

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**



# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

### Table of Contents

---

1.0	INTRODUCTION.....	1
1.1	Background.....	1
1.1.1	2017 Schedule 'B' Class Environmental Assessment for Brighton Wastewater Treatment System by J.L. Richards & Associates Limited....	2
1.1.2	2020 Brighton Wastewater Treatment System Design by GHD .....	2
1.1.3	2021 Brighton Wastewater Treatment System Aeration Conceptual Design by GSS.....	2
1.1.4	2022 Brighton Wastewater Treatment System Technical Review by R.V. Anderson Associates Limited.....	3
1.1.5	2022 Brighton Wastewater Treatment System Schedule 'B' Class EA Addendum .....	3
1.1.6	2022 Brighton Wastewater Treatment System Lagoon Cleanout.....	3
1.2	Class Environmental Assessment Process .....	6
1.3	Objectives of the Class EA Addendum.....	7
1.4	Project Team.....	7
2.0	Changes Since Completion of Schedule B Class EA.....	8
2.1	Updated Growth Evaluation (Technical Memorandum No.1).....	8
2.2	Updated Design Basis.....	9
2.2.1	Influent Characteristics .....	9
2.2.2	Design Flows.....	9
2.2.3	Final Effluent Requirements.....	10
2.3	Proposed Unit Processes.....	11
2.3.1	Headworks Evaluation (Technical Memorandum No.2).....	11
2.3.2	Previously Proposed Liquid Treatment Upgrades .....	12
2.3.3	Disinfection.....	12
2.3.4	Sludge Treatment and Solids Management Evaluation (Technical Memorandum No.3).....	13
2.4	Proposed Plant Block Flow Diagram .....	14
3.0	Project Description .....	16
3.1	Overview.....	16
3.2	General Site Layout.....	17
3.3	Opinion of Probable Costs.....	18
3.4	Design Considerations .....	19
3.5	Project Implementation Schedule.....	19
3.6	Additional Field Studies, Permits and Approvals .....	20
4.0	Potential Effects and Mitigation Measures.....	20
4.1	Planning and Policy.....	20
4.2	Geotechnical Conditions .....	21
4.3	Source Water Protection .....	21
4.4	Climate Change .....	24
4.5	Air Quality, Dust and Noise .....	24
4.6	Natural Environment, Ecology and Species at Risk.....	25
4.7	Surface Water .....	26
4.8	Groundwater .....	26
4.9	Excess Materials Management and Contaminated Sites.....	27

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

4.10	Services, Utilities and Facilities .....	27
4.11	Archaeological Conditions .....	27
4.12	Built Heritage Resources and Cultural Heritage Landscapes .....	28
4.13	Monitoring and Mitigation .....	28
5.0	Public and Stakeholder Consultation Activities .....	28
5.1	Notice of Study Commencement .....	28
5.2	Public Information Centre .....	28
5.3	Ministry of Environment, Conservation and Parks (MECP) Consultation .....	29
5.4	Stakeholder comments.....	29
5.5	First Nation Consultation .....	31
6.0	References.....	32
7.0	Limitations .....	33

### List of Figures

---

Figure 1: Municipality and Study Location .....	4
Figure 2: Municipality of Brighton Wastewater System.....	5
Figure 3: Block Flow Diagram of Proposed Upgrades .....	15
Figure 4: Conceptual Site Layout of Proposed Upgrades.....	17
Figure 5: Ontario Source Protection Information Atlas (Land Information Ontario, updated March 24, 2022).....	22
Figure 6: Brighton Policy Applicability Map (Trent Source Protection Plan) .....	23

### List of Tables

---

Table 1: Brighton Urban Settlement Population Forecast.....	8
Table 2: 20-Year Brighton Wastewater Influent Flow Projection.....	8
Table 3: Brighton Wastewater Treatment System Influent Characteristics (RVA 2022).....	9
Table 4: Summary of Design Flows and Peaking Factors .....	10
Table 5: Brighton Wastewater Treatment System Effluent Criteria .....	10
Table 6: Summary of Headworks Preferred Solutions .....	11
Table 7: Summary of Sludge Treatment and Solids Management Preferred Solutions.....	13
Table 8: Summary of Updated Proposed Upgrades .....	16
Table 9: Opinion of Probable Costs.....	18
Table 10: Project Implementation Schedule .....	19
Table 11: Summary of Natural Heritage Features (Cambium, 2022).....	25
Table 12: Summary of Review Agency Comments .....	29
Table 13: Summary of Project Meetings.....	30
Table 14: Summary of First Nations Comments .....	31

# **Class EA Addendum Report Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

## **List of Appendices**

---

- Appendix A Previous Studies:
- 2017 Schedule 'B' Class Environmental Assessment for Brighton Wastewater Treatment System by J.L. Richards & Associates Limited
  - 2021 Brighton Wastewater Treatment System Aeration Conceptual Design by GSS Engineering Consultants Ltd.
  - 2022 Brighton Wastewater Treatment System Technical Review by R.V. Anderson Associates Limited
- Appendix B EA Addendum Studies and Reports:
- Technical Memorandum No.1: Updated Growth Evaluation
  - Technical Memorandum No.2: Headworks Evaluation
  - Technical Memorandum No.3: Solids Treatment and Sludge Management Evaluation
  - Natural Heritage Memorandum, Brighton (Cambium, 2022)
- Appendix C Public and Stakeholder Consultation
- Public Consultation Records
  - Agency and Stakeholder Consultation Records
  - Project Meeting Minutes

# **Class EA Addendum Report Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

## **1.0 INTRODUCTION**

---

### **1.1 Background**

J.L. Richards & Associates Ltd. (JLR) was retained by the Municipality of Brighton (Municipality) to complete an addendum to the 2017 Schedule 'B' Class Environmental Assessment for Brighton Wastewater Treatment System. Since potential changes to the preferred wastewater treatment alternative are being contemplated by the Municipality, the conclusions and recommendations must be validated considering an updated understanding of the contributory information and other changes due to the lapse in time from the previous study.

The Municipality includes the former Town and Township of Brighton and is the most eastern municipality within the County of Northumberland. The Municipality is bounded by the City of Quinte West to the east and the Township of Cramahe to the west, with the shoreline of Lake Ontario to the south. Highway 401 provides the main east-west corridor through the Municipality, which tends to be a regional focus for hamlets in the surrounding areas. Refer to Figure 1 for an overview of the Municipality and the urban area of Brighton (study location).

The communal sewage system generally consists of the Brighton Wastewater Treatment Lagoon system (currently rated for 4,600 m<sup>3</sup>/day), the Harbour Street Sewage Pumping Station (SPS) and forcemain, a small sub-area sewage pumping station and forcemain servicing Presqu'île Provincial Park, and several kilometers of gravity collection sewer. Approximately half of the sewage generated in the collection system is directed to the Harbour Street SPS and pumped via a 0.82 km long, 300mm forcemain to the Lagoon and the other half flows by gravity to the Lagoon. Refer to Figure 2 for an overview of the Brighton urban settlement area serviced by the communal sewage system.

The Harbour Street SPS receives sewage from a significant portion of the collection system, including pumped flow from Presqu'île Provincial Park. The Harbour Street SPS is currently being upgraded and expanded. The SPS generally consists of a wet well/dry well configuration and is equipped with three dry pit centrifugal type raw sewage pumps (lead/lag/standby operation) complete with inlet and outlet piping, a standby diesel generator, a wet well emergency overflow to Butter Creek, and related instrumentation and controls for the station.

The wastewater treatment system consists of a 0.68 ha single cell aerated lagoon, a single cell 5.44 ha waste stabilization pond with baffle partition curtains, and a 2-cell constructed wetland with a total surface area of 6.2 ha. There is also a chemical storage/feed system used to facilitate continuous phosphorus removal. Chemical is introduced after the aerated lagoon and upstream of the waste stabilization pond. Treated effluent from the waste stabilization pond is discharged continuously to the constructed wetland and from the constructed wetland it continuously discharges to a natural wetland and ultimately to Presqu'île Bay, which is located off the northeast shore of Lake Ontario.

The following is a summary of the previous studies and activities at the Brighton Wastewater Treatment System. Refer to Appendix A for a copy of the previous study reports.

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

### 1.1.1 2017 Schedule 'B' Class Environmental Assessment for Brighton Wastewater Treatment System by J.L. Richards & Associates Limited

The Municipality of Brighton (the Municipality) initiated a Class Environmental Assessment (Class EA) of their wastewater treatment system in August 2016 to address various problems experienced with treatment at their treatment lagoon (e.g., elevated ammonia concentrations in the treated effluent), and also to ensure that increased influent flows from future growth can be effectively accommodated. J.L. Richards & Associates Limited (JLR) was retained by the Municipality to define the problems and identify a preferred solution to address these issues. The Class EA was completed in 2017. The preferred solution included the following:

- Installation of a specialized treatment system (such as a complete mix activated sludge process or a fixed film biological process)
- Upgrading baffles in the stabilization pond
- Optimizing alum dosing
- Refurbishing the constructed wetland
- Diverting high waste streams
- Desludging program

### 1.1.2 2020 Brighton Wastewater Treatment System Design by GHD

Additional efforts have been undertaken by the Municipality since the completion of the 2017 Schedule 'B' Class EA to address treatment deficiencies. A moving bed biofilm reactor (MBBR) system was selected as the preferred treatment technology. The Brighton Wastewater Treatment System upgrades were then designed and tendered in 2020. However, due to budgetary constraints, the project was cancelled.

### 1.1.3 2021 Brighton Wastewater Treatment System Aeration Conceptual Design by GSS

With an effort to address the effluent quality issues, in June 2021, the Municipality retained GSS Engineering Consultants Ltd. (GSS), who acted as the Municipality's Engineer, to develop conceptual level design for aeration upgrades in the aerated lagoon cell. In addition, GSS recommended implementing a secondary clarifier after the aerated cell and adding screening and grit removal processes. For sludge management, GSS suggested the alternatives to either discharge waste sludge to a drying bed or Geotubes®, or discharge waste sludge to the stabilization lagoon and remove annually.

The proposed conceptual design was presented to Council in August 2021. The proposed upgrades were approved by Council, and a motion was passed to proceed with a working group and retain a consultant for a technical review of the conceptual design.

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

### 1.1.4 2022 Brighton Wastewater Treatment System Technical Review by R.V. Anderson Associates Limited

The Municipality retained R.V. Anderson Associates Limited (RVA) to undertake a technical feasibility review of GSS's design. RVA proposed the following changes to the GSS's design which include the following:

- Implementing a new headworks facility upstream of the aerated lagoon cell
- Confirming proposed aeration rate to provide adequate mixing
- Upsizing proposed clarifier
- Removing accumulated sludge from aerated cell and stabilization pond
- Evaluating options for sludge storage and dewatering in a later study

The technical review was presented to Council in April 2022. The review and proposed upgrades were approved, and a motion was passed to proceed with the next steps to update the existing Class EA with an Addendum.

### 1.1.5 2022 Brighton Wastewater Treatment System Schedule 'B' Class EA Addendum

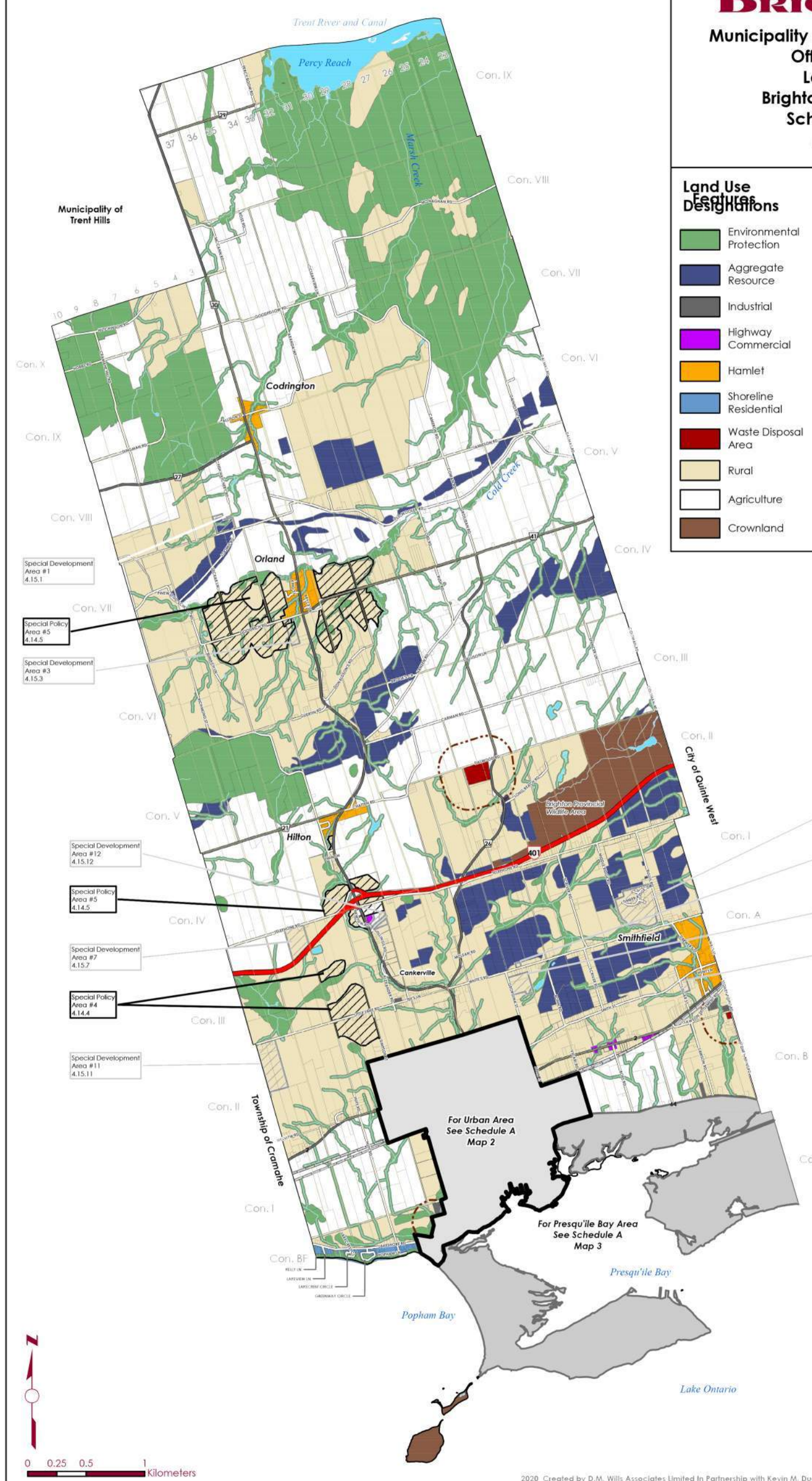
In 2022, the Municipality retained JLR to complete a Class EA Addendum to capture the changes that have occurred since the completion of the previous Schedule 'B' Class EA for the Brighton Wastewater Treatment System. These changes include updated growth projections and design basis, the proposed liquid and solids treatment by GSS and RVA, and sludge management options.

### 1.1.6 2022 Brighton Wastewater Treatment System Lagoon Cleanout

In August/September 2022, the Municipality retained GFL Environmental (GFL) to survey, collect and remove sludge from the existing stabilization lagoon. The intention of the cleanout is to improve the performance of the lagoon and mitigate impacts to the quality of the treated effluent. GFL started at the inlet pipe on the north side of the lagoon, where a high volume of sludge had settled. Approximately one third of the north side of the stabilization lagoon was cleaned out before exceeding the contract budget limits. The Municipality will be monitoring the effluent test results to note improvements in treatment performance.

  
**Municipality of Brighton, Ontario**  
**Official Plan**  
**Land Use**  
**Brighton Rural Area**  
**Schedule "A"**  
**Map 1**

Land Use Designations	Features
Environmental Protection	Provincial Highway
Aggregate Resource	County Road
Industrial	Municipal Road
Highway Commercial	Property Boundary
Hamlet	Special Policy Area
Shoreline Residential	Special Development Area
Waste Disposal Area	Gas Lines
Rural	Oil Line
Agriculture	Transmission Lines
Crownland	Rail Lines
	Waste Disposal Assessment Area
	Watercourse Intermittent
	Watercourse Permanent
	Waterbodies



The "Municipality of Brighton" its employees or agents, do not undertake to guarantee the validity of the contents of this hardcopy mapfile, and will not be liable for any claims for damages or loss arising from their application or interpretation, by any party. It is not intended to replace a survey or to be used for legal description. Not to be used for navigation.



2020 Created by D.M. Wills Associates Limited In Partnership with Kevin M. Duguay Community Planning and Consulting Inc.

File Location: P:\31000\31795-000 - Brighton Lagoon EA-Addendum\5-Production\1-Civil\Attach Civil\11x17v.mxd

**PROJECT:**  
**BRIGHTON WASTEWATER TREATMENT SYSTEM CLASS EA ADDENDUM**  
 MUNICIPALITY OF BRIGHTON, ONTARIO

**DRAWING:**  
**Urban Area Location Plan**



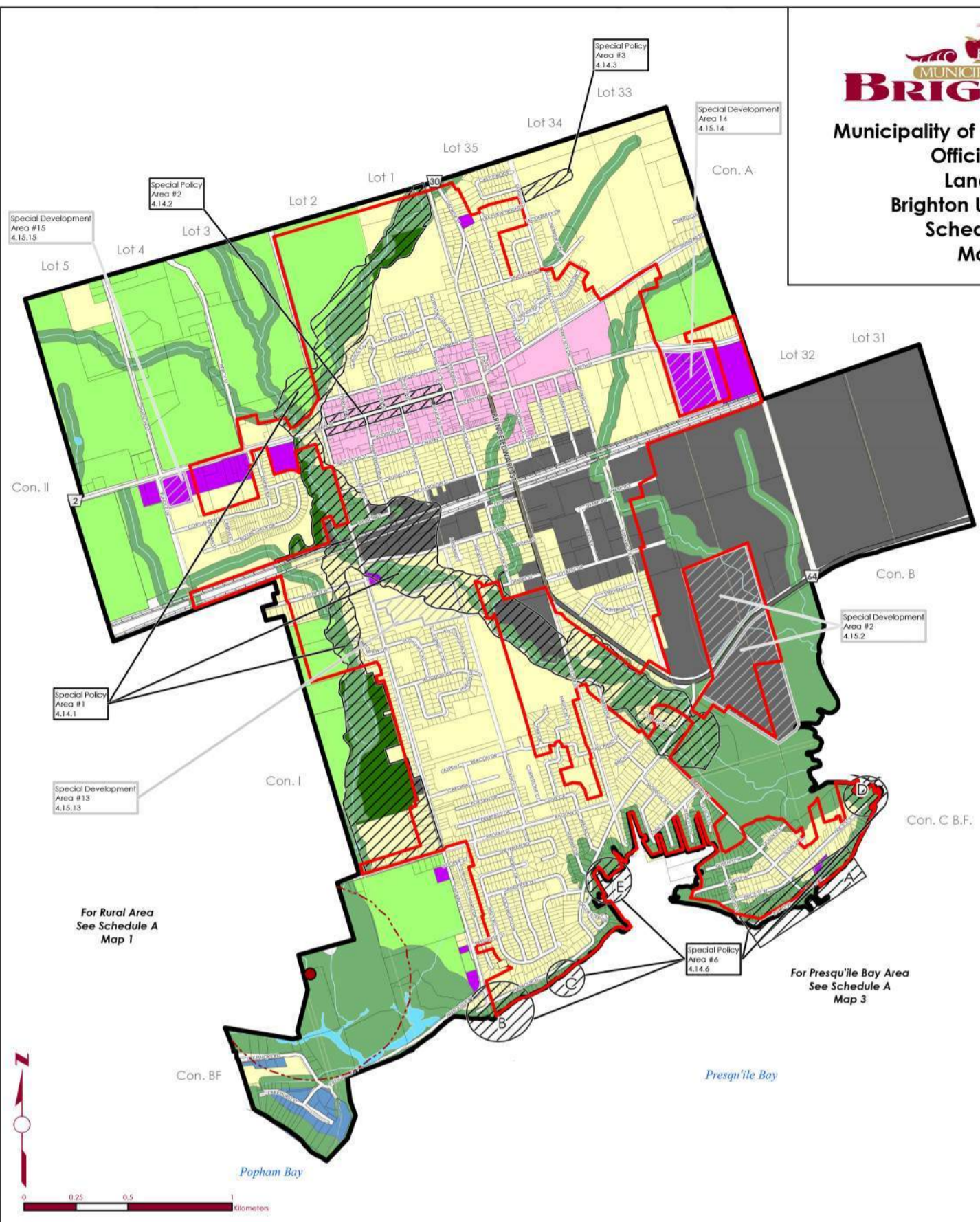
This drawing is copyright protected and may not be reproduced or used for purposes other than execution of the described work without the express written consent of J.L. Richards & Associates Limited.

DESIGN: MM  
 DRAWN: KTK  
 CHECKED: SJS

JLR NO: 31795  
 DRAWING NO.:  
**FIGURE 1**

Plot Date: July 7, 2022 1:37:23 PM

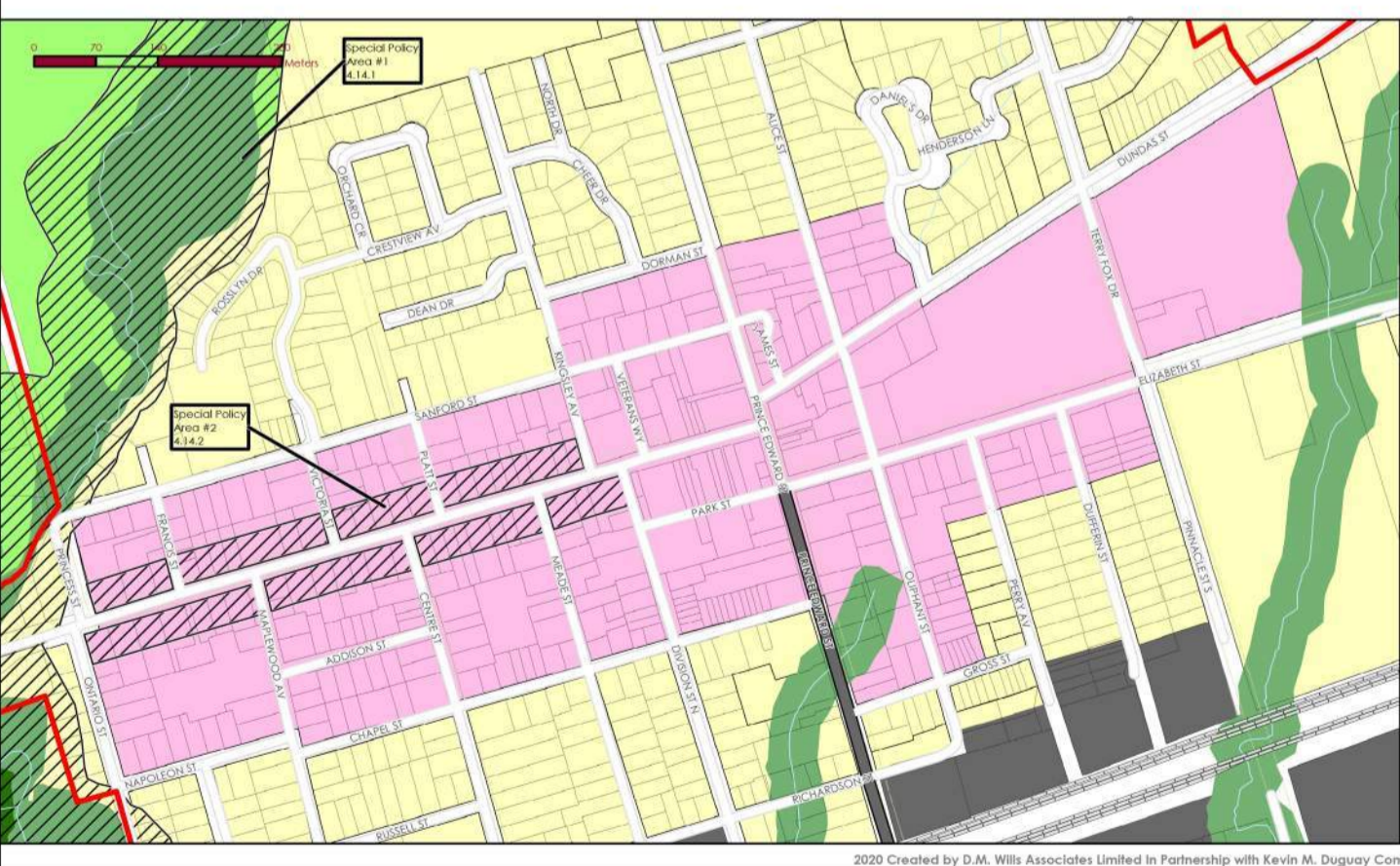
**MUNICIPALITY OF BRIGHTON**  
 Municipality of Brighton, Ontario  
 Official Plan  
 Land Use  
 Brighton Urban Area  
 Schedule "A"  
 Map 2



- Land Use Designations**
- Environmental Protection
  - Core Commercial
  - Highway Commercial
  - Residential
  - Shoreline Residential
  - Industrial
  - Greenfield
- Special Policy Area #1 Land Use**
- Community Facilities and Open Space
- Features**
- Special Policy Area
  - Special Development Area
  - Intensification Boundary
  - Urban Settlement Boundary
  - Property Boundary
  - County Road
  - Municipal Road
  - Rail Lines
  - Watercourse Permanent
  - Waterbodies
  - Waste Disposal Assessment Area
  - Landfill

**Schedule A  
Map 2 i**

**Schedule A  
Map 2 ii**



The "Municipality of Brighton" its employees, or agents, do not undertake to guarantee the validity of the contents of this hardcopy mapfile, and will not be liable for any claims for damages or loss arising from their application or interpretation, by any party. It is not intended to replace a survey or to be used for legal description. Not to be used for navigation.



2020 Created by D.M. Wills Associates Limited in Partnership with Kevin M. Duguay Community Planning and Consulting Inc.

**PROJECT:**  
 BRIGHTON WASTEWATER TREATMENT SYSTEM CLASS EA ADDENDUM  
 MUNICIPALITY OF BRIGHTON, ONTARIO

**DRAWING:**  
 Urban Settlement Area



This drawing is copyright protected and may not be reproduced or used for purposes other than execution of the described work without the express written consent of J.L. Richards & Associates Limited.

DESIGN: MM  
 DRAWN: KTK  
 CHECKED: SJS

JLR NO: 31795  
 DRAWING NO.:  
**FIGURE 2**

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

### **1.2 Class Environmental Assessment Process**

The Ontario Environmental Assessment Act (the Act) sets out a planning and decision-making process so that potential environmental effects are considered before a project begins. The purpose of the Act is to provide for the protection and conservation of the natural environment (R.S.O. 1990, c.E.18, s.2).

The Municipal Class EA process is followed for common types of projects to streamline the review process while ensuring that the project meets the requirements of the Act. It involves detailed site-specific information gathering and studies, as well as consultation with the public and stakeholder agencies. In 1987 the first Class EA prepared by the Municipal Engineers Association (MEA) on behalf of Ontario Municipalities was approved under the Act. Updates and amendments were subsequently made in 1993, 2000, 2007, 2011, and 2015.

This Class EA was initiated as a Schedule B project under the Class EA process. Projects categorized as Schedule B undertakings have the potential for significant environmental effects, and are required to follow Phase 1 and Phase 2 specified under the Municipal Class EA. This includes consultation with all parties that may potentially be affected by the project, and the preparation of a Class EA project file that documents the Class EA process for the project. At the end of Phase 2, the project Schedule is reviewed to determine if the project is complete under a Schedule B Schedule or if the project needs to proceed as a Schedule C undertaking, in which case Phases 3 and 4 of the Class EA process are completed.

The Class EA framework defines the process for each type of project. For Schedule B projects, the completion of the following Phases of the Class EA process are required:

- Phase 1 – Identify the Problem and/or Opportunity
- Phase 2 – Identify Alternative Solutions to the Problem and/or Opportunity

The Project File shall be made available for public and agency review at the completion of Phase 2 of the Class EA process for a mandatory 30-day period. If there are no requests to the Minister of the Environment and Climate Change (MOECC) for a 'Part II Order' within this 30-day review period, then the project may proceed to implementation (Phase 5).

A Class EA Addendum is prepared when there is any significant modification to the project or change in the environmental conditions of the project. For this project, the Project Team has planned to undertake public consultation at three project milestones, including the Notice of Study Commencement for EA Addendum, the Notice of Public Information Centre (PIC), and the Notice of Filing of Addendum. The Notices will be sent to those who were notified during the preparation of the original Class EA, with the addition of any new members of the public or review agencies that are potentially affected with the proposed changes. Like the original Class EA process, the Addendum will be made available for public review for a mandatory 30-day period. During this review period, only the Addendum (the changes to the project) shall be open for review or considered in a request for a Part II Order.

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

### 1.3 Objectives of the Class EA Addendum

The purpose of the Class EA Addendum is to describe the proposed modification to the original Class EA, describing the circumstances necessitating the change, including any potential environmental impacts and proposed mitigation measures.

Technical memoranda (TM) and reports are to be prepared to summarize various elements of the overall project. Technical Memoranda and reports will form part of the Class EA Addendum Project File, which is anticipated to be the key deliverable for this project.

The following documents and reports have been prepared and cover the following topics:

- Conceptual design by GSS
- Treatment System Technical Review by R.V. Anderson
- Updated Growth Evaluation Report (TM 1) by J.L. Richards
- Headworks Evaluation Report by (TM2) J.L. Richards
- Solids Treatment and Sludge Management Evaluation (TM3) Report by J.L. Richards

The Class EA Addendum is proceeding in accordance with the Schedule B requirements of the Ontario Municipal Class EA, October 2000, as amended in 2015, but the Schedule will be reconfirmed at the completion of the Updated Growth Evaluation Report.

### 1.4 Project Team

The following Project Team was involved in carrying out this Class EA Addendum:

***Proponent:***

The Municipality of Brighton  
35 Alice Street  
Brighton, ON K0K 1H0  
Contact: Bob Casselman

***Consultant:***

J.L. Richards & Associates Limited  
203-863 Princess Street  
Kingston, ON K7L 5N4  
Contact: Susan Jingmiao Shi, P.Eng., M.Eng.

***Sub-Consultant (Environmental Impact Assessment):***

Cambium Inc.  
625 Fortune Crescent, Unit 1  
Kingston, ON K7P 0L5  
Contact: Matthew Wheeler, Senior Ecologist

The Municipality of Brighton, as the Proponent, initiated this project in June 2022. The Municipality has actively participated in directing and administering this EA Addendum work. JLR provided

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

project coordination, prepared all Technical Memoranda, advised/liased with stakeholders and prepared the documentation for this EA Addendum.

Both the Municipality and JLR were responsible for issuing the Notice of Commencement, Notice of Public Information Centre, and Notice of Filing EA Addendum to the public and review agencies, and communicating with key review agencies such as the Ministry of the Environment, Conservation and Parks (MECP).

## 2.0 Changes Since Completion of Schedule B Class EA

---

The following section provides an overview of the key changes to the 2017 Schedule 'B' Class EA, including a summary of the Technical Memoranda prepared as part of this EA Addendum.

### 2.1 Updated Growth Evaluation (Technical Memorandum No.1)

The main objective of Technical Memorandum No.1 (TM No.1) is to provide an update of the anticipated growth in the Brighton wastewater servicing area over a 20-year planning period, with consideration of the local and regional official plans. Refer to TM No. 1 in Appendix B for further details.

For the population projections in the Class EA Addendum, the historical housing grown rate (69 houses per year) was used. Based on the Northumberland County draft official plan forecast update, the urban population growth was estimated to be 86% of the total population growth. Therefore, the housing forecast for the urban settlement area is approximately 59.3 houses per year. Refer to the urban settlement population forecast in Table 1 and the resulting wastewater influent flow projection in Table 2.

**Table 1: Brighton Urban Settlement Population Forecast**

Year	Population
2016	6,800
2041	10,212

**Table 2: 20-Year Brighton Wastewater Influent Flow Projection**

5-year (2017-2021) Average Day Flow (ADF)	3,290 m <sup>3</sup> /day
Residential Unit Projected Flow (2021-2041)	1,201 m <sup>3</sup> /day
ICI Projected Flow (2021-2041)	6 m <sup>3</sup> /day
Projected ADF (2041)	4,497 m <sup>3</sup> /day
Percentage of Treatment System Rated Capacity (4,600 m <sup>3</sup> /day) in 2041	98%

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

Since the 20-year flow projections are within the Brighton Wastewater Treatment System's rated capacity, the Municipality has decided to continue with the Schedule B EA Addendum process. The subsequent design for the Schedule B EA Addendum should be based on the existing rated capacity of the treatment system at 4,600 m<sup>3</sup>/d, and considerations for provisions to facilitate future expansion.

### 2.2 Updated Design Basis

The following section is a summary of the updated design basis for the proposed upgrades.

#### 2.2.1 Influent Characteristics

Table 3 below shows the average and maximum month influent characteristics entering the Wastewater Treatment System based on the RVA 2022 report.

**Table 3: Brighton Wastewater Treatment System Influent Characteristics (RVA 2022)**

Year	CBOD <sub>5</sub> <sup>(1)</sup>		TSS <sup>(2)</sup>		TP <sup>(3)</sup>		TKN <sup>(4)</sup>	
	Annual Average	Max Month	Annual Average	Max Month	Annual Average	Max Month	Annual Average	Max Month
2018	133	175	185	239	5.2	7.5	45	65
2019	121	167	179	319	5.5	7.0	47	58
2020	97	169	189	359	5.1	8.6	45	76
2021	120	160	207	289	6.5	8.3	58	71
<b>Average</b>	<b>113</b>	<b>168</b>	<b>190</b>	<b>301</b>	<b>5.6</b>	<b>7.8</b>	<b>49</b>	<b>68</b>
<b>Notes:</b>								
1) CBOD <sub>5</sub> refers to 5-day Carbonaceous Biochemical Oxygen Demand								
2) TSS refers to Total Suspended Solids								
3) TP refers to Total Phosphorus								
4) TKN refers to Total Kjeldahl Nitrogen								

It is recommended that the influent characteristics be confirmed during detailed design, in order to establish the design basis and validate the existing BioWin model. For the purposes of the Class EA, influent quality was assumed to be consistent with this 4-year average.

#### 2.2.2 Design Flows

As outlined in TM No. 1 - Updated Growth Evaluation Report, the wastewater treatment system will maintain its current rated capacity (4,600 m<sup>3</sup>/d) over the next 20 years.

For the purposes of the EA Addendum, peak flows were estimated based on the future Harbour Street Pumping Station rated capacity and the flow split of 40% to 60% between gravity and pumped flow, since the current flow meter only records daily flows, not peak hourly flow or peak instantaneous flow. It is recommended that the Municipality install flow metering that collects peak instantaneous flows, or

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

to conduct a flow monitoring program prior to detailed design, to assess the actual peak flows in the wastewater system.

Table 4 summarizes the design flows for the wastewater treatment system:

**Table 4: Summary of Design Flows and Peaking Factors**

Design Flow	Peaking Factor	Flow (m <sup>3</sup> /d)
Average Day Flow (ADF)	n/a	4,600
Peak Day Flow (PDF)	2.89 <sup>(1)</sup>	13,294
Peak Hourly Flow (PHF)	3.87 <sup>(2)</sup>	17,813
Peak Instantaneous Flow (PIF)	4.70	21,600 <sup>(3)</sup>
<b>Notes:</b>		
(1) Historical PDF factor (RVA 2022)		
(2) WEF guidelines for peaking factor, based on Population (RVA 2022)		
(3) Estimation based on design PIF of pumped flow from Harbour St. Pumping Station (150 L/s), with the assumption that pumped flows are approximately 60% of total flows (based on feedback provided by Municipality Operators).		

### 2.2.3 Final Effluent Requirements

The Wastewater Treatment System is currently operating under the Amended Environmental Compliance Approval No. 7701-CDNKQA, issued April 21, 2022. Table 5 below summarizes the final effluent criteria sampled upstream of the constructed wetland.

**Table 5: Brighton Wastewater Treatment System Effluent Criteria**

Final Effluent Parameter	Design Objectives <sup>(1)</sup>	Compliance Limits <sup>(1)</sup>	Loading Limits <sup>(1)</sup>
CBOD5	15.0 mg/L	30.0 mg/L	138.0 kg/day
Total Suspended Solids	15.0 mg/L	40.0 mg/L	184.0 kg/day
Total Phosphorus	0.8 mg/L	1.0 mg/L	4.6 kg/day
Total Ammonia Nitrogen			
from May 01 to October 31	10.0 mg/L	14.0 mg/L	64.4 kg/day
from November 01 to April 30	15.0 mg/L	17.0 mg/L	78.2 kg/day
E. coli	100 CFU/100mL <sup>(2)</sup>	200 CFU/100mL <sup>(2)</sup>	N/A
pH	6.5 – 9.0 inclusive	6.5 – 9.0 inclusive	N/A
<b>Notes:</b>			
(1) Sample location is upstream of the constructed wetland.			
(2) Correction to E.coli objective and limit per a consultation meeting with the MECP dated September 23, 2022. Refer to Appendix C for meeting notes.			

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

Since the wastewater treatment system will maintain its current rated capacity (4,600 m<sup>3</sup>/d) over the next 20 years, the ECA effluent criteria is expected to remain consistent for the new upgrades.

### 2.3 Proposed Unit Processes

#### 2.3.1 Headworks Evaluation (Technical Memorandum No.2)

The main objective of Technical Memorandum No.2 (TM No.2) is to evaluate and select the technologies for the new headworks system. Refer to TM No.2 in Appendix B for further detail with the identification and evaluation of the alternatives.

The preferred solution for headworks facility is summarized in Table 6.

**Table 6: Summary of Headworks Preferred Solutions**

	<b>Preferred Solution</b>
Preferred Headworks Location	Upstream of Aerated Lagoon
Preferred Screening Technology	Inclined Auger Screen
Preferred Grit Removal Technology	Horizontal Flow Grit Channel

Due to the nature of substantial head loss from headworks equipment, plant hydraulics upstream of the aerated lagoon were reviewed to determine if an influent pumping station is required. It was determined that the available head between inlet manholes (MHs) 130/131 and aerated lagoon is insufficient to accommodate a full headworks facility by gravity and that an influent pumping station will likely be required to pump the plant influent that is conveyed by gravity. The size of the pump will be dependent on the following, which will be confirmed during detailed design:

- Elevation/grade of the headworks building.
- Pumping for combined pumped (Harbour St PS) /gravity influent flow or just the gravity influent flow.
- Operating water level in aerated lagoon.

In summary, the headworks upgrades will consist of the following:

- A headworks building to house the inclined auger screen, bypass manual bar screen, screening bin, electrical equipment, instrumentation and control equipment and odour control.
- An influent pumping station, comprising of a wet well with submersible pumps.
- Two grit channels to be installed outdoors and cleaned manually.

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

### 2.3.2 Previously Proposed Liquid Treatment Upgrades

The liquid train upgrades as proposed by GSS will consist of the following:

- Replacement of aeration system in aerated lagoon.
  - GSS proposed an aeration capacity of 8,883 m<sup>3</sup>/h. RVA noted that while this rate would provide sufficient oxygen for the biological demand of the process, it is insufficient to meet MECP design guidelines for full mixing of the aerated lagoon. RVA estimated a mixing air demand of approximately 11,631 m<sup>3</sup>/h and 16,988 m<sup>3</sup>/h for coarse and fine bubble aeration respectively. It was recommended for the new aeration system to be sized for both full mixing and oxygen demand, whichever aeration rate is higher.
- New secondary clarifier
  - GSS proposed a 20m diameter clarifier. RVA noted that this is undersized and would exceed the maximum surface overflow rate (SOR) per the MECP design guidelines for the peak hourly flow rates for the current and proposed future capacity. RVA recommended for a larger size to comply with the MECP guidelines.

Refer to Appendix A for the Conceptual Design by GSS and the Technical Review by R.V. Anderson Associates for more information. It should be noted that for the purpose of this EA Addendum, JLR has carried the recommendations from the above-mentioned studies for the future liquid treatment upgrades. JLR did not undertake a separate review of these recommendations as these concepts have already been approved by the Municipality.

### 2.3.3 Disinfection

As a result of the proposed upgrades, the wastewater will no longer be passing through the facultative lagoon and benefitting from natural pathogen removal. The treatment system upgrades must therefore include a new effluent disinfection system to meet the ECA *E.Coli.* removal requirements. The requirement for disinfection was also confirmed during a consultation meeting with MECP on September 23, 2023. The most common disinfection technologies are chlorination/dechlorination and UV disinfection.

Chlorination/Dechlorination system typically consist of injecting a chlorine solution (e.g., sodium hypochlorite) or chlorine gas. A chlorine contact tank is usually required to ensure sufficient contact time for reaction. After chlorine disinfection is complete, the effluent will need to undergo dechlorination prior to discharge into the natural environment. A dechlorination chemical (e.g., sodium bisulphite, sodium metabisulphite, etc.), is used to reduce the total chlorine residuals. The chlorination/dechlorination system can be designed to be automatically monitored and controlled.

A UV disinfection system consists of a series of lamps which are electrically powered. UV light disrupts genetic material sequencing of the cell, preventing

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

replication and reduces the number of *E.Coli.* counts in the wastewater effluent. Unlike chemical-based disinfection processes, UV disinfection does not generate any chemical byproducts or residuals. The UV system can be designed to be automatically monitored and controlled.

The selection of the disinfection system should be determined in the detailed design phase, based on a number of factors including space available, building requirements, cost, performance, etc.

### 2.3.4 Sludge Treatment and Solids Management Evaluation (Technical Memorandum No.3)

The main objective of Technical Memorandum No.3 (TM No.3) is to evaluate and select the preferred strategy and technology for sludge treatment and solids management. Refer to TM No.3 in Appendix B for further detail with the identification and evaluation of the alternatives.

The preferred sludge treatment and solids management solutions from the detailed evaluation is summarized in Table 7.

**Table 7: Summary of Sludge Treatment and Solids Management Preferred Solutions**

Preferred Solution	Description
Lagoon Stabilization/Storage with Supplemental Aeration	<ul style="list-style-type: none"> <li>• No thickening</li> <li>• Lagoon stabilization</li> <li>• Lagoon storage with periodic clean-out.</li> <li>• Land application of biosolids</li> </ul>
Lagoon Stabilization with Supplemental Aeration and Periodic Geotube® Dewatering	<ul style="list-style-type: none"> <li>• No thickening</li> <li>• Lagoon Stabilization</li> <li>• Geotube® Dewatering used for periodic lagoon cleanout to reduce hauled volume. A concrete pad with drainage is required for Geotube® placement.</li> <li>• Land Application of dewatered biosolids</li> </ul>

The upgrades to the existing system required for the preferred solution will consist of the following:

- Modifications of existing facultative lagoon to a WAS storage lagoon. Recommended modifications will include the following:
  - Modification of effluent chamber to disconnect from WAS storage lagoon.
  - New shoreline chamber for supernatant collection and pumping to liquid treatment process.

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

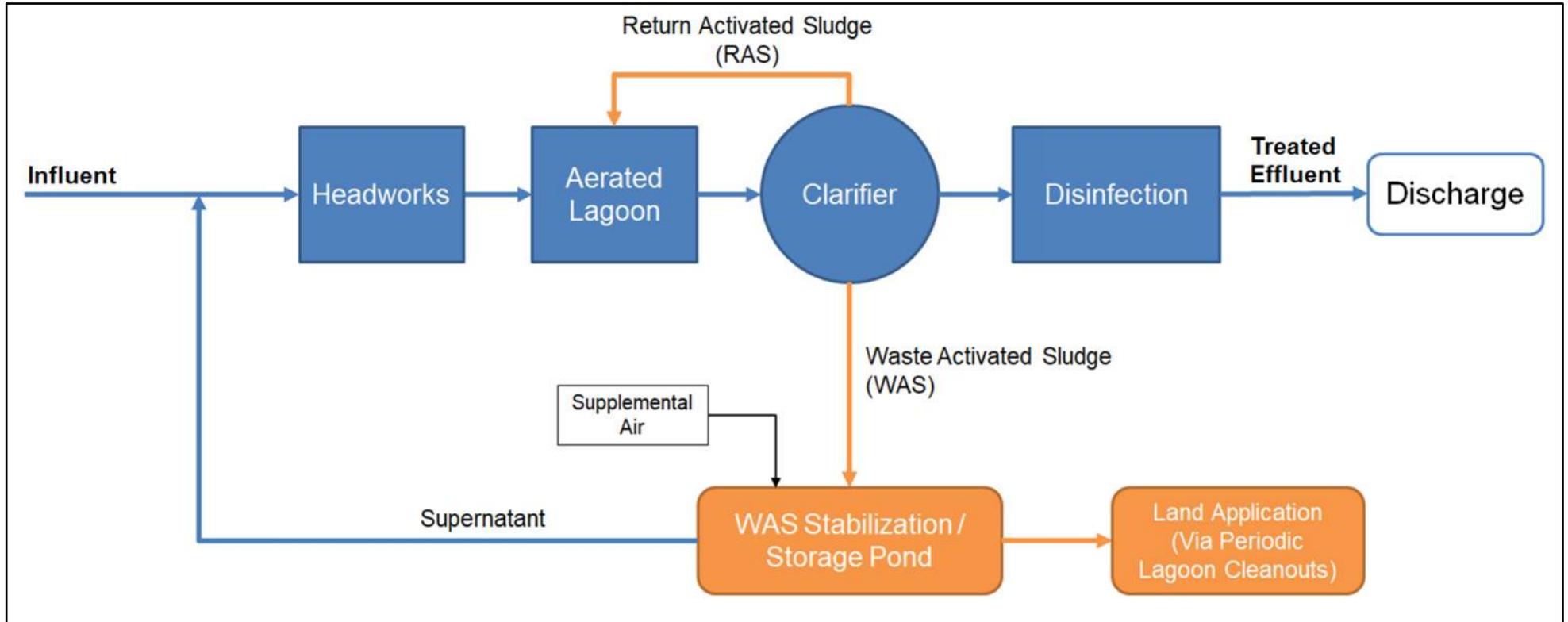
---

- Installation of supplemental aeration in the lagoon for odor control, freezing prevention, etc.
- Monitoring of sludge level and progression of stabilization. The biosolids in the lagoon will be cleaned out for land application. A Geotube® system may be implemented to facilitate sludge dewatering.

### **2.4 Proposed Plant Block Flow Diagram**

Refer to Figure 3 for the block flow diagram of the wastewater treatment system following the proposed upgrades.

**Class EA Addendum Report**  
**Municipality of Brighton Wastewater Treatment System Class EA Addendum**



**Figure 3: Block Flow Diagram of Proposed Upgrades**

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

### 3.0 Project Description

---

#### 3.1 Overview

Table 8 shows a summary of the updated proposed upgrades for the Brighton Wastewater Treatment System based on the past and recent studies previously discussed.

**Table 8: Summary of Updated Proposed Upgrades**

Process Description	Updated Proposed Upgrades Summary
<b>Liquid Treatment Train</b>	
Headworks	<ul style="list-style-type: none"> <li>• New headworks building complete with odour control</li> <li>• New influent pumping</li> <li>• One new inclined auger screen and one bypass manual screen</li> <li>• Two new horizontal flow grit removal channels</li> </ul>
Secondary Treatment	<ul style="list-style-type: none"> <li>• Upgrade aeration system in existing aerated lagoon</li> <li>• New secondary clarifier c/w sludge collection</li> </ul>
Disinfection	<ul style="list-style-type: none"> <li>• New effluent disinfection system</li> </ul>
Effluent Piping	<ul style="list-style-type: none"> <li>• New piping from disinfection to effluent discharge (upstream of constructed wetland)</li> </ul>
<b>Solids Treatment Train</b>	
Sludge pumping	<ul style="list-style-type: none"> <li>• New RAS and WAS pumping and piping</li> </ul>
Sludge Stabilization and Thickening / Biosolids Storage	<ul style="list-style-type: none"> <li>• Modify existing facultative lagoon into the WAS stabilization/storage pond:               <ul style="list-style-type: none"> <li>○ Disconnect existing facultative lagoon effluent chamber to disconnect the new WAS stabilization/storage lagoon from plant effluent.</li> <li>○ New shoreline chamber for supernatant collection and return to liquid treatment process.</li> <li>○ Installation of supplemental aeration in the WAS stabilization/storage lagoon to mitigate freezing risks and odor impacts.</li> </ul> </li> </ul>
<b>Site-Wide Upgrades</b>	
Civil	<ul style="list-style-type: none"> <li>• Yard piping, grading, access/driveway upgrades, etc.</li> <li>• Arena Creek relocation</li> </ul>
Electrical	<ul style="list-style-type: none"> <li>• Power supply upgrades</li> <li>• Electrical equipment upgrades</li> </ul>
Instrumentation and Controls	<ul style="list-style-type: none"> <li>• New plant-wide instrumentation and controls</li> </ul>

# Class EA Addendum Report Municipality of Brighton Wastewater Treatment System Class EA Addendum

## 3.2 General Site Layout

Figure 4 shows the conceptual site layout of the proposed upgrades.

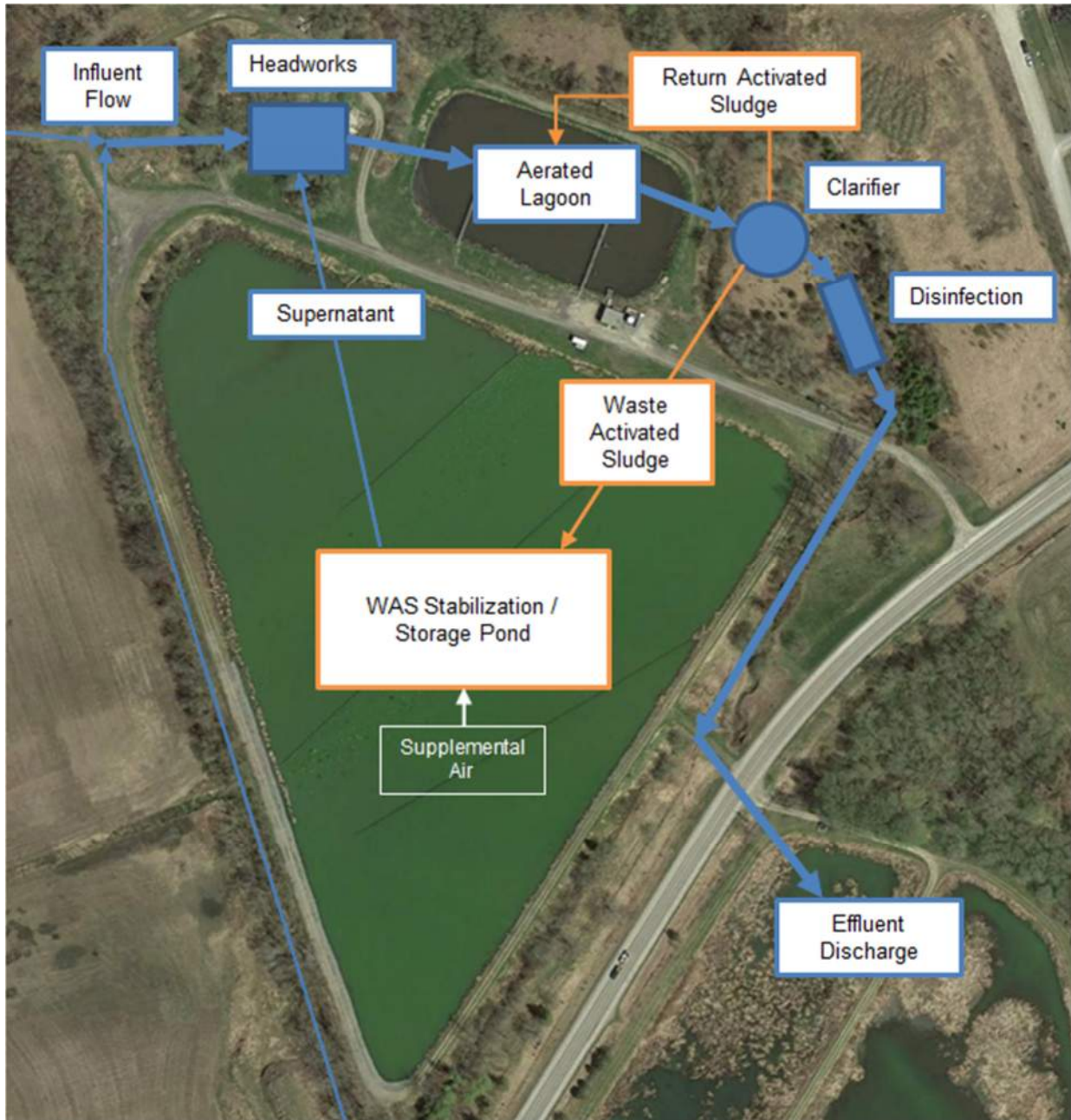


Figure 4: Conceptual Site Layout of Proposed Upgrades

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

### 3.3 Opinion of Probable Costs

Table 9 provides the Opinion of Probable Costs for the proposed upgrades as outlined previously. It shall be noted that the Opinion of Probable Costs (OPC) were completed using 2022 dollars value. An OPC with a Class 'D' (Indicative Estimate) level of accuracy was developed for each alternative solution and includes allowances for design elements that have not fully been developed. Class 'D' OPCs developed for this assignment are expected to be within +/- 30%. The OPCs were developed based on past experience on similar projects, professional judgment, and equipment costs provided by suppliers. Design completed as part of this Class EA is conceptual in nature for the purpose of obtaining Class 'D' cost estimates. All design parameters should be confirmed during detailed design. Any provided estimate of costs or budget is an OPC that is based on historic construction data and does not include labour, material, equipment, manufacturing, supply, transportation or any other cost impacts in relation to COVID-19. JLR shall not be responsible for any variation in the estimate caused by the foregoing factors but will notify the Municipality of any conditions which JLR believes may cause such variation upon delivery of the estimate.

**Table 9: Opinion of Probable Costs**

Item	OPC <sup>(1)</sup>
<b>Liquid Train Upgrades</b>	
Headworks Facility (see TM No.2)	\$ 3,700,000
Aerated Lagoon Upgrades (outdoor installation)	\$ 2,700,000
New Clarifier (outdoor installation)	\$ 4,100,000
Effluent Disinfection (outdoor installation)	\$ 1,700,000
<b>Solids Treatment Train</b>	
Convert Facultative Lagoon to WAS Storage Lagoon (see TM No.3)	\$ 1,500,000
<b>Site-Wide Upgrades</b>	
Electrical, Instrumentation and Control Upgrades <sup>(3)</sup>	\$ 1,500,000
Civil Site Works (Incl. Arena Creek Relocation)	\$ 900,000
<b>Subtotal <sup>(2)</sup></b>	<b>\$ 16,100,000</b>
Engineering and Contingency (~40%)	\$ 7,000,000
<b>OPC Total (Incl. Engineering, Contingency, Contractor Fees. Excl. HST)</b>	<b>\$ 23,100,000</b>
<b>Notes:</b> 1) All OPCs exclude HST. 2) Capital OPCs include costs for installation, contractor markup (~25%) 3) Excludes Hydro One service upgrades costs.	

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

The OPC above does not include the costs for the following:

- Any extensive dewatering that might be necessary for the construction of the headworks facility, clarifier and disinfection system. Further geotechnical and hydrogeological investigation would be required.
- The cost for the new clarifier is based on a rated capacity of 4,600 m<sup>3</sup>/d. The cost increase to construct a bigger clarifier to accommodate 6,000 m<sup>3</sup>/d is approximately \$800,000 to \$1,000,000.
- GSS provided an optional cost to supply and install radial blowers instead of standard positive displacement blowers, estimated at \$200,000 in 2021. This addition can be discussed as a value engineering item in detailed design.

### 3.4 Design Considerations

The following are considerations to be explored during the detailed design of the proposed upgrades. Additional considerations are noted in the GSS Conceptual Design and RVA's technical review found in Appendix A, and the TM No.2 and TM No.3 found in Appendix B.

- The proposed upgrades design will need to consider the future expansion of the wastewater treatment system beyond the 20-year growth forecasts. Some considerations may include sizing new structures (such as the headworks, clarifier, and disinfection) to accommodate a flow rate beyond the rated capacity, including provisions for the construction of additional treatment trains, etc.
- The existing treatment system will need to maintain operation during the construction of the new upgrades. The location and sequencing of the new infrastructure will need to be considered.
- The relocation of Arena Creek may be necessary to allow for the construction of the clarifiers. The final location of the creek relocation should be confirmed following the confirmation of the proposed site plan.
- It is recommended for the Municipality to conduct a flow monitoring program, or to provide a new influent flow meter, to confirm the actual peak flows in the wastewater system. This will better define the peak flow design basis for the detailed design of proposed upgrades.
- The power supply and other electrical considerations will need to be reviewed based on the selection of new equipment for the proposed upgrades

### 3.5 Project Implementation Schedule

Table 10 shows the estimated timelines for the design and construction of the upgrades proposed in this Class EA Addendum.

**Table 10: Project Implementation Schedule**

Milestone	Schedule
Preliminary Design	6 Months
Detailed Design	6-9 months
Environmental Compliance Approvals	12 months
Construction	18-24 months

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

### **3.6 Additional Field Studies, Permits and Approvals**

A number of additional field studies are recommended prior to implementing the proposed works. These may include:

- Geotechnical investigation
- Hydrogeological investigation
- Field Environmental Impact Assessment for Arena Creek relocation

A number of approvals are required prior to implementing the proposed works. These may include:

- Amendments to the Environmental Compliance Approval
- Environmental Activity Sector Registry (EASR) or Permit to Take Water (PTTW)\_ for Construction dewatering from the MECP, if required
- Site Plan approval from the Municipality
- Building Permit from the Municipality
- Ministry of Natural Resources/ Conservation Authority Consultation
- Fisheries and Oceans Canada (DFO) Request for Review consultation
- Electrical Safety Authority (ESA) Permit
- Screening of the project in accordance with the requirements of the Canadian Environmental Assessment Act, should any Federal approvals be required or should funding be provided by the Federal Government for this project.

## **4.0 Potential Effects and Mitigation Measures**

---

### **4.1 Planning and Policy**

The 2020 Provincial Policy Statement (PPS) provides general policy guidance on matters of provincial interest related to land use planning and development. The 2020 PPS provides policy direction for appropriate development while protecting resources of provincial interest, public health and safety as well as the quality of the natural environment. All local planning matters must be consistent with the 2020 PPS, which is issued under Section 3 of the Planning Act. The Planning Act requires that decisions of Council be consistent with the Statement. Policies related to infrastructure, servicing (sewer and water), climate change, natural heritage wetlands and water, and aboriginal interests may have implications at the Class EA level.

Section 1.6 of the 2020 PPS outlines policies for sewage, water and stormwater facilities. In particular, Infrastructure and public service facilities shall be provided to be financially viable, prepared for the impacts of a changing climate and accommodating for forecasted growth. The detailed design phase will develop the proposed upgrades to address these policies.

Section 2.1 of the 2020 PPS states that development and site alteration within or on adjacent lands to significant natural heritage features (identified in policies 2.1.4, 2.1.5, and 2.1.6), unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (PPS 2020). Refer to Section 5.0 in this report for potential impacts and mitigation measures to align with the policies in the PPS.

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

The Site is also subject to The Growth Plan for the Greater Golden Horseshoe, which was consolidated by the Ontario Government in 2020 to provide a framework for the development of regional growth plans and guidelines for short and long-term planning policies. The Plan is to be read in conjunction with the Provincial Policy Statement. According to the Growth Plan, the majority of growth is to be allocated to existing delineated settlement areas, with the goal of intensification and providing a mixed range of housing options.

The site is not subject to the Oak Ridges Moraine Conservation Plan, the Niagara Escarpment Plan, the Greenbelt Plan, or the Lake Simcoe Protection Plan.

### **4.2 Geotechnical Conditions**

A geotechnical investigation report was prepared in 2019 by Cambium Inc., as part of the MBBR design by GHD Ltd. The boreholes and investigation focused on the eastern corner of the stabilization pond, near the proposed location of the MBBR system. Geotechnical information for the rest of the site is limited. It is proposed that a field geotechnical assessment be completed during preliminary and detailed design to identify and address any geotechnical issues for the construction of the new infrastructure.

### **4.3 Source Water Protection**

According to the and the Ontario Source Protection Information Atlas (Figure 5) and Trent Source Protection Plan (Figure 6), the wastewater treatment system is located outside of the Wellhead Protection Area within the Municipality of Brighton. The risk to this protection area is expected to be very low.

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

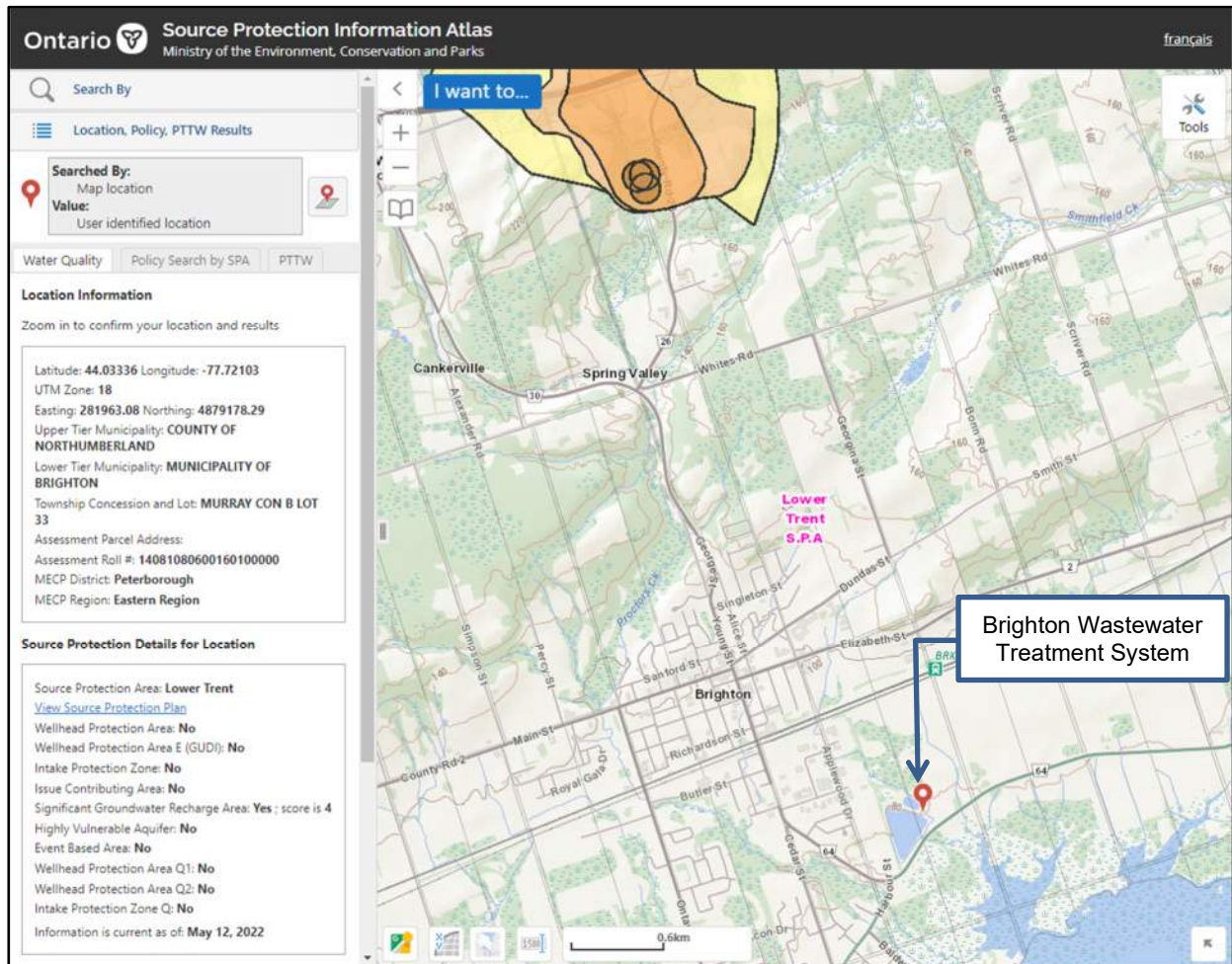


Figure 5: Ontario Source Protection Information Atlas (Land Information Ontario, updated March 24, 2022)

# Class EA Addendum Report Municipality of Brighton Wastewater Treatment System Class EA Addendum

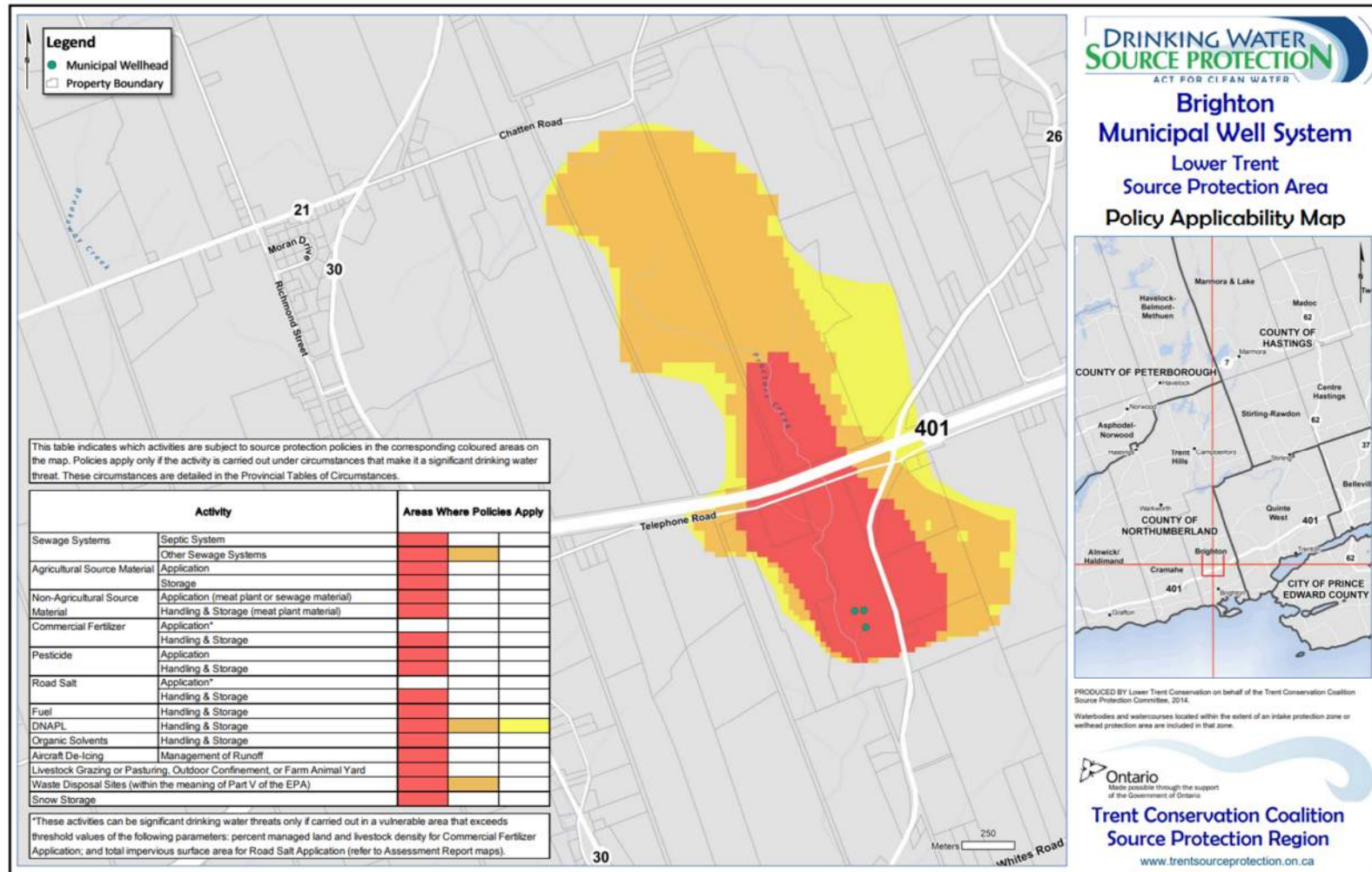


Figure 6: Brighton Policy Applicability Map (Trent Source Protection Plan)

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

### **4.4 Climate Change**

Global warming is unequivocal, raising global average temperatures. The effects this locally can drastically vary between regions. A study done by CBCL to produce projections for the national capital region (NCR) (CBCL 2020) can be used to provide estimates for high similarities in the Brighton region. Key points from this study relevant to the Brighton Wastewater Treatment System are as follows:

- Increasing total precipitation (except for summer)
  - Annual total precipitation for the region expected to increase approximately 4% in the 2030s, 7% in the 2050s, and about 10% in the 2080s, with increased concentrations in the winter and shoulder seasons and none for the summer.
- No alterations to frequency of wet days
  - Precipitation is anticipated to be concentrated within the same number of wet days (exceeding 1 mm of precipitation).
- Increase for precipitation intensity
  - Annual maximum precipitation in one day expected to rise approximately 5%, 12%, and 15% in the 2030s, 2050s, and 2080s, respectively. Multiple varying duration intensities (sub-daily, daily, multi-day) are expected to increase. Short-period intensities are expected to rise 5%, 15%, and 20% by the 2030s, 2050s, and 2080s, respectively.

Since a typical sanitary system is susceptible to infiltration, projections of increased total precipitation and precipitation intensities could lead to even higher incoming flows during wet periods. The design basis for Wastewater Treatment System upgrades should take into account climate change impact from precipitation. During detailed design, design basis should be reviewed, validated and confirmed for processes that treat the peak flows, e.g., influent pumps, clarifier, disinfection system, etc.

The detailed design will also consider equipping pumps with variable frequency drives (VFDs). VFDs reduce energy demands, and hence greenhouse gas emissions (GHGs), by enabling electric motors to operate at less than full speed. During the design stage, consideration for the material choice and installation method for the new structures and its associated carbon footprint would also be given. The sizing of the upgrades will be optimized to require fewer building materials, which would generally lead to reduced GHG emissions during material manufacturing and construction phase.

### **4.5 Air Quality, Dust and Noise**

A construction mitigation plan will be developed to incorporate noise and air quality control measures in order to mitigate adverse noise impacts to nearby residential land uses within the study area.

The noise from construction can be mitigated via limiting the operation hours of noisy machinery (e.g., hoe ramming) and advance notice to the neighboring property owners. The reduced air quality can be mitigated via promoting offsite manufacturing and onsite assembling practices. The

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

construction vehicles can be hosed down prior to leaving the site to reduce mud carry over onto the streets.

### 4.6 Natural Environment, Ecology and Species at Risk

Cambium Inc. was retained to conduct a desktop review of the natural heritage existing conditions and impact assessment within the Wastewater Treatment System. The study area included the wastewater treatment system site and within 120m adjacent to the site. The complete memorandum can be found in Appendix B.

Table 11 provides a summary of the natural heritage features identified in the desktop review.

**Table 11: Summary of Natural Heritage Features (Cambium, 2022)**

Natural Heritage Feature	Identified Potential Site Concerns (On site or in Adjacent Lands Within 120 m of Site Location)
Significant habitat of Endangered and Threatened Species (SAR)	Wood Thrush (Special Concern) Black Tern (Special Concern) Midland Painted Turtle (Special Concern) Snapping Turtle (Special Concern) Blanding's Turtle (Threatened) Bard Swallow (Threatened) Least Bittern (Threatened)
Significant wetlands	None
Significant coastal wetlands or coastal wetlands	Presqu'ile Bay Marsh (on adjacent lands)
Significant valley lands	None
Significant woodlands	None
Significant wildlife habitat	None
Significant Areas of Natural and Scientific Interest	None
Fish Habitat	Arena Creek (on Site and adjacent lands): <ul style="list-style-type: none"> <li>• Cold water fish habitat</li> <li>• No SAR documented to be present</li> </ul> Presqu'ile Bay Marsh and Adjacent Lands South of County Road 64: <ul style="list-style-type: none"> <li>• Grass Pickerel (Special Concern)</li> <li>• Eastern Pondmussel (Special Concern)</li> <li>• Bridle Shiner (Special Concern)</li> <li>• Pugnose Shine (Threatened)</li> <li>• Shortnose Cisco (Endangered)</li> </ul>
Other Natural Heritage Features:	Woodlands (on Site and adjacent lands), not identified as Significant. Unevaluated wetlands (on Site and adjacent lands).

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

The creek relocation should be designed to comply with protection provisions for fish and fish habitat as outlined in the *Fisheries Act*. Pre-consultation with Fisheries and Oceans Canada (DFO) is recommended near the completion of the creek relocation detailed design, and further approval may be required. In-water work is permitted from July 16 to March 31, outside of the fish spawning window. Any in-water work between April 1 and July 15 is prohibited.

Vegetation clearing (including low-lying vegetation and shrubs) should occur outside of the migratory bird breeding season (April 15 and August 15). If any vegetation clearing is required within this time, a qualified biologist should be contacted prior to any work commencing to inspect if any active nests are present.

An environmental consultant knowledgeable in fish habitat regulations and design strategies should be retained as part of the design for the relocation of the creek. The consultant should perform a field investigation to identify the fish species present, including aquatic SAR, and confirm the construction constraints for the new channel.

The desktop study also noted that the site is located adjacent to potential habitats for turtles. The workers should become aware that turtle nesting season is May 15 to July 15, with eggs hatching around late August to September. Cambium's memo suggests some mitigation measures including exclusion silt fencing around the construction area and stockpiled materials. Any turtles or nests found on site should be documented and left undisturbed until the turtle has moved away or the eggs have hatched. If a nest needs to be moved, a qualified biologist should be contacted.

### **4.7 Surface Water**

Construction activities should include provisions for erosion and sediment control for any site runoff around surface water sources. Typical temporary measures include silt fencing, stockpile protection, rip-rap, straw/rock check dams, etc. The construction contractor will be required to monitor these protections throughout the construction process, and repair/replace any that are broken or not effective.

Storage and handling of materials as well as vehicle refueling will be kept away from watercourses. The contractor will be required to prepare a spill response plan and keep a spill kit on site. Any spills causing impact to the natural environment will be reported to the local MECP District Office immediately.

The detailed design of the site plan layout will also consider the management of stormwater flow to mitigate or eliminate any adverse effects from site runoff.

### **4.8 Groundwater**

Hydrogeological conditions are not known for the site. A hydrogeological investigation is recommended to be conducted in the Design Phase to identify groundwater conditions and determine the need of dewatering for excavations. Should dewatering be required, the investigation should indicate whether an Environmental Activity and Sector Registry (EASR) or

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

Permit to Take Water (PTTW) is required from the MECP. The contractor will be required to perform dewatering activities in accordance with the provisions of the EASR/PTTW.

### **4.9 Excess Materials Management and Contaminated Sites**

A geotechnical engineering consultant should be retained during the detailed design to review excess soil management strategies and issues related contaminated site conditions. All activities involving the management of excess soil will 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". All waste materials generated during construction will be disposed of in accordance with ministry's requirements.

### **4.10 Services, Utilities and Facilities**

The design and construction sequencing for wastewater treatment system upgrades should be planned to maintain the operation and treatment quality as much as feasible. In accordance with the conditions within the current ECA, the MECP should be notified in advance of any planned disruptions and bypassing of the system. The ECA also outlines actions to be taken by the system's operating agency before, during, and after a bypass event.

During preliminary design, any potential service and utility conflicts will be identified. These conflicts will be addressed during detailed design by either protection/relocation, or a revision of the proposed site layout. The affected utility companies or agencies will be contacted for as required for review and approval of any anticipated disturbances to their infrastructure.

### **4.11 Archaeological Conditions**

There are no known archaeological conditions associated with this site. The site has been previously disturbed within the proposed works footprint, and the proposed works are not exceeding site boundaries. The project team contacted [archaeologicalsites@ontario.ca](mailto:archaeologicalsites@ontario.ca) and has confirmed that there are no reported archaeological sites on or in the immediate vicinity of the Brighton Wastewater Treatment System. Refer to Appendix C for the correspondence.

With additional consultation, Ministry of Tourism and Culture and Sport (MTCS) provided a letter identifying their interest in the project and the required screenings. As part of this, the MTCS provided "*Criteria for Evaluating Archaeological Potential*"; a checklist to determine if an archaeological assessment is required. This completed checklist can be found in Appendix C.

Completing the checklist in consideration of site conditions, Question #12 ('Recent deep underground disturbance, i.e., post 1960, widespread and deep land alterations') was answered yes. The site is largely occupied by the aerated lagoon, process building and waste stabilization pond, all of which were constructed after the 1970s. As such, the majority of the property has been subjected to recent, extensive and intensive disturbances, as described on the checklist instructions. Therefore, per the scoring of the results, the site has low archaeological potential and no further archaeological assessment is required.

# **Class EA Addendum Report**

## **Municipality of Brighton Wastewater Treatment System Class EA Addendum**

---

### **4.12 Built Heritage Resources and Cultural Heritage Landscapes**

The Ministry of Tourism and Culture and Sport (MTCS) provided “*Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes*”; a checklist to help determine whether an EA project may impact built heritage resources and/or cultural heritage landscapes. This completed checklist can be found in Appendix C.

Completing the checklist in consideration of site conditions, all screening questions for known or potential cultural heritage value were answered no, except for Question 4d (‘contains buildings or structures that are 40 or more years old’). The wastewater treatment system was first installed in 1970 with an aerated lagoon and a waste stabilization pond. A small structure (6.8m x 8.5m and 2.8m tall) was constructed in 1977, housing electrical equipment and chemical dosing/storage. The building is constructed with concrete block walls and a standard flat roof. In consulting with the MTCS, it was determined there is a very low potential for built heritage or cultural heritage landscape for the existing structures on site and therefore no further investigations are required. Refer to Appendix C for the correspondence.

### **4.13 Monitoring and Mitigation**

The contract documents for the proposed upgrades will be developed to notify the contractor of the environmental considerations and the expected provisions/standards for protection and mitigation of impacts. The contractor and Municipality’s inspector will monitor throughout the construction period to ensure that the standards are upheld, and protection measures are working effectively.

Following construction, temporary protection measures would be removed, and any disturbed area be restored. Permanent protection measures will continue to be monitored. A post-construction inspection will also be conducted to ensure the final restoration and cleanup are completed.

## **5.0 Public and Stakeholder Consultation Activities**

---

### **5.1 Notice of Study Commencement**

A notice of study commencement was issued to the public on June 17, 2022. The notice was posted to the Municipality’s website [www.brighton.ca](http://www.brighton.ca). The notice provided a general overview of study purpose and how the public would be affected by it. The notice also provided a means of acquiring additional information or inquiring about the study, as well as an expected period for a Public Information Centre to be held.

### **5.2 Public Information Centre**

A Public Information Centre (PIC) was held on November 3, 2022, to discuss the Class EA Addendum. In advance of the PIC, a direct mailing was sent to individuals and stakeholders on the project mailing list and notices were posted on the Municipality’s website [www.brighton.ca](http://www.brighton.ca).

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

The PIC was an open house format, with a series of project boards showing the steps taken during the Class EA Addendum process and the evaluation process to recommend the proposed 'preferred solution'. Project staff from the Municipality and JLR were available to answer questions about the project. No comment was received during and after the PIC. Refer to Appendix C for a copy of the PIC presentation.

### 5.3 Ministry of Environment, Conservation and Parks (MECP) Consultation

Two Consultation Meetings were held in September 2022 with the Municipality, MECP and JLR in attendance. JLR presented the three Technical Memoranda as well as the selected alternatives for the proposed upgrades. In particular, the sludge treatment process was a focus of the discussion. MECP has no concerns with the proposed conversion of the existing facultative lagoon into a WAS stabilization and storage pond. Their comment is that the pond shall not discharge to the receiver and that odours will need to be monitored. If a berm is to be installed in the pond, it must be an earthen berm constructed to be a complete separation of pond contents from the other side.

MECP has indicated a preference for the Municipality to proceed with the design of the full scope of proposed upgrades. The Municipality has committed to move forward with the upgrades as soon as possible.

Refer to Appendix C for meeting minutes.

### 5.4 Stakeholder comments

A project mailing list was kept up to date throughout the project identifying stakeholders that required full documentation, partial documentation, and other parties that either declined participation unless the project scope changes to affect their respective agency or provided no response. Refer to Appendix C for stakeholder comments received, and responses provided and an updated stakeholder distribution list.

**Table 12: Summary of Review Agency Comments**

<b>REVIEW AGENCY COMMENTS / RESPONSES</b>
<b>Review Agency</b> <b>Ministry of Environment, Conservation and Parks (MECP)</b>
Comments: <ol style="list-style-type: none"> <li>The MECP Letter provided general guidance on the Class EA Process, Schedule 'B' Process, MECP contacts, MECP technical review details and consultation with First Nations and Métis Communities, and various considerations.</li> </ol>
Responses: <ol style="list-style-type: none"> <li>JLR will address these comments in the Report and subsequent public consultation process.</li> </ol>

**Class EA Addendum Report  
Municipality of Brighton Wastewater Treatment System Class EA  
Addendum**

<b>REVIEW AGENCY COMMENTS / RESPONSES</b>
<b>Review Agency</b> <b>Ministry of Heritage, Sport, Tourism and Culture Industries</b>
Comments: 1. The MHSTCI provided a letter to provide guidance on the archaeological resources, built heritage resources, and cultural heritage landscapes aspects to be addressed during this Class EA.
Responses: 1. JLR will address these comments in the Report.
<b>Hydro One Networks Inc.</b>
Comments: 1. Hydro One has existing distribution assets within the study area, and requests to be consulted at all stages of the project as more information becomes available.
Responses: 1. JLR will continue consultation with Hydro One in further stages of the project.
<b>Health Canada</b>
Comments: 1. Health Canada is unable to carry out a review of the project without a request by other reviewing bodies (e.g., Impact Assessment Agency of Canada, review panels, Indigenous groups and/or other jurisdictions)
Responses: 1. JLR will continue consultation with the above-noted groups.

Table 13 shows a summary of project meetings between JLR, the Municipality and Agencies. Meeting minutes are available in Appendix C.

**Table 13: Summary of Project Meetings**

<b>MEETING NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>
1.	May 26, 2022	Project Initiation Meeting (JLR and Municipality). Review of project scope, deliverables and schedule.
2.	June 28, 2022	Progress Meeting (JLR and Municipality). Discussing draft population growth projections and confirmation of Class EA schedule.
3.	August 18, 2022	Sludge Management Workshop (JLR and Municipality). JLR presented an overview and led discussions with Municipality for the initial screening of potential sludge treatment and solids management options.
4.	September 14, 2022	Progress Meeting (JLR and Municipality). JLR presented a brief summary of Tech Memos #2 and #3. Meeting also reviewed the presentation slides for the upcoming consultation meeting with the MECP.

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

MEETING NO.	DATE	DESCRIPTION
5.	September 15, 2022	Consultation meeting with MECP (JLR, Municipality and MECP). JLR provided an overview of the EA Addendum Project and the draft preferred solution.
6.	September 23, 2022	Follow-up Consultation Meeting with MECP (JLR, Municipality and MECP). JLR reviewed the sludge treatment and solids management options currently being proposed in the EA Addendum and discussed the MECP's initial comments from the previous meeting.
7.	October 3, 2022	Progress Meeting (JLR and Municipality) discussing the minutes from the MECP consultation meetings and discussing revisions to the sludge treatment and solids management options.

### 5.5 First Nation Consultation

MECP has instructed the Project team to consult with the following First Nation communities who have been identified as potentially affected by the proposed project:

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

Table 14 shows a summary of comments received from First Nations communities at the time of this Report. Comments are available in Appendix C.

**Table 14: Summary of First Nations Comments**

<b>FIRST NATIONS CONSULTATION COMMENTS / RESPONSES</b>
<b>Alderville First Nations</b>
Comments: 1. Alderville First Nations is interested to review the proposed lagoon upgrades.
Responses: 1. JLR will provide the Addendum Report for review.
<b>Curve Lake First Nations</b>
Comments: 1. Curve Lake First Nations is interested to review the proposed lagoon upgrades.
Responses: 1. JLR will provide the Addendum Report for review.

# Class EA Addendum Report

## Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

### 6.0 References

---

- Metcalf & Eddy Inc., Wastewater Engineering Treatment and Reuse, Fourth Edition, 2003.
- Ministry of the Environment, Conservation and Parks, MOE Design Guidelines for Sewage Works, 2008.
- Water Environment Federation, Design of Water Resource Recovery Facilities, Manual of Practice No. 8, Sixth Edition, 2017.
- Ontario Ministry of Municipal Affairs and Housing, Provincial Policy Statement, 2020.
- Trent Conservation Coalition Source Protection Region, Trent Source Protection Plan, approved 2014, updated 2021.
- CBCL Limited. (2020). 'Climate Projections for the Nation Capital Region'. <<http://ottwatch.ca/meetings/file/646969>> (Jul. 06, 2021)
- GSS Engineering Consultants Ltd., Brighton WWTP Aeration System Upgrades with Option to Expand Capacity, 2021.
- R.V. Anderson Associates Ltd., Brighton WPCP Proposed Upgrade Technical Review, 2022.
- Land Information Ontario, Source Protection Information Atlas, last updated Mar 24, 2022.

# Class EA Addendum Report Municipality of Brighton Wastewater Treatment System Class EA Addendum

---

## 7.0 Limitations

---

This report has been prepared by J.L. Richards & Associates Limited for the Municipality of Brighton's exclusive use. Its discussions and conclusions are summary in nature and cannot properly be used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report is based on information, drawings, data, or reports provided by the named client, its agents, and certain other suppliers or third parties, as applicable, and relies upon the accuracy and completeness of such information. Any inaccuracy or omissions in information provided, or changes to applications, designs, or materials may have a significant impact on the accuracy, reliability, findings, or conclusions of this report.

This report was prepared for the sole benefit and use of the named client and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited, and anyone intending to rely upon this report is advised to contact J.L. Richards & Associates Limited in order to obtain permission and to ensure that the report is suitable for their purpose.


J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:



Matthew Marcuccio, P.Eng.  
Civil Engineer

Reviewed by:



Susan Jingmiao Shi, P.Eng., M.Eng.  
Associate, Senior Environmental Engineer



Matthew Morkem, P.Eng.  
Associate, Senior Civil Engineer

**Class EA Addendum Report  
Municipality of Brighton Wastewater Treatment System Class EA  
Addendum**

---

---

**Appendix A**

Previous Studies

**Class EA Addendum Report  
Municipality of Brighton Wastewater Treatment System Class EA  
Addendum**

---

---

**Appendix B**

EA Addendum Studies and  
Reports

**Class EA Addendum Report  
Municipality of Brighton Wastewater Treatment System Class EA  
Addendum**

---

---

**Appendix C**

Public and Stakeholder  
Consultation



Platinum  
member

[www.jlrichards.ca](http://www.jlrichards.ca)

#### Ottawa

343 Preston Street  
Tower II, Suite 1000  
Ottawa ON Canada  
K1S 1N4  
Tel: 613 728-3571  
[ottawa@jlrichards.ca](mailto:ottawa@jlrichards.ca)

#### Kingston

203-863 Princess Street  
Kingston ON Canada  
K7L 5N4  
Tel: 613 544-1424  
[kingston@jlrichards.ca](mailto:kingston@jlrichards.ca)

#### Sudbury

314 Countryside Drive  
Sudbury ON Canada  
P3E 6G2  
Tel: 705 522-8174  
[sudbury@jlrichards.ca](mailto:sudbury@jlrichards.ca)

#### Timmins

834 Mountjoy Street S  
Timmins ON Canada  
P4N 7C5  
Tel: 705 360-1899  
[timmins@jlrichards.ca](mailto:timmins@jlrichards.ca)

#### North Bay

501-555 Oak Street E  
North Bay ON Canada  
P1B 8E3  
Tel: 705 495-7597

[northbay@jlrichards.ca](mailto:northbay@jlrichards.ca)

#### Hawkesbury

326 Bertha Street  
Hawkesbury ON Canada  
K6A 2A8  
Tel: 613 632-0287

[hawkesbury@jlrichards.ca](mailto:hawkesbury@jlrichards.ca)

#### Guelph

107-450 Speedvale Ave. West  
Guelph ON Canada  
N1H 7Y6  
Tel: 519 763-0713

[guelph@jlrichards.ca](mailto:guelph@jlrichards.ca)

