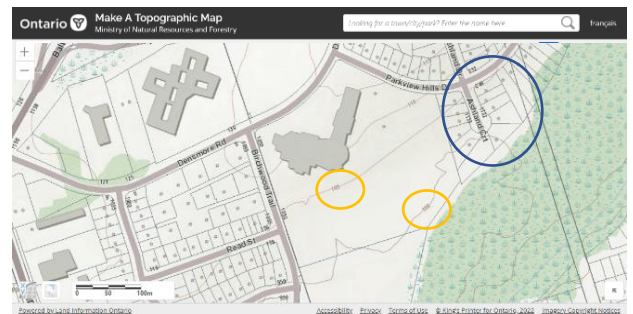
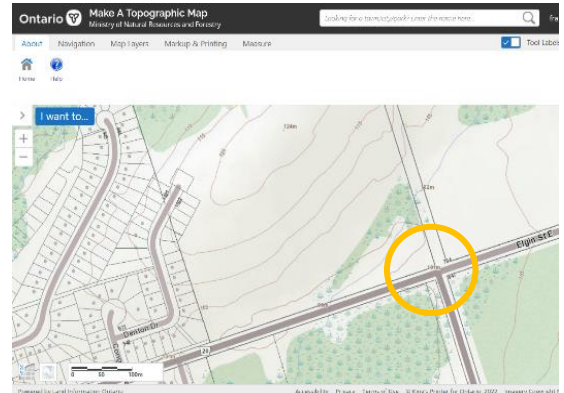
2. The elevation at Danforth does not give enough slope to accommodate a wastewater line.



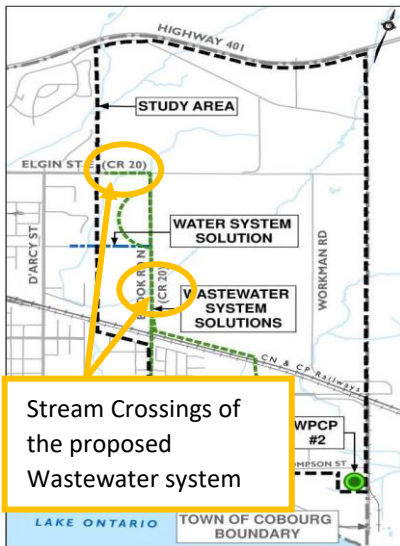
First, according to the Ministry of Natural Resources Topographic map of the area, the elevation at Danforth and Brook Road North is 117m. While the elevation at Elgin Street and Brook Road North is 101m. This provides a maximum slope of 1.29% along the 1.25km length of the Brook Road North extension. This is far more slope than is required for a wastewater line of that length. The elevation of the road would have to be modified to a more consistent level since the elevation of Brook Road North at the stream crossing dips down to 108m. Bringing in fill to raise the road, should not be a problem with the

excavation and removal of the hilltop on the southwest corner of the development. Roads are elevated all the time to achieve the necessary slope or to ensure wetlands do not flood over the top of a road. A new culvert has already been installed. Upgrading to a larger diameter or adding a second culvert to renew the original flow line of the stream would be easy. As shown by the efficiency of the contractor who recently upgraded Brook Road North to be an access road for the excavation machinery.

Second, there are areas in the town of Cobourg where the surface elevation is less than 10m from the start of a wastewater line to where it connects to a main line. The area of homes on Ashland Crt. are at an elevation of 105m-100m. Their wastewater runs from the south end of Ashland Crt., west to connect into the Birchwood Trail Rd. line. Birchwood Trail has an



elevation of 100m where the lines connect. The distance is approximately 1.25km. This wastewater line runs along the south side of St. Mary's Secondary School's property and rather close to the wetland to the east and north of the Chris Garret Park. There is obviously a steeper slope created underground as the pipes are put in but not likely a 16m drop. **How is there not enough slope in the 16m drop on the Brook Road North Extension from Danforth to Elgin Street?**

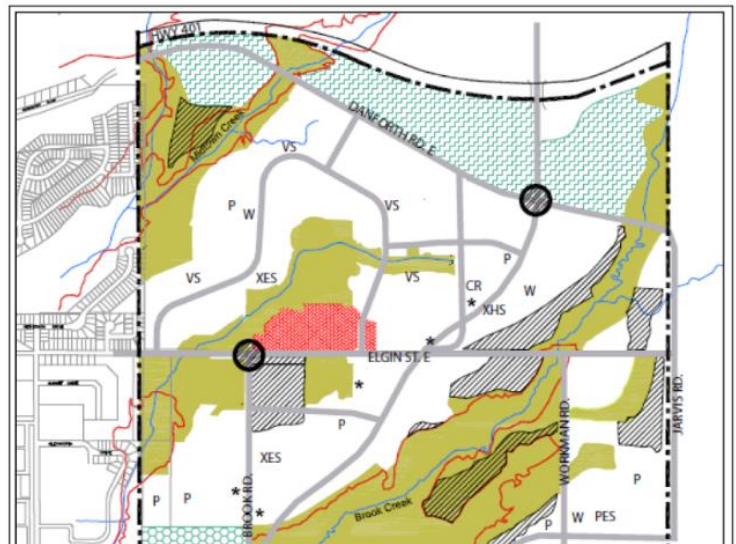


Third, crossing two streams in order to bring the wastewater line straight south from Danforth, should also not pose a problem for the town of Cobourg, since there are no less than 22 places where the town wastewater lines cross the streams within the town limits. These points are easily seen on the full map available online (Town of Cobourg Sewer and Water Systems GIS Viewer). In fact, the proposed main line that will go East on Elgin Street and then south on Brook Road North will have to cross two streams to get to the Treatment Plant. If the main line goes straight north along the Brook Road North extension, it only adds one more stream crossing. With the main wastewater line starting at Danforth and running along Brook Road North the existing citizens who live and work on that section of Danforth Road East would have an easy and less expensive hookup.

3. *The Town has already transferred the lower section of Brook Road North Extension to Tribute Homes so they can move the access road further west along Elgin Street.*

First, I understand that for Tribute Homes this arrangement makes sense. The access road would bring them closer to the existing wastewater hook up which services the Denton Road homes. This also works with their road design within their development. However, they will not be driving on the surrounding roads for the next 50 years. The proposed road design has 5 intersections from Darcy to Workman Road. If Brook Road North was the entrance into Tribute Homes Development, it would eliminate 2 of those intersections. This cuts down on the traffic turning at stop signs or the need for 3 stop lights. The proposed entrance to the development east of Brook Road is halfway up a hill. The sight lines would be hazardous and require a stop light. I wonder if the plan is to remove that hill, as well, in order to provide a safe truck route access from the Nagle Rd. exit.

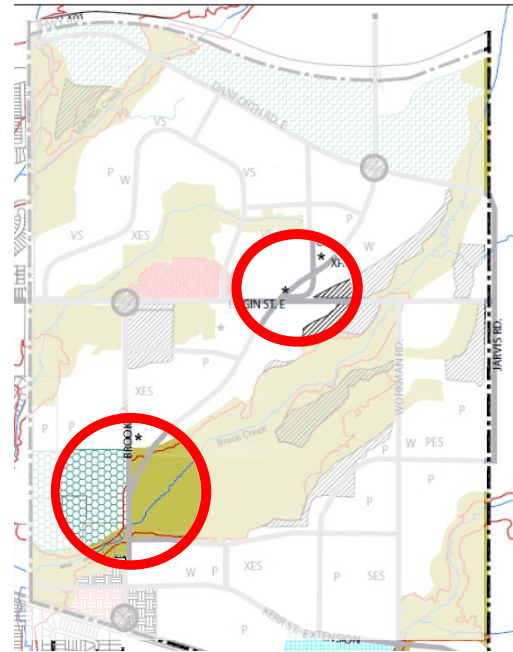
Cobourg East Secondary Land Use Plan



By not aligning the exit from Brook Road North with the entrance to the new development, citizens going north on Brook Road and turning left onto Elgin to get to the entrance of the subdivision will require drivers to make quick lane changes in a short distance. This could also cause problems for the drivers on Elgin Street heading west when many vehicles are slowing down and turning right. Traffic lights at each corner (one at Brook Rd and one at the Tribute Homes Road), about 1km apart, does not make for the easy flow of traffic. The long-range plan for the Nagle Road and Greer Road

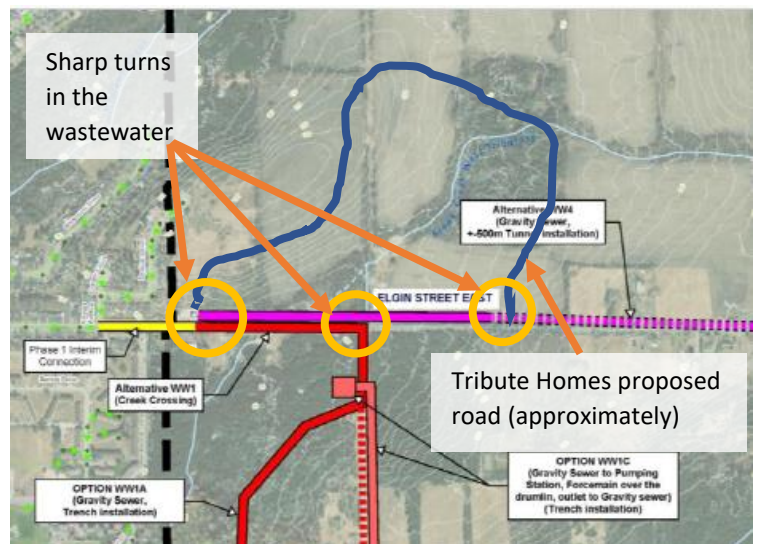
exchange, will bring more traffic into that area. Multiple intersections that do not line up will not help with the increased homeowners' traffic. Add to the fact that much of the expected traffic will be transport trucks heading for the industrial parks or to the 401, and it sets up a situation for accidents to happen. The short-term cost savings to Tribute Homes does not guarantee long term cost savings and safety for the citizens of Cobourg. Especially the future citizens of Cobourg who will move into the new east end developments.

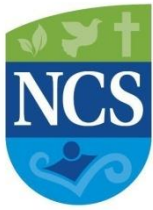
If Brook Road North continues straight through to Danforth, a single stoplight to handle traffic in and out of the subdivision to the south and control the east/west truck traffic to the industrial park on Darcy makes the most sense. The proposed road design for the Nagle and Greer Rd. exchange are concerning as well. The red circles on the map show questionable road designs. I would hope that these are not the final plans for the truck line to come south from the 401.



More time should be spent on examining the long-term traffic lines whenever the original roads of a town plan are changed. I would hate for another situation to be created like the 401 off-ramp at Division Street south. The homeowners in the subdivision around St. Mary's Secondary are required to cross three lanes of traffic in about 150m to turn left onto Densmore Rd. just to go home. The sight lines for a left-hand turn lane are also obstructed by the curve in Division Street south of those stop lights. The decisions of the town to accommodate for the road changes on either side of the Comfort Inn many years ago, led to the situation these homeowners find themselves in today. Let's not do the same at Brook Road North just to accommodate Tribute Homes.

Second, when the wastewater lines from Tribute Homes phase 2 and 3 are connected to Tribute Homes phase 1, there will be a considerable increase in the volume of wastewater. The waste will have to make several turns in the underground pipes to bring it around to the "Wastewater System Solution" going down Brook Road North in the proposal. If a line designed to handle the volume of wastewater for all phases is put in along the Brook Road North extension, the increased wastewater will flow in a straight line all the way to King Street East.





Northumberland Christian School Society

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Chad Stephen, P.Eng., PMP

Director Linear Infrastructure

CIMA+

415 Baseline Road West, 2nd Floor,
Bowmanville, ON L1C 5M2

Email: chad.stephen@cima.ca

Email: thoekstra@cobourg.ca

Terry Hoekstra, C.E.T., LET

Manager, Engineering

Public Works Division, Engineering

The Corporation of the Town of Cobourg

740 Division Street, Building #7

Cobourg, ON K9A 0H6

Wednesday, February 22, 2023

RE: Public Information Centre – Cobourg East EA – Wastewater Public Consultation

Dear Mr. Stephen & Mr. Hoekstra,

As the board of Northumberland Christian School (NCS) located at 8861 Danforth Rd, Cobourg, ON K9A 4J8 which is within the subject area of the Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East).

We at NCS are a charitable, not-for-profit organization that runs a school from pre-school to Grade 8 at the property on Danforth Road. We are currently on a drilled well and septic system and have aspirations for growth which will require us to expand our servicing requirements. In reviewing the proposal and participating in the Public Information Centre (PIC) on February 8th, we have some concerns regarding the proposed infrastructure servicing, including:

We believe the proposed servicing plan will leave Northumberland Christian School and adjoining landowners at a significant disadvantage in terms of future growth opportunities and the ability to interconnect with the municipal wastewater infrastructure. We would like the Town of Cobourg to take into consideration how both water and wastewater servicing can be incorporated into the plans for the development of the “Cobourg East” secondary plan to support existing landowners and residents.

As we understand the servicing plan and redirection of Brook Road and resulting slopes/drainage proposed will result in Northumberland Christian School (NCS) having to incur additional unforeseen costs related to a sewage pumping station when compared to a scenario where servicing could be provided along the original Brook Road right of way. As a not-for-profit organization, this will be problematic and could detrimentally impact our future growth and redevelopment plans.

We have concerns regarding the existing development activities relating to erosion & sedimentation control (ESC) and enforcement of the proposed ESC plans to ensure adjacent landowners (such as us) and sensitive areas are not detrimentally impacted by the construction and servicing activities which are already well under way.

We would like to request additional information on the water servicing implications, and if the water line being envisioned along Danforth will be sized, and at an operating pressure sufficient for our school to connect to and receive municipal drinking water capacity. This information was not included within the EA documentation presented.

Please include these questions and request for clarification into your official public consultation documentation and we would request written confirmation or clarification where appropriate of the items included above.

Sincerely,

Jordan Hoogendam
Board Member, Facilities Committee

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From: Terry Hoekstra

Sent: Monday, March 27, 2023 12:30 PM

To: 'Office NCS' <office@northumberlandchristian.ca>; chad.stephen@cima.ca

Cc: Lucas Cleveland <lcleveland@cobourg.ca>; Nicole Beatty <nbeatty@cobourg.ca>; Anne Taylor Scott <ataylorscott@cobourg.ca>; Laurie Wills <lwills@cobourg.ca>; Rob Franklin <rfranklin@cobourg.ca>

Subject: RE: (EXTERNAL SOURCE) Notice of Public Information Centre

Good afternoon,

Thank you for your interest in the Municipal Servicing Environmental Assessment (EA). The EA currently underway is related to the Trunk Sanitary Sewer (TSS) and is required to accommodate sanitary drainage flows from all lands within Cobourg East Community (CEC), an area of approximately 1,400 acres, whether by gravity sewer or pressurized sanitary forcemain. Sub-trunk sanitary sewers that deal with smaller sanitary drainage areas, that ultimately connect to the TSS, will be required to go through separate Site Plan or Plan of Subdivision approvals at a later date, and will be subject to approved design submissions at that time.

The preliminary design of the gravity sanitary sewer that is planned to be installed in Tribute's Phase 3 has been designed in accordance with Town of Cobourg Design Guidelines where a depth range of 2.75m to 7.6m for sanitary sewers is permitted. This is a similar scenario for the downstream Phase 1 sanitary sewer where the proposed Phase 3 sanitary sewer system will connect. The majority of Phase 1 and Phase 3 sanitary sewers are designed to the maximum depth permitted.

A review of gravity sewer and forcemain scenarios for local servicing options for existing Danforth Road properties with septic systems near Midtown Creek have included:

1. Extending gravity sanitary sewer from Tribute's Phase 3 Street 'L' westerly along Danforth Road would not work as the gravity sanitary sewer becomes too shallow west of #8943/#8963 Danforth Road properties;
2. Installing a gravity sanitary sewer within the unopened Brook Road allowance from Tribute's Phase 3 Street 'G' northerly could potentially work but would require significant filling (raising elevation) of the floodplain in a GRCA regulated area which is not permitted and would only service three or four lots;
3. A theoretical straight connection between Elgin Street and Danforth Road as described in your correspondence. While Elgin Street is lower than Danforth Road, the sanitary sewer design has to

achieve minimum and maximum sewer gradients (slopes) with corresponding roadway gradients/alignments that include suitable depth of sanitary sewers under the roadways. When reviewing the concept of extending a sanitary sewer as a straight run from Elgin Street to Danforth Road, and not considering the need for roads or homes, the resulting sanitary sewer would be up to 20m deep in depth. Sub-trunk sanitary alignments need to be in a location where it is as accessible as possible for all properties within the CEC area. The proposed sanitary sewer alignment in Phases 1 and 3 between Elgin Street East and Danforth Road follow the road alignment scheme per Schedule X2 (proposed road network) of the Town's Official Plan; and

4. Small diameter pressurized forcemain(s) for individual lots on Danforth Road located adjacent to Midtown Creek tributaries in low areas that include:
 - a. Forcemain connection to the future sanitary sub-trunk sewer near #8943/#8963 Danforth Road properties; and
 - b. Forcemain installed southerly within the Brook Road unopened road allowance and connect to Phase 3 Street 'I' gravity sanitary which would not require the filling of GRCA regulated floodplain due to a pressure pipe (as gravity scheme requires earth fill).

The Town will continue to explore all options available for existing individual lots that may wish to connect sanitary servicing on Danforth Road including potential cost sharing and timing/coordination with other planned municipal activities. The Town has identified the need to reconstruct Danforth Road from Parkview Hills to Jarvis Road, with a priority on Parkview Hills to Street 'L' first, and this will be reliant on available Municipal right-of-way widths and Municipal budget approval for reconstruction to occur. More information will be provided to landowners, in particular landowners with existing dwellings/businesses as the overall design advances and we are able to provide more details.

With respect to water servicing - Lakefront Utility Services Inc. (LUSI) long term watermain servicing plan includes a trunk watermain to be installed on Danforth Road and there may be an opportunity at that time, to connect to the watermain, subject to LUSI's consent and connection fees. It would be expected property owners would complete the water service installation on their own properties and complete internal building plumbing. It is anticipated the watermain will be installed on Danforth Road within the next one to two years and more information for existing residents that may wish to connect will be forthcoming.

Regards,



Terry Hoekstra, C.E.T., LET, rcca
Manager, Engineering

The Corporation of the Town of Cobourg
Public Works Division, Engineering Department
740 Division Street, Building #7, Cobourg, ON, K9A 0H6
P: 905-372-9971 x 4371 | cobourg.ca



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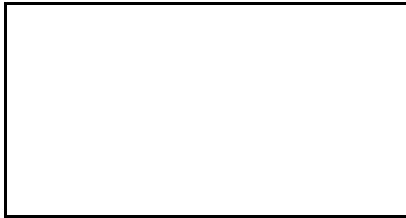
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From: Office NCS <office@northumberlandchristian.ca>
Sent: Wednesday, February 22, 2023 11:30 AM
To: Terry Hoekstra <thoekstra@cobourg.ca>; chad.stephen@cima.ca
Cc: Lucas Cleveland <lcleveland@cobourg.ca>; Nicole Beatty <nbeatty@cobourg.ca>
Subject: (EXTERNAL SOURCE) Notice of Public Information Centre

Dear Terry, and Chad.

Please see attached my comments on the study presented at the Public Information Centre on February 8, 2023. Thank you for the opportunity have input into this study.

Wilma Van Barneveld
Administrative Assistant



905-372-8766
8861 Danforth Rd. East
Cobourg, ON

From: [Elysia Friedl](#)
To: "[Community Consultation](#)"
Cc: [Chad Stephen](#); "thoekstra@cobourg.ca"; k.a.sandy-mckenzie@rogers.com
Subject: Information Package - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area, Town of Cobourg
Date: Tuesday, February 7, 2023 4:09:00 PM
Attachments: [Cobourg East Servicing EA-Info Package.pdf](#)
[Cobourg East WWW Notice of PIC.pdf](#)

Good Afternoon,

As a follow up to our previous correspondence about the Cobourg East Community Secondary Plan Area Municipal Servicing Class EA, the Project Team would like to let you know that we are hosting a Public Information Centre (PIC) for the project on February 8, 2023. The purpose of the PIC is to introduce the study and gather feedback on the study background, existing conditions, problems and opportunities, alternative solutions, the recommended preferred solution and the next steps in the study.

For your information and review, we have attached a copy of the Notice of PIC and the presentation slides.

If there is anything you wish to review with the Project Team, please reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Chad Stephen.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Chad Stephen, P.Eng., PMP
CIMA+
chad.stephen@cima.ca

Respectfully,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator

T 905 697-4464 ext. 6930
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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From: Elysia Friedl
Sent: Friday, October 7, 2022 12:35 PM
To: Community Consultation <consultation@ramafirstnation.ca>
Cc: Chad Stephen <Chad.Stephen@cima.ca>; thoekstra@cobourg.ca; pbecker@pathcom.com
Subject: RE: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

Hi Samantha,

Thank you for taking the time to review the Notice. We will be sure to keep the Chippewas of Rama First Nation updated as the study progresses.

Kind Regards,

ELYSIA FRIEDL
Project Coordinator
CIMA+

From: Community Consultation <consultation@ramafirstnation.ca>
Sent: Friday, October 7, 2022 12:19 PM
To: Elysia Friedl <Elysia.Friedl@cima.ca>
Subject: RE: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

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EXTERNAL EMAIL

Aaniin Elysia,

Miigwech for providing the Chippewas of Rama First Nation with this information. At this time, we have no comments or requests.

Sincerely,

Samantha Craig-Curnow

Associate General Counsel, Legal

Chippewas of Rama First Nation

(ph) 705-325-3611, 1289

(cell) 705-818-3277

(fax) 705-325-0879

(url) www.ramafirstnation.ca

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By submitting your or another individual's personal information to Chippewas of Rama First Nation, its service providers and agents, you agree and confirm your authority from such other individual, to our collection, use and disclosure of such personal information in accordance with our privacy policy.

 Please consider the environment before printing this e-mail.

From: Elysia Friedl <Elysia.Friedl@cima.ca>
Sent: September 29, 2022 11:00 AM
To: Chief Ted Williams <tedw@ramafirstnation.ca>; Sharday James <shardayj@ramafirstnation.ca>
Cc: Paul Turner <Paul.Turner@cima.ca>; thoekstra@cobourg.ca; inquiries@williamstreatiesfirstnations.ca; k.a.sandy-mckenzie@rogers.com
Subject: Notice of Study Commencement - Municipal Class Environmental Assessment for Cobourg East Community Secondary Plan Area

Good Morning Chief Williams,

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments..

CIMA+ is assisting in completing this study, which is following the Schedule B process of the Municipal Class EA (2000, as amended 2015).

Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL
Project Coordinator, Infrastructure

~~T 905-697-4464 ext. 6930~~
415 Baseline Road West, 2nd Floor, Bowmanville, ON L1C 5M2 CANADA



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Cc: [Chad Stephen](#); thoekstra@cobourg.ca; pbecker@pathcom.com
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Project Coordinator
CIMA+

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EXTERNAL EMAIL

Aaniin Elysia,

Miigwech for providing the Chippewas of Rama First Nation with this information. At this time, we have no comments or requests.

Sincerely,

Samantha Craig-Curnow

Associate General Counsel, Legal

Chippewas of Rama First Nation

(ph) 705-325-3611, 1289

(cell) 705-818-3277

(fax) 705-325-0879

(url) www.ramafirstnation.ca

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By submitting your or another individual's personal information to Chippewas of Rama First Nation, its service providers and agents, you agree and confirm your authority from such other individual, to our collection, use and disclosure of such personal information in accordance with our privacy policy.

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k.a.sandy-mckenzie@rogers.com

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CIMA+ is assisting in completing this study, which is following the Schedule B process of the Municipal Class EA (2000, as amended 2015).

Kindly refer to the attached Notice of Study Commencement for more information. If you have any questions or would like to meet to discuss the project, please respond to this email or reach out to the Town's Project Manager, Terry Hoekstra, or the Consultant Project Manager, Paul Turner.

Terry Hoekstra, C.E.T., LET
Town of Cobourg
thoekstra@cobourg.ca

Paul Turner, P.Eng.
CIMA+
paul.turner@cima.ca

Sincerely,
Elysia Friedl

ELYSIA FRIEDL

Project Coordinator, Infrastructure

T 905-697-4464 ext. 6930

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Appendix E: Project Notices



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NOTICE OF STUDY COMMENCEMENT

Cobourg East Community Secondary Plan Area Municipal Servicing Class EA

Study Background

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments.

The Study is being conducted in accordance with the planning and design process for Schedule B projects, as outlined in the Municipal Class Environmental Assessment (EA) process. The Class EA includes opportunities for public, Indigenous community and stakeholder discussion and feedback.

How to Get Involved

As part of the Study, future engagement activities will be arranged to allow local residents and interested members of the public an opportunity to actively participate in the planning process.

To find out more about the Study go to www.cobourg.ca/en/town-hall/Reports-Studies-and-Plans.aspx

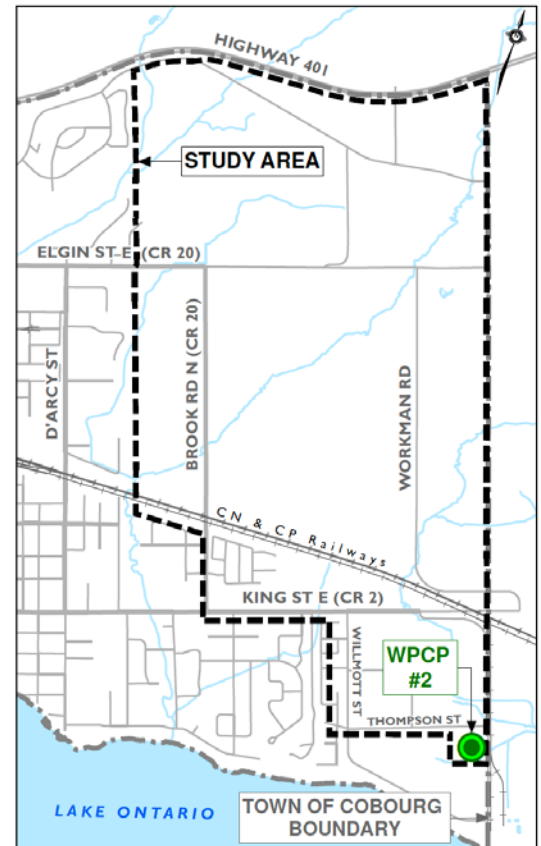
For further information on the Study, or to be added to the mailing list, please contact one of the following:

Paul Turner, P.Eng

Director, Partner / Transportation
CIMA+
415 Baseline Road West, 2nd Floor,
Bowmanville, ON L1C 5M2
Email: Paul.Turner@cima.ca

Terry Hoekstra, C.E.T., LET

Manager, Engineering
Public Works Division, Engineering Department
The Corporation of the Town of Cobourg
740 Division Street, Building #7
Cobourg, ON K9A 0H6
Email: thoekstra@cobourg.ca



This notice was first issued on September 29, 2022.

Personal information – such as an individual’s name plus address or telephone number – is collected under the authority of the Environmental Assessment Act for the purposes of carrying out a Municipal Class Environmental Assessment in accordance with the Freedom of Information and Protection of Privacy Act. Personal information will become part of a public record that is available to the general public unless you request that your personal information be confidential.



NOTICE OF PUBLIC INFORMATION CENTRE

Cobourg East Community Secondary Plan Area Municipal Servicing Class Environmental Assessment

Study Background

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents are initiating a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments.

The Study is being conducted in accordance with the planning and design process for Schedule B projects, as outlined in the Municipal Class Environmental Assessment (EA) process. The Class EA includes opportunities for public, Indigenous community and stakeholder discussion and feedback.

Public Information Centre

Public and agency consultation is vital to the success of this study. To ensure that those interested in this project have an opportunity to provide input to and receive feedback from the study team a Public Information Centre (PIC) will be held as per the details below. The PIC will present study background information, the various servicing solutions considered, evaluation of the servicing solutions, selection of the recommended servicing solutions and next steps.

Date: Wednesday February 8, 2023

Time: 4:00 pm to 7:00 pm

**Location: Cobourg Community Centre, Cameco A, B, C rooms
750 D'Arcy St, Cobourg, ON**

Following the PIC, information presented at the PIC will be posted on the Town's website at www.cobourg.ca/en/town-hall/Reports-Studies-and-Plans.aspx.



Link to project notifications
Town of Cobourg website

Comments

Anyone with an interest can participate by providing comments on the Study by **February 22, 2023** to one of the individuals listed. Any input received by that date will be incorporated into the Project File Report, which will be available for public comment when the study is completed.

Chad Stephen, P.Eng., PMP

Director Linear Infrastructure

CIMA+

415 Baseline Road West, 2nd Floor,

Bowmanville, ON L1C 5M2

Email: chad.stephen@cima.ca

Terry Hoekstra, C.E.T., LET

Manager, Engineering

Public Works Division, Engineering Department

The Corporation of the Town of Cobourg

740 Division Street, Building #7

Cobourg, ON K9A 0H6

Email: thoekstra@cobourg.ca

This notice was first issued on January 19, 2023.

Personal information – such as an individual’s name plus address or telephone number – is collected under the authority of the Environmental Assessment Act for the purposes of carrying out a Municipal Class Environmental Assessment in accordance with the Freedom of Information and Protection of Privacy Act. Personal information will become part of a public record that is available to the general public unless you request that your personal information be confidential.



NOTICE OF COMPLETION

Cobourg East Community Secondary Plan Area Municipal Servicing Class Environmental Assessment

Study Background

The Town of Cobourg and the Cobourg East Development Owners Group as co-proponents completed a Municipal Class Environmental Assessment Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East). In this regard, the municipal wastewater and water services are being designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments.

The Study was conducted in accordance with the planning and design process for Schedule B projects, as outlined in the Municipal Class Environmental Assessment (EA) process (as amended 2015). The Class EA includes opportunities for public, Indigenous community and stakeholder discussion and feedback.

Project File Report

A Project File Report has been completed and placed on the public record for a 30-day comment period starting June 8, 2023 and ending on **July 8, 2023**. The report is available for comments online on the Town's website at www.cobourg.ca/en/town-hall/Reports-Studies-and-Plans.aspx.



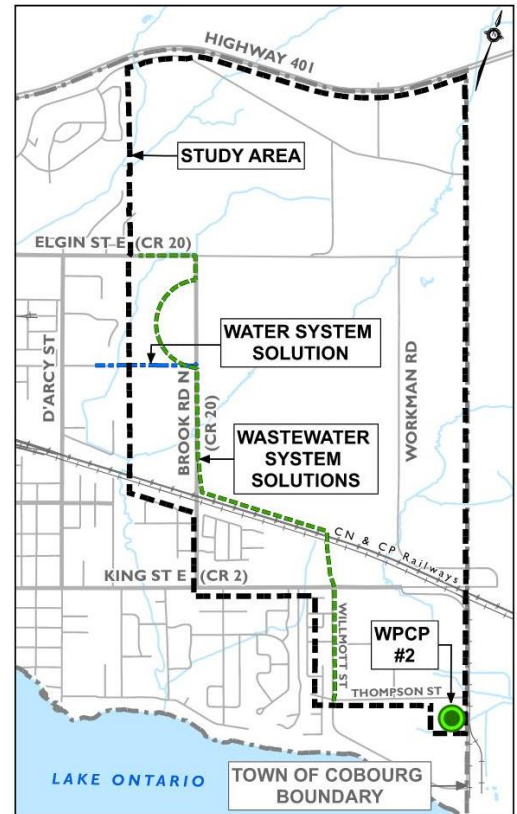
Opportunities for Review

Interested persons may provide written comments to our Project Team by **July 8, 2023**. All comments and concerns should be sent directly to:

Terry Hoekstra, C.E.T., LET
Manager, Engineering
Public Works Division, Engineering Department
The Corporation of the Town of Cobourg
740 Division Street, Building #7
Cobourg, ON K9A 0H6
Email: thoekstra@cobourg.ca

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e. requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g. require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the requester contact information and full name and be received by **July 8, 2023**.

Requests should specify what kind of order is being requested (request for conditions or a request for an individual/comprehensive environmental assessment), how an order may prevent, mitigate or remedy potential adverse impacts on Aboriginal and treaty rights, and any information in support of the statements in the request. This will ensure that the ministry is able to efficiently begin reviewing the request.



The request should be sent in writing or by email to:

Minister of the Environment, Conservation and Parks

Ministry of the Environment, Conservation and Parks

777 Bay Street, 5th Floor

Toronto ON M7A 2J3

Email: minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch

Ministry of the Environment, Conservation and Parks

135 St. Clair Ave. W, 1st Floor

Toronto ON, M4V 1P5

Email: EABDirector@ontario.ca

Requests should also be copied to Terry Hoekstra, The Corporation of the Town of Cobourg by mail or by e-mail (at the address shown above). Please visit the Ministry of the Environment, Conservation and Parks website for more information on requests for orders under Section 16 of the *Environmental Assessment Act* at:

<https://www.ontario.ca/page/class-environmental-assessments-part-ii-order>.

This notice was first issued on June 8, 2023.

Notice of Collection

All personal information that you provide in your request – such as name, address, telephone number and property location – is collected, under the authority of section 30 of the Environmental Assessment Act and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the Freedom of Information and Protection of Privacy Act (FIPPA) does not apply (s.37). Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential.

F

Appendix F: PIC Boards



Engineering
for **people**

Cobourg East Community Secondary Plan Area Municipal Servicing Class EA

Public Information Centre – February 8, 2023



Cobourg East Development Owners Group



Land Acknowledgement

We respectfully acknowledge that we are located in the traditional and treaty territory of the Michi Saagiig (Mississauga) and Chippewa Nations, collectively known as the Williams Treaties First Nations, which include: Curve Lake, Hiawatha, Alderville, Scugog Island, Rama, Beausoleil, and Georgina Island First Nations.

We respectfully acknowledge that the Williams Treaties First Nations have been stewards and caretakers of these lands and waters, and that today remain vigilant over their health and integrity for generations to come.

We are all Treaty people.

Project Team

Co-Proponents

Town of Cobourg



Terry Hoekstra, C.E.T., LET, rcca
Project Manager
Town of Cobourg

Cobourg East Development Owners Group (Tribute Communities and Mistral Land Development)

Consultants

CIMA+



Chad Stephen, P.Eng., PMP
Project Manager

Why Are We Here?

Purpose of the Public Information Centre (PIC)

1. Introduce the study
2. Outline the Class EA process and study schedule
3. Review background information and existing conditions
4. Evaluation of alternatives and selection of the recommended alternative solution
5. Obtain community and public feedback and identify next steps

How to Get Involved



Review the information in this presentation



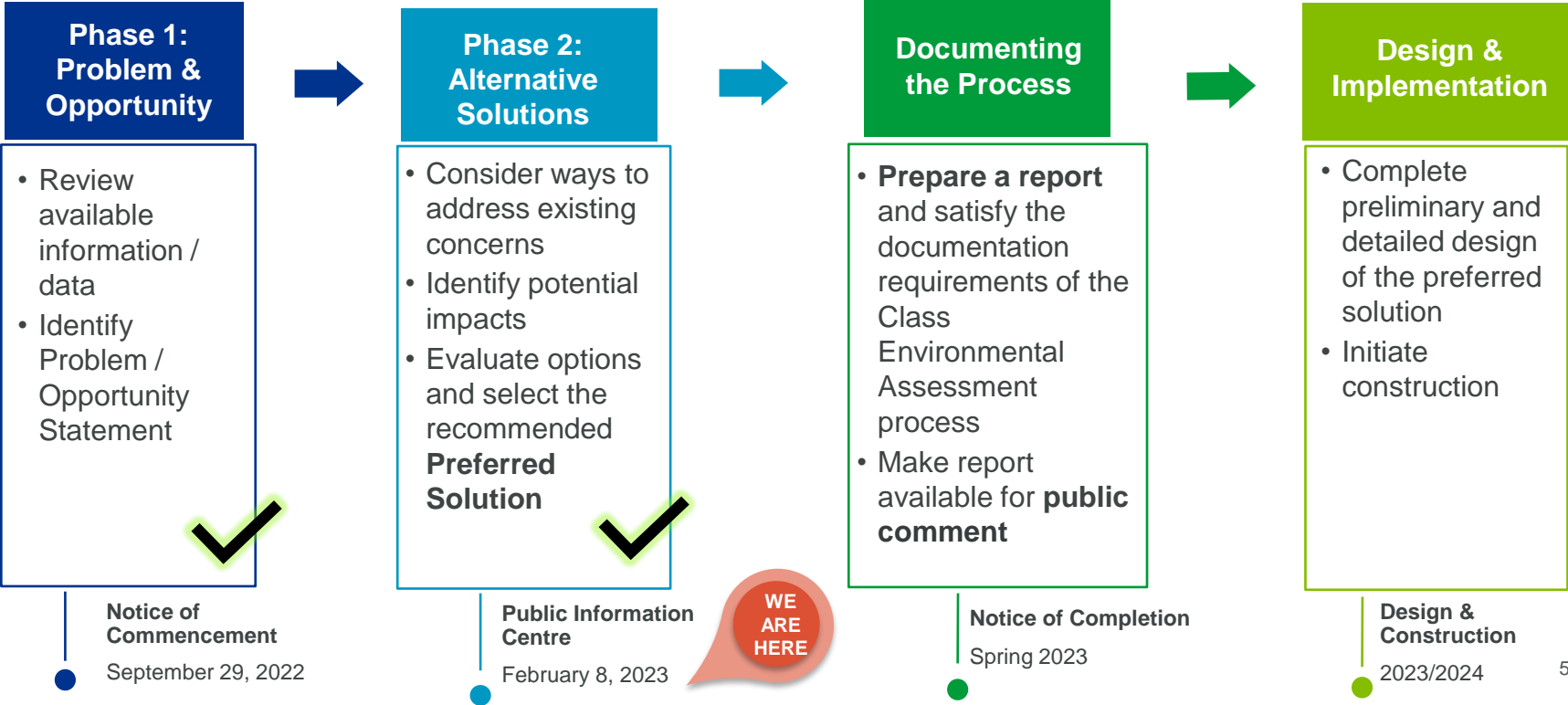
Provide comments and feedback



Join the study mailing list or contact the Project Team

Overview of Schedule 'B' Municipal Class EA Process & Consultation

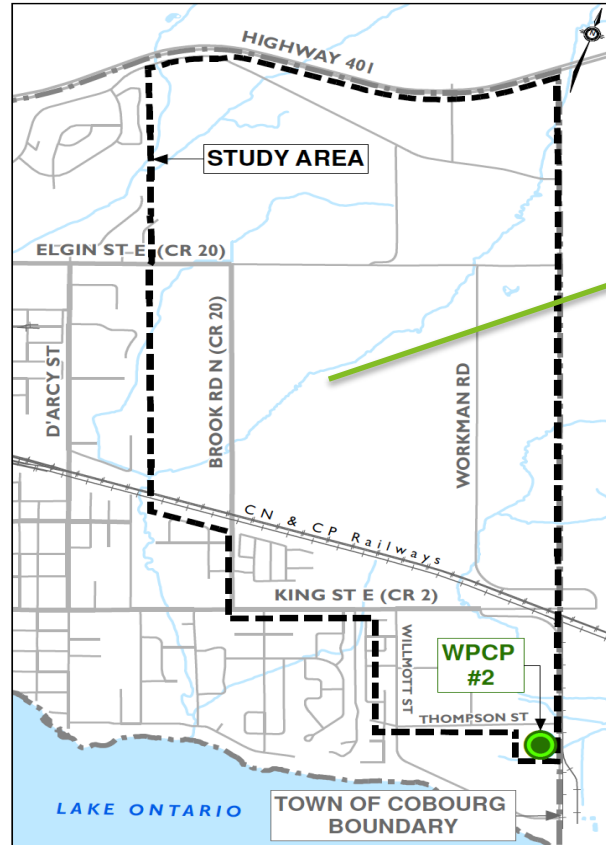
The study is following the Municipal Engineers Association (MEA) **Municipal Class Environmental Assessment** (Class EA) process for **Schedule B** projects (October 2000, as amended 2015).



Project Background & Study Area

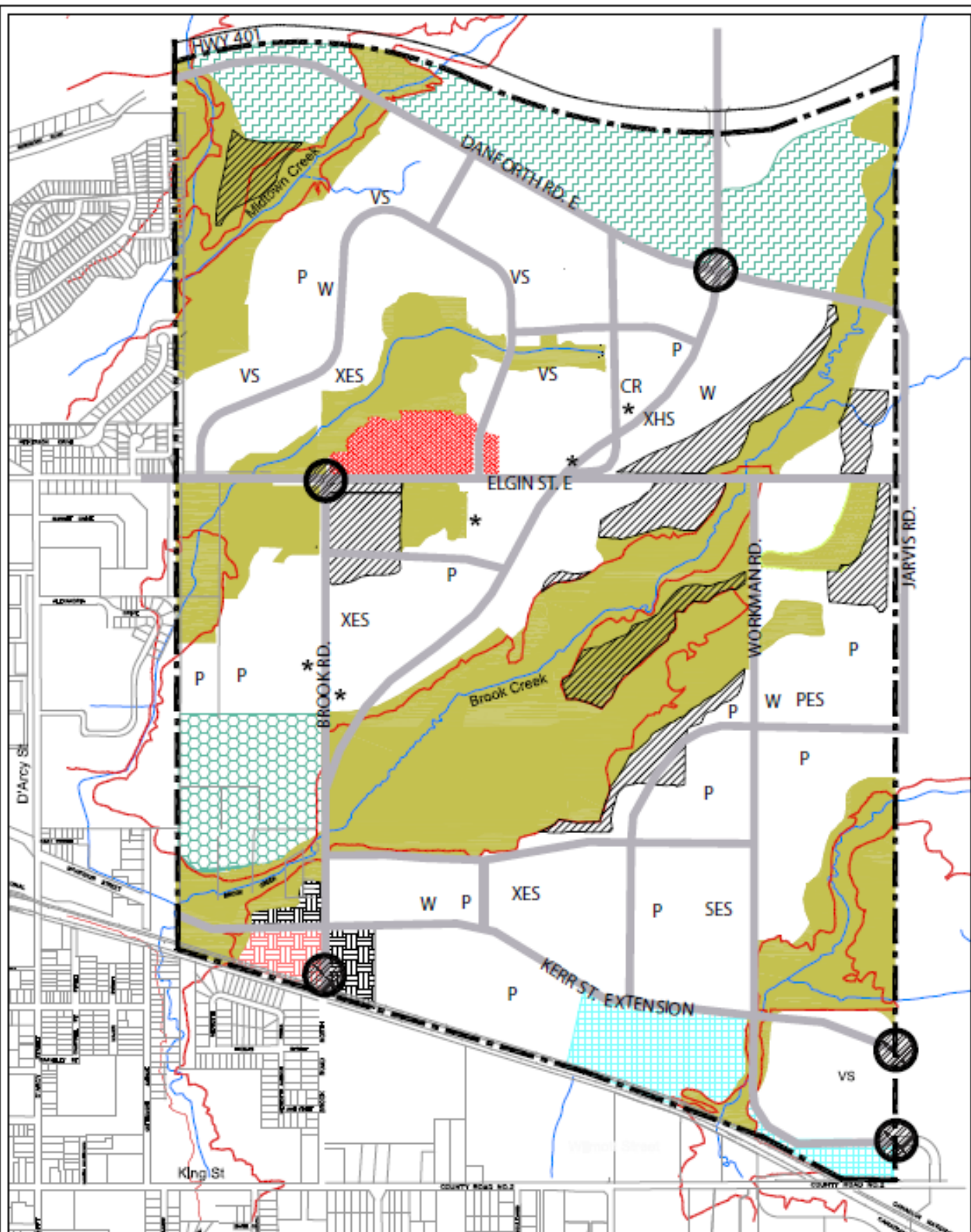
The Town of Cobourg and the Cobourg East Development Owners Group have initiated a Municipal Class EA Study to provide wastewater and water servicing infrastructure that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East).

The municipal wastewater and water trunk services will be designed to extend and support the full build-out needs of Cobourg East for ongoing and future developments.



Cobourg East Development Owners Group – Landownership Map

Cobourg East Secondary Land Use Plan



Legend

Residential Area

- Living Area
- Heritage Building
- Gateway

Employment Area

- Business Park
- Light Industrial
- General Industrial

Commercial Area

- Mixed Use Main Street Light
- Service Commercial One
- Service Commercial Two

Community Use Area

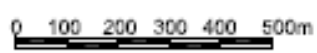
- Parkland
- Potential High School
- Potential Elementary School
- Public Elementary School
- Separate Elementary School
- Community Recreation Centre
- Village Square
- Place of Worship

Environmental Area

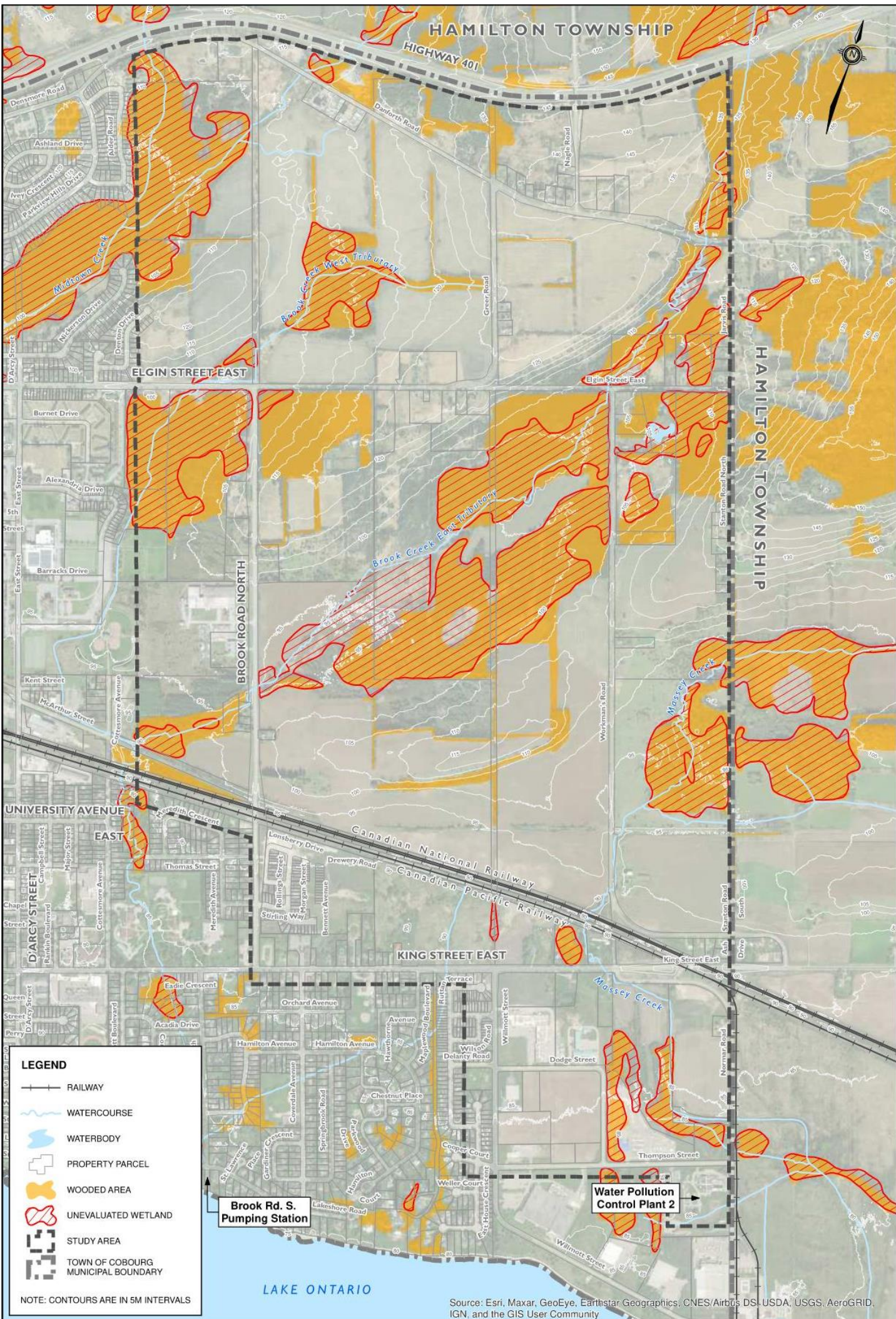
- Environmental Protection
- Special Study Area Overlay
- Flood Lines

Schedule X1
Land Use Plan
 Cobourg East Community
 Secondary Plan
 Official Plan Amendment
 No. 76

September 2019

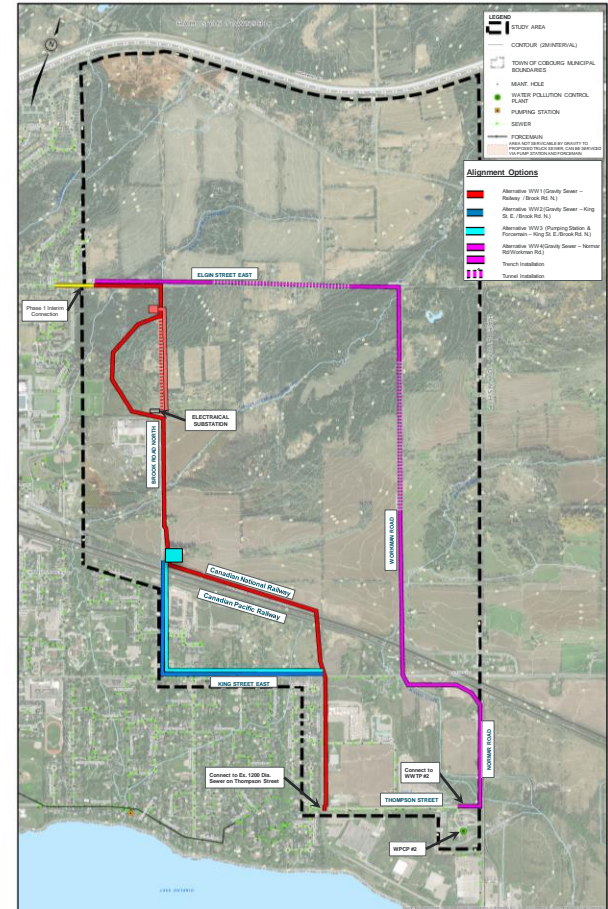


Project Constraints - Existing Conditions



Screening of Alternative Wastewater Solutions

- Alternative Solution WW4 (Gravity Sewer – Normar Rd./Workman Rd.) was screened out at the beginning of the evaluation due to the following:
 - Difficult to service the development area from the easterly side of study area;
 - To service the development via gravity, the sewer along this alignment would have to be constructed at depths between 23 m to 36 m deep;
 - To construct the sewer at these proposed depths, it can only be done using tunneling methods; and
 - There would be a significant cost to constructing a sewer by tunneling.



Alternative Sanitary Servicing Solutions

- For portions of the alignment the only solution is following Brook Rd N from north of the railway line to the electrical substation and then west from the intersection of Elgin St E and Brook Rd N to the Study Area boundary.
- There are two areas that require evaluation and selection of a recommended alternative:
 1. Southern portion which includes solutions WW1, WW2 and WW3 representing different options for crossing the Railway Line and connecting with the existing sanitary sewer on Thompson St.
 2. Northern portion which includes WW1A, WW1B and WW1C which represents the area from the electrical substation to the intersection of Brook Rd N and Elgin St E.
- The recommended wastewater alternative solution will be a combination of the alignment **WW1, WW2, or WW3** (from Thompson Street to Brook Road North (north of the railway line)) + **Brook Road North up to the electrical substation** + **WW 1A, 1B or 1C** (from electrical station to Elgin Street East) + **Elgin Street East** (from Brook Road North to the Phase 1 Interim Solution).
- Evaluation of the **Do Nothing** wastewater option has not been included in the evaluation table since the Do Nothing does not provide wastewater servicing that will support future development of lands within the Cobourg East Community Secondary Plan Area (Cobourg East).

Selecting the Recommended Alternative Solution: Detailed Evaluation Criteria

The criteria shown below were used to evaluate the alternative solutions.



- Terrestrial, aquatic species & habitats
- Sensitive Natural Features, Species at Risk and Regulated Floodplain Areas
- Climate Change



Natural Environment

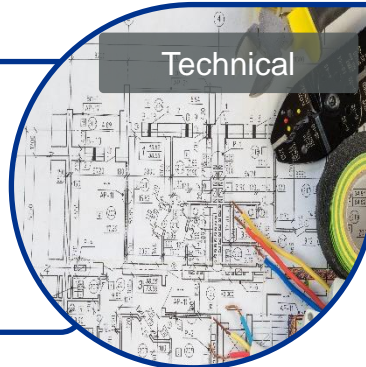


Socio-Cultural

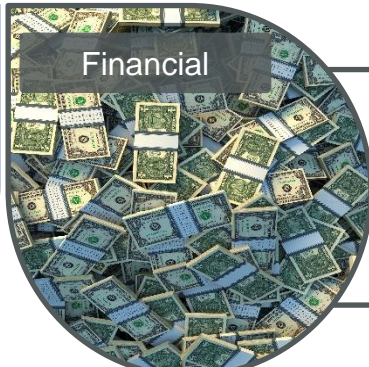
- Short-term and Long-term disruptions during construction (e.g., visual, noise, dust, traffic, air quality)
- Impacts to cultural heritage resources
- Property requirements



- Operational Complexity
- Ease of Implementation
- Resiliency
- Constructability
- Regulatory Approvals
- Railway crossings and dewatering needs



Technical



Financial

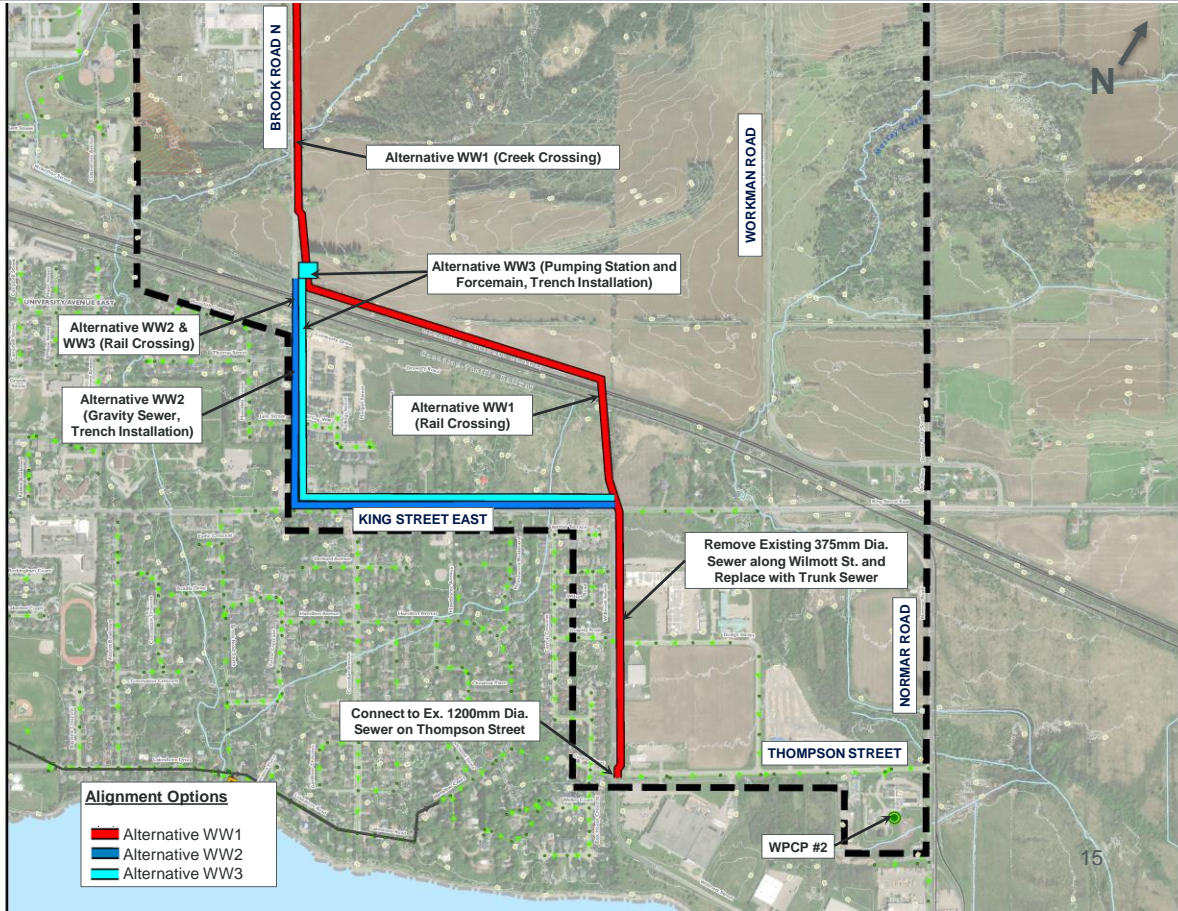
- Life cycle costs, including capital and operation and maintenance costs



Wastewater Servicing Alternative Solutions - South Portion

Alternatives from Electrical Substation to Thompson Street

- Alternative WW 1 – Gravity Sewer – Railway / Brook Road North
- Alternative WW 2 – Gravity Sewer – King Street East / Brook Road North
- Alternative WW 3 - Pumping Station and Forcemain – King Street East / Brook Road North



Evaluation of Wastewater Servicing Alternatives - South Portion

- From electrical substation to Thompson Street



Evaluation Criteria	Alt. WW1	Alt. WW2	Alt. WW3
Natural Environment	<ul style="list-style-type: none"> Creek crossing through trenchless technology (no in-water work) Construction stays within Brook Road N and Willmott Street ROW 	<ul style="list-style-type: none"> Creek crossing through trenchless technology (no in-water work) Construction stays within Brook Road N, King Street E and Willmott Street ROW 	<ul style="list-style-type: none"> Creek crossing through trenchless technology (no in-water work) Construction stays within Brook Road N, King Street E and Willmott Street ROW
Social and Cultural Environment	<ul style="list-style-type: none"> Lower construction impacts by crossing disturbed development lands (north of CN/CP Railway) and Willmott Street Greater construction related impacts on Brook Road N 	<ul style="list-style-type: none"> Greater construction impacts on Brook Road N and King Street E and within built-up area Larger portion of lands within existing urban environment (south of CN/CP Railway) 	<ul style="list-style-type: none"> Forcemain and pumping station results in greater construction impacts on Brook Road N and King Street E and within built-up area
Technical Considerations	<ul style="list-style-type: none"> Majority is gravity sewer making it more resilient Constructed via open cut trench methods, trenchless methods at railway and creek crossing 	<ul style="list-style-type: none"> Majority is gravity sewer making it more resilient Constructed via open cut trench methods, trenchless methods at railway and creek crossing Significant construction constraints on King Street E 	<ul style="list-style-type: none"> Gravity sanitary sewer, pumping station and forcemains – less resilient Constructed via open cut trench methods, trenchless methods at railway and creek crossing Significant construction constraints on King Street E

Evaluation of Wastewater Servicing Alternatives - South Portion

- From electrical substation to Thompson Street

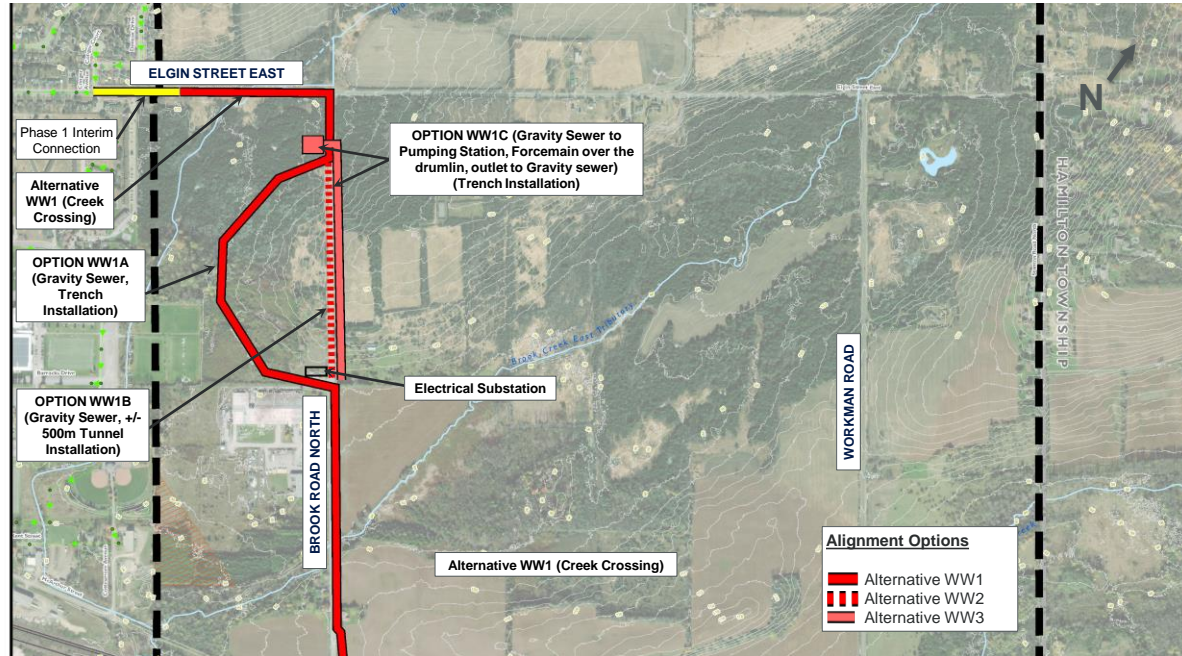
Most Preferred
 Less Preferred
 Least Preferred

Evaluation Criteria	Alt. WW1	Alt. WW2	Alt. WW3
Financial Considerations	<ul style="list-style-type: none"> Lower capital costs and low operating/maintenance costs Development lands required 	<ul style="list-style-type: none"> High capital costs with low operating/maintenance costs No land acquisition required 	<ul style="list-style-type: none"> Highest capital, operating/maintenance costs with forcemain and pumping station Land required for pumping station
Overall Rating	Preferred	Less Preferred	Least Preferred

Wastewater Servicing Alternative Solutions - North Portion

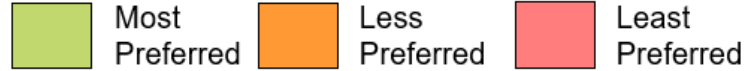
Alternatives from Elgin Street East to Electrical Substation

- Alternative WW 1A – Gravity Sewer, Trench Installation
- Alternative WW 1B – Gravity Sewer, Tunnel Installation
- Alternative WW 1C - Gravity Sewer to pumping station, forcemain over the drumlin, outlet to gravity sewer, Trench Installation



Evaluation of Wastewater Servicing Alternatives – North Portion

- From Elgin Street East to electrical substation



Evaluation Criteria	Alt. WW#1A	Alt. WW#1B	Alt. WW#1C
Natural Environment	<ul style="list-style-type: none"> Creek crossing through trenchless technology (no in-water work) Marsh and unevaluated wetlands present but these are located on disturbed lands that will be developed 	<ul style="list-style-type: none"> Creek crossing through trenchless technology (no in-water work) Construction stays within Elgin Street E and Brook Road N ROW 	<ul style="list-style-type: none"> Creek crossing through trenchless technology (no in-water work) Construction stays within Elgin Street E and Brook Road N ROW with minimal impacts
Social and Cultural Environment	<ul style="list-style-type: none"> Undeveloped lands impacted Some construction impacts along Elgin Street E 	<ul style="list-style-type: none"> Construction impacts along Brook Road N and Elgin Street E 	<ul style="list-style-type: none"> Shallow forcemain results in greater construction impacts on Brook Road N and Elgin Street E Land required and potentially impacted for pumping station
Technical Considerations	<ul style="list-style-type: none"> Gravity sewer making it more resilient Open cut trench construction around the drumlin 	<ul style="list-style-type: none"> Gravity sewer making it more resilient Sewer required to be constructed via tunnelling methods through the drumlin on Brook Road N 	<ul style="list-style-type: none"> Space required to construct pumping station, forcemain constructed via open trench method along Brook Road N through the drumlin Sewer system requires pumping station and forcemains – less resilient

Evaluation of Wastewater Servicing Alternatives – North Portion

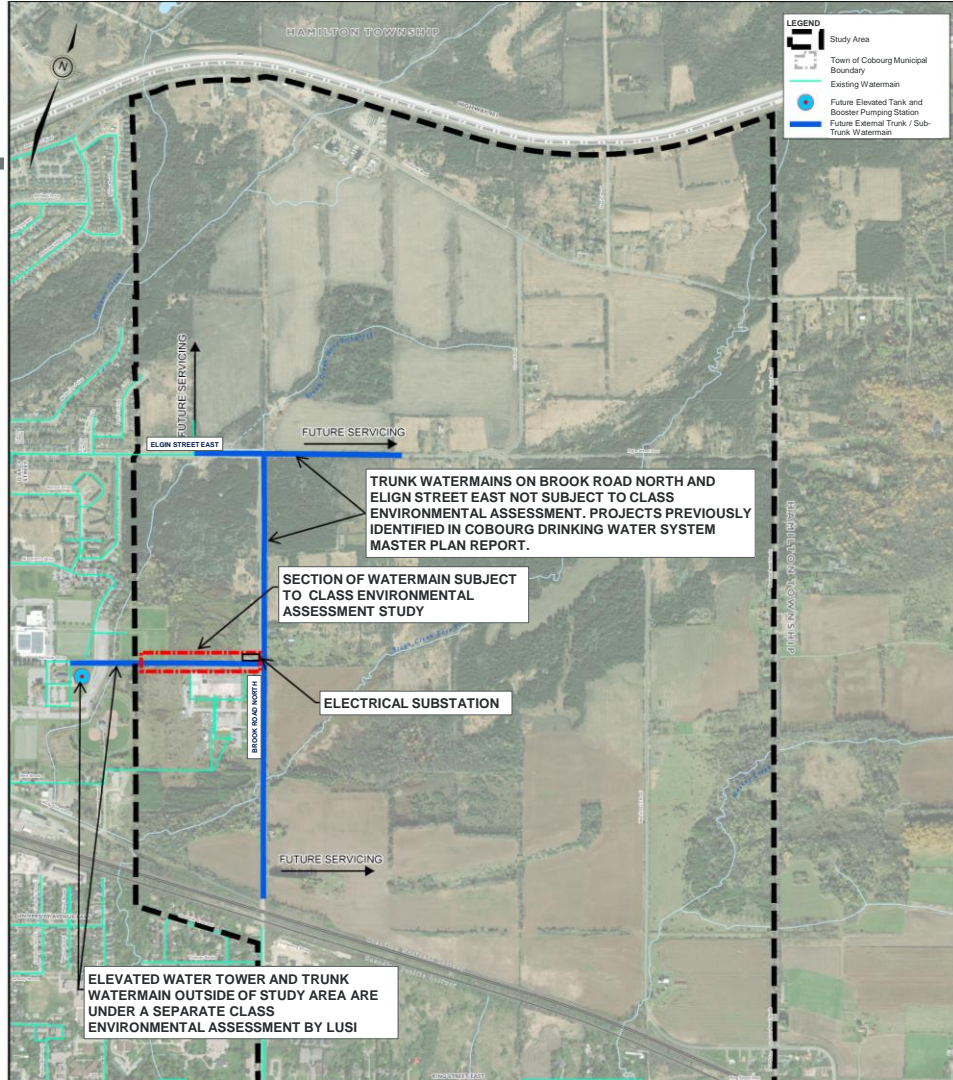
- From Elgin Street East to electrical substation

Most Preferred
 Less Preferred
 Least Preferred

Evaluation Criteria	Alt. WW#1A	Alt. WW#1B	Alt. WW#1C
Financial Considerations	<ul style="list-style-type: none"> Lowest capital costs and low operating/maintenance costs Land required from development lands 	<ul style="list-style-type: none"> Higher capital costs with depth of gravity sewer but low operating/maintenance costs No land acquisition required 	<ul style="list-style-type: none"> High capital, costs and higher operating/ maintenance costs with forcemain and pumping station Land required for pumping station
Overall Rating	Preferred	Less Preferred	Least Preferred

Water Servicing Alternative Solutions

- There was only one alternative to the “Do Nothing” Alternative which is to build the feedermain from the proposed elevated water tower to Brook Road North.



Evaluation of Water Alternatives

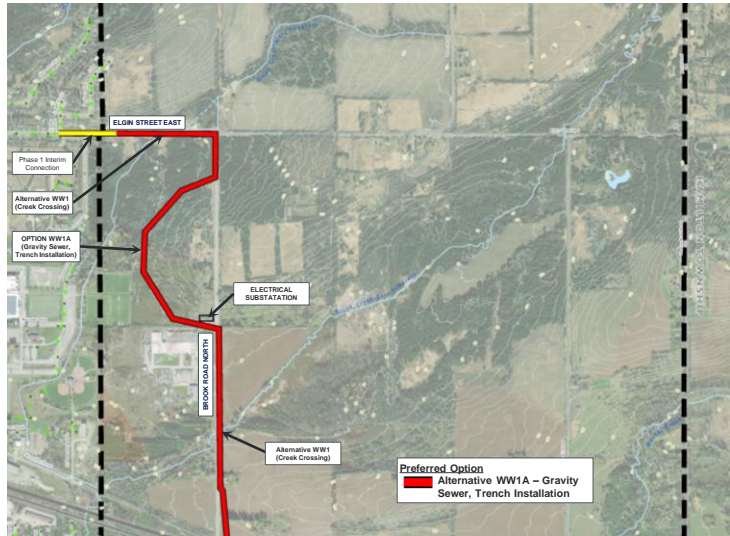
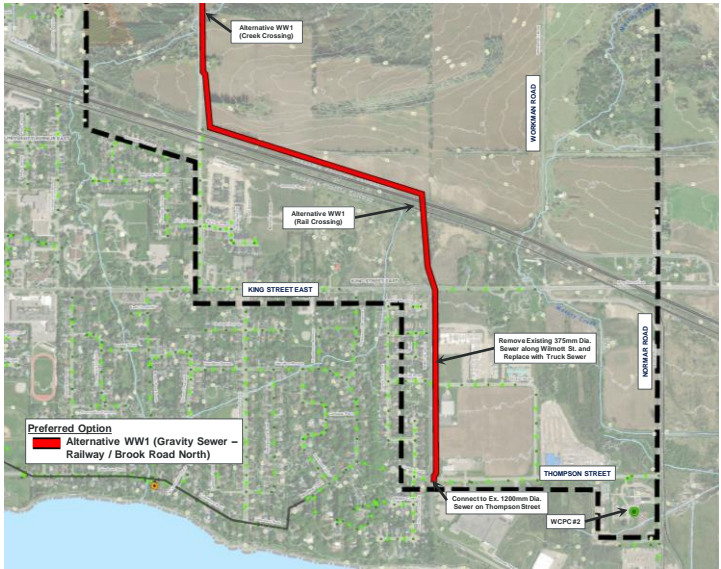


Evaluation Criteria	Alternative #1	Do Nothing
Natural Environment	<ul style="list-style-type: none"> Crosses through recreational fields, Buckthorn deciduous shrub thicket and Willow Lowland deciduous forest 	<ul style="list-style-type: none"> No construction related impacts
Social and Cultural Environment	<ul style="list-style-type: none"> Air and noise impacts during construction with minimal effect on industrial business and recreational fields 	<ul style="list-style-type: none"> No construction related impacts
Technical Considerations	<ul style="list-style-type: none"> Constructed via open cut trench methods with minimal dewatering impacts due to shallow bury of minimum 1.8 m depth Watermain will provide main supply of expanded water supply system 	<ul style="list-style-type: none"> Does not provide water servicing to development areas and does not meet problem statement No resiliency provided
Financial Considerations	<ul style="list-style-type: none"> Some land needs to be provided from development lands Approximately \$500,000 capital costs and minimal operating and maintenance costs 	<ul style="list-style-type: none"> No capital costs but inability to provide water services to development areas is a cost to the Town
Overall Rating	Preferred	Least Preferred

Recommended Preferred Wastewater Alternative Solutions

- For the Wastewater Servicing the recommended preferred alternative for the south portion is:
 - Alternative WW 1 – Gravity Sewer – Railway / Brook Road North

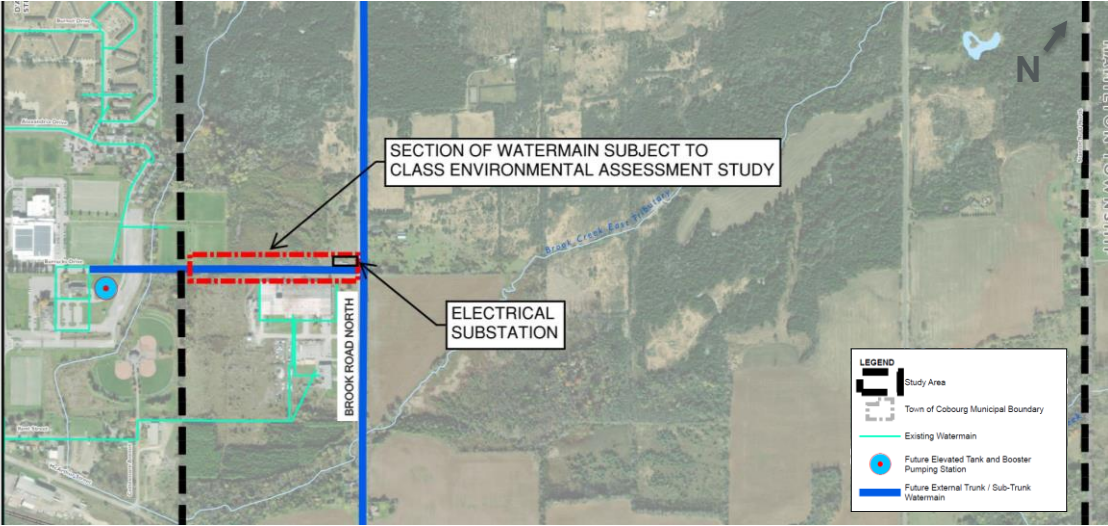
- For the Wastewater Servicing the recommended preferred alternative for the north portion is:
 - Alternative WW 1A – Gravity Sewer, Trench Installation



Recommended Preferred Water Alternative Solution

For the Water Servicing the recommended preferred alternative is:

- Feedermain from Elevated Tank to Brook Road North



Proposed Mitigation Measures

Concern	Proposed Mitigation Measure(s)
Railway Crossings	<ul style="list-style-type: none"> - Use trenchless technologies
Creek Crossings	<ul style="list-style-type: none"> - Use trenchless technologies
Erosion and Sedimentation	<ul style="list-style-type: none"> - Erosion control measures - Buffers and setbacks - Sediment traps - Staging work
Traffic Impacts	<ul style="list-style-type: none"> - Staging of construction to cause least disruption - Notify public and adjacent landowners of construction scheduling
Private Well Impacts	<ul style="list-style-type: none"> - Conduct well monitoring program with intent to rectify any impacted wells
Dust & Noise	<ul style="list-style-type: none"> - Employ noise and dust control measures - Staging of construction to cause least disruption
Maintenance & Operation	<ul style="list-style-type: none"> - Construct access roads to maintenance access structures outside of road right-of-ways - Provide sufficient setbacks from adjacent infrastructure and foundations

Next Steps – Please Stay Engaged

Please submit any comments or feedback on the PIC by **Wednesday, February 22, 2023.**

After the PIC, the Project Team will:

- Review and consider input received during the PIC
- Confirm the recommended alternative solution to provide the preferred alternative for water and wastewater.
- Prepare the Project File Report.
- Issue the Notice of Completion when the Project File Report is available for a 30-calendar day public comment period.



Project Information

- For more information about this project, please visit our webpage:

<https://www.cobourg.ca/en/town-hall/Reports-Studies-and-Plans.aspx>



- Should you have any questions or comments at any time during the project, please contact:

Terry Hoekstra, C.E.T., LET, rcca
thoekstra@cobourg.ca
Town of Cobourg
Project Manager

Chad Stephen, P.Eng., PMP
chad.stephen@cima.ca
CIMA+
Project Manager

Thank You for Attending!