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ADDENDUM TO THE ESR

The Regional Municipality of Halton

Addendum to the Environmental Study Report (ESR) for the Burloak Water Treatment Plant Phase 2 Expansion Municipal Class Environmental Assessment Study

SEPTEMBER 2025

EXECUTIVE SUMMARY

Introduction and Background

Through the Region's 2002 Water and Wastewater Master Servicing Plan (MSP), it was identified that a new water treatment plant, constructed in a phased manner to an ultimate capacity of 220 ML/d (million litres per day), was required to supplement the existing supply provided by the Oakville and Burlington Water Treatment Plants (WTPs) to support population growth and meet the servicing needs in the distribution system. Through this process, and the subsequent 2004 Schedule C MCEA Study, the preferred location and process train for the Burloak WTP was identified. The first phase of the Burloak WTP was commissioned in 2010 with a rated capacity of 55 ML/d.

In 2008 and 2011, the Region updated the Water and Wastewater MSP to reflect the updated population and employment projections, and subsequent servicing needs to 2031. This update identified that the Phase 2 expansion of the Burloak WTP to a capacity of 165 ML/d would be required by 2019 and a Schedule C MCEA Study was completed and filed in 2012 accordingly. The Environmental Study Report (ESR) for the Burloak WTP Phase 2 Expansion completed in 2012 documented the MCEA planning and consultation process including the identification of the preferred alternative (i.e., preferred WTP expansion design concept) recommended as part of the MCEA Study.

The 2012 ESR outlined the preferred design concept for the Burloak WTP Phase 2 expansion which consisted of membrane filtration for particulate removal and pathogen removal, ozone for taste and odour control and pathogen control (during taste and odour season), and UV disinfection for pathogen control. The design concept also included chlorine for both zebra mussel control in the WTP inlet and disinfection of the WTP outlet into the distribution system. The WTP process waste residuals treatment consisted of equalization and plate settlers clarification/thickening processes with discharge of the treated liquid residuals stream to the natural environment via the East Sheldon Creek. The ESR was completed on May 2, 2012 and placed on public record for a thirty (30) day public review period.

Rationale for this Addendum

The 2012 ESR envisioned that the Phase 2 WTP expansion would be implemented by 2019. However, to date, no new works have been constructed to implement the recommendations presented in the 2012 MCEA Study. The Region's water demand projections for South Halton were updated in 2024 and confirmed that the Burloak WTP Phase 2 expansion to a capacity of 165 ML/d will be required by 2031. As outlined in the MCEA guidance document (Municipal Engineers Association, 2000, as amended in 2007, 2011, 2015, 2023 and 2024*), if the period between the issuance of the Notice of Completion and the implementation phase exceeds 10 years, the proponent shall review the planning and design process in the current environmental setting to ensure the project and mitigation measures are still valid*. As such, an addendum to the 2012 MCEA Study must be completed before proceeding with the design of the Phase 2 expansion works at the Burloak WTP. This document is an Addendum to the ESR for the Burloak WTP Phase 2 Expansion (May, 2012).

Study Objectives and Municipal Class EA Process

This addendum will re-evaluate the main treatment and residuals treatment processes presented in the 2012 ESR, in the current environmental setting. This addendum to the 2012 MCEA Study and ESR (the 'addendum') provides an opportunity to re-evaluate the previous preferred alternatives and review additional viable alternatives with the consideration for the evolution of treatment technologies, climate change impacts, emerging contaminants and concerns, and updated potable water guidance and guidelines.

The addendum has been carried out in accordance with the guidelines of the MCEA (Municipal Engineers Association, October 2000, as amended in 2007, 2011, 2015, 2023 and 2024) and the MCEA planning process is documented in this Addendum to the 2012 ESR. Consultation with the public, review agencies, and First Nations and Indigenous Communities is a key element of the MCEA process and input was sought at key milestones through this addendum. Additional details are provided in Section 9.

Study Area Overview

The Study Area remains the same as the Study Area considered in the 2012 ESR and as shown in Figure 1. The Study Area is located south of Rebecca Street between Great Lakes Boulevard to the East, Nautical Woods to the West, and includes the Nautical Boulevard subdivision to the South. The Study Area includes the existing Burloak WTP located at 3380 Rebecca Street in the Town of Oakville.

Figure 1 Study Area Map

Key Considerations

In consideration of the 2012 MCEA Study objectives and subsequent review through this addendum, the following main WTP expansion key considerations were identified to inform the screening and evaluation of alternatives:

- The WTP expansion will provide a safe and secure water supply that meets or exceeds relevant provincial and federal drinking water guidelines and regulations
- The WTP expansion concept will align with future water demand and population growth and will not constrain the ability for expansion to accommodate the anticipated ultimate WTP production capacity. It will consider opportunities for advanced water treatment processes and innovation to maximize the treatment capacity that can be provided within the WTP site footprint
- The concept will provide operational resiliency and risk management including flexibility to respond to the impacts of climate change, such as increased source water quality changes and extreme weather events, as well as comply with anticipated future drinking water guidelines and regulations
- The concept will be compatible with the Region's existing operation & maintenance practices, to the extent practical. This should, in turn, limit the need for modifications to the existing WTP and processes. If modifications or upgrades to the existing WTP are required, the benefit of these modifications and/or upgrades will offset the costs associated with their implementation
- Construction and implementation of the expansion concept will be feasible within the Region's required timeline and will minimize the impact to and potential interruption of the operation of the existing WTP
- The concept will align with the Region's sustainability and environmental stewardship goals including prioritizing energy-efficient and lower chemical usage treatment processes and equipment as well as opportunities to reduce greenhouse gas (GHG) emissions
- The residuals management approach will be sustainable and consider the existing limitations of the sanitary and storm sewer system serving the WTP and seek to eliminate the need to consider discharging treated process residuals to the environment via the Sheldon Creek. The overall expansion concept will look for opportunities to minimize the volume of process residuals that must be managed
- The concept will be consistent with the Region's availability of staff resources and will optimize capital and operational expenditures by considering the full life-cycle cost of the WTP expansion in line with the Region's goal of building and operating affordable and financially sustainable water infrastructure

Alternatives Evaluation Process

A preliminary review and screening of the long-list of alternatives was completed. The purpose of the preliminary screening was to identify alternatives that are feasible for this project and will be short-listed for the detailed evaluation. The process treatment alternatives short-listed and identified as preferred through the 2012 MCEA Study were considered as a starting point. Viable alternatives that had not previously been identified were also considered. The screening criteria were used to confirm the short-list of alternatives that would proceed to the detailed evaluation.

The evaluation of short-listed alternatives and selected criteria were developed following a triple bottom line plus risk framework. The evaluation criteria, sub-categories and their weighting are described further in Section 4. The alternative receiving the highest score through the evaluation process was deemed the preferred alternative for a given treatment process category.

Preferred Burloak WTP Phase 2 Expansion Design Concept

Based on the results of the evaluation of the main process treatment categories, the preferred overall design concept for the Phase 2 expansion of the Burloak WTP will incorporate the following:

- **Particulate Removal.** As discussed in Section 5, the preferred alternative (Alternative A2) consists of incorporating additional coagulation/flocculation and membrane filtration capacity in the space earmarked for the Phase 2 expansion of these processes through the original Burloak WTP design. ***This is consistent with the preferred alternative identified in the 2012 MCEA Study.***
- **Primary Disinfection + Taste & Odour Control.** As discussed in Section 6, the preferred alternative (Alternative B2) consists of incorporating additional UV, chlorination and ozonation capacity in the space earmarked for the Phase 2 expansion of these processes through the original Burloak WTP design. The alternative provides for provision of biological activated carbon (BAC) contactors in the future, if needed. ***This is consistent with the preferred alternative identified in the 2012 MCEA Study.***
- **Process Residuals Management.** As discussed in Section 7, the preferred alternative (Alternative C2) consists of incorporating a second stage membrane filtration system into the main WTP treatment process train with the goal of reducing the overall process residuals volume that needs to be managed. The resulting process residuals stream is equalized and then discharged to the sanitary sewer. ***This represents a modification to the preferred alternative identified in the 2012 MCEA Study. This alternative does not require discharge of treated process residuals to the East Sheldon Creek and eliminates any related environmental impacts.***

The process schematic for the overall design concept for the Phase 2 WTP expansion incorporating the above preferred main process treatment alternatives is presented in Figure 2. The conceptual site plan for the overall WTP expansion design concept is illustrated in Figure 3.

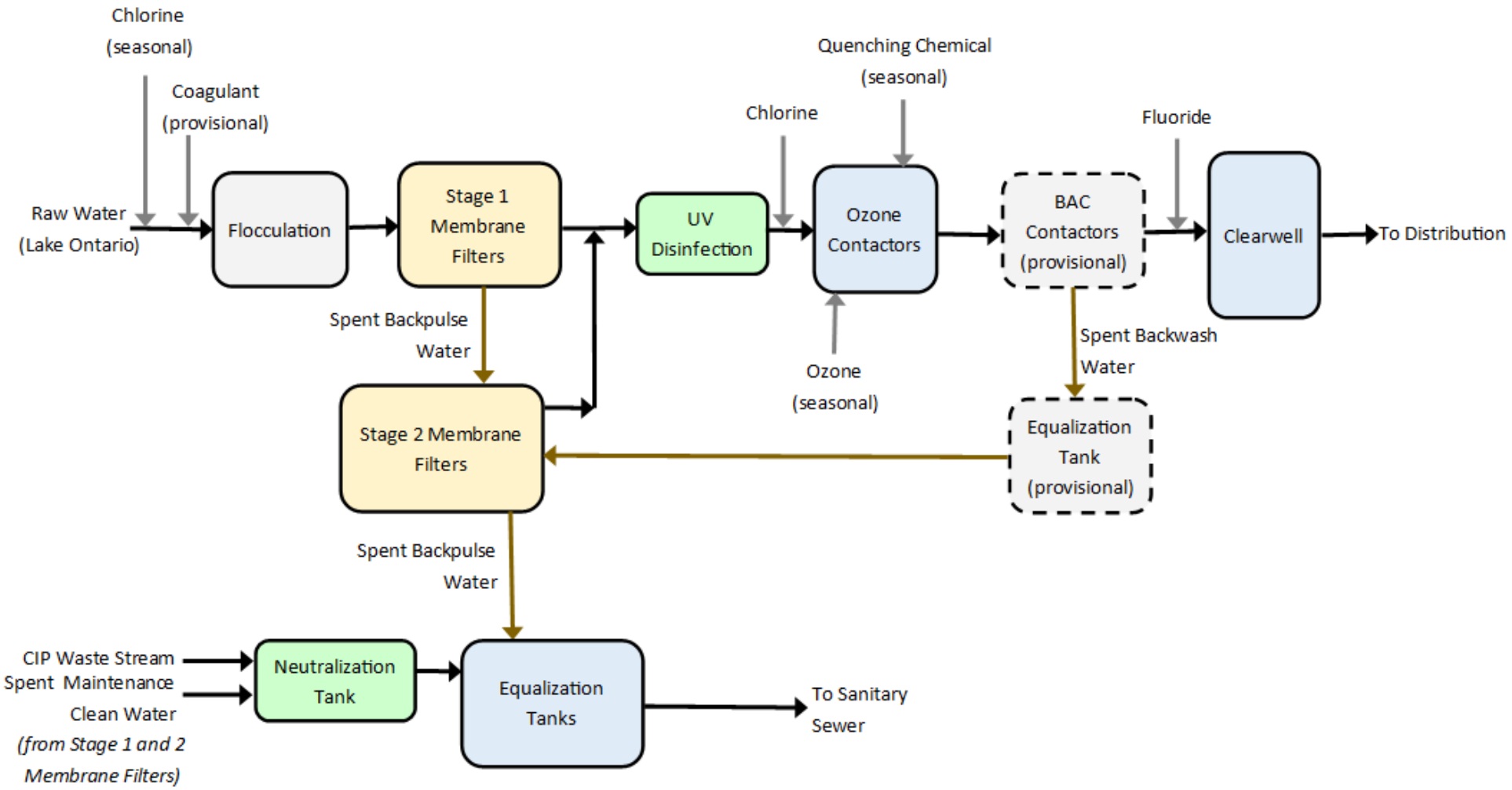

Figure 2 Process Schematic for Design Concept for the Phase 2 WTP Expansion

Figure 3 **Conceptual Site Layout for Design Concept for the Phase 2 WTP Expansion**

Potential Environmental Impacts and Proposed Mitigation Measures

Mitigation of potential impacts to the environment resulting from the implementation of the preferred WTP expansion design concept was considered throughout the addendum process. Potential impacts and proposed mitigation measures are summarized below and further detailed in Section 10.

Potential Impacts to Wildlife Habitat

The Nautical Woods to the West of the WTP have the potential to support wildlife including breeding birds regulated under the *Migratory Birds Convention Act* (MBCA) and/or protected species at risk, and candidate significant wildlife habitat for bat maternal roosting including habitat for species at risk (SAR) bats. ***Consistent with the mitigation measures recommended through the 2012 MCEA study, a buffer zone will be created between the construction areas and the Nautical Woods to minimize disturbance to this area.***

Additionally, terrestrial communities and open grown trees have the potential to support wildlife SAR and MBCA-protected species in the Study Area. The WTP property largely contains manicured lawn, planted ornamental trees, and fragmented areas of cultural meadow. ***Consistent with the mitigation measures recommended through the 2012 MCEA Study, the following will be implemented during construction:***

- Avoid disturbance, clearing or disruption of vegetation as feasible and, if required, complete between March 15 to August 31 to avoid the breeding season for the majority of the species protected under the MBCA and to comply with requirements of the Act
- Complete removal or pruning of any open grown trees with the potential to provide roosting habitat for bats in the form of suitable cavities outside the roosting period of March 15 to November 16
- Re-plant and re-vegetate construction areas after the expansion works are complete
- Where construction is planned to occur during the active seasons for wildlife, the construction area will be delineated (e.g., silt fencing for erosion and sediment control) and can also serve to reduce the opportunity for wildlife to enter the work areas

Where infrastructure projects may result in the removal or disturbance of existing trees, the Region is committed to minimizing impacts and implementing appropriate mitigation measures during the detailed design and implementation phases. In accordance with the Tree-Canopy Replacement Policy, the following measures will be implemented should any tree removal or disturbance occur:

- A Tree Protection and Preservation Plan will be prepared by a certified arborist or qualified professional during the detailed design and implementation phases. The plan will:
    - Include a comprehensive tree inventory documenting the location, species, size, and condition of trees within the study area
    - Provide an impact assessment identifying which trees are to be removed, retained with injury, or retained with no injury
    - Outline mitigation measures to minimize impacts to existing trees during construction
    - Include an analysis of compensation requirements for trees affected by the project, based on the policy
    - Be tailored to site-specific conditions and identify appropriate strategies for tree protection, preservation, and replacement
- Tree replacement will be based on the canopy cover lost, rather than the number of trees removed, and will follow the Canopy Replacement Schedule outlined in the policy
- Replacement species will be native and ecologically appropriate, excluding invasive species. Planting may occur on-site or off-site, depending on feasibility

The Region is committed to implementing the mitigation measures identified in the Tree Protection and Preservation Plan and will engage with relevant and interested parties, including First Nations and Indigenous Communities, as this projects advances through design and construction.

Potential Impacts on Aquatic Habitat

The proposed works are not predicted to cause any adverse effects to aquatic habitat or communities. The preferred process residuals management alternative consists of incorporating a second stage membrane filtration system into the main WTP treatment process train with the goal of reducing the overall process residuals volume that needs to be managed. The resulting process residuals stream is equalized and then discharged to the sanitary sewer. ***This represents a modification to the preferred alternative identified in the 2012 MCEA Study. As outlined in the updated key considerations, this alternative does not require discharge of treated process residuals to the East Sheldon Creek and eliminates any related environmental impacts.***

Erosion and Sediment Control

Consistent with the mitigation measures recommended through the 2012 MCEA Study, an erosion and sediment controls to protect surface water features will be implemented during construction. At minimum, this will include:

- Place silt fence along watercourses, ditches and forest/woodland edges in areas of soil disturbance
- Limit extent and duration that soils are exposed to the elements to the minimum area and time necessary to perform the work
- Manage stormwater during construction to prevent contact with exposed soils
- Monitor and maintain erosion and sediment control measures throughout the work

Construction Related Traffic

The potential impacts and mitigation measures associated with construction related traffic are consistent with those presented in the 2012 MCEA Study. Public road closures and detours are not anticipated to be required during the construction phase. The general construction contractor will be required to develop a traffic management plan for site access of equipment and machinery required for the proposed construction works as well as maintain access to the WTP for Operations staff and to all neighbouring properties. The general construction contractor will also be required to minimize the disruption to nearby residents and properties during the construction phase. Most of the construction activities associated with the WTP expansion will be contained within the site property limits. Increased truck traffic will be experienced primarily during the removal of excavated material from site. The proposed mitigation measures include the following:

- Work hours will be restricted, and all work will be contained to the WTP site.
- Truck access to and from the site will be limited to the existing entrance on Rebecca Street, avoiding the residential areas
- If any lane closure is required temporarily, these will be completed in accordance with standard best practices to protect the safety to the workers and to the general public. Local residents will be advised of any temporary lane closures
- All standard best practices for vehicle and pedestrian safety will be employed through the construction areas

Dust and Mud

The potential impacts and mitigation measures related to dust and mud are consistent with those presented in the 2012 MCEA Study. Construction traffic could create additional dust and mud. The proposed mitigation measures include the following:

- Dust control measures will be enforced (e.g., use of water and non-chloride dust suppressants)

- Mud mats will be installed and maintained at the entrance to the site to minimize the amount of dirt tracked off site. The contractor will be responsible for cleaning any debris tracked from site on a daily basis

Following implementation of the preferred design concept, the day-to-day operation of the WTP will remain the same as current. Additionally, there are no air emissions or odours associated with the operation of the WTP expansion design concept.

Noise

The potential impacts and mitigation measures related to noise are consistent with those presented in the 2012 MCEA Study. The proposed noise mitigation measures include the following:

- Work hours will be restricted, and all work will be contained to the WTP site. Localized noise will be limited to normal working hours and will comply with local noise by-laws
- Construction vehicles and equipment will be required to be equipped with effective muffling devices and operated in a fashion that minimizes related noise
- Contractor will be requested to undertake measures to reduce noise disturbances as much as feasible

Following implementation of the preferred design concept, the day-to-day operation of the WTP will remain the same as current.

Vibration

The potential impacts and mitigation measures related to vibration are consistent with those presented in the 2012 MCEA Study. Excavation of soil and removal of rock will be required to implement the WTP expansion works. Some vibration may be felt during the rock excavation and removal. The proposed mitigation measures include the following:

- Work hours will be restricted and any related vibrations will be limited to normal working hours

Pre-construction surveys of nearby properties and buildings will be completed to document existing conditions in the event of any concern with impacts resulting from the vibrations during construction.

Visual/Architectural

The potential impacts and mitigation measures related to aesthetics (i.e., visual/architectural) are consistent with those presented in the 2012 MCEA Study. The proposed buildings and structures associated with the WTP expansion will be designed to complement the existing architectural style.

Landscaping

The potential impacts and mitigation measures related to landscaping are consistent with those presented in the 2012 MCEA Study. The WTP site will have additional landscaping implemented following the construction of the WTP expansion. A detailed landscape concept will be developed during the detailed design phase. It is anticipated that the landscape plan will include adequate vegetated buffer areas with berms, where appropriate, and enhance the vegetation tree screen, where feasible.

Cultural Environment

Through the desktop archaeological review performed under this addendum to the 2012 MCEA Study and ESR, it was confirmed that the Stage 1 and 2 Archaeological Assessment completed in 2000 (by Archeoworks, Inc.) completely covers the general Study Area for the Burloak WTP Phase 2 Expansion Project as well as the anticipated construction disturbance area within the current project design. As outlined in this assessment, the current Burloak WTP Phase 2 Expansion Project design is free of archaeological concern. ***This is consistent with the findings of the 2012 MCEA Study.*** However, through consultation with the Ministry of Citizenship and Multiculturalism (MCM), it was advised that the

above noted assessment does not meet the current requirements of the *2011 Standards and Guidelines for Consultant Archaeologists*. As such, a new Stage 1 Archaeological Assessment and report will be completed following these updated requirements in parallel to the detailed design phase to reconfirm that the site is free of archaeological concern. Ongoing and meaningful consultation with First Nations and Indigenous Communities will be maintained throughout the duration of this process.

Additionally, the heritage screening checklist (CHS), Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, developed by the MCM, was completed as part of the addendum. ***This represents a new requirement in the MCEA process.*** No criteria in the CHS were met indicating no potential for cultural heritage value or interest. As such, no further heritage work or mitigation are required.

Climate Change and Adaptation and Mitigation

This sub-section represents a new requirement in the MCEA process. The following potential climate change impacts are relevant to the WTP expansion and should be considered to minimize related risks:

- Variable source water quality. Specifically, the prevalence and frequency of algal blooms is anticipated to continue to increase along with the risk of taste & odour (T&O) events
- More frequent extreme rain events and surface runoff, which may impact raw water quality. These events may also contribute to flooding on the WTP site
- Broader air temperature range experienced
- Higher wind and snow/ice loads

Based on the above, the main climate change adaptation measures that are proposed to be considered through the detailed design (i.e., implementation phase) are as follows:

- Incorporate a robust, operationally flexible and multi-barrier treatment philosophy in the treatment processes incorporated as part of the WTP expansion to provide resiliency to potential climate change impacts on water quality. The preferred WTP expansion design concept will provide operational resiliency and risk management including flexibility to respond to the impacts of climate change, such as increased source water quality changes and extreme weather events, as well as comply with anticipated future drinking water guidelines and regulations
- Account for broader temperature extremes as it relates to the heating, ventilation and cooling systems in the design of the new and expanded WTP buildings
- Consider wind and snow/ice loads and related climate impacts in the design of the new and expanded WTP buildings
- Account for the potential for flooding in locating critical electrical equipment and other critical systems
- In consideration of existing limitation of the storm sewer serving the WTP and the additional load that may be contributed in the future due to more frequent and extreme weather events, the residuals management approach eliminates the need to discharge treated process residuals to the environment or storm sewer system

The main opportunities for climate change mitigation measures related to the WTP expansion are as follows:

- Minimize footprint of new buildings. The preferred design concept for the WTP expansion was identified as providing an efficient footprint
- Minimize required chemical to accommodate the water treatment process. The preferred design concept of the WTP expansion was identified as representing the lowest chemical usage of the reviewed alternatives
- Minimize power usage required to accommodate the water treatment process. The preferred design concept represents low power usage

- Consider overall sustainability of the WTP expansion and look to minimize the GHG emissions associated with the water treatment process. The preferred design concept of the WTP expansion was identified as representing the lowest GHG emissions of the reviewed alternatives
- The preferred design concept incorporates a process residuals management approach that is sustainable and minimizes the volume of process residuals that must be managed

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1 INTRODUCTION AND BACKGROUND

1.1 Background

Through the Region's 2002 Water and Wastewater Master Servicing Plan (MSP), it was identified that a new water treatment plant, constructed in a phased manner to an ultimate capacity of 220 ML/d (million litres per day), was required to supplement the existing supply provided by the Oakville and Burlington Water Treatment Plants (WTPs) to support population growth and meet the servicing needs in the distribution system. Through this process, and the subsequent 2004 Schedule C MCEA Study, the preferred location and process train for the Burloak WTP was identified. The first phase of the Burloak WTP was commissioned in 2010 with a rated capacity of 55 ML/d.

In 2008 and 2011, the Region updated the Water and Wastewater MSP to reflect the updated population and employment projections, and subsequent servicing needs to 2031. This update identified that the Phase 2 expansion of the Burloak WTP to a capacity of 165 ML/d would be required by 2019 and a Schedule C MCEA Study was completed and filed in 2012 accordingly. The Environmental Study Report (ESR) for the Burloak WTP Phase 2 Expansion completed in 2012 documented the MCEA planning and consultation process including the identification of the preferred alternative (i.e., preferred WTP expansion design concept) recommended as part of the MCEA Study.

The 2012 ESR outlined the preferred design concept for the Burloak WTP Phase 2 expansion which consisted of membrane filtration for particulate removal and pathogen removal, ozone for taste and odour control and pathogen control (during taste and odour season), and UV disinfection for pathogen control. The design concept also included chlorine for both zebra mussel control in the WTP inlet and disinfection of the WTP outlet into the distribution system. The WTP process waste residuals treatment consisted of equalization and plate settlers clarification/thickening processes with discharge of the treated liquid residuals stream to the natural environment via the East Sheldon Creek. The ESR was completed on May 2, 2012 and placed on public record for a thirty (30) day public review period.

1.2 Rationale for this Addendum

The 2012 ESR envisioned that the Phase 2 WTP expansion would be implemented by 2019. However, to date, no new works have been constructed to implement the recommendations presented in the 2012 MCEA Study. The Region's water demand projections for South Halton were updated in 2024 and confirmed that the Burloak WTP Phase 2 expansion to a capacity of 165 ML/d will be required by 2031. As outlined in the MCEA guidance document (Municipal Engineers Association, 2000, as amended in 2007, 2011, 2015, 2023 and 2024*), if the period between the issuance of the Notice of Completion and the implementation phase exceeds 10 years, the proponent shall review the planning and design process in the current environmental setting to ensure the project and mitigation measures are still valid*. As such, an addendum to the 2012 MCEA Study must be completed before proceeding with the design of the Phase 2 expansion works at the Burloak WTP. This document is an Addendum to the ESR for the Burloak WTP Phase 2 Expansion (May, 2012).

1.3 Municipal Class EA Process

The MCEA process requires renewal for studies when a project has not commenced within ten years of its completion. This addendum will re-evaluate the main treatment and residuals treatment processes presented in the 2012 ESR, in the current environmental setting. This addendum to the 2012 MCEA Study and ESR (the 'addendum') provides an opportunity to re-evaluate the previous preferred alternatives and review additional viable alternatives with the

consideration for the evolution of treatment technologies, climate change impacts, emerging contaminants and concerns, and updated potable water guidance and guidelines.

The Addendum to the 2012 MCEA Study has been carried out in accordance with the guidelines of the MCEA (Municipal Engineers Association, October 2000, as amended in 2007, 2011, 2015, 2023 and 2024) and the MCEA planning process is documented in this Addendum to the 2012 ESR. Consultation with the public, review agencies, and First Nations and Indigenous Communities is a key element of the MCEA process and input was sought at key milestones throughout this addendum.

Provided the MCEA planning process is followed, a proponent does not have to apply for additional approvals under the EA Act since formal approval is gained through the MCEA process. The MCEA process ensures that an adequate environmental planning process is followed and places emphasis on project assessment and public consultation rather than on review and approvals. Figure 1-1 shows the MCEA process.

The MCEA process reflects the following five key principles of successful planning under the EA Act:

1. Consultation with affected parties early on, such that the planning process is a co-operative venture
2. Consideration of a reasonable range of alternatives to accomplish the solution
3. Identification and consideration of the effects of each alternative on all aspects of the environment, i.e., the impact on natural, social, cultural, technical and economic/financial environments
4. Systematic evaluation of alternatives in terms of their advantages and disadvantages to determine their net environmental effects
5. Provision of clear and complete documentation of the planning process followed, to allow 'traceability' of decision-making with respect to the project

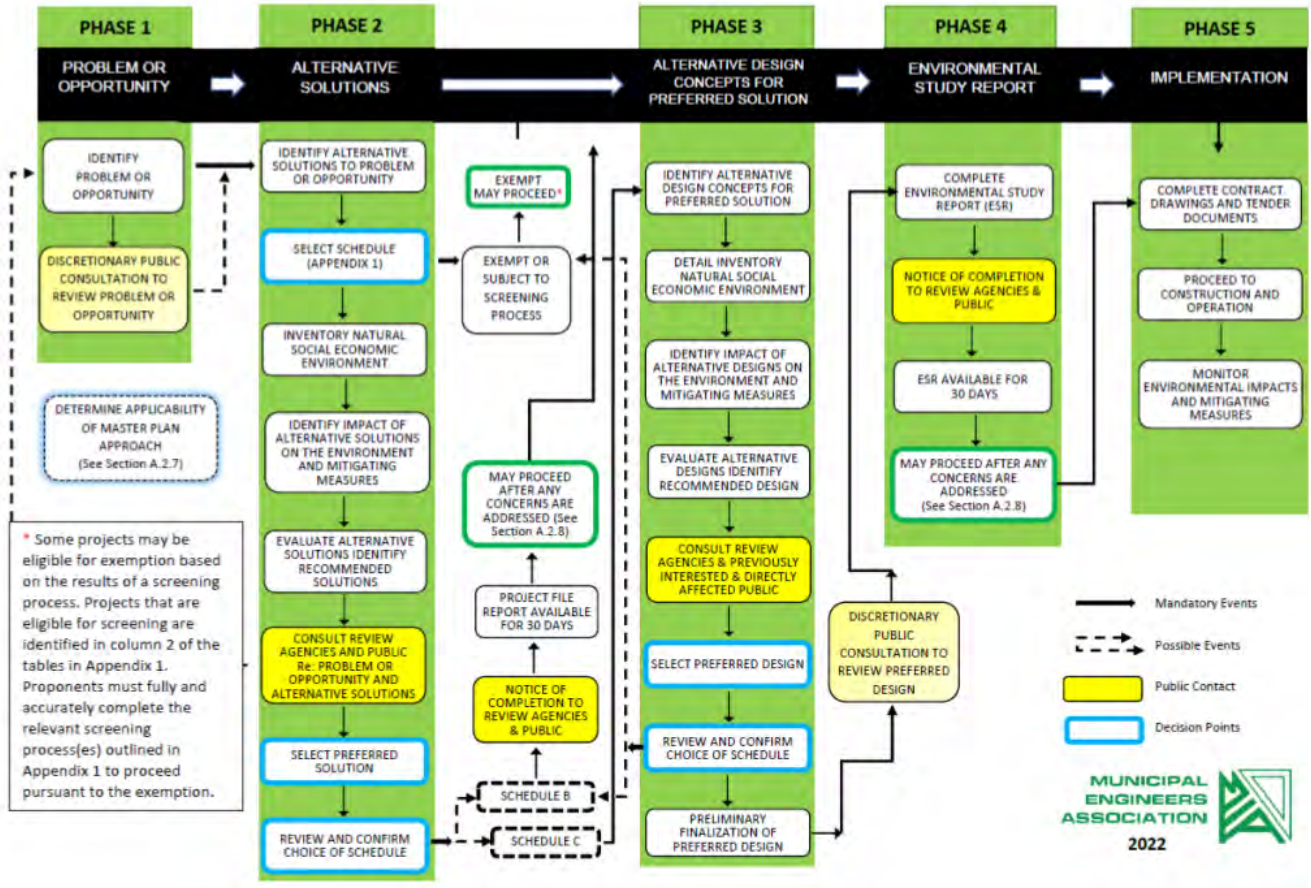

Figure 1-1 MCEA Process (Municipal Engineers Association)

The complexity of the project dictates the phases of the MCEA process that will be required. Additionally, the most recent amendment to the EA Act and MCEA process now also includes a screening process utilizing a project list (as outlined in Appendix 1 of the MCEA guideline document, February 2024) to identify if a project ('undertaking') is eligible for exemption from the EA Act or will proceed with the applicable Schedule B or C process. As outlined in the MCEA process and Table B of Appendix 1 (item 15c) of the MCEA guideline document, undertakings that "expand existing water treatment plant beyond existing rated capacity" are categorized as a Schedule C activity and are not eligible for exemption. Schedule C activities are subject to the full planning process of a MCEA (i.e., requires completion of Phases 1 through 4 of the process) prior to proceeding to Phase 5 (Implementation).

A time lapse may occur between the filing of the Environmental Study Report (ESR) and the implementation of the project. As outlined in the MCEA guideline document, if the time of the issuance of the Notice of Completion in the public record to the proposed commencement of construction for the project exceeds 10 years, the proponent is required to review the planning and design process in the current environmental setting to ensure that the project and the mitigation measures are still valid given the current planning context. The review shall be recorded in an addendum to the report which shall be placed on the public record. As such, an addendum to the 2012 MCEA Study must be completed before proceeding with the design of the Phase 2 expansion works at the Burloak WTP.

1.4 Addendum Documentation

This Addendum to the 2012 ESR documents the planning and design process followed to determine the preferred Burloak WTP expansion design concept and the mitigating measures proposed to avoid or minimize environmental impacts in accordance with the MCEA process. The Addendum to the 2012 ESR is organized chronologically to demonstrate the Phases of the MCEA process. The Addendum to the 2012 ESR generally describes the following:

- The problem or opportunity and other background information
- A description/inventory of the environment
- The alternative design concepts considered, and the evaluation process followed to select the preferred concept
- The mitigating measures and follow-up commitments, which will be undertaken to minimize environmental impacts including any monitoring necessary during implementation
- The public and agency consultation process and an explanation of how concerns raised by interested and affected parties have been addressed in developing the addendum

The Addendum to the 2012 ESR will be placed on the public record and will be available for review by the general public for at least thirty (30) calendar days. Agencies and the public will be notified through the issuance of a "Notice of Addendum". Should a person or party have a concern or objection, they are expected to consult with the proponent (i.e., the Region) to try to resolve the concern. Provided that no significant issues arise during the review period that cannot be resolved in consultation with the Region, and that no Section 16(6) Order requests are received, the project will be approved and may proceed directly to implementation.

1.5 30 Day Public Review and Section 16(6) Order Requests

Public, review agency and Indigenous consultation is a key part of the MCEA process. Consultation is intended to inform interested and affected parties about the addendum and proposed project, the various alternative design concepts considered and their anticipated environmental impacts, as well as the preliminary preferred design concept. It is also intended that the public be given opportunity to provide input or raise concerns prior to completion of the MCEA process. It is intended that issues be identified early into the addendum by means of public involvement and that resolutions between the proponent and the person or party with the objection be achieved through consultation.

Interested persons may provide written comments to the proponent at any point during the study process and up to 30 calendar days from issuance of Notice of Addendum. Any additional comments received during this 30 day public review period will be documented and considered.

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks (MECP) 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 for the MECP.

Requests should specify what kind of order is being requested (request for additional conditions or a request for an individual/comprehensive environmental assessment), how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. This will ensure that the MECP 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
minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Ave. West, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Christopher Pasquale, P.Eng., PMP
Project Manager
Halton Region
1151 Bronte Road
Oakville, ON L6M 3L1
Christopher.Pasquale@halton.ca

Visit the MECP's 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-section-16-order

1.6 Problem and Opportunity Statement

Phase 1 of the MCEA process culminates in the identification of a problem or opportunity to be addressed by the proposed undertaking. The problem and opportunity statement for this project provided in the 2012 MCEA Study is as follows:

> *The Region's Best Planning Estimates, and corresponding water demand projections as set out in the Sustainable Halton Water and Wastewater Master Plan, which was recently updated by the Region in 2011, have triggered the next expansion phase of the Burloak WPP[1]. The next facility expansion from 55 ML/day to 165 ML/day is required to provide additional water supply capacity for projected population and employment growth identified in the Best Planning Estimates. The expansion also provides the opportunity to design the project to achieve the Region's municipal service delivery objectives and further develop how the site is integrated with its neighbours and surrounding community.*

Based on the most recent master planning, the updated problem and opportunity statement for this addendum is as follows:

> *In 2024, the Region updated water demand projections for South Halton and confirmed that the Burloak Water Treatment Plant (WTP) needs to increase its capacity from 55 ML/d to 165 ML/d by 2031 to support growth as previously approved through the Municipal Class Environmental Assessment (MCEA) process in 2012. This Addendum in accordance with the MCEA process is reviewing and confirming the best design solution for the Phase 2 expansion of the Burloak WTP.*

[1] Note that in 2024, the Region revised the name of the Burloak Water Purification Plant (WPP) to the Burloak Water Treatment Plant (WTP)

2 STUDY AREA OVERVIEW

2.1 Study Area

The Study Area remains the same as the Study Area considered in the 2012 ESR. It is located within the Town of Oakville and the limits of the study area are shown in Figure 2-1.

Figure 2-1 Study Area Map

2.2 Description of Natural Environment

The Study Area is located south of Rebecca Street between Great Lakes Boulevard to the East, Nautical Woods to the West, and includes the Nautical Boulevard subdivision to the South. The Study Area includes the existing Burloak WTP located at 3380 Rebecca Street in the Town of Oakville and a section of the East Sheldon Creek. Natural features in the Study Area include the East Sheldon Creek and its riparian vegetation as well as the Nautical Woods, as shown in Figure 2-2.

Figure 2-2 Approximate Location of Study Area in Proximity to Known Natural Heritage Features

To characterize and understand the existing conditions of the Study Area, a review of available information and data was completed. A field visit was also conducted on October 25, 2024, to confirm the extent of natural features and identify potential habitat for Species at Risk (SAR) to further evaluate potential impacts and recommend applicable mitigation measures. The following background information and data resources were used to characterize the Study Area in the context of natural heritage:

- Aerial imagery
- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC)
- MNRF Land Information Ontario (LIO) data (fisheries, woodlands, wetlands, wildlife habitat, significant natural areas)
- Department of Fisheries and Oceans Canada (DFO) mapping for aquatic SAR
- Ontario Geological Survey mapping
- Regional Municipality of Halton Official Plan
- Town of Oakville Official Plan
- Open data from Conservation Halton (CH)
- Burloak Water Purification Plant Phase 2 Expansion Environmental Study Report (AECOM, May 2012)

2.3 Significant Natural Environment Areas

The Study Area and adjacent lands were screened to identify designated natural areas given various local, regional and provincial policies. The following seven types of significant natural heritage features were studied:

1. Areas of Natural and Scientific Interest (ANSI)
2. Significant wetlands
3. Significant woodlots and valleylands
4. Vegetation and vegetation communities
5. Fisheries and aquatic habitat
6. Wildlife and wildlife habitat
7. Species at Risk (SAR)

Based on a review of the above via the noted background information review and field investigation, the natural areas identified in the Study Area include the following:

1. Nautical Woods
2. Cultural riparian vegetation communities
3. East Sheldon Creek
4. Cultural meadow terrestrial vegetation communities

These natural areas have the potential to support wildlife including breeding birds regulated under the *Migratory Birds Convention Act* (MBCA) and/or protected species at risk, provincially Threatened Silver Shiner in East Sheldon Creek, and candidate significant wildlife habitat for bat maternal roosting including habitat for SAR bats.

As described further in Section 4, the key considerations have been reviewed updated since the 2012 MCEA Study. As such, the WTP residuals management approach will be sustainable and seek to eliminate the need to consider discharging treated process residuals to the environment via the Sheldon Creek. ***As such, this represents a change from the 2012 MCEA study and this addendum will proceed with reviewing alternatives that have no discharge of treated WTP process residuals to the East Sheldon Creek***.

Consistent with the mitigation measures recommended through the 2012 MCEA study, a buffer zone will be created between the construction areas and the Nautical Woods to minimize disturbance to this area.

Based on the above and the anticipated area within the WTP site required to accommodate the WTP expansion, natural areas and features that may be impacted include the following:

1. Cultural meadow terrestrial vegetation communities
2. Open grown amenity trees

Terrestrial communities and open grown trees have the potential to support wildlife SAR and MBCA-protected species in the Study Area.

A more detailed review of the above is provided in the Natural Heritage Report developed for this addendum (see **Appendix A**). Additional proposed mitigation measures and monitoring requirements will be outlined in Section 10 following the identification of the preferred WTP expansion design concept.

2.4 Description of Social Environment

The Study Area is located within the Town of Oakville's Bronte Community planning area. The Town of Oakville's Official Plan from September 2006 designates the Burloak WTP site as "community facility/institutional," a designation which permits the water treatment plant. ***The new residential townhome complex (Vellwood Common) to the west of the Burloak WTP represents a change to the social environment since the 2012 MCEA Study.***

Lands directly adjacent to the west of the Burloak WTP, at the corner of Rebecca Street and Great Lakes Boulevard, are designated as neighbourhood commercial and are occupied by a residential townhome complex (Vellwood Common, accessed from Nautical Blvd.) and the Great Lakes Centre Plaza. The plaza includes the following business types:

- Professional Services (e.g., financial, medical)
- Restaurants (e.g., take out/sit in)
- Convenience Retail (i.e., variety store)
- Recreation (e.g., fitness/training facilities)
- Institutional (i.e., pre-school)
- Personal Services (e.g., florist, hair salon, dry cleaners)

Adjacent to the east of the Burloak WTP is one open space area designated as "Parkland" and is named Nautical Park. This park is accessed from Nautical Boulevard and includes a children's playground including splash pad and soccer field.

Lands immediately to the south of the Burloak WTP site are designated as "Low Density Residential" and consist of detached single family residential dwellings with those fronting on Nautical Boulevard having a direct view of the WTP.

Two stormwater retention ponds and a mixed-use trail are located at the corner of Great Lakes Boulevard and Creek Path Avenue, which are designated as Parkland and form part of Wilmot Park.

The lands on the north side of Rebecca Street (outside project Study Area) and across from the Burloak WTP are designated as "Employment Lands." The lands include a vegetation tree screen along the Rebecca Street frontage, a stormwater management pond, a transport truck yard and warehouses. In addition, the Burloak WTP acts as a visual barrier between the residential community adjacent to Nautical Boulevard and any industries developed north of Rebecca Street. Additional proposed mitigation measures will be outlined in Section 10 following the identification of the preferred WTP expansion design concept.

2.5 Description of Cultural Heritage Environment

Cultural heritage resources include archaeological resources, built heritage resources and cultural heritage landscapes.

2.5.1 Archaeological Resources

One relevant Stage 1 and 2 Archaeological Assessment related to the current Burloak WTP Phase 2 Expansion preliminary project limits was identified within the Ministry of Citizenship and Multiculturalism's (MCM) Past Portal database. This report (by Archeoworks, Inc., 2000) was entered into the Ontario Public Register of Archaeological

Reports on March 30, 2001. Through the desktop archaeological review performed under this addendum to the 2012 MCEA Study and ESR, it was confirmed that the above referenced Stage 1 and 2 Archaeological Assessment completely covers the general Study Area for the Burloak WTP Phase 2 Expansion Project as well as the anticipated construction disturbance area within the current project design.

The Stage 1 assessment determined that fifty percent of the project area had moderate to high potential for the recovery of historic and Indigenous archaeological resources. Approximately 40 percent of the project area had been previously disturbed, and 10 percent was in low and wet conditions.

The Stage 2 assessment was conducted in August and September of 2000. The remaining 50 percent of the land was subject to test pit survey at five metre intervals in woodlot, scrubland and open areas. Test pit intervals were increased to 10 metres when disturbance was encountered. Over the course of this project 8,000 test pits were excavated into sterile subsoil and soil was screened through six-millimetre mesh. All open fields which had been used for past agricultural production were assessed by means of pedestrian survey at five metre intervals after ploughing and weathering.

Four archaeological sites were discovered during the Stage 2 assessment, AiGw-364, AiGw-365, AiGw-366 and AiGw-367. Of these sites only AiGw-367 was recommended for a Stage 3 archaeological assessment if construction disturbance was anticipated. The balance of the 327-acre project was determined to have been cleared of archaeological concern with no further archaeological assessment required. Site AiGw-367 is located over 543 metres southwest of the anticipated construction disturbance area and 370 metres west of the general Study Area. As such, a Stage 3 archaeological assessment was not required.

Based on consultation with the MCM, it was advised that the above noted assessment completed by Archeoworks, Inc. in 2000 does not meet the current requirements of the *2011 Standards and Guidelines for Consultant Archaeologists*. As such, a new Stage 1 Archaeological Assessment and report will be completed following these updated requirements in parallel to the detailed design phase to reconfirm that the site is free of archaeological concern. Ongoing and meaningful consultation with First Nations and Indigenous Communities will be maintained throughout the duration of this process.

2.5.2 Built Heritage Resources and Cultural Heritage Landscapes

The heritage screening checklist (CHS), Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, developed by the MCM, was completed as part of the addendum. The completed checklist and additional details are provided in the Cultural Heritage Screening Summary Report (**Appendix B**). In summary, no criteria in the checklist were met. The study area was determined to have no potential for cultural heritage value or interest, and no further heritage work is required.

2.6 Significant Cultural Areas

Following the review of the previous archaeological assessments relevant to the Burloak WTP Phase 2 Expansion Project design, it was determined that there are no outstanding recommendations for additional archaeological assessments to be addressed. The current Burloak WTP Phase 2 Expansion Project design is free of archaeological concern with no further assessments or mitigations required. ***This is consistent with the findings of the 2012 MCEA Study.*** Additionally, no criteria in the CHS were met indicating no potential for cultural heritage value or interest. As such, no further heritage work is required.

3 OVERVIEW OF EXISTING WTP

3.1 Treatment Process

The Burloak WTP draws water from Lake Ontario and pumps treated potable water to the distribution system. The WTP treatment process train consists of the following:

- A raw water intake and conveyance tunnel complete with pre-chlorination for mussel control
- A low lift pumping station containing two (2) traveling water screens and three (3) variable speed low lift pumps
- Sidestream pumped diffusion-type rapid mixing for coagulation via polyaluminum chlorine (PACl) coagulant dosing. *Note: coagulant dosing is provisional and not practiced year-round*
- Two (2) two-stage flocculators (i.e., total of four (4) flocculation cells)
- Four (4) ultrafiltration membrane filter trains (designed in a 2 duty/2 standby configuration but operated in a 3 duty/1 standby configuration) with associated backwash (backpulse) and cleaning systems, including two (2) clean-in-place (CIP) tanks
- One (1) ozone generator with ancillary equipment to provide primary disinfection via ozonation and taste & odour control along with sodium bisulphite for ozone quenching
- Four (4) medium pressure UV reactors to provide primary disinfection redundancy
- A gas chlorination system to provide primary disinfection redundancy as well as to provide a secondary disinfection chlorine residual in the distribution system
- One (1) contact chamber to provide contact time required for primary disinfection via ozone or chlorine (depending on which is practiced, see above)
- One (1) clearwell to provide on-site storage and high lift equalization
- A high lift pumping station containing four (4) fixed speed high lift pumps to send treated water to the distribution system
- Fluoridation and trim chlorination on the high lift header with provision for pH control via potassium hydroxide dosing

Figure 3-1 presents a process schematic of the WTP to provide an overview of the above-described treatment process train.

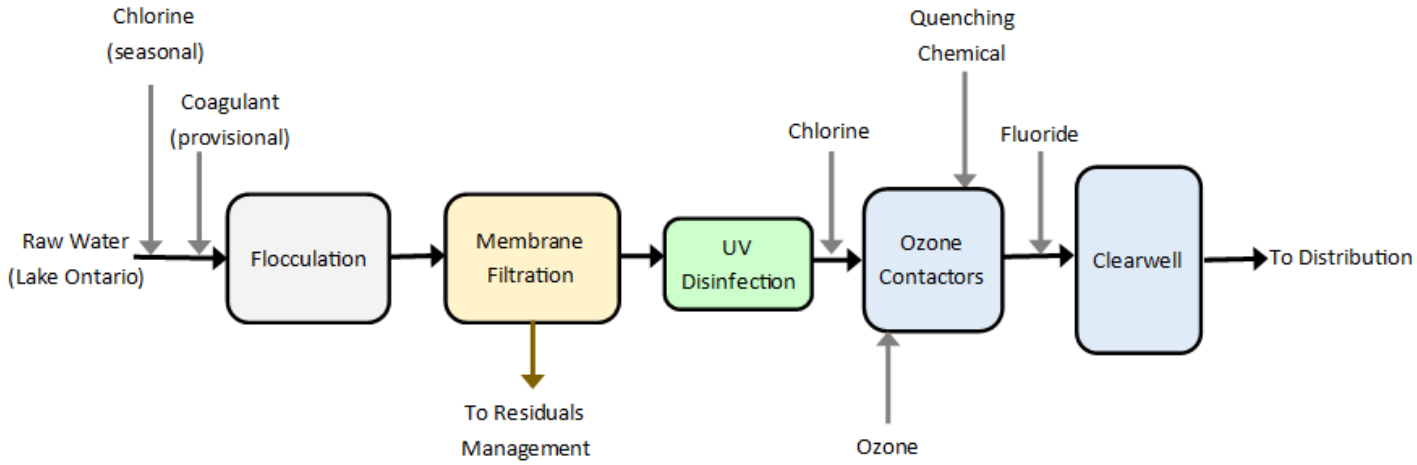

Figure 3-1 Burloak WTP Process Schematic

Process waste residuals are generated by the membrane filtration process and consist of spent backwash ('backpulse') water, spent maintenance clean water and spent clean-in-place (CIP) water. During normal operation, membrane process residuals are managed as follows:

- Membranes are backpulsed approximately every 45 to 60 minutes. The spent backpulse water contains a low chlorine concentration and, at times, coagulant residuals (i.e., depending on if coagulation is practiced). The spent backpulse water is collected in two (2) wastewater equalization tanks prior to conveyance to the sanitary sewer system for discharge via two (2) transfer pumps (duty/standby).
- Membranes undergo a maintenance clean approximately daily with a high concentration chlorine solution. This waste is neutralized and de-chlorinated. This neutralized waste, held in two (2) neutralization tanks, is subsequently conveyed to the sanitary sewer system via three (3) transfer pumps (2 duty/1 standby).
- Membranes undergo a CIP recovery clean approximately monthly where they are taken offline and chemically cleaned using a higher concentration chlorine solution and, approximately every three months, this also includes cleaning with citric acid. This waste is neutralized and de-chlorinated. This neutralized waste, also held in two (2) neutralization tanks, is subsequently conveyed to the sanitary sewer system via three (3) transfer pumps (2 duty/1 standby).

Figure 3-2 presents a process schematic of the process waste residuals management system at the WTP to provide an overview of the above-described residuals management treatment process train.

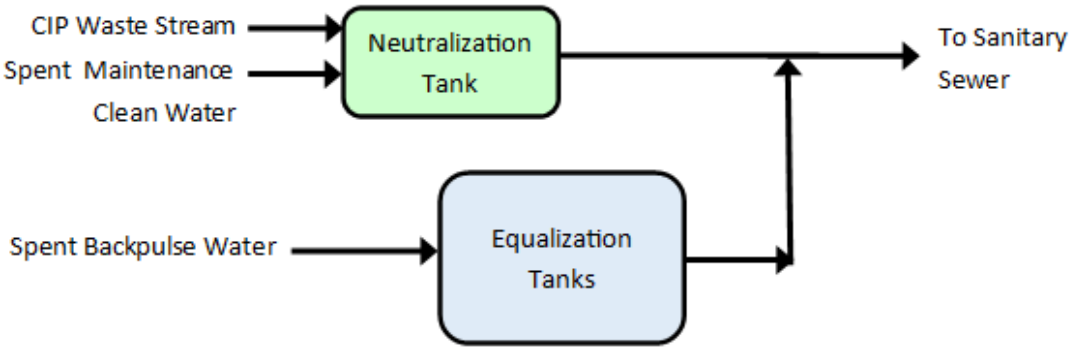

Figure 3-2 Burloak WTP Process Residuals Management Schematic

3.2 Production Capacity

The Burloak WTP was commissioned in 2010 with a rated capacity of 55 ML/d. As outlined in the Region's master planning described in Section 1, the Burloak WTP was designed with consideration of the phased expansion through this Phase 2 expansion to 165 ML/d and the subsequent Phase 3 expansion to ultimate capacity. As such, as part of the design and implementation of Phase 1 of the Burloak WTP, space was earmarked for future expansion and many of the systems were sized to accommodate the future increased capacity.

3.3 WTP Site

The Burloak WTP is located at 3380 Rebecca Street in the Town of Oakville. It is a restricted site and accessible only via Rebecca Street to minimize disturbance to neighbouring properties. The WTP consists of several buildings and includes above ground and below ground structures, located primarily in the north portion of the site with space earmarked to the south of the existing WTP buildings for the future expansion. A U-shaped berm running along the south edge of the WTP site was constructed during Phase 1 with the intent of providing a visual barrier between the WTP and the residential neighbourhood to the south. Several trees have been planted along the south of the property following Phase 1 construction as part of the landscaping plan developed for that phase. At that time, it was anticipated that a new landscape plan would be developed and incorporated as part of Phase 2 expansion in consideration of the new structures associated with this expansion. A 1050 mm diameter water distribution main, a 50 mm diameter gas line and the hydro line connect to the north-east end of the WTP north to Rebecca Street. Stormwater and sanitary pipelines were installed onsite during Phase 1 construction of the Burloak WTP and generally run along the borders of the site.

4 EVALUATION PROCESS

4.1 Key Considerations

In consideration of the 2012 MCEA Study objectives and subsequent review through this addendum, the following main WTP expansion key considerations were identified to inform the screening and evaluation of alternatives:

- The WTP expansion will provide a safe and secure water supply that meets or exceeds relevant provincial and federal drinking water guidelines and regulations
- The WTP expansion concept will align with future water demand and population growth and will not constrain the ability for expansion to accommodate the anticipated ultimate WTP production capacity. It will consider opportunities for advanced water treatment processes and innovation to maximize the treatment capacity that can be provided within the WTP site footprint
- The concept will provide operational resiliency and risk management including flexibility to respond to the impacts of climate change, such as increased source water quality changes and extreme weather events, as well as comply with anticipated future drinking water guidelines and regulations
- The concept will be compatible with the Region's existing operation & maintenance practices, to the extent practical. This should, in turn, limit the need for modifications to the existing WTP and processes. If modifications or upgrades to the existing WTP are required, the benefit of these modifications and/or upgrades will offset the costs associated with their implementation
- Construction and implementation of the expansion concept will be feasible within the Region's required timeline and will minimize the impact to and potential interruption of the operation of the existing WTP
- The concept will align with the Region's sustainability and environmental stewardship goals including prioritizing energy-efficient and lower chemical usage treatment processes and equipment as well as opportunities to reduce greenhouse gas (GHG) emissions
- The residuals management approach will be sustainable and consider the existing limitations of the sanitary and storm sewer system serving the WTP and seek to eliminate the need to consider discharging treated process residuals to the environment via the Sheldon Creek. The overall expansion concept will look for opportunities to minimize the volume of process residuals that must be managed
- The concept will be consistent with the Region's availability of staff resources and will optimize capital and operational expenditures by considering the full life-cycle cost of the WTP expansion in line with the Region's goal of building and operating affordable and financially sustainable water infrastructure

4.2 Preliminary Screening of Alternatives

A preliminary review and screening of the long-list of WTP expansion design concept alternatives was completed. The purpose of the preliminary screening is to identify alternatives that are feasible for this project and will be short-listed for the detailed evaluation. The alternatives short-listed and identified as preferred through the 2012 MCEA Study were considered as a starting point. Viable alternatives that had not previously been identified were also considered.

The screening criteria were used to confirm the short-list of alternatives that would proceed to the detailed evaluation. A 'fail' of one or both of the below indicated that the alternative was not feasible for this project and should not be considered further. The screening criteria are as follows:

1. The alternative will provide reliable and consistent finished water quality and pathogen control following a multi-barrier approach that meets water quality guidelines and drinking water regulations (pass/fail)
2. The alternative will provide flexibility to accommodate future WTP expansion to the anticipated ultimate production capacity within the available space earmarked on the existing WTP site (pass/fail)

4.3 Evaluation Methodology of Short-Listed Alternatives

The evaluation of short-listed alternatives and selected criteria were developed following a triple bottom line plus risk framework. The evaluation criteria, sub-categories and their weighting are summarized in Table 4-1. Each alternative is assigned a score of between 1 and 10 for each sub-category based on the following scale:

- Score of 10: Greatly exceeds minimum requirements/expectations. Can be easily managed.
- Score of 7: Mostly exceeds minimum requirements/expectations. Can be managed.
- Score of 4: Almost acceptable and meets most minimum requirements/expectations. Can generally be managed with some occasional challenges.
- Score of 1: Unacceptable or does not meet minimum requirement/expectation. Challenging to manage.

A description of what would equate to a score of 10 for a given sub-category is also defined in Table 4-1.

The alternative receiving the highest score through the above evaluation was deemed the preferred alternative for a given treatment process category. Sensitivity analyses were performed on the evaluations described below to confirm any impact of adjusting the criteria weightings on the outcome of the evaluation and identified preferred alternative.

Table 4-1 Alternative Design Concepts Evaluation Criteria

Evaluation Criteria	Weighting	Description	Description of Score of 10
Technical Performance			
Ability to Meet Anticipated Future Drinking Water Guidelines	10	Ability to meet anticipated future drinking water guidelines (i.e., more stringent and/or new)	Most flexible and best able to meet anticipated future drinking water guidelines with minimal upgrades and/or operational adjustments
Process Residuals Generated	5	Process waste residuals quantity and quality	Lowest residual volume, highest quality residual and easiest to manage
Process Reliability and Resiliency to Climate Change	10	Process reliability and resiliency to climate change impacts on water quality	Most consistent water quality produced and most resilient to varying raw water quality and conditions
Implementation			
Permits and Approvals	5	Risk to implementation schedule due to approval and permit requirements	Minor amendments to existing permits and approvals required to proceed
Building Expansion Footprint	5	Footprint of WTP expansion to accommodate all treatment equipment and ancillary systems and buildings	Smallest building footprint required to accommodate WTP expansion
Constructability	15	Ability to construct and implement expeditiously Ability to phase the expansion as appropriate to meet changing conditions Risk to implementation schedule as well as potential for disruption to WTP operations and neighbouring residents	Shortest implementation schedule Most flexible to phased expansion of provisional process units to meet changing conditions if/when needed Lowest risk to implementation schedule Least impact on WTP operations Least disruption to neighbours during construction

Evaluation Criteria	Weighting	Description	Description of Score of 10
Operation & Maintenance			
Operational and Maintenance Requirements	15	Ease of operation and maintenance as well as risk to worker health & safety Consistency with processes and practices at the Region's other WTPs	Easiest to operate and lowest overall operation effort required Most consistent with the Region's existing processes and practices at the Region's WTPs Fewest system components to maintain and lowest overall maintenance effort required Fewest mitigation measures and protocols required to maintain high level of worker health & safety
Product Diversity	3	Availability and diversity of product on the market for replacement consumables and equipment components	Most options available on market for replacement of consumables and equipment components (e.g., filter media, membrane modules, system parts)
Sustainability			
GHG Emissions	3	Anticipated GHG emissions associated with treatment train (including residuals management system)	Lowest estimated GHG emissions
Chemical Usage	2	Anticipated treatment train (including residuals management system) chemical usage	Fewest chemicals required and lowest overall volume of chemical required
Power Usage	4	Anticipated treatment train (including residuals management system) power usage	Lowest power usage required
Environmental			
Social Environment	4	Impact to the social environment including the potential for the disruption of neighbouring properties and residents during normal operation including the overall aesthetics of the WTP expansion	Minimal disruption to nearby neighbours during normal operation. Fewest mitigation measures required to minimize disruption to the social environment

Evaluation Criteria	Weighting	Description	Description of Score of 10
Natural Environment	4	Impact to natural heritage areas (includes ANSI, significant wetlands, significant woodlands, significant valleylands, habitat for endangered and threatened species, significant wildlife habitat, fish habitat)	No impact to natural heritage areas
Cultural Heritage Environment[a]	0	Impact to areas identified to be of archaeological, historical or cultural significance	No impact on areas of archaeological/historical/cultural significance
Economic			
Life Cycle Cost	15	The 20-year life cycle cost is considered and includes the initial capital cost, as well as associated Operations and Maintenance costs over this period	Proportional score based on the relative difference in 20-year life cycle costs of each alternative relative to the others.
Total	**100**		

[a] Note that the Cultural Heritage Environment sub-criteria has been weighted at zero because the cultural heritage screening indicated no potential for cultural heritage value and the archaeological assessments relevant to the Burloak WTP Phase 2 Expansion Project design have confirmed that the study area is free of archaeological concern with no further assessments or mitigations required. Additional details are provided in Section 2.

4.4 Overview of Main Process Treatment Categories

The main process treatment categories were divided into three main groups for review, screening and evaluation through this addendum. The categories are as follows:

- **Particulate Removal.** This includes the pre-treatment processes (coagulation, flocculation, clarification), which encourages particles to combine and settle for subsequent filtration to remove any remaining suspended particles. This is discussed further in Section 5.
- **Primary Disinfection + Taste & Odour Control.** This includes the inactivation of pathogens potentially present in a source water via primary disinfection (including disinfection process redundancy) and the control of potentially offensive tastes and odours. This is discussed further in Section 6.
- **Process Residuals Management.** This is the treatment and disposal of waste residuals generated by the water treatment processes, such as clarification process sludge and filter backwash water. This is discussed further in Section 7.

The results of the evaluation of the main process treatment categories informed the identification of the preferred overall design concept for the Phase 2 expansion of the Burloak WTP.

5 PARTICULATE REMOVAL ALTERNATIVES

5.1 Preliminary Screening of Alternatives

A long-list of alternatives was developed in consideration of the evaluation of alternatives completed through the 2012 MCEA Study and any other potentially viable alternatives that had not been identified previously. This long-list of alternatives underwent a preliminary screening following the methodology described in Section 4.2. See Table 5-1 for a summary of the long-list screening.

Table 5-1 Particulate Removal Alternatives – Summary of Preliminary Screening

Alternative	Summary of Preliminary Screening	Reviewed in 2012 MCEA Study?	Short-Listed?
Direct Filtration (coagulation/flocculation followed by granular media filtration)	Direct filtration may not provide a robust pathogen barrier during potential episodes of high raw water turbidity. ***This alternative fails the first screening criteria.***	Yes	No
Conventional Filtration (coagulation/flocculation/ clarification followed by granular media filtration)	Conventional filtration will provide reliable and robust pathogen control. However, the anticipated required footprint to accommodate ultimate WTP expansion capacity is estimated to be larger than the available space on the existing WTP site. ***This alternative fails the second screening criteria.***	Yes	No
Ballasted Flocculation/Clarification and Granular Media Filtration	High-rate clarification (via ballasted coagulation/ flocculation) and granular media filtration will provide reliable and robust pathogen control. The high-rate and smaller footprint clarification step is expected to result in an overall footprint that will accommodate ultimate WTP expansion capacity within the available space on the existing WTP site. *Ballasted coagulation/flocculation and granular Media filtration meets the screening criteria.*	Yes	Yes
Direct Membrane Filtration (with provision for coagulation)	Direct membrane filtration with provision to practice pre-treatment via coagulation/flocculation to improve membrane performance. This alternative has been demonstrated through its incorporation in the existing WTP. *Direct membrane filtration meets the screening criteria.*	Yes[a]	Yes

[a] *Direct Membrane Filtration (with provision for coagulation) was identified as the preferred particulate removal alternative in the 2012 MCEA Study*

Based on the above, the particulate removal alternatives included in the short-list and identified for further evaluation are as follows:

1. Alternative A1: Ballasted Coagulation/Flocculation and Granular Media Filtration
2. Alternative A2: Direct Membrane Filtration (with provision for coagulation)

5.2 Alternative A1: Ballasted Flocculation/Clarification and Granular Media Filtration

Particulate removal Alternative A1 consists of incorporating 110 ML/d additional particulate removal capacity via the addition of a ballasted flocculation/clarification step followed by a dual media (sand/anthracite) gravity filtration system. The filtered water from this additional treatment train would be combined with the effluent from the existing membrane filtration system prior to conveyance to the ozone contactors and primary disinfection process. This alternative was reviewed and evaluated through the 2012 MCEA Study. The process flow diagram for this particulate removal alternative is presented in Figure 5-1 with the unit processes relevant to the particulate removal alternative highlighted by a dashed box.

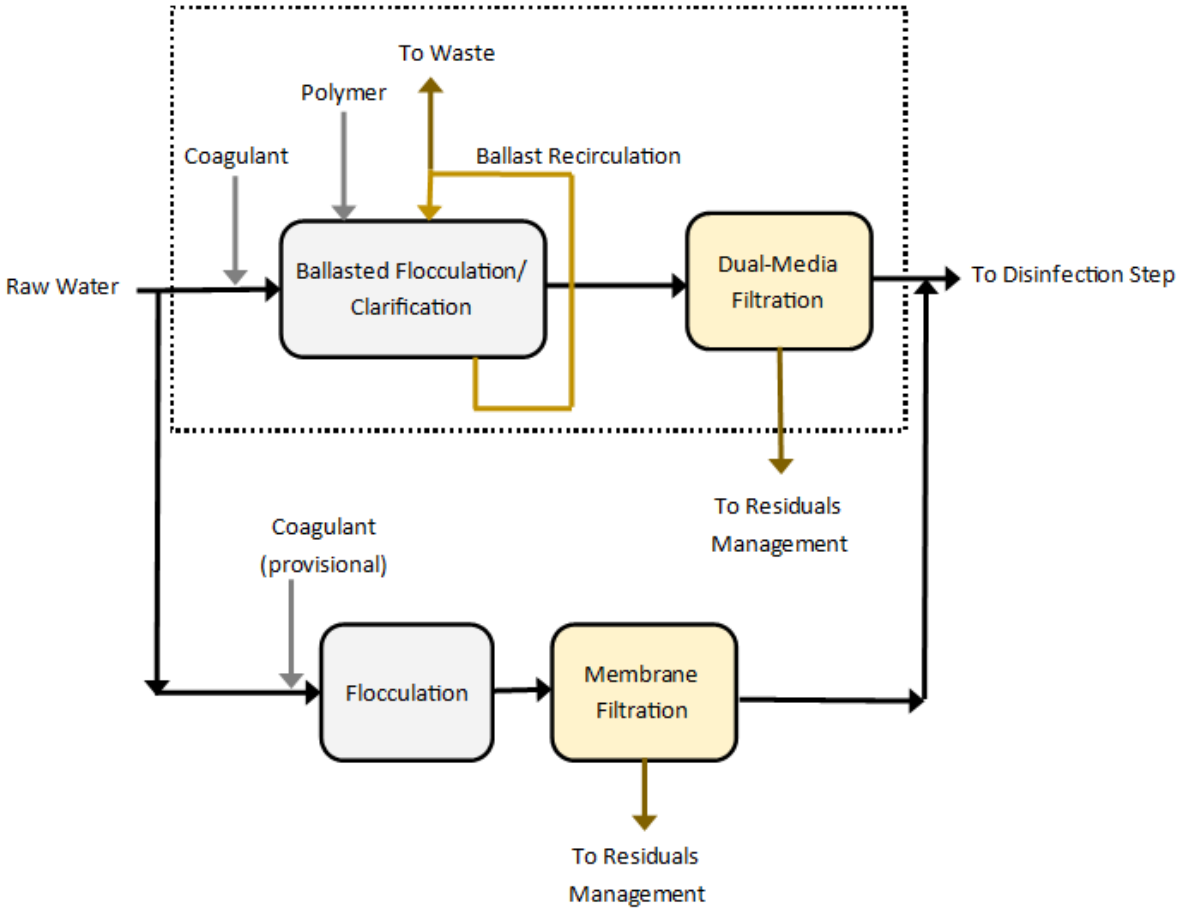

Figure 5-1 Alternative A1 Process Flow Diagram

The Phase 2 expansion to incorporate ballasted flocculation/clarification followed by filtration via dual-media gravity filters to provide the additional 110 ML/d capacity for particulate removal would include adding the following:

- Yard piping and valving to divert and route a portion of the raw water flow to the new downstream flocculation/clarification step (i.e., in parallel to existing membrane filtration train)
- Three (3) ballasted flocculation/clarification trains (operated in a 2 duty/1 standby configuration), including coagulant dosing system and ballast recirculation and dosing system, and ancillary systems housed in a new Clarification Building to the West of the Membrane Building along with associated yard piping to convey clarified water to the influent of the new gravity filtration process trains, and yard piping to convey the clarification process waste residual stream to the wastewater equalization tank
- New polymer storage and dosing system housed in the above new Clarification Building
- New ballast (i.e., sand) storage and dosing system housed in the above new Clarification Building
- Six (6) dual-media (sand/anthracite) granular media gravity filter trains (operated in a 5 duty/1 standby configuration) and an equalization tank to the south of the existing membrane tanks with the membrane building expanded accordingly (and that would be renamed 'Filter Building')
- One (1) backwash pump and one (1) air scour blower for filter backwashing housed in the expanded Filter Building along with associated yard piping to accommodate conveyance of filter effluent, filter-to-waste, backwash supply and spent backwash water
- Additional coagulant chemical bulk storage tank housed in the Chemical Building within the existing Chemical Room and the space earmarked for this future tank. The existing coagulant dosing system would be maintained

The main advantages of this alternative are as follows:

- The ballasted flocculation/clarification provides resiliency to potential climate change impacts on raw water variability and quality
- The above clarification step provides additional flexibility to meet potential future drinking water guidelines (e.g., for algae) with minimal additional upgrades or operational adjustments
- Ballasted flocculation/clarification is incorporated at other Region WTPs and Operations staff are familiar with its operation, maintenance and health and safety protocols

The main disadvantages of this alternative are as follows:

- Deviates from the expansion design and space earmarked for the Phase 2 expansion through the original Burloak WTP design and associated planning. As such, significant additional space required on site compared to the original plan. Additionally, leads to more complicated pipe routing and hydraulic design to operate parallel but different pre-treatment and filtration processes prior to the disinfection process step. This also represents additional time required for construction and will represent an additional aesthetic impact to the overall WTP site due to the additional new buildings required to accommodate this alternative
- Largest building footprint required to accommodate the expansion. This consists of an expansion to the Membrane Building (renamed 'Filter Building') and a new Clarification Building
- Contributes additional process residual waste streams (i.e., sludge from the clarification process, and spent filter backwash and filter-to-waste from the filtration process) that need to be managed
- The ballasted flocculation/clarification process and the gravity filtration process represent new and additional equipment to operate and maintain, additional processes to follow along with additional health and safety protocols to implement. Additionally, adds complexity to overall operation and maintenance of the WTP as there

will be two pre-treatment/filtration processes operating in parallel (i.e., membrane filtration and ballasted flocculation/clarification + gravity filtration)

- Represents an additional routine chemical delivery compared to current (i.e., polymer)
- Represents a higher relative capital cost (by approximately 10%) but a lower relative annual operating & maintenance cost (by approximately 15%) when compared to Alternative A2. As such, 20-year life cycle cost approximately the same when compared to Alternative A2

5.3 Alternative A2: Direct Membrane Filtration (with Provision for Coagulation)

Particulate removal Alternative A2 consists of incorporating an additional 110 ML/d of coagulation/flocculation and membrane filtration capacity in the space earmarked for the Phase 2 expansion of these processes through the original Burloak WTP design (i.e., for a total capacity of 165 ML/d). This alternative has been demonstrated through its incorporation and performance in the existing WTP and was also selected as the preferred alternative in the 2012 MCEA Study. The process flow diagram for this particulate removal alternative is presented in Figure 5-2 with the unit processes relevant to the particulate removal alternative highlighted by a dashed box.

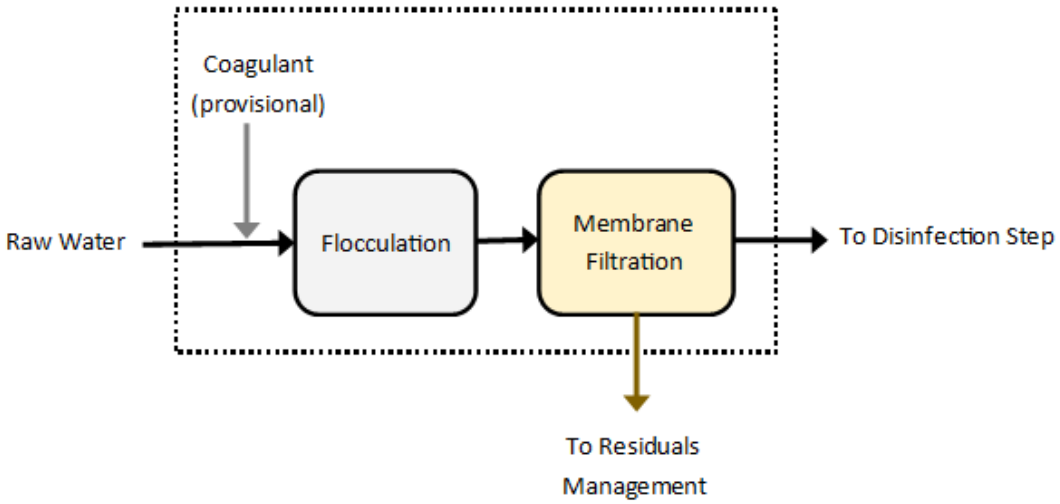

Figure 5-2 Alternative A2 Process Flow Diagram

The Phase 2 expansion to incorporate direct membrane filtration (with provision for coagulant dosing) for particulate removal would include adding the following:

- Two (2) two-stage flocculators (i.e., total of four (4) flocculation cells) in the space earmarked next to the existing flocculators
- One (1) rapid mix system consisting of two centrifugal pumps (operated in a 1 duty/1 standby configuration) with coagulant dosing at the inlet chamber to the new flocculators
- Four (4) ultrafiltration membrane filter trains and an equalization tank in the space earmarked next to the existing membrane tanks with the membrane building expanded accordingly. This would result in a total of eight (8) membrane filter trains (operated in a 6 duty/2 standby configuration)

- One (1) additional backwash (backpulse) pump and one (1) additional air scour blower for membrane cleaning in the space earmarked for the Membrane Building expansion
- One new CIP tank housed next to the existing CIP tank in the space earmarked over the second below grade neutralizing tank
- Additional coagulant chemical bulk storage tank housed in the Chemical Building within the existing Chemical Room and the space earmarked for this future tank. The existing coagulant dosing system would be maintained

The main advantages of this alternative are as follows:

- Consistent with the expansion design and space earmarked for the Phase 2 expansion through the original Burloak WTP design and associated planning
- Performance has been demonstrated through its incorporation and performance in the existing WTP and, in turn, is most consistent with the Region's existing operation, maintenance and health & safety processes and practices
- Provides resiliency to potential climate change impacts on raw water variability and quality. Produces a consistent, high-quality water
- Lowest rate of process residuals generated. Generated process residuals will be consistent both in relative volume and quality to that associated with the existing WTP
- Smallest building footprint required to accommodate the expansion and consisting of expansion of the Membrane Building and, in turn, shortest anticipated implementation schedule

The main disadvantages of this alternative are as follows:

- Does not offer any enhancement to the current treatment train. Additional upgrades may be required to address changes to drinking water guidelines in the future, if applicable
- Membrane product diversity is limited
- Represents a higher relative power usage primarily due to pumping to provide required membrane feed pressure and due to the heating needs for membrane cleaning events
- Represents a lower relative capital cost (by approximately 10%) but a higher relative annual operating & maintenance cost (by approximately 15%) when compared to Alternative A1. As such, 20-year life cycle cost approximately the same when compared to Alternative A1

5.4 Evaluation of Alternatives

The short-list of alternatives underwent an evaluation following the methodology described in Section 4.3. The results of the evaluation of alternatives are summarized in **Figure 5-2**.

Based on the evaluation summarized in the below table, the preferred particulate removal alternative is Alternative A2 which consists of incorporating additional coagulation/flocculation and membrane filtration capacity in the space earmarked for the Phase 2 expansion of these processes through the original Burloak WTP design. ***This is consistent with the preferred alternative identified in the 2012 MCEA Study.***

Table 5-2 Particulate Removal Alternatives – Summary of Evaluation

Evaluation Criteria	Description	Weighting	Alternative A1: Ballasted Flocculation/Clarification + Granular Media Filtration	Score (1 to 10)	Alternative A2: Direct Membrane Filtration (with Provision for Coagulation)	Score (1 to 10)
Technical Performance						
Ability to Meet Anticipated Future Drinking Water Guidelines	Ability to meet anticipated future drinking water guidelines (i.e., more stringent and/or new)	10	• Will provide excellent particulate removal performance • Able to manage algae events • If well operated and maintained will produce consistent and high-quality water, however, may need more attention during periods when raw water quality is variable (e.g., lake turnover)	8	• Will provide excellent particulate removal performance • Able to manage algae events noting that periods of high algae may translate to additional cleaning during these periods but will not impact produced water quality • Produces excellent and consistent water quality even under variable raw water quality conditions	8
Process Residuals Generated	Process waste residuals quantity and quality	5	• Clarification step represents an additional residual stream that is of different quality (i.e., higher solids) in addition to the filtration process residual stream	5	• Same relative quantity and quality as existing WTP	10
Process Reliability and Resiliency to Climate Change	Process reliability and resiliency to climate change impacts on water quality	10	• Robust treatment process	8	• Robust treatment process	8
Implementation						
Permits and Approvals	Risk to implementation schedule due to approval and permit requirements	5	• Small amendment to drinking water works permit required due to new processes	8	• Minimal amendment to drinking water works permit required as processes the same as existing	10
Building Expansion Footprint	Footprint of WTP expansion to accommodate all treatment equipment and ancillary systems and buildings	5	• Requires a new Clarification Building and a larger expansion of the Membrane building ('Filter Building') of more than double compared to the space earmarked for expansion • Will limit the space for ultimate expansion significantly	6	• Will be accommodated within the space earmarked for expansion of the Membrane Building	10
Constructability	Ability to construct and implement expeditiously Ability to phase the expansion as appropriate to meet changing conditions Risk to implementation schedule as well as potential for disruption to WTP operations and neighbouring residents	15	• The additional clarification process tankage, ancillary systems and building will represent additional construction staging and a longer implementation schedule	5	• Consistent with original expansion plan and can be implemented most expeditiously	10
Operation & Maintenance						
Operational and Maintenance Requirements	Ease of operation and maintenance as well as risk to worker health & safety Consistency with processes and practices at the Region's other WTPs	15	• Clarification and gravity filtration represent new unit processes with additional Operation & Maintenance requirements and additional Health & Safety training and protocols	5	• Consistent with existing WTP processes. Operation & Maintenance and Healthy & Safety protocols familiar to Operations staff	10
Product Diversity	Availability and diversity of product on the market for replacement consumables and equipment components	3	• Ballasted flocculation/clarification process has proprietary microsand although there are some non-proprietary options available	8	• Membrane product diversity is limited and it represents a higher cost item to replace	5

Evaluation Criteria	Description	Weighting	Alternative A1: Ballasted Flocculation/Clarification + Granular Media Filtration	Score (1 to 10)	Alternative A2: Direct Membrane Filtration (with Provision for Coagulation)	Score (1 to 10)
Sustainability						
GHG Emissions	Anticipated GHG emissions associated with treatment train (including residuals management system)	3	• Additional clarification tankage and building represent higher GHG emissions through construction phase • Clarification recirculation system represents main contributor to GHG emissions during operation	7	• Smaller building and equipment footprint represent lower GHG emissions through construction • Membrane filtration process and related power usage represents higher GHG emissions during operation	7
Chemical Usage	Anticipated treatment train (including residuals management system) chemical usage	2	• In addition to coagulant, which must be dosed year-round, polymer and microsand required	7	• Represents lowest chemical usage • Coagulant dosage (when practiced) is similar to that associated with clarification (under Alternative A1)	10
Power Usage	Anticipated treatment train (including residuals management system) power usage	4	• Represents lowest power usage	10	• Represents higher power usage primarily due to pumping to provide required membrane feed pressure and due to heating for CIP events	7
Environmental						
Social Environment	Impact to the social environment including the potential for the disruption of neighbouring properties and residents during normal operation including the overall aesthetics of the WTP expansion	4	• Additional Clarification building represents a greater impact to aesthetics for the neighbouring properties • Mitigation to social environment through day-to-day operation will be similar to current noting additional polymer chemical delivery required	7	• Membrane Building expansion is within space earmarked and is consistent with current WTP aesthetic • Mitigation to social environment through day-to-day operation will be same as current	10
Natural Environment	Impact to natural heritage areas (includes ANSI, significant wetlands, significant woodlands, significant valleylands, habitat for endangered and threatened species, significant wildlife habitat, fish habitat)	4	• Anticipated mitigation measures and constraints to implement through construction will be the same for all alternatives. Potential impacts can be managed and minimized	10	• Anticipated mitigation measures and constraints to implement through construction will be the same for all alternatives. Potential impacts can be managed and minimized	10
Cultural Heritage Environment	Impact to areas identified to be of archaeological, historical or cultural significance	0	• Not applicable	-	• Not applicable	-
Economic						
Life Cycle Cost	The 20-year life cycle cost is considered and includes the initial capital cost, as well as associated Operations and Maintenance costs over this period	15	• Higher relative capital cost and lower annual O&M cost • 20-year life cycle cost approximately same as Alternative A2	10	• Lower relative capital cost and higher annual O&M cost • 20-year life cycle cost approximately same as Alternative A1	10
Total		**100**		**72**		**92**

6 PRIMARY DISINFECTION + TASTE & ODOUR CONTROL ALTERNATIVES

6.1 Preliminary Screening of Alternatives

Table 6-1 provides a summary of the long-list screening of primary disinfection + taste & odour (T&O) control alternatives following the methodology described in Section 4.2. Note that all alternatives provide primary disinfection redundancy. Note also that chlorination to provide a disinfectant residual in the system (i.e., secondary disinfection), as currently practiced, is associated with all considered alternatives listed below and is not included in the screening and evaluation.

Table 6-1 Primary Disinfection + T&O Control Alternatives – Summary of Preliminary Screening

Alternative	Summary of Preliminary Screening	Reviewed in 2012 MCEA Study?	Short-Listed?
Ozone Dosed Pre-Membrane (for primary disinfection and T&O control) + Biological Active Carbon (BAC) contactors UV + chlorine provided for primary disinfection redundancy	Ozone (dosed pre-membrane) can both meet primary disinfection requirements as well as provide T&O control. Ozone residual can damage the membranes. As such, BAC contactors must be included upstream of the membranes to quench any remaining ozone residual. The BAC contactors will also provide removal of assimilable organic carbon (AOC), which can contribute to biofouling of the distribution system. UV + chlorine would be provided for primary disinfection redundancy. *This process is not anticipated to impact the ability of the ultimate WTP expansion to be accommodated within the available space earmarked on the existing WTP site. It meets the screening criteria.*	No	Yes
UV + Chlorine and Ozone (ozone used only during T&O season) Ozone available for primary disinfection redundancy also Provision for BAC contactors	UV and chlorine can together meet primary disinfection requirements. Ozone can be dosed seasonally to provide T&O control. Ozone would also be available to provide primary disinfection redundancy. Provision for BAC contactors to provide removal of AOC. *These processes are not anticipated to impact the ability of the ultimate WTP expansion to be accommodated within the available space earmarked on the existing WTP site. It meets the screening criteria.*	Yes[a]	Yes
UV + Chlorine and Seasonal Advanced Oxidation Process (AOP) via Ozone + hydrogen peroxide (H_2O_2)	UV and chlorine can together meet primary disinfection requirements. AOP via ozone + H_2O_2 can be dosed seasonally to provide T&O control. Ozone would also be available to provide primary disinfection redundancy. Provision for BAC contactors to provide removal of AOC.	Yes (but with AOP via UV+H_2O_2)	Yes

Alternative	Summary of Preliminary Screening	Reviewed in 2012 MCEA Study?	Short-Listed?
Provision for BAC contactors Ozone available for primary disinfection redundancy also	*These processes are not anticipated to impact the ability of the ultimate WTP expansion to be accommodated within the available space earmarked on the existing WTP site. It meets the screening criteria.*		

[a] *UV+ Chlorine for primary disinfection and Ozone dosed seasonally for T&O control (with provision for BAC contactors) was identified as the preferred alternative in the 2012 MCEA Study*

Based on the above, all of the above primary disinfection + T&O control alternatives are included in the short-list and have been identified for further evaluation as follows:

1. Alternative B1: Ozone (dosed pre-membranes) + BAC and UV + Chlorine
2. Alternative B2: UV + Chlorine and Seasonal Ozone (with provision for BAC)
3. Alternative B3: UV + Chlorine and Seasonal AOP via Ozone + H_2O_2 (with provision for BAC)

6.2 Alternative B1: Ozone (Dosed Pre-Membranes) + BAC and UV + Chlorine

Primary disinfection + T&O control Alternative B1 consists of incorporating ozone dosing upstream of the 165 ML/d capacity membrane filtration process to provide primary disinfection and T&O control. The goal of pre-membrane ozonation is to improve membrane performance by reducing the presence of organics in the membrane influent and associated membrane fouling and, in turn, extending the service life of the membranes. BAC contactors are placed upstream of the membranes to quench any remaining ozone residual and protect the membranes from exposure to ozone, which would cause damage. The BAC contactors also provide removal of assimilable organic carbon (AOC), which can contribute to biofouling of the distribution system. The BAC contactors also provide enhanced removal of T&O compounds and further reduction of natural organic matter (NOM) and the associated disinfection by-product (DBP) formation potential. The UV + chlorine would be provided for primary disinfection redundancy, which is consistent with the current disinfection redundancy approach at the existing WTP. This alternative was not reviewed through the 2012 MCEA Study and is a new alternative being evaluated through this addendum. The process flow diagram for this alternative is presented in Figure 6-1 with the unit processes relevant to the primary disinfection + T&O control alternative highlighted by dashed boxes.

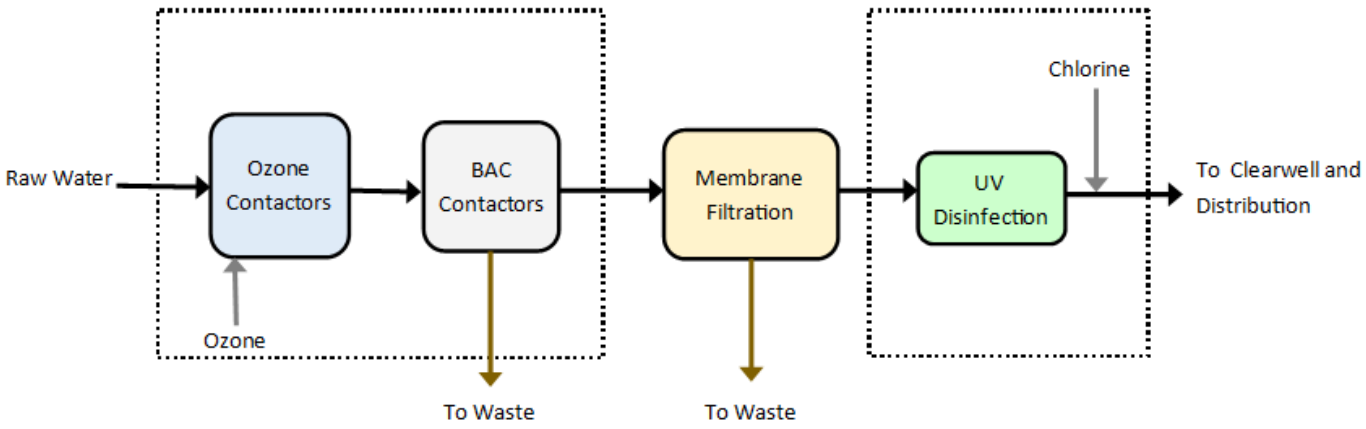

Figure 6-1 Alternative B1 Process Flow Diagram

The Phase 2 expansion to incorporate ozone (dosed pre-membrane) + BAC for primary disinfection + T&O control would include adding the following:

- Two (2) liquid oxygen (LOX) storage tank and vaporizer assemblies on a concrete pad located to the south of the existing LOX tank
- Two (2) below grade ozone contactors (operated in parallel) installed upstream of the membrane filtration process and located to the west of the Membrane Building along with associated yard piping. Due to hydraulic and process pipe routing limitations, it is anticipated that the existing ozone contactor could not be used as part of pre-membrane ozone dosing process. However, it is anticipated that the existing ozone contactor could be repurposed to a clearwell to provide the required chlorine contact time (i.e., dosing chlorine upstream of the contactors at the existing available dosing point) and remove the need to build additional clearwell capacity
- Five (5) BAC contactors (operated in a 4 duty/1 standby configuration) and common backwash system. The BAC system would be installed downstream of the new ozone contactors and upstream of the membrane filtration process and housed in a new BAC Building located to the south of the expanded Membrane Building along with associated yard piping
- Two (2) additional ozone generators and one (1) additional ozone destruct unit installed in the space earmarked for them in the existing Ozone Generator Room
- Four (4) UV units, one on the effluent of each of the new membrane filter trains, in the space earmarked for the new membrane trains next to the existing membrane system. *Note: UV disinfection could also be provided instead through a common UV vault downstream of the membrane filter trains. The specific configuration of the UV system will be confirmed through detailed design*
- Chlorine dosing via the existing chlorinators and storage of additional chlorine cylinders in the available space earmarked in the Chlorine Room of the Chemical Building

The main advantages of this alternative are as follows:

- Pre-ozonation is anticipated to reduce membrane fouling potential, improve performance and extend life of membranes (i.e., extending the membrane replacement frequency of 9 years by approximately 1 to 2 years)

- BAC step provides removal of AOC associated with ozonation, which will reduce the risk of biofouling in the distribution system and provides further reduction of T&O compounds and DBP formation potential. This combined with the ozonation step provides resilience to variable raw water quality and conditions. This also represents an enhancement to the current treatment train and additional flexibility to meet changes in drinking water guidelines in the future
- Operation will be consistent year-round, and the BAC eliminates the need for chemical quenching of ozone

The main disadvantages of this alternative are as follows:

- Deviates from the expansion design and space earmarked for the Phase 2 expansion through the original Burloak WTP design and associated planning. As such, additional space required on site compared to the original plan and some existing infrastructure (i.e., ozone contactor) will need to be repurposed (i.e., to a clearwell) to maintain their value. This also represents additional time required for construction and will represent an additional aesthetic impact to the overall WTP site due to the additional new buildings required to accommodate this alternative
- Ozone dosing upstream of membrane filtration process has fewer full-scale applications demonstrating performance and success compared to post-membrane ozone dosing
- Contributes an additional process residual waste stream (i.e., spent filter backwash waste from the BAC process) that will need to be managed
- BAC process step represents additional equipment to operate and maintain. Additionally, good and consistent performance of the BAC process to quench ozone residual will be important in protecting the downstream membrane filters from damage associated with exposure to ozone
- The use of ozone year-round as well as the additional equipment associated with the BAC process step (e.g., backwash pumps) represents an increased power usage
- Represents the highest capacity cost and similar life cycle cost when compared to Alternatives B2 and B3. As such, represents the highest 20-year life cycle cost (approximately 10% higher than Alternatives B2 and B3)

6.3 Alternative B2: UV + Chlorine and Seasonal Ozone (with Provision for BAC)

Primary disinfection + T&O control Alternative B2 consists of providing primary disinfection year-round via UV + chlorine with provision for BAC in the future, if needed. Ozone dosing downstream of the 165 ML/d capacity membrane filtration process would be practiced seasonally to provide T&O control and provide primary disinfection redundancy. Ozone quenching would be maintained as currently practiced. This alternative was selected as the preferred alternative in the 2012 MCEA Study. The process flow diagram for this alternative is presented in Figure 6-2 with the unit processes relevant to the primary disinfection + T&O control alternative highlighted by a dashed box.

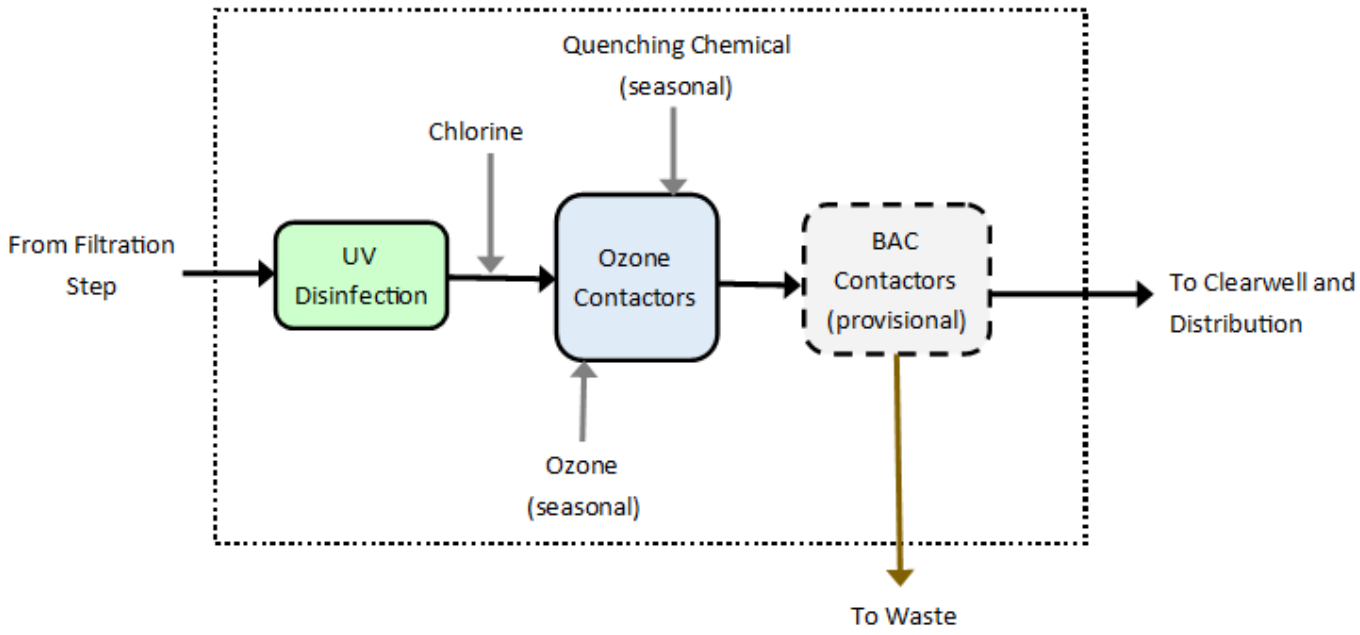

Figure 6-2 Alternative B2 Process Flow Diagram

The Phase 2 expansion to incorporate UV + chlorine for primary disinfection and seasonal ozone for T&O control would include adding the following:

- Two (2) liquid oxygen (LOX) storage tank and vaporizer assemblies on a concrete pad located to the south of the existing LOX tank
- Four (4) UV units, one on the effluent of each of the new membrane filter trains, in the space earmarked for the new membrane trains next to the existing membrane system. *Note: UV disinfection could also be provided instead through a common UV vault downstream of the membrane filter trains. The specific configuration of the UV system will be confirmed through detailed design*
- One (1) additional below grade ozone contactor installed next to the existing ozone contactor in the space earmarked for it on site directly south of the existing ozone contactor and Ozone Generator Room and served by a second permeate header from the four new membrane tanks
- Two (2) additional ozone generators and one (1) additional ozone destruct unit installed in the space earmarked for them in the existing Ozone Generator Room
- One (1) additional quenching chemical storage tank and one (1) additional dosing pump installed in the space earmarked for them in the existing Chemical Building
- Chlorine dosing via the existing chlorinators and storage of additional chlorine cylinders in the available space earmarked in the Chlorine Room of the Chemical Building
- *Provision for five (5) BAC contactors (operated in a 4 duty/1 standby configuration) and common backwash system. The BAC system would be installed downstream of the ozone contactors and housed in a new BAC Building located to the south of the ozone contactors along with associated yard piping*

The main advantages of this alternative are as follows:

- Consistent with the expansion design and space earmarked for the Phase 2 expansion through the original Burloak WTP design and associated planning
- Provides flexibility to incorporate a BAC process step in the future if needed to reduce AOC levels and/or to address changes to drinking water guidelines or water quality in the future (e.g., to provide further reduction of T&O compounds and DBP formation potential)
- Does not produce any additional process residual stream. *Note: if BAC contactors installed in the future, this step would contribute an additional process residual waste stream (i.e., spent filter backwash waste from the BAC process) that would need to be managed*
- Performance has been demonstrated through its incorporation in the existing WTP (noting that ozone is currently applied year-round rather than seasonally) and, in turn, is consistent with existing operations, maintenance and health & safety processes and practices. *Note: if BAC contactors installed in the future, this BAC process step would represent additional equipment to operate and maintain.*
- Provides flexibility to practice ozonation year-round (as current) for operational simplicity, if desired, and/or to address variable water quality in the future, if required
- Smallest building footprint required to accommodate the expansion (and same as Alternative B3) and consisting of additional buried ozone contactor along with incorporation of additional equipment in space earmarked within the exiting WTP. *Note: If BAC contactors installed in the future, the footprint will increase but will still represent the smallest overall building footprint to accommodate the expansion*
- Shortest anticipated implementation schedule, lowest impact to the aesthetics of the WTP site, and least disruptive to both Operations and the local neighbourhood to implement
- Low power usage and chemical usage
- Lowest capital cost, lowest annual operating & maintenance cost and, in turn, lowest 20-year life cycle cost

The main disadvantages of this alternative are as follows:

- Requires continuation of the practice of chemical quenching of ozone
- As noted, if BAC contactors are installed in the future, this step would contribute an additional process residual waste stream (i.e., spent filter backwash waste from the BAC process) that would need to be managed. The BAC process step would represent additional equipment to operate and maintain

6.4 Alternative B3: UV + Chlorine and Seasonal AOP via Ozone + H_2O_2 (with Provision for BAC)

Primary disinfection + T&O control Alternative B3 consists of providing primary disinfection year-round via UV + chlorine. An AOP consisting of ozone plus H_2O_2, with dosing downstream of the 165 ML/d capacity membrane filtration process, would be practiced seasonally to provide T&O control. The ozone system would also provide primary disinfection redundancy. Ozone quenching would be maintained as currently practiced. Provision for the addition of BAC contactors will be provided. This alternative (with AOP achieved via UV + H_2O_2) was reviewed and evaluated through the 2012 MCEA Study. The process flow diagram for this alternative is presented in Figure 6-3 with the unit processes relevant to the primary disinfection + T&O control alternative highlighted by a dashed box.

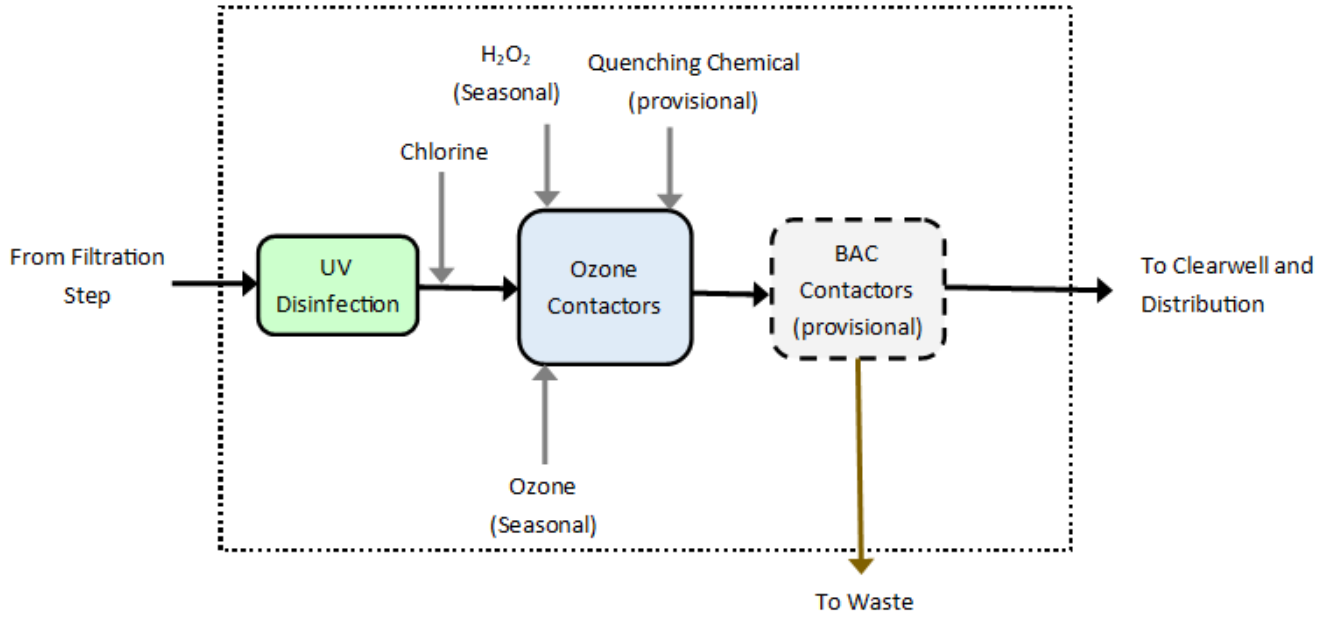

Figure 6-3 Alternative B3 Process Flow Diagram

The Phase 2 expansion to incorporate UV + chlorine for primary disinfection and seasonal AOP (via ozone and H_2O_2) for T&O control would include adding the following:

- Two (2) liquid oxygen (LOX) storage tank and vaporizer assemblies on a concrete pad located to the south of the existing LOX tank
- Four (4) UV units, one on the effluent of each of the new membrane filter trains, in the space earmarked for the new membrane trains next to the existing membrane system. *Note: UV disinfection could also be provided instead through a common UV vault downstream of the membrane filter trains. The specific configuration of the UV system will be confirmed through detailed design*
- One (1) additional below grade ozone contactor installed next to the existing ozone contactor in the space earmarked for it on site directly south of the existing ozone contactor and Ozone Generator Room and served by a second permeate header from the four new membrane tanks
- Two (2) additional ozone generators and one (1) additional ozone destruct unit installed in the space earmarked for them in the existing Ozone Generator Room
- Two (2) hydrogen peroxide storage tanks and a dosing system installed in the space earmarked for this system in the existing (but empty) Hydrogen Peroxide Room of the Chemical Building
- One (1) additional quenching chemical storage tank and one (1) additional dosing pump installed in the space earmarked for them in the existing Chemical Building
- Chlorine dosing via the existing chlorinators and storage of additional chlorine cylinders in the available space earmarked in the Chlorine Room of the Chemical Building
- *Provision for five (5) BAC contactors (operated in a 4 duty/1 standby configuration) and common backwash system. The BAC system would be installed downstream of the ozone contactors and housed in a new BAC Building located to the south of the ozone contactors along with associated yard piping*

The main advantages of this alternative are as follows:

- Consistent with the expansion design and space earmarked for the Phase 2 expansion through the original Burloak WTP design and associated planning
- Provides flexibility to incorporate a BAC process step in the future if needed to reduce AOC levels and/or to address changes to drinking water guidelines or water quality in the future (e.g., to provide further reduction of T&O compounds and DBP formation potential)
- Provides flexibility to practice ozonation year-round (as current) for operational simplicity, if desired, and/or to address variable water quality in the future, if required
- Does not produce any additional process residual stream. *Note: if BAC contactors installed in the future, this step would contribute an additional process residual waste stream (i.e., spent filter backwash waste from the BAC process) that would need to be managed*
- Smallest building footprint required to accommodate the expansion (and same as Alternative B2) and consisting of additional buried ozone contactor along with incorporation of additional equipment in space earmarked within the exiting WTP. *Note: If BAC contactors installed in the future, the footprint will increase but will still represent the smallest overall building footprint to accommodate the expansion*
- Short anticipated implementation schedule, lowest impact to the aesthetics of the WTP site, and least disruptive to both Operations and the local neighbourhood to implement
- Low capital and annual operating & maintenance costs that are similar to Alternative B2. Low 20-year life cycle cost comparable to Alternative B2

The main disadvantages of this alternative are as follows:

- AOP process step and H_2O_2 storage and dosing system, represent additional equipment to operate and maintain
- Represents an additional routine chemical delivery compared to current (i.e., H_2O_2)
- Requires continuation of the practice of chemical quenching of ozone (i.e., if/when AOP is not practiced via H_2O_2 dosing)
- As noted, if BAC contactors installed in the future, this step would contribute an additional process residual waste stream (i.e., spent filter backwash waste from the BAC process) that would need to be managed. The BAC process step would represent additional equipment to operate and maintain

6.5 Evaluation of Alternatives

The short-list of alternatives underwent an evaluation following the methodology described in Section 4.3. The results of the evaluation of alternatives are summarized in Table 5-2. Note that the evaluation of Alternatives B2 and B3 has considered incorporation of the provisional BAC contactors

Based on the evaluation summarized in the below table, the preferred primary disinfection + T&O control alternative is Alternative B2 which consists of incorporating additional UV, chlorination and ozonation capacity in the space earmarked for the Phase 2 expansion of these processes through the original Burloak WTP design. The alternative provides for provision of BAC contactors in the future, if needed. ***This is consistent with the preferred alternative identified in the 2012 MCEA Study.***

Table 6-2 Primary Disinfection + T&O Control Alternatives – Summary of Evaluation

Evaluation Criteria	Description	Weighting	Alternative B1: Ozone (Dosed Pre-Membranes) + BAC and UV + Chlorine	Score (1 to 10)	Alternative B2: UV + Chlorine and Seasonal Ozone (with Provision for BAC)	Score (1 to 10)	Alternative B3: UV + Chlorine and Seasonal AOP (with Provision for BAC)	Score (1 to 10)
Technical Performance								
Ability to Meet Anticipated Future Drinking Water Guidelines	Ability to meet anticipated future drinking water guidelines (i.e., more stringent and/or new)	10	• Will provide excellent disinfection and T&O control performance • BAC will also contribute to reduction AOC, DBP precursors and potential emerging contaminants • Year-round ozonation provides additional reduction of potential emerging contaminants	10	• Will provide excellent disinfection and T&O control performance • BAC will also contribute to reduction AOC, DBP precursors and potential emerging contaminants	9	• Will provide excellent disinfection and T&O control performance • BAC will also contribute to reduction AOC, DBP precursors and potential emerging contaminants	9
Process Residuals Generated	Process waste residuals quantity and quality	5	• BAC process represents an additional residual stream to manage	5	• BAC process represents an additional residual stream to manage	5	• BAC process represents an additional residual stream to manage	5
Process Reliability and Resiliency to Climate Change	Process reliability and resiliency to climate change impacts on water quality	10	• Robust treatment process • Year-round ozonation provides additional resiliency to varying water quality	10	• Robust treatment process	8	• Robust treatment process	8
Implementation								
Permits and Approvals	Risk to implementation schedule due to approval and permit requirements	5	• Small amendment to drinking water works permit required due to new processes	7	• Minimal amendment to drinking water works permit required as processes the same as existing with exception of BAC	9	• Minor amendment to drinking water works permit required to add AOP and BAC processes	8
Building Expansion Footprint	Footprint of WTP expansion to accommodate all treatment equipment and ancillary systems and buildings	5	• Requires the most additional space to implement due to the new ozone contactors at the front of the treatment train • Remainder of processes will be accommodated within the existing WTP and space earmarked for expansion with exception of the BAC process	8	• Smallest footprint • Will be accommodated within the existing WTP and space earmarked for expansion with exception of the BAC process	10	• Smallest footprint • Will be accommodated within the existing WTP and space earmarked for expansion with exception of the BAC process	10
Constructability	Ability to construct and implement expeditiously Ability to phase the expansion as appropriate to meet changing conditions Risk to implementation schedule as well as potential for disruption to	15	• Process train represents the largest change compared to the existing WTP treatment train • Requires additional tankage and retrofit of the WTP to implement which will represent additional phasing and time for implementation	5	• Simplest and most expedient to implement because the systems utilize space in the existing WTP and in the space already earmarked expansion with the exception of the BAC process	8	• Simple and expedient to implement because the systems utilize space in the existing WTP and in the space already earmarked expansion with the exception of the BAC process • AOP represents one additional chemical system to install	7

Evaluation Criteria	Description	Weighting	Alternative B1: Ozone (Dosed Pre-Membranes) + BAC and UV + Chlorine	Score (1 to 10)	Alternative B2: UV + Chlorine and Seasonal Ozone (with Provision for BAC)	Score (1 to 10)	Alternative B3: UV + Chlorine and Seasonal AOP (with Provision for BAC)	Score (1 to 10)
	WTP operations and neighbouring residents							
Operation & Maintenance								
Operational and Maintenance Requirements	Ease of operation and maintenance as well as risk to worker health & safety Consistency with processes and practices at the Region's other WTPs	15	• Largest deviation from current systems and practices requiring adjustment to related Operation & Maintenance • BAC process is new and represents additional Operation & Maintenance requirements and additional Health & Safety training and protocols	5	• Most consistent with current systems and practices • BAC process is new and represents additional Operation & Maintenance requirements and additional Health & Safety training and protocols	7	• Consistent with current systems and practices but adds an additional process when AOP practiced (i.e. H_2O_2 system). Additional Health & Safety training and protocols required accordingly • BAC process is new and represents additional Operation & Maintenance requirements and additional Health & Safety training and protocols	6
Product Diversity	Availability and diversity of product on the market for replacement consumables and equipment components	3	• Reasonable product diversity available	8	• Reasonable product diversity available	8	• Reasonable product diversity available	8
Sustainability								
GHG Emissions	Anticipated GHG emissions associated with treatment train (including residuals management system)	3	• Additional tankage represents higher GHG emissions through construction phase • Moderate GHG emissions during operation and related to power usage for ozone and UV	6	• Lower GHG emissions through construction due to small footprint • Lowest GHG emissions during operation due to lower power usage associated with seasonal operation of ozone	8	• Lower GHG emissions through construction due to small footprint • Lower GHG emissions during operation due to lower power usage associated with seasonal operation of ozone for AOP noting H_2O_2 chemical use when AOP practiced	7
Chemical Usage	Anticipated treatment train (including residuals management system) chemical usage	2	• Represents low chemical usage	8	• Represents lowest chemical usage	10	• Represents low chemical use noting H_2O_2 chemical use when AOP practiced	7
Power Usage	Anticipated treatment train (including residuals management system) power usage	4	• Represents highest power usage due to year-round operation of both ozone and UV	6	• Represents lowest power usage noting UV not operated when ozone operated (i.e., during T&O season)	8	• Represents low power usage due to year-round operation of UV and only seasonal operation of ozone	7
Environmental								
Social Environment	Impact to the social environment including the potential for the disruption of neighbouring properties and residents	4	• Additional BAC building would be located to west of the existing WTP buildings represents a slightly greater impact to aesthetics for the neighbouring properties	7	• Additional BAC building would be located to the south of the ozone contactors and further from neighbouring properties lessening the aesthetic impact	8	• Additional BAC building would be located to the south of the ozone contactors and further from neighbouring properties lessening the aesthetic impact	7

Evaluation Criteria	Description	Weighting	Alternative B1: Ozone (Dosed Pre-Membranes) + BAC and UV + Chlorine	Score (1 to 10)	Alternative B2: UV + Chlorine and Seasonal Ozone (with Provision for BAC)	Score (1 to 10)	Alternative B3: UV + Chlorine and Seasonal AOP (with Provision for BAC)	Score (1 to 10)
	during normal operation including the overall aesthetics of the WTP expansion		• Mitigation to social environment through day-to-day operation will be similar to current		• Mitigation to social environment through day-to-day operation will be similar to current		• Mitigation to social environment through day-to-day operation will be same as current noting additional seasonal H_2O_2 chemical delivery required	
Natural Environment	Impact to natural heritage areas (includes ANSI, significant wetlands, significant woodlands, significant valleylands, habitat for endangered and threatened species, significant wildlife habitat, fish habitat)	4	• Anticipated mitigation measures and constraints to implement through construction will be the same for all alternatives. Potential impacts can be managed and minimized	10	• Anticipated mitigation measures and constraints to implement through construction will be the same for all alternatives. Potential impacts can be managed and minimized	10	• Anticipated mitigation measures and constraints to implement through construction will be the same for all alternatives. Potential impacts can be managed and minimized	10
Cultural Heritage Environment	Impact to areas identified to be of archaeological, historical or cultural significance	0	• Not applicable	-	• Not applicable	-	• Not applicable	-
Economic								
Life Cycle Cost	The 20-year life cycle cost is considered and includes the initial capital cost, as well as associated Operations and Maintenance costs over this period	15	• Higher relative capital cost and similar annual O&M cost • 20-year life cycle cost approximately 10% higher compared to Alternative B2	9	• Lower relative capital cost and similar annual O&M cost • Lowest 20-year life cycle cost	10	• Lower relative capital cost and slightly higher annual O&M cost due to additional seasonal chemical • Lower 20-year life cycle cost and similar to Alternative B2	10
Total		**100**		**74**		**84**		**79**

7 PROCESS RESIDUALS MANAGEMENT ALTERNATIVES

As outlined in Section 5, the preferred particulate removal alternative remains to incorporate additional membrane filtration capacity (with the ability to practice coagulation/flocculation) in the space earmarked for the Phase 2 expansion of these processes through the original Burloak WTP design. As outlined in Section 6, the preferred primary disinfection + T&O control alternative consists of providing primary disinfection year-round via UV + chlorine with provision for BAC in the future, if needed. Ozone dosing downstream of the membrane filtration process will be practiced seasonally to provide T&O control and provide primary disinfection redundancy. As such, the process waste residuals generated will be consistent with current and will consist of spent membrane filter backpulse water, spent maintenance clean water and spent CIP water. If BAC contactors are incorporated in the future, this step would contribute an additional process residual waste stream (i.e., spent filter backwash waste from the BAC process) that would need to be managed and will be taken into consideration in the review of process residuals management alternatives.

Currently the WTP generates residuals at a rate of up to 5% of its gross capacity (i.e., overall recovery of 95%), which translates to a maximum of 3.2 ML/d (or 37 L/s) at full capacity. These process residuals are neutralized and then sent to two (2) wastewater equalization tanks prior to conveyance via transfer pumps to the sanitary sewer system. Following the Phase 2 expansion of the WTP, the membrane filtration process is anticipated to generate a maximum of 9.6 ML/d (or 111 L/s) at full capacity (i.e., based on residuals rate of up to 5%). If BAC contactors are incorporated in the future, the estimated equalized residual generation rate would be up to an additional 1.2 ML/d (or 14 L/s) for a total of up to 10.8 ML/d (or 125 L/s).

In 2005, the WTP was allocated a discharge rate of up to 75 L/s to the sanitary sewer system. A more recent hydraulic analysis of the current sanitary sewer system capacity completed by the Region (in 2025) indicates that a discharge rate of up to 115 L/s to the sanitary sewer could potentially be accommodated during dry weather conditions. Additional allocation would require further review and would also require mitigation measures to handle discharges during wet weather events, such as via the addition of a retention or holding pond. As such, the current WTP allocation of 75 L/s to the sanitary sewer system will be assumed through the review of process residuals management alternatives.

The 2012 MCEA Study reported that a spare capacity for WTP residuals disposal to the storm sewer system of 210 L/s. However, a more recent review of the overall storm sewer capacity by the Town of Oakville (in 2025) indicates that no allocation is available to the WTP for process residuals based on current conditions. All available capacity must be reserved for site drainage.

In consideration of the above, the long-list screening of process residuals management alternatives following the methodology described in Section 4.2 was completed and is summarized in Table 7-1.

Table 7-1 Process Residuals Management Alternatives – Summary of Preliminary Screening

Alternative	Summary of Preliminary Screening	Reviewed in 2012 MCEA Study?	Short-Listed?
Disposal of all Residuals to Sanitary Sewer	All process residuals will be discharged to the sanitary sewer. ***The WTP's current sanitary sewer allocation of 75 L/s cannot accommodate the estimated residuals generation rate up to 125 L/s. This alternative is not technically feasible.***	No	No
On-Site Residuals Treatment via Residuals Management Plant (RMP) with Supernatant Recycling to Head of WTP	A new RMP incorporating plate settlers clarification/thickening will receive spent membrane backpulse water (and provisionally spent BAC backwash water) from the equalization tank. The treated solid stream will discharge to the sanitary sewer (up to approximately 4 L/s). The treated liquid stream (supernatant) will be UV disinfected and then be recycled to the head of the WTP (up to approximately 115 L/s). The chemical residual waste streams (spent maintenance clean water and spent CIP water) will be sent to the sanitary sewer (approximately 6 L/s). *The addition of an RMP is not anticipated to impact the ability of the ultimate WTP expansion to be accommodated within the available space earmarked on the existing WTP site. It meets the screening criteria.*	Yes[a] (but with supernatant discharge to Sheldon Creek)	Yes
Second Membrane Filtration Stage to Reduce Residuals Volume and Disposal of Residuals to Sanitary System	The second stage membrane filtration system will reduce the residuals generation rate to approximately 1% of gross capacity, which translates to up to 2.1 ML/d (or 24 L/s). All process residuals will be discharged to the sanitary sewer. *This additional treatment process is not anticipated to impact the ability of the ultimate WTP expansion to be accommodated within the available space earmarked on the existing WTP site. It meets the screening criteria.*	Yes (but with membrane permeate treated via UV and recycled to head of WTP)	Yes

[a] *Residuals treatment via a Residuals Management Plant (RMP) incorporating plate settlers clarification thickening unit treatment processes and with discharge of the treated solid stream to the sanitary sewer and the treated liquid stream to the East Sheldon Creek was identified as the preferred alternative in the 2012 MCEA Study*

Based on the above, the process residuals management alternatives included in the short-list and identified for further evaluation are as follows:

1. Alternative C1: On-Site Residuals Treatment via RMP
2. Alternative C2: Second Membrane Filtration Stage and Disposal of Residuals to Sanitary System

7.1 Alternative C1: On-Site Residuals Treatment via a Residuals Management Plant (RMP) with Supernatant Recycling to Head of WTP

Process residuals management Alternative C1 consists of constructing a new RMP to provide on-site treatment of process residuals. The RMP will incorporate plate settlers for clarification/thickening and will receive spent membrane backpulse water that has been dechlorinated (and, provisionally, spent backwash water from BAC contactors if they are added in the future as discussed in Section 5). The treated solid stream (sludge) will discharge to the sanitary sewer (up to approximately 4 L/s). The treated liquid stream (supernatant) will be UV disinfected and then be recycled to the head of the WTP (up to approximately 115 L/s or 5% of the WTP gross capacity). The neutralized chemical residual waste streams (spent maintenance clean water and spent CIP water) from the neutralization tank will discharge directly to the sanitary sewer system for disposal (approximately 6 L/s). This alternative was selected as the preferred alternative in the 2012 MCEA Study with exception that the treated liquid stream would be directed to the environment (East Sheldon Creek) rather than providing the ability to recycle this stream to the head of the WTP. The process flow diagram for the unit processes relevant to the process residuals management alternative is presented in Figure 7-1 with the unit processes relevant to the process residuals management alternative highlighted by a dashed box.

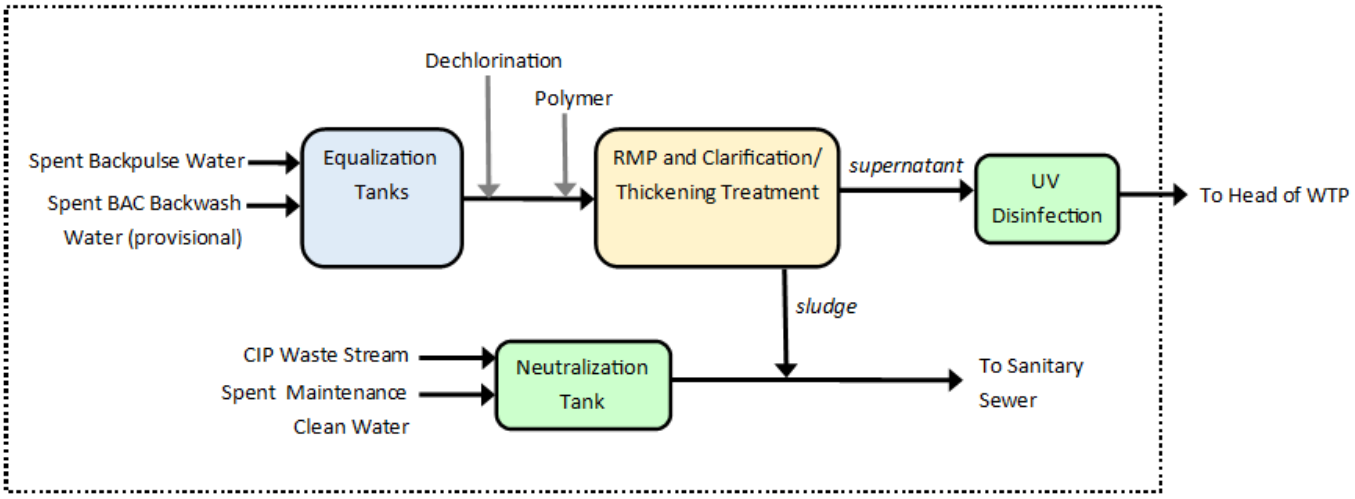

Figure 7-1 Alternative C1 Process Flow Diagram

The Phase 2 expansion to incorporate this process residuals management alternative includes adding the following:

- Construction of a new RMP incorporating polymer dosing and plate settlers for clarification/thickening and a UV system for supernatant disinfection. Installation of associated yard piping to direct dechlorinated equalization tank effluent to the RMP, supernatant to the head of the WTP at the Low Lift Pump Station (LLPS) wetwell, and sludge to the sanitary sewer system

The main advantages of this alternative are as follows:

- Provides opportunity for a near zero liquid waste WTP via the practice of recycling treated and disinfected supernatant to the head of the WTP.

- Represents lowest annual operation & maintenance cost (approximately 50% lower compared to Alternative C2 if supernatant recycle practiced) and, as such, lowest 20-year life cycle cost (by approx. 10%) despite much higher capital cost

The main disadvantages of this alternative are as follows:

- Requires a new RMP Building and associated equipment, system, yard piping and process controls. Represents the alternative with the largest building footprint and the highest capital cost (approximately 3 times higher capital cost compared to Alternative C2). This also represents additional time required for construction and will represent an additional aesthetic impact to the overall WTP site due to the additional new building required to accommodate this alternative. However, because it is a separate and independent building and system, staging of the RMP construction can be coordinated to minimize the impact on the operation of the WTP
- Represents an operational risk if recycling treated and disinfectant supernatant to the head of the WTP cannot be practiced due to water quality or operational issues. Supernatant would instead need to be directed to the sanitary sewer in the interim, which would be very costly and would need to be managed through equalization to respect the WTP's sanitary sewer discharge allocation (i.e., 75 L/s)
- The new RMP incorporating polymer dosing and plate settlers for clarification/thickening and a UV system for supernatant disinfection represent new and additional equipment to operate and maintain with additional health and safety protocols to implement
- Represents an additional routine chemical delivery compared to current (i.e., polymer)

7.2 Alternative C2: Second Membrane Filtration Stage and Disposal of all Residuals to Sanitary System

Process residuals management Alternative C2 consists of incorporating a second stage membrane filtration system into the main WTP treatment process train with the goal of reducing the overall process residuals volume that needs to be managed. The second stage membrane filtration system will receive the spent backpulse residuals stream from the first stage membrane filters. If the provisional BAC contactors are added in the future (as discussed in Section 5), the spent BAC backwash water would be sent to the membrane equalization tank and on to the second stage membrane filtration also. The permeate from the second stage membrane filters will be directed to the WTP disinfection step (along with the permeate from the first stage membrane filters). The spent backpulse water from the second stage membrane filters will be sent to the equalization tanks and then directly discharged to the sanitary sewer. The neutralized chemical residual waste streams from the first and second stage membrane filtration systems (spent maintenance clean water and spent CIP water) will also be sent to the equalization tanks and then discharged to the sanitary sewer. This two-stage membrane filtration system configuration will increase the overall recovery rate from approximately 95% to 99%. This means the WTP will generate residuals at a rate of up to 1% of its gross capacity, which translates to a maximum of 2.1 ML/d (or 24 L/s) at full capacity. This alternative was reviewed and evaluated in the 2012 MCEA Study but the secondary membrane system was incorporated in an on-site RMP with the membrane permeate UV disinfected and then recycle to the head of the WTP. The process flow diagram for the unit processes relevant to the process residuals management alternative is presented in Figure 7-2 with the unit processes relevant to the process residuals management alternative highlighted by a dashed box.

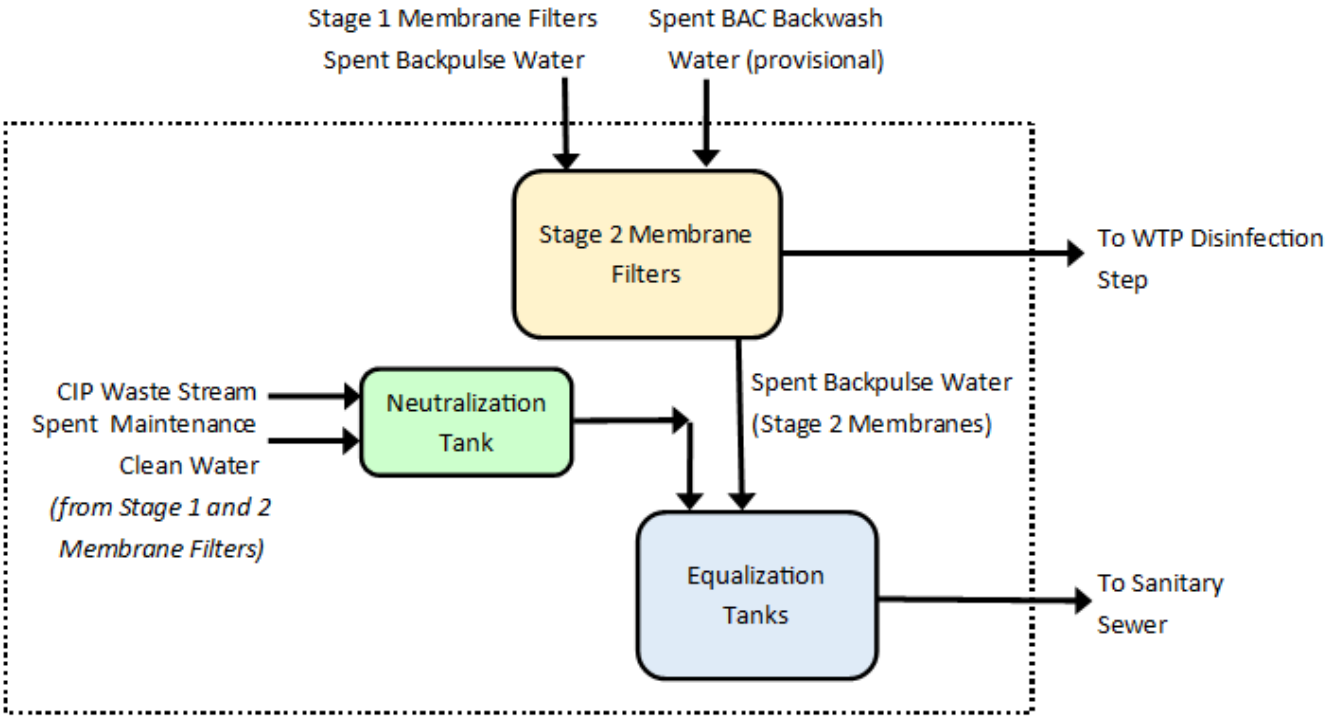

Figure 7-2 Alternative C2 Process Flow Diagram

The Phase 2 expansion to incorporate this process residuals management alternative includes adding the following:

- Three (3) transfer pumps (2 duty/1 standby) for transfer of spent backpulse water from the first stage membrane filters to the second stage membrane filtration system
- A second stage membrane filtration system including three (3) ultrafiltration membrane filter trains (2 duty/1 standby), two (2) air scour blowers (duty/standby), two (2) backwash (backpulse) pumps (duty/standby), one (1) CIP system, equalization tankage (i.e., to receive the spent backpulse water from the stage 1 membrane filters and, provisionally, the spent BAC backwash water) and associated transfer pumping, and additional associated yard and process piping. This additional membrane filtration system will be located to the south of the new ozone contactors and to the east of the first stage membrane filtration system with the Membrane Building expanded accordingly.
- One (1) additional equalization tank transfer pump

The main advantages of this alternative are as follows:

- Provides opportunity to significantly reduce the volume (i.e., by 5 times) of residuals requiring disposal to the sewer system. This represents a lower volume of residuals discharged to the sanitary compared to current (i.e., up to 24 L/s following Phase 2 WTP expansion vs. up to 37 L/s currently)
- The membrane filtration treatment process is familiar, and the Region already has related operation, maintenance and health & safety processes and practices in place. Discharge of resulting residual stream to sanitary system is

also consistent with the Region's current residuals management practices, and related existing operation, maintenance and health & safety processes

- Lowest capital cost (approximately 3 times lower than Alternative C1)

The main disadvantages of this alternative are as follows:

- Requires additional expansion of the Membrane Building to accommodate the secondary membrane filtration system. This also represents additional time required for construction and will represent an additional aesthetic impact to the overall WTP site due to the additional building expansion required to accommodate this alternative.
- Staging and phasing of the secondary membrane filtration system will be required to minimize the impact on Operations and the existing WTP
- Membrane product diversity is limited
- Represents the highest relative power usage primarily due to pumping to provide required membrane feed pressure and due to the heating needs for membrane cleaning events
- Due to higher annual operation & maintenance cost (approximately double of that for Alternative C1), represents the highest 20-year life cycle cost (by approximately 10%) despite the much lower capital cost

7.3 Evaluation of Alternatives

The short-list of alternatives underwent an evaluation following the methodology described in Section 4.3. The results of the evaluation of alternatives are summarized in Table 7-2.

Based on the evaluation summarized in the below table, the preferred process residuals management alternative is Alternative C2 which consists of incorporating a second stage membrane filtration system into the main WTP treatment process train with the goal of reducing the overall process residuals volume that needs to be managed. The resulting process residuals stream is equalized and then discharged to the sanitary sewer. ***This represents a modification to the preferred alternative identified in the 2012 MCEA Study. Consistent with the updated key considerations, this alternative does not require discharge of treated process residuals to the East Sheldon Creek and eliminates any related environmental impacts.***

Table 7-2 Process Residuals Management Alternatives – Summary of Evaluation

Evaluation Criteria	Description	Weighting	Alternative C1: On-Site Treatment via RMP with Recycling to head of WTP	Score (1 to 10)	Alternative C2: Second Membrane Filtration Stage and Residuals to Sanitary	Score (1 to 10)
Technical Performance						
Ability to Meet Anticipated Future Drinking Water Guidelines	Ability to meet anticipated future drinking water guidelines (i.e., more stringent and/or new)	10	• Represents the most stringent treated residuals water quality requirements to permit recycle to the head of the WTP • Represents risk if recycled water quality requirements are not met and/or become more stringent in the future	5	• Represents lowest relative volume to manage and less stringent water quality discharge requirements based on treated residual disposal to the sanitary sewer system	9
Process Residuals Generated	Process waste residuals quantity and quality	5	• Highest relative residual volume generated • Close monitoring and management of treated residual water quality required to allow recycle to head of WTP	5	• Lowest relative residual volume generated (and less than existing WTP) • Easiest to manage as can be sent directly to sanitary system following equalization	10
Process Reliability and Resiliency to Climate Change	Process reliability and resiliency to climate change impacts on water quality	10	• Potential process upsets at RMP due to variable water quality and/or climate impacts will need to be managed to allow consistent recycle of the treated residual stream to the head of the WTP	7	• Variable water quality not anticipated to impact ability to discharge equalized residual stream to sanitary sewer system	10
Implementation						
Permits and Approvals	Risk to implementation schedule due to approval and permit requirements	5	• Amendment to drinking water works permit required to add RMP and recycle to head of the WTP	6	• Amendment to drinking water works permit required to add additional second stage membrane filtration system	6
Building Expansion Footprint	Footprint of WTP expansion to accommodate all treatment equipment and ancillary systems and buildings	5	• Larger additional footprint required to accommodate the new RMP building	4	• Smallest footprint required to accommodate the second stage membrane filtration system in an expanded Membrane Building	6
Constructability	Ability to construct and implement expeditiously Ability to phase the expansion as appropriate to meet changing conditions Risk to implementation schedule as well as potential for disruption to WTP operations and neighbouring residents	15	• Simpler construction staging as RMP can be constructed first and then incorporated into overall WTP with limited disruption to existing WTP operations and minimal interruption for tie ins	6	• Additional construction staging and phasing to accommodate tie in of second stage membrane filtration to a live system in order to minimize related disruption to WTP operations	3
Operation & Maintenance						
Operational and Maintenance Requirements	Ease of operation and maintenance as well as risk to worker health & safety Consistency with processes and practices at the Region's other WTPs	15	• Represent new unit processes with additional Operation & Maintenance requirements and additional Health & Safety training and protocols • New system will be housed in new, separate RMP building away from the main WTP which is less convenient for day-to-day in person monitoring and attendance	3	• Represents additional Operation & Maintenance effort due to additional membrane filtration system. However, it will be consistent with the existing system and related Operation & Maintenance and Healthy & Safety protocols are familiar to Operations staff	6

Evaluation Criteria	Description	Weighting	Alternative C1: On-Site Treatment via RMP with Recycling to head of WTP	Score (1 to 10)	Alternative C2: Second Membrane Filtration Stage and Residuals to Sanitary	Score (1 to 10)
Product Diversity	Availability and diversity of product on the market for replacement consumables and equipment components	3	• Main RMP process unit (i.e., clarification incorporating plate settlers) has many options on the market for replacement parts and consumables	8	• Membrane product diversity is limited	5
Sustainability						
GHG Emissions	Anticipated GHG emissions associated with treatment train (including residuals management system)	3	• Additional clarification tankage and building represent higher GHG emissions through construction phase • Clarification recirculation system represents main contributor to GHG emissions during operation	8	• Smaller building and equipment footprint represent lower GHG emissions through construction • Membrane filtration process and related power usage represents higher GHG emissions during operation • Discharge of treated residuals to sanitary sewer system represents additional load to WWTP and related GHG emissions	6
Chemical Usage	Anticipated treatment train (including residuals management system) chemical usage	2	• Higher usage and new chemicals required for the RMP processes • A new polymer chemical will be required for the clarification/thickening process • Additional dechlorination dosing will be required to accommodate treated residual recycle to the head of the WTP	6	• Represents lower chemical usage • Required chemicals are associated with the membrane filtration system including chlorine for the daily maintenance clean and chlorin and citric acid for the CIP cleans. These are the same as currently used	7
Power Usage	Anticipated treatment train (including residuals management system) power usage	4	• RMP building and clarification/thickening, UV and recycle pumping process equipment will contribute a new power load • Represents lower relative power usage	7	• Represents higher power usage primarily due to pumping to provide required membrane feed pressure and due to heating for CIP events	6
Environmental						
Social Environment	Impact to the social environment including the potential for the disruption of neighbouring properties and residents during normal operation including the overall aesthetics of the WTP expansion	4	• Additional RMP building required and could be located further from neighbouring properties to lessen the aesthetic impact • Mitigation to social environment through day-to-day operation will be similar to current noting additional polymer chemical delivery required	7	• Additional Membrane Building expansion required beyond the space earmarked although it will remain consistent with current WTP aesthetic • Mitigation to social environment through day-to-day operation will be same as current	8
Natural Environment	Impact to natural heritage areas (includes ANSI, significant wetlands, significant woodlands, significant valleylands, habitat for endangered and threatened species, significant wildlife habitat, fish habitat)	4	• Anticipated mitigation measures and constraints to implement through construction will be the same for all alternatives. Potential impacts can be managed and minimized	8	• Anticipated mitigation measures and constraints to implement through construction will be the same for all alternatives. Potential impacts can be managed and minimized	8
Cultural Heritage Environment	Impact to areas identified to be of archaeological, historical or cultural significance	0	• Not applicable	-	• Not applicable	-
Economic						

Evaluation Criteria	Description	Weighting	Alternative C1: On-Site Treatment via RMP with Recycling to head of WTP	Score (1 to 10)	Alternative C2: Second Membrane Filtration Stage and Residuals to Sanitary	Score (1 to 10)
Life Cycle Cost	The 20-year life cycle cost is considered and includes the initial capital cost, as well as associated Operations and Maintenance costs over this period	15	• Significantly higher relative capital cost but lowest annual O&M cost as long as treated residual stream can be recycled to head of the WTP (rather than discharged to sanitary sewer system) • 20-year life cycle cost approximately 10% lower	10	• Significantly lower relative capital cost but highest annual O&M cost due to sanitary sewer discharge charges • 20-year life cycle cost approximately 10% higher	9
Total		**100**		**63**		**71**

8 BURLOAK WTP PHASE 2 EXPANSION DESIGN CONCEPT

Based on the results of the evaluation of the main process treatment categories, the preferred overall design concept for the Phase 2 expansion of the Burloak WTP will incorporate the following:

- **Particulate Removal.** As discussed in Section 5, Alternative A2 was identified as the preferred particulate removal alternative. This alternative consists of incorporating additional coagulation/flocculation and membrane filtration capacity in the space earmarked for the Phase 2 expansion of these processes through the original Burloak WTP design. ***This is consistent with the preferred alternative identified in the 2012 MCEA Study.***
- **Primary Disinfection + Taste & Odour Control.** As discussed in Section 6, Alternative B2 was identified as the preferred primary disinfection + T&O control alternative. This alternative consists of incorporating additional UV, chlorination and ozonation capacity in the space earmarked for the Phase 2 expansion of these processes through the original Burloak WTP design. The alternative provides for provision of BAC contactors in the future, if needed. ***This is consistent with the preferred alternative identified in the 2012 MCEA Study.***
- **Process Residuals Management.** As discussed in Section 7, Alternative C2 was identified as the preferred process residuals management alternative. This alternative consists of incorporating a second stage membrane filtration system into the main WTP treatment process train with the goal of reducing the overall process residuals volume that needs to be managed. The resulting process residuals stream is equalized and then discharged to the sanitary sewer. ***This represents a modification to the preferred alternative identified in the 2012 MCEA Study. This alternative does not require discharge of treated process residuals to the East Sheldon Creek and eliminates any related environmental impacts.***

In addition to the above noted main process treatment categories and related system components, the Phase 2 expansion includes adding the following:

- Two (2) variable speed low lift pumps in the space earmarked in the existing low lift pumping station
- Three (3) additional below grade clearwell cells installed in the space earmarked to the east of the existing high lift pumping station and on either side of the new high lift pumping station
- Two (2) variable speed high lift pumps housed in a new high lift pumping station in the space earmarked for it on site directly south of the existing high lift pumping station
- Extension of the electrical and generator building in the space earmarked to the east and to house additional emergency back-up power (i.e., generator)
- Additional mechanical systems (i.e. Heat, Ventilation and Air Conditioning (HVAC)) required to accommodate the new and expanded buildings will be housed in a new HVAC Room located adjacent to the expanded Membrane Building

The process schematic for the overall design concept for the Phase 2 WTP expansion incorporating the above preferred main process treatment alternatives is presented in Figure 8-1. The conceptual site plan for the overall WTP expansion design concept is illustrated in Figure 8-2.

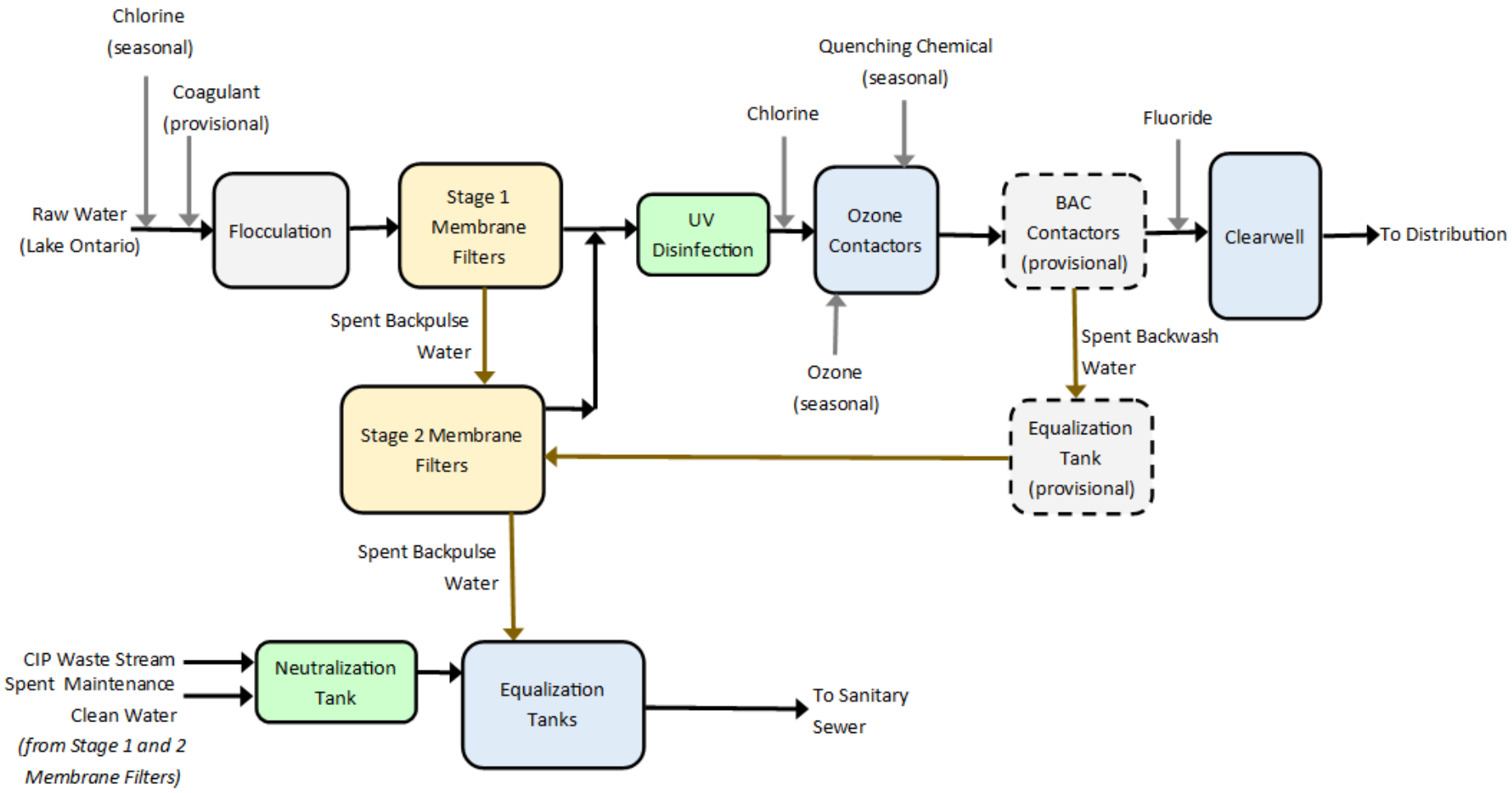

Figure 8-1 Process Schematic for Design Concept for the Phase 2 WTP Expansion

Figure 8-2 Conceptual Site Layout for Design Concept for the Phase 2 WTP Expansion

9 PUBLIC AND AGENCY CONSULTATION

Consultation with the public, review agencies, and First Nations and Indigenous Communities is a key element of the MCEA process and input was sought at key milestones throughout this addendum.

9.1 Summary of Consultation Activities

Throughout the addendum, stakeholders, including the public and property owners, First Nations and Indigenous communities, review agencies, and other interested parties, were given a variety of opportunities to review and comment on the addendum process, key findings, proposed alternatives, and recommended solution. The consultation activities undertaken as part of the addendum include the following:

- Development of a stakeholder contact list, which was updated throughout the addendum
- Communication with First Nations and Indigenous communities by email
- Communication with review agencies and other interested parties by email
- Maintenance of a project website to make available to the public additional details and background information related to the addendum (Halton - Notice of Commencement: Municipal Class Environmental Assessment Study – Addendum to the Burloak Wat)
- Project notices
- Consultation with key stakeholders via email and virtual meetings
- Public release of this Addendum to the Environmental Study Report (ESR)

9.2 Project Notices

9.2.1 Notice of Commencement

The Notice of Commencement to advise the public of the addendum was posted on the Region's project website on December 18, 2024 (Halton - Notice of Commencement: Municipal Class Environmental Assessment Study – Addendum to the Burloak Wat). A hard copy of the Notice of Commencement was hand delivered to the 554 properties within a 300 m radius of the Burloak WTP on January 7 to 9, 2025. ***This is consistent with the approach taken for the 2012 MCEA Study.***

A copy of the Notice of Commencement with cover letter was sent via email to the review agencies and stakeholders listed in Section 9.4 – Review Agencies and Study Stakeholders on December 18 and 23, 2024 and January 22, 2025. A copy of the Notice of Commencement with cover letter was sent via email to the First Nations and Indigenous Communities listed in Section 9.5 – First Nations and Indigenous Communities on January 20, 2023.

A sample copy of the Notice of Commencement and the cover letter sent to each review agency, and First Nations and Indigenous Communities are included in **Appendix C**.

9.2.2 Notice of Addendum

The Region endorsed the Addendum to the 2012 ESR and approved the release of the Notice of Addendum. The Notice of Addendum was published on September 3, 2025 and posted to the Region's project website. A hard copy of the Notice of Addendum was hand delivered to the same 554 properties within a 300 m radius of the Burloak WTP on September 3, 2025. ***This is consistent with the approach taken for the 2012 MCEA Study.***

A copy of the Notice of Addendum was sent via email to the review agencies and stakeholders listed in Section 9.4 – Review Agencies and Study Stakeholders, to the First Nations and Indigenous Communities listed in Section 9.5 – First Nations and Indigenous Communities, and to the local residents who had requested to be included in updates on the addendum as outline in Table 9-1.

A copy of the Notice of Addendum is included in **Appendix D**.

9.3 Public Consultation

The main opportunities for consultation during the addendum process included:

- Distribution of notices and emails at key milestones
- Release of information on the project website

The Region maintained a project website, which included a summary of the purpose and scope of the addendum, and links to supporting documents. Additionally, residents and other stakeholders were added to the Stakeholder Registry and provided additional details and updates on the addendum upon request.

Comments received from the public were compiled and considered in the completion of the addendum. Comments received and the related addendum team responses are summarized in Table 9-1 and provided in **Appendix E**.

Table 9-1 Public Comment Summary for Addendum

Public/Stakeholder Group	Comment/Question	Addendum Team Response
Lakeshore Woods neighbourhood resident	• Request to be included on Stakeholder Registry (i.e., addendum mailing list)	• Acknowledged request and added resident to Stakeholder Registry
Vellwood Common Resident	• Request to be included on Stakeholder Registry • Concern with impact of real estate value and enjoyment of rear yards if WTP expanded to the west • Request for copy of 2012 MCEA Environmental Study Report	• Acknowledged request and added resident to Stakeholder Registry • Social environment and impact to aesthetics included in evaluation of alternatives and potential impact mitigation measures • Provided electronic copy of the 2012 MCEA Environmental Study Report
Resident	• Request to be included on Stakeholder Registry	• Acknowledged request and added resident to Stakeholder Registry
Member of the Public (2)	• Request to be included on Stakeholder Registry	• Acknowledged request and added individual to the Stakeholder Registry

Public/Stakeholder Group	Comment/Question	Addendum Team Response
Vellwood Common Resident	• Request to be included on Stakeholder Registry • Concern with potential proximity of WTP expansion to the houses in Vellwood Common • Request for copy of 2012 MCEA Environmental Study Report	• Acknowledged request and added resident to Stakeholder Registry • Confirmed that approximately the same distance from the western property line to the existing WTP building is anticipated • Provided electronic copy of the 2012 MCEA Environmental Study Report

9.4 Review Agencies and Study Stakeholders

The Notice of Commencement was shared electronically and the following review agencies were contacted via email to solicit their input on this addendum:

- Ministry of the Environment, Conservation and Parks (MECP)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Citizenship and Multiculturalism (MCM)
- Ministry of Transportation
- Ministry of Agriculture, Food and Rural Affairs
- Ministry of Municipal Affairs
- Ministry of Economic Development, Job Creation and Trade
- Infrastructure Ontario
- Ontario Parks
- Conservation Halton

The following additional interested parties were provided the Notice of Commencement electronically and were contacted via email to solicit their input on this addendum:

- City of Burlington
- Town of Oakville
- Town of Milton
- Town of Halton Hills
- Town Ward Councillors and Mayors
- Emergency Services
- Rail and Transit Authorities
- School Boards

A detailed mailing list is provided in **Appendix F** and includes the specific department and personnel contacted.

Comments received and the related responses are summarized in Table 9-2. All related correspondence is provided in **Appendix F.** Additional summary of the communication with Conservation Halton and considerations to be carried through detailed design are provided in the subsequent sub-section.

Table 9-2 Review Agency and Stakeholder Comment Summary for Addendum

Review Agency/ Stakeholder	Comment/Question	Addendum Team Response
Town of Oakville Councillor	• Acknowledged receipt of Notice of Commencement • Requested consideration to additional tree planting behind the WTP for added greenspace and privacy	• Landscaping plans for the WTP will be developed during the design and construction phase. Through this process, the team will be mindful of the Town's tree canopy goals and consider the communities' desire for added greenspace
Conservation Halton	• Acknowledged receipt of Notice of Commencement • Requested review of preliminary information • Suggested scheduling a meeting to discuss the addendum and any future potential permit required to accommodate the associated works • Shared updated regulatory boundary information for incorporation in the Addendum to 2012 ESR	• Preliminary information provided and information meeting held on February 18, 2025 • Updated regulatory boundary incorporated into related figure in Natural Heritage Report
MECP	• Provided a Letter of Acknowledgement of Notice of Commencement	• Confirmed receipt of letter
Town of Oakville	• Provided review of the storm sewer capacity and allocation for the Burloak WTP (in response to Region's request)	• Communication initiated by the Region with request for confirmation of storm sewer capacity allocation to WTP • Acknowledged receipt of requested capacity information
MCM	• Provided an Initial Response Letter to Notice of Commencement • Requested for copy of 2012 MCEA Environmental Study Report • Confirmed review and receipt of provided background reports	• Confirmed receipt of letter • Provided electronic copy of the 2012 MCEA Environmental Study Report • Provided draft desktop review of available archaeological assessment reports and

Review Agency/ Stakeholder	Comment/Question	Addendum Team Response
	• Archaeology Program Unit (APU) advised that the archaeological assessment completed in 2000 does not meet the current requirements of the *2011 Standards and Guidelines for Consultant Archaeologists*	Heritage Screening Checklist completed under this addendum for reference • Confirmed that a new Stage 1 Archaeological Assessment has been initiated to reconfirm that the study area is clear of archaeological concern

9.4.1 Consultation with Conservation Halton

The study area is within the jurisdiction of Conservation Halton. Consultation with Conservation Halton occurred at various points during the addendum including the following:

- At addendum commencement via the Notice of Commencement
- At an information meeting held virtually on February 18, 2025
- Through related email communication during the addendum period

Through the above, the following was confirmed and will be carried forward for consideration through detailed design:

- The identified preferred process residuals management alternative represents a modification to the preferred alternative identified in the 2012 MCEA Study. The preferred alternative identified through this addendum no longer requires discharge of treated process residuals to the East Sheldon Creek. **Consultation Halton confirmed that this proposed design change for residuals management means that the previously assessed discharge and new outlet design to Sheldon creek in the regulated area is no longer required**
- The proposed Burloak WTP Phase 2 expansion works are outside of the Conservation Halton regulated area. This will be confirmed formally during the detailed design phase when design drawings are available and provided to Conservation Halton for review. If this confirms that all works are outside of the regulated area, Conservation Halton will formally confirm that no related approvals or permits are required.
- The provided updated Conservation Halton regulatory boundary information (as summarized in Figure 9-1) will be incorporated in the above detailed design drawings during that phase of design

Figure 9-1 Conservation Halton Regulation Mapping

9.5 First Nations and Indigenous Communities Consultation

In consultation with the MECP and based on the Region's existing First Nations and Indigenous Communities Contact List, the following First Nations and Indigenous Communities were provided the Notice of Commencement electronically and contacted via email to solicit their input in this addendum:

- Mississaugas of the Credit First Nation
- Métis Nation of Ontario
- Six Nations of the Grand River
- Haudenosaunee Development Institute
- Huron-Wendat Nation

A copy of the Natural Heritage Report and the Archaeological Gap Analysis Report were also provided via email for review to the above First Nations and Indigenous Communities.

Comments received and the related responses are summarized in Table 9-3. All related correspondence is provided in **Appendix G**.

Table 9-3 First Nations and Indigenous Communities Comment Summary for Addendum

First Nations/Indigenous Community	Comment/Question	Addendum Team Response
Six Nations of the Grand River	• Acknowledged receipt of Notice of Commencement • Requested for copy of 2012 MCEA Environmental Study Report • Confirmed review of draft Natural Heritage Report and provided comments for consideration • Requested to review the results of multi-season in-field studies for detailed design once they are available	• Provided electronic copy of the 2012 MCEA Environmental Study Report • Provided draft Natural Heritage Report • Provided response to comments on the draft Natural Heritage Report and updated report to reflect this review and the provided additional information on species of traditional importance • Committed to sharing results of multi-season in-field studies for detailed design once available
Huron-Wendat Nation	• Acknowledged receipt of Notice of Commencement • Confirmed review of draft desktop review of available archaeological assessment reports. Confirmed no outstanding concerns	• Acknowledged receipt of input of in progress addendum as noted

10 POTENTIAL ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES

This section describes the potential impacts on the environment resulting from the implementation of the preferred WTP expansion design concept (as presented in Section 8) and the mitigation measures and commitments made to either minimize or offset these impacts. Mitigation of potential impacts was considered throughout the addendum process. It is expected that the recommended mitigation measures will be further refined during detailed design of the project.

10.1 Natural Environment

10.1.1 Potential Impacts to Wildlife Habitat

The Nautical Woods to the West of the WTP have the potential to support wildlife including breeding birds regulated under the MBCA and/or protected species at risk, and candidate significant wildlife habitat for bat maternal roosting including habitat for SAR bats. ***Consistent with the mitigation measures recommended through the 2012 MCEA study, a buffer zone will be created between the construction areas and the Nautical Woods to minimize disturbance to this area.***

Additionally, terrestrial communities and open grown trees have the potential to support wildlife SAR and MBCA-protected species in the Study Area. The WTP property largely contains manicured lawn, planted ornamental trees, and fragmented areas of cultural meadow. ***Consistent with the mitigation measures recommended through the 2012 MCEA Study, the following will be implemented during construction:***

- Avoid disturbance, clearing or disruption of vegetation as feasible and, if required, complete between March 15 to August 31 to avoid the breeding season for the majority of the species protected under the MBCA and to comply with requirements of the Act
- Complete removal or pruning of any open grown trees with the potential to provide roosting habitat for bats in the form of suitable cavities outside the roosting period of April 1 to November 16
- Re-plant and re-vegetate construction areas after the expansion works are complete
- Where construction is planned to occur during the active seasons for wildlife, the construction area will be delineated (e.g., silt fencing for erosion and sediment control) and can also serve to reduce the opportunity for wildlife to enter the work areas

The Region also recognizes the intrinsic value of trees and woodlands in both urban and rural environments, including their role in supporting biodiversity, enhancing community well-being, and helping to offset greenhouse gas emissions. To maintain or increase woodland and tree cover, the Region's Tree-Canopy Replacement Policy on Regionally Owned Lands (LPS31-08) outlines requirements for the removal and replacement of these resources on Regionally owned lands. This policy applies to all Region-led capital projects, including water, wastewater, and transportation infrastructure.

Where infrastructure projects may result in the removal or disturbance of existing trees, the Region is committed to minimizing impacts and implementing appropriate mitigation measures during the detailed design and implementation phases. In accordance with the Tree-Canopy Replacement Policy, the following measures will be implemented for all Region-led infrastructure projects where tree removal or disturbance may occur:

- A Tree Protection and Preservation Plan will be prepared by a certified arborist or qualified professional during the detailed design and implementation phases. The plan will:
  - Include a comprehensive tree inventory documenting the location, species, size, and condition of trees within the study area
  - Provide an impact assessment identifying which trees are to be removed, retained with injury, or retained with no injury
  - Outline mitigation measures to minimize impacts to existing trees during construction
  - Include an analysis of compensation requirements for trees affected by the project, based on the policy
  - Be tailored to site-specific conditions and identify appropriate strategies for tree protection, preservation, and replacement
- Tree replacement will be based on the canopy cover lost, rather than the number of trees removed, and will follow the Canopy Replacement Schedule outlined in the policy.
- Replacement species will be native and ecologically appropriate, excluding invasive species. Planting may occur on-site or off-site, depending on feasibility.

The Region is committed to implementing the mitigation measures identified in the Tree Protection and Preservation Plan and will engage with relevant and interested parties, including First Nations and Indigenous Communities, as this projects advance through design and construction.

10.1.2 Potential Impacts on Aquatic Habitat

The proposed works are not predicted to cause any adverse effects to aquatic habitat or communities. As discussed in Section 7, the preferred process residuals management alternative consists of incorporating a second stage membrane filtration system into the main WTP treatment process train with the goal of reducing the overall process residuals volume that needs to be managed. The resulting process residuals stream is equalized and then discharged to the sanitary sewer. ***This represents a modification to the preferred alternative identified in the 2012 MCEA Study. As outlined in the updated key considerations, this alternative does not require discharge of treated process residuals to the East Sheldon Creek and eliminates any related environmental impacts.***

10.1.3 Erosion and Sediment Control

Consistent with the mitigation measures recommended through the 2012 MCEA Study, an erosion and sediment controls to protect surface water features will be implemented during construction. At minimum, this will include:

- Place silt fence along watercourses, ditches and forest/woodland edges in areas of soil disturbance
- Limit extent and duration that soils are exposed to the elements to the minimum area and time necessary to perform the work
- Manage stormwater during construction to prevent contact with exposed soils
- Monitor and maintain erosion and sediment control measures throughout the work

10.2 Socio-Economic and Cultural Environment

10.2.1 Construction Related Traffic

The potential impacts and mitigation measures associated with construction related traffic are consistent with those presented in the 2012 MCEA Study. Public road closures and detours are not anticipated to be required during the construction phase. The general construction contractor will be required to develop a traffic management plan for site

access of equipment and machinery required for the proposed construction works as well as maintain access to the WTP for Operations staff and to all neighbouring properties. The general construction contractor will also be required to minimize the disruption to nearby residents and properties during the construction phase. Most of the construction activities associated with the WTP expansion will be contained within the site property limits. Increased truck traffic will be experienced primarily during the removal of excavated material from site. The proposed mitigation measures include the following:

- Work hours will be restricted, and all work will be contained to the WTP site.
- Truck access to and from the site will be limited to the existing entrance on Rebecca Street, avoiding the residential areas
- If any lane closure is required temporarily, these will be completed in accordance with standard best practices to protect the safety to the workers and to the general public. Local residents will be advised of any temporary lane closures
- All standard best practices for vehicle and pedestrian safety will be employed through the construction areas

10.2.2 Dust and Mud

The potential impacts and mitigation measures related to dust and mud are consistent with those presented in the 2012 MCEA Study. Construction traffic could create additional dust and mud. The proposed mitigation measures include the following:

- Dust control measures will be enforced (e.g., use of water and non-chloride dust suppressants)
- Mud mats will be installed and maintained at the entrance to the site to minimize the amount of dirt tracked off site. The contractor will be responsible for cleaning any debris tracked from site on a daily basis

Following implementation of the preferred design concept, the day-to-day operation of the WTP will remain the same as current. Additionally, there are no air emissions or odours associated with the operation of the WTP expansion design concept.

10.2.3 Noise

The potential impacts and mitigation measures related to noise are consistent with those presented in the 2012 MCEA Study. The proposed noise mitigation measures include the following:

- Work hours will be restricted, and all work will be contained to the WTP site. Localized noise will be limited to normal working hours and will comply with local noise by-laws
- Construction vehicles and equipment will be required to be equipped with effective muffling devices and operated in a fashion that minimizes related noise
- Contractor will be requested to undertake measures to reduce noise disturbances as much as feasible

Following implementation of the preferred design concept, the day-to-day operation of the WTP will remain the same as current.

10.2.4 Vibration

The potential impacts and mitigation measures related to vibration are consistent with those presented in the 2012 MCEA Study. Excavation of soil and removal of rock will be required to implement the WTP expansion works. Some vibration may be felt during the rock excavation and removal. The proposed mitigation measures include the following:

- Work hours will be restricted and any related vibrations will be limited to normal working hours

Pre-construction surveys of nearby properties and buildings will be completed to document existing conditions in the event of any concern with impacts resulting from the vibrations during construction.

10.2.5 Visual/Architectural

The potential impacts and mitigation measures related to aesthetics (i.e., visual/architectural) are consistent with those presented in the 2012 MCEA Study. The proposed buildings and structures associated with the WTP expansion will be designed to complement the existing architectural style.

10.2.6 Landscaping

The potential impacts and mitigation measures related to landscaping are consistent with those presented in the 2012 MCEA Study. The WTP site will have additional landscaping implemented following the construction of the WTP expansion. A detailed landscape concept will be developed during the detailed design phase. It is anticipated that the landscape plan will include adequate vegetated buffer areas with berms, where appropriate, and enhance the vegetation tree screen, where feasible.

10.3 Cultural Environment

Through the desktop archaeological review performed under this addendum to the 2012 MCEA Study and ESR, it was confirmed that the Stage 1 and 2 Archaeological Assessment completed in 2000 (by Archeoworks, Inc.) completely covers the general Study Area for the Burloak WTP Phase 2 Expansion Project as well as the anticipated construction disturbance area within the current project design. As outlined in this assessment, the current Burloak WTP Phase 2 Expansion Project design is free of archaeological concern. ***This is consistent with the findings of the 2012 MCEA Study.*** However, through consultation with the MCM, it was advised that the above noted assessment does not meet the current requirements of the *2011 Standards and Guidelines for Consultant Archaeologists*. As such, a new Stage 1 Archaeological Assessment and report will be completed following these updated requirements in parallel to the detailed design phase to reconfirm that the site is free of archaeological concern. Ongoing and meaningful consultation with First Nations and Indigenous Communities will be maintained throughout the duration of this process.

Additionally, the heritage screening checklist (CHS), Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, developed by the MCM, was completed as part of the addendum. ***This represents a new requirement in the MCEA process.*** No criteria in the CHS were met indicating no potential for cultural heritage value or interest. As such, no further heritage work or mitigation are required.

10.4 Climate Change Adaptation and Mitigation

This sub-section represents a new requirement in the MCEA process. The following potential climate change impacts are relevant to the WTP expansion and should be considered to minimize related risks:

- Variable source water quality. Specifically, the prevalence and frequency of algal blooms is anticipated to continue to increase along with the risk of taste & odour (T&O) events
- More frequent extreme rain events and surface runoff, which may impact raw water quality. These events may also contribute to flooding on the WTP site
- Broader air temperature range experienced
- Higher wind and snow/ice loads

Based on the above, the main climate change adaptation measures that are proposed to be considered through the detailed design (i.e., implementation phase) are as follows:

- Incorporate a robust, operationally flexible and multi-barrier treatment philosophy in the treatment processes incorporated as part of the WTP expansion to provide resiliency to potential climate change impacts on water quality. The preferred WTP expansion design concept will provide operational resiliency and risk management including flexibility to respond to the impacts of climate change, such as increased source water quality changes and extreme weather events, as well as comply with anticipated future drinking water guidelines and regulations
- Account for broader temperature extremes as it relates to the heating, ventilation and cooling systems in the design of the new and expanded WTP buildings
- Consider wind and snow/ice loads and related climate impacts in the design of the new and expanded WTP buildings
- Account for the potential for flooding in locating critical electrical equipment and other critical systems
- In consideration of existing limitation of the storm sewer serving the WTP and the additional load that may be contributed in the future due to more frequent and extreme weather events, the residuals management approach eliminates the need to discharge treated process residuals to the environment or storm sewer system

The main opportunities for climate change mitigation measures related to the WTP expansion are as follows:

- Minimize footprint of new buildings. The preferred design concept for the WTP expansion was identified as providing an efficient footprint
- Minimize required chemical to accommodate the water treatment process. The preferred design concept of the WTP expansion was identified as representing the lowest chemical usage of the reviewed alternatives
- Minimize power usage required to accommodate the water treatment process. The preferred design concept represents low power usage
- Consider overall sustainability of the WTP expansion and look to minimize the GHG emissions associated with the water treatment process. The preferred design concept of the WTP expansion was identified as representing the lowest GHG emissions of the reviewed alternatives
- The preferred design concept incorporates a process residuals management approach that is sustainable and minimizes the volume of process residuals that must be managed

10.5 Monitoring and Maintenance

The mitigation measures identified in this report will be written into the general construction contract specifications. During construction, the Region will implement full-time site inspection of the project works to monitor that all environmental commitments identified in this report are adhered to by the Contractor(s) and other subsequent agency approvals are met. Following the completion of the construction (i.e., post construction), a final inspection will be undertaken to confirm the effectiveness of the identified mitigation measures.

Recommended effects monitoring during the construction period include the following:

- Monitor that buffer zone between the construction areas and the Nautical Woods is respected
- Monitor any disruption or removal of vegetation and/or pruning or removal of trees
- Monitor the effectiveness of erosion and sediment control measures

- Record public complaints and follow-up regarding construction disturbances including truck traffic, dust, mud, noise and vibrations

This completes the documentation for this Addendum to the 2012 MCEA Study and ESR.

APPENDIX A - NATURAL HERITAGE REPORT

Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class EA

Natural Heritage Assessment - Final

for:

by:

LGL Limited
environmental research associates

July 2025
LGL File TA9457

prepared by:

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Version History:

Date	Version:
October 31, 2024	1- Desktop Review, Draft
December 23, 2024	2- Draft Revisions from Region and AE
February 18, 2025	3- Revisions to Figure 2
May 23, 2025	4- Revisions to address Region and Six Nations of the Grand River Comments
July 3, 2024	5. Final revisions to address Region comments

July 2025
LGL File TA9457

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1.0 Introduction

Halton Region is completing the expansion of the Burloak Water Treatment Plant (WTP) in the Town of Oakville in order to meet the needs of the community and service growth in the area. In 2012, the Region completed a Schedule C Municipal Class Environmental Assessment (MCEA) Study (the "Study") for the Phase II Expansion of the Burloak WTP and the Environmental Study Report was filed in May 2012. To date no works have been completed to implement the 2012 Study. Given the lapse of time since the 2012 Study was completed, Class Environmental Assessments require renewal where a project has not commenced ten years following their completion. Thus, the Region is conducting an addendum to re-evaluate and confirm the design alternatives and aspects of the proposed treatment process for the Phase 2 expansion which includes the main treatment process and discharge location for the residuals.

1.1 Study Area

The Burloak WTP Study Area is located south of Rebecca Street, between Great Lakes Boulevard and Village Wood Park, and includes Nautical Woods Boulevard subdivision to the south. This encompasses the same Study Area that was evaluated in the 2012 Study (**Figure 1**). Natural features in the Study Area include East Sheldon Creek and its riparian vegetation, and Nautical Woods. The proposed footprint at this time is limited to an extension of the existing WTP buildings and will not extend beyond the WTP property limits.

2.0 Relevant Policy and Legislation

2.1 Federal Fisheries Act, Fisheries and Oceans Canada (DFO)

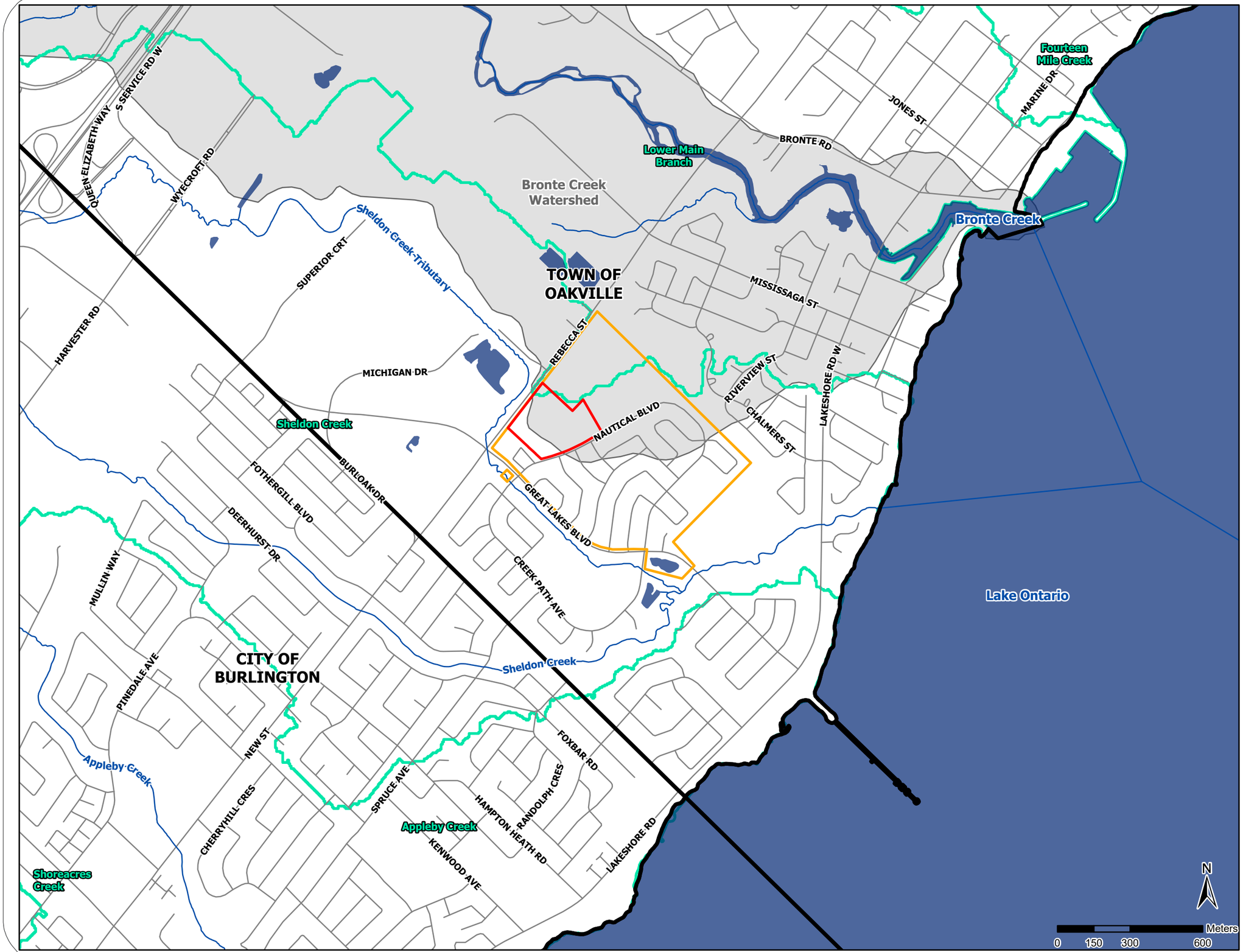
The project must comply with the fish and fish habitat protection provisions of the *Fisheries Act*. The Act applies to work being conducted in or near waterbodies that support commercial, recreational, or Aboriginal fisheries. The project is required to demonstrate compliance with the fish and fish habitat protection provisions of the *Fisheries Act* to avoid causing death to fish and harmful alteration, disruption, or destruction of fish habitat. The fish community in the East Sheldon Creek has been characterized using records from the Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) data.

2.2 Migratory Birds

The *Migratory Birds Convention Act, 1994* (MBCA) protects migratory birds through a broad prohibition on disturbing or destroying birds, nests and eggs. Generally, the MBCA states that a person who does not hold a permit authorizing one or more of the following activities, or who is not otherwise authorized by the Regulation to carry out that activity must not:

(a) capture, kill, take, injure or harass a migratory bird;
(b) destroy, take or disturb an egg; or,
(c) damage, destroy, remove or disturb a nest, nest shelter, eider duck shelter or duck box.

The provisions of the MBCA apply to migratory birds documented within the Study Area.



LEGEND

- Study Area Limits
- Burloak WTP Site
- Watercourse (LIO)
- Waterbody (LIO)
- Road Network (LIO)
- Municipal Boundary (LIO)
- Quaternary Watershed Boundary (LIO)
- Subwatershed Boundary (CH)

Burloak Water Treatment Plant

Key Map

LGL Est. 1971 LIMITED
environmental research associates

Project	TA9457	**Figure**	1
Date	November, 2024	**Prepared By**	VLG
Scale	1:15,000	**Verified By**	BP

2.3 Provincial Planning Statement

The Provincial Policy Statement (PPS 2024) was issued under the Planning Act and came into effect on October 20, 2024 to replace the Provincial Policy Statement issued in 2020. The PPS 2024 integrates the previous *Growth Plan for the Greater Golden Horseshoe* with the PPS 2020 and provides guidelines for development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The following natural heritage policies of the PPS 2024 are of relevance to the project:

4.1 Natural Heritage

1. Natural features and areas shall be protected for the long term.

2. The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.

3. Natural heritage systems shall be identified in Ecoregions 6E & 7E1, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.

4. Development and site alteration shall not be permitted in:

a) significant wetlands in Ecoregions 5E, 6E and 7E; and

b) significant coastal wetlands.

5. Development and site alteration shall not be permitted in:

a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;

b) significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);

c) significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);

d) significant wildlife habitat;

e) significant areas of natural and scientific interest; and

f) coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 4.1.4(b) unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

6. Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

7. Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

8. Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 4.1.4, 4.1.5, and 4.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been

demonstrated that there will be no negative impacts on the natural features or on their ecological functions.
9. *Nothing in policy 4.1 is intended to limit the ability of agricultural uses to continue.*

4.2 Water
1. Planning authorities shall protect, improve or restore the quality and quantity of water by:
a) using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development;
b) minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts;
c) identifying water resource systems;
d) maintaining linkages and functions of water resource systems;
e) implementing necessary restrictions on development and site alteration to:
1. protect drinking water supplies and designated vulnerable areas; and
2. protect, improve or restore vulnerable surface and ground water, and their hydrologic functions;
f) planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality; and
g) ensuring consideration of environmental lake capacity, where applicable.
2. Development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored, which may require mitigative measures and/or alternative development approaches.
3. Municipalities are encouraged to undertake watershed planning to inform planning for sewage and water services and stormwater management, including low impact development, and the protection, improvement or restoration of the quality and quantity of water.

2.4 Regional Municipality of Halton Official Plan (2024)

Several cities and townships comprise the Regional Municipality of Halton (the Region), including the Town of Oakville. According to the Regional Municipality of Halton Official Plan (OP) Map 1, the natural areas in the Study Area are designated as within part of the Regional Natural Heritage System. Specifically, these areas are identified as Key Features in the Region's OP. The Study Area is otherwise identified in the Region's mapping as Urban Area.

Key Features are areas part of the Regional Natural Heritage System that require Environmental Impact Assessment and must be protected by local municipalities through area-specific plans or studies related to development. Buffers to protect the

ecological functions of the Regional Natural Heritage System are to be determined through the Environmental Impact Assessment. The goal of the Natural Heritage System is to increase the certainty that the biological diversity and ecological functions within Halton will be preserved and enhanced for future generations.

Permitted uses within the Regional Natural Heritage System may include essential transportation and utility facilities subject to other planning policies and zoning by-laws, provided that it has been demonstrated that there will be no negative impacts on the natural features and areas or their ecological functions.

2.5 Town of Oakville Official Plan (2006)

The Town of Oakville OP Figure F1 and identifies Natural Features in the Study Area including woodlands, and natural corridor and wildlife habitat. The Town's OP details policies establishing general development objectives to guide the future development of the area and sets out conditions which must be met before any development can proceed. This includes Natural Area policies to identify and protect areas that have high natural value, perform important ecological functions, have high biological value, contrite to ecosystem linkages, or provide significant wildlife habitat.

Permitted uses in Natural Areas include essential utility facilities where it is demonstrated that there is no reasonable alternative and only if such works will not significantly impact natural features or functions and measures for minimizing impacts have been considered.

2.6 Conservation Halton

Conservation Halton (CH) administers *Ontario Regulation 41/24 Prohibited Activities, Exemptions and Permits.* This regulation establishes areas where development is subject to approvals by CH, to ensure the protection of public safety, property and watershed notes. The extent of the Study Area under CH regulation is shown in **Figure 2**.

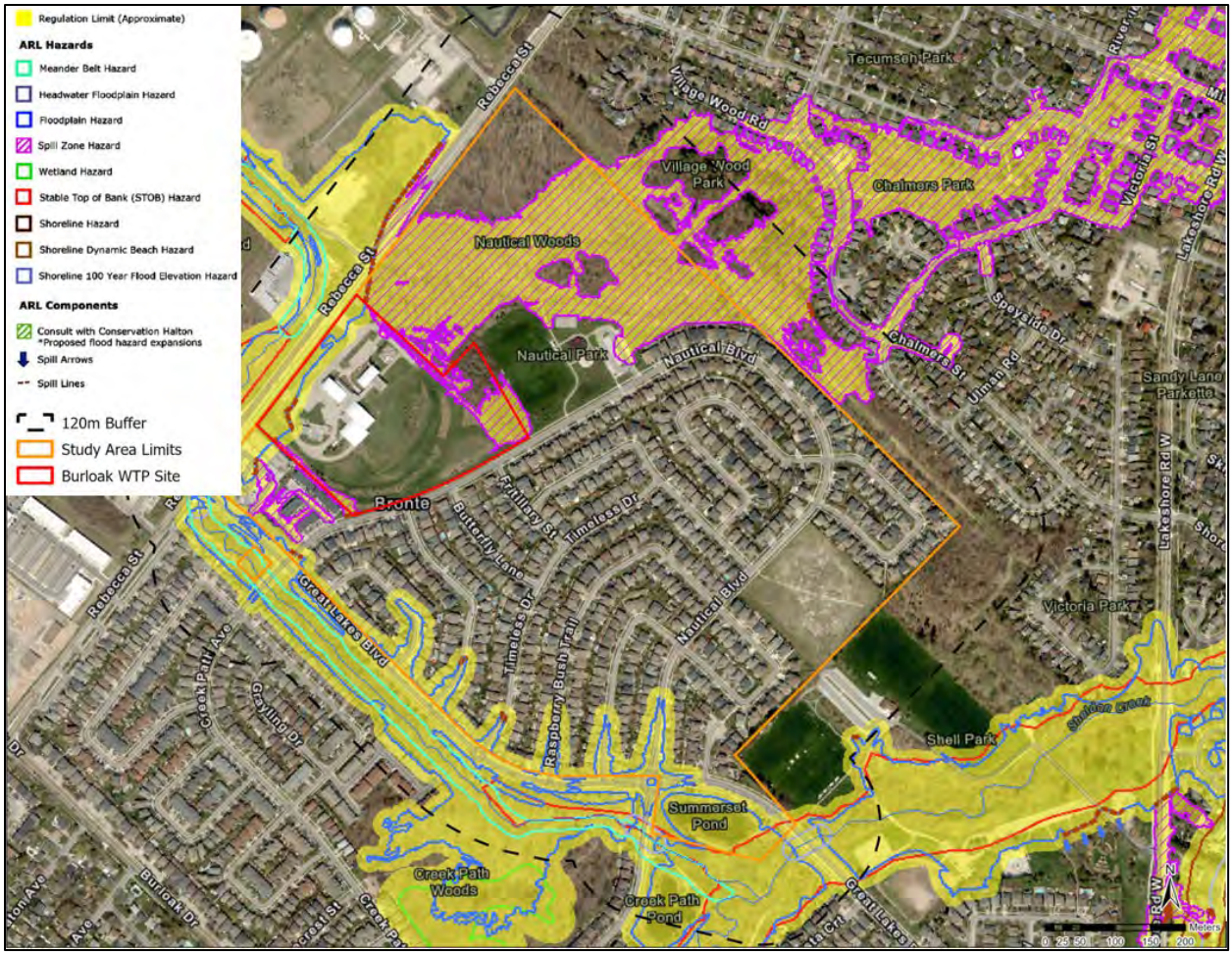


Figure 2 Conservation Halton Regulation Mapping

3.0 Existing Conditions –Background Review

The documentation of existing natural heritage conditions was initially completed through a review of secondary source information to include the following resources:

- Aerial imagery;
- MNRF Natural Heritage Information Centre (NHIC) database;
- MNRF Land Information Ontario data (fisheries, woodlands, wetlands, wildlife habitat, significant natural areas);
- Department of Fisheries and Oceans (DFO) mapping for aquatic species at risk (SAR);
- Ontario Geological Survey mapping;
- Regional Municipality of Halton Official Plan;
- Open data from CH; and,
- Burloak WTP Phase 2 Expansion Environmental Study Report (AECOM 2012)

3.1 Physiography

A review of secondary source materials was undertaken to describe physiography, bedrock, surficial geology and soils within the Study Area.

The Study Area is located within the Iroquois Plain physiographic region. Chapman and Putnam (1984) describe the Iroquois Plain as the lowland bordering Lake Ontario and the section between Hamilton and Toronto on which the Study Area lies is sandy and heavily influenced historically by the lake. Bedrock geology is of the Queenston Formation and consists of shale, limestone, dolostone, shale, and siltstone (Ontario Geological Survey 1991).

Surficial geology in the Study Area where the WTP lies is clay to silt-textured till derived from glaciolacustrine deposits or shale (Ontario Geological Survey 2017).

3.2 Designated Natural Areas

The Study Area was screened for any designations within various local, regional, and provincial policies, the results of which are noted in the following sections.

3.2.1 Areas of Natural and Scientific Interest (ANSIs)

Provincially significant ANSIs are determined by the MNRF. The agency defines ANSIs as “lands and waters with features that are important for natural heritage protection, appreciation, scientific study or education”.

The MNRF’s LIO database did not indicate any ANSI within or in proximity to the Study Area (**Figure 3**).

ELC Communities

CUM: Cultural Meadow	FOM: Mixed Forest
CUP: Cultural Plantation	MAM: Meadow Marsh
CUT: Cultural Thicket	OAO: Open Water Aquatic
CUW: Cultural Woodland	SWD: Deciduous Swamp
FOD: Deciduous Forest	SWT: Swamp Thicket

LEGEND

- Study Area Limits
- Burloak WTP Site
- 120m Buffer
- Watercourse (LIO)
- Warm Water Thermal Regime (LIO)
- Ara Survey Point (LIO)
- Waterbody (LIO)
- NHS Area (LIO)
- Wooded Area (LIO)
- Provincially Tracked Species 1km^2 Grid
- Municipal Boundary (LIO)
- ELC Community (CH, 2017)

Burloak Water Treatment Plant

Natural Heritage Screening

LGL Limited Est. 1971 environmental research associates

Project	TA9457	**Figure**	2
Date	November, 2024	**Prepared By**	VLG
Scale	1:6,000	**Verified By**	BP

3.2.2 Significant Wetlands

The potential occurrence of wetland features was screened through a review of available GIS data layers provided by MNRF. Three types of wetland features are identified in MNRF data layers: Provincially Significant Wetlands (PSWs), unevaluated wetlands and other wetlands. The status of wetlands is determined through an evaluation according to the Ontario Wetland Evaluation System (OWES). PSWs are those for which an OWES evaluation has resulted in a score sufficient to qualify as a provincially significant feature. Unevaluated wetlands are wetland features that have not undergone an OWES evaluation, while those presented as evaluated or as 'other' wetlands are features where an OWES evaluation has been completed and the resulting score was insufficient to qualify as a provincially significant feature. Evaluated/ other wetlands may also be considered locally significant wetlands.

There are no PSWs identified in the Study Area.

3.2.3 Significant Woodlands

The Region's OP describes significant woodlands as woodlands in the Urban Area that meets at least one of the following criteria:

- The Woodland contains forest patches over 99 years old,
- The patch size of the woodland is 2 ha or larger if it is located in the Urban Area, or 4 ha or larger if it is located outside the Urban Area but below the Escarpment Brow, or 10 ha or larger if it is located outside the Urban Area but above the Escarpment Brow.
- The Woodland has an interior core area of 4 ha or larger, measured 100 m from the edge, or
- The Woodland is wholly or partially within 50 m of a major creek or certain headwater creeks or within 150 m of the Escarpment Brow.

Nautical Woods in the Study Area meets the requirement to be considered a Significant Woodland in the Region due to its size. The East Sheldon Creek riparian valley meets the requirements to be considered a Significant Woodland in the Region due to its proximity <50 m to a major creek (all watercourses within a Conservation Authority Regulation Limit). The MNRF's LIO database also identifies Nautical Woods and the East Sheldon Creek Valley as Woodlands. Tree removals are subject to the Halton Tree By-law 121-05 and the Region's Tree Canopy Replacement Policy (LPS31-08 – Tree-Canopy Replacement Policy on Regionally Owned Lands).

3.2.4 Valleylands

The Region's OP does not specifically map valleylands. However, streams valleys are included in the Natural Heritage System and significant valleylands are included under

the “Key Features” designation which is mapped throughout the Study Area in Map 1G of the Region’s OP.

3.3 Vegetation and Vegetation Communities

A review of available imagery and background information for the site shows the Study Area to be comprised mainly of residential buildings in addition to of a mixture of commercial and industrial buildings, manicured landscape and parkland, cultural meadow, and woodland. Ecological land classification (ELC) to delineate and identify natural areas has been conducted by Conservation Halton and is shown in **Figure 2**. A preliminary site visit was conducted by LGL to generally identify if ELC data available are up to date and identify preliminary constraints (Section 4.0).

3.3.1 Vegetation Species of Cultural Significance

Several species of cultural significance to Indigenous Peoples were identified within the Study Area during the 2012 Study to include Sugar Maple (*Acer saccharum*), White Pine (*Pinus Strobus*), White Birch (*Betula papyrifera*), Red-osier Dogwood (*Cornus sericea*), Raspberry (*Rubus sp.*), Red Oak (*Quercus rubra*), and Basswood (*Tilia americana*). There is the potential for the occurrence of these species in the Study Area, as well as several other vegetation species identified by Six Nations of the Grand River (SNWSO, 2025). While all native vegetation carries intrinsic value, these species provide additional cultural, medicinal, and sustenance importance.

3.4 Fisheries and Aquatic Habitat

3.4.1 Sheldon Creek Watershed

The Study Area lies within the Sheldon Creek watershed. The Sheldon Creek Watershed is one of several small watersheds along the west end of the Lake Ontario waterfront and primarily comprised of urban land use. The watershed is heavily impacted by this land use and has overall poor water quality and poor forest conditions (Conservation Halton 2023). Sheldon Creek outlets to Lake Ontario approximately 1.75 km downstream of the Study Area (see **Figure 3**).

3.4.2 East Sheldon Creek

East Sheldon Creek joins Sheldon Creek approximately 900 m south of the Study Area. Information obtained through the Land Information Ontario database indicates that the East Sheldon Creek in the reach through the Study Area and Sheldon Creek downstream of the Study Area both support a warmwater thermal regime. A fish inventory list has been compiled for watercourses in the vicinity of the Study Area in **Table 1** (East Sheldon Creek: OGF IDs 319464090, 167700767; Sheldon Creek: OGF IDs 115293988, 319464100, 319464101, 319469567, 167700612, 167700613, 167700611; Stormwater Pond: OGF ID 167699650). The data available identifies East

Sheldon Creek as supporting up to eight fish species. These species are mostly coolwater and warmwater species and all are considered common and secure within the province of Ontario. Downstream of East Sheldon Creek, data available for Sheldon Creek shows that it supports 18 fish species in this area. These species are mostly coolwater species and one species present, Rainbow Trout (*Oncorhynchus mykiss*) is a coldwater species. There is a stormwater pond in the Study Area south of Great Lakes Boulevard. Data available for that pond identifies the presence of eight species which are coolwater and warmwater species and all of which are common and secure with the province. The proposed project footprint will not require in-water works and there will be no discharge to East Sheldon Creek based on the expansion design.

Table 1 Fish Species Documented in the Sheldon Creek watershed near the Study Area

Common Name	Scientific Name	Thermal Regime	Tolerance	SARA Status	SARO Status	East Sheldon Creek	Sheldon Creek	Great Lakes Boulevard Stormwater Pond	NHIC
Blacknose Dace	*Rhinichthys obtusus*	coolwater	intermediate				X	X	
Bluegill	*Lepomis macrochirus*	warmwater	intermediate				X		
Bluntnose Minnow	*Pimephales notatus*	warmwater	moderately tolerant of turbidity			X	X	X	
Brook Stickleback	*Culaea inconstans*	coolwater	intermediate			X	X	X	
Common Shiner	*Luxilus cornutus*	coolwater	moderately tolerant				X		
Creek Chub	*Semotilus atromaculatus*	coolwater	intermediate			X	X	X	
Deepwater Sculpin - Great Lakes - Western St. Lawrence population	*Myoxocephalus thompsonii*	coldwater	intolerant	SC					X
Eastern Blacknose Dace	*Rhinichthys atratulus*	coolwater	intermediate			X			
Fantail Darter	*Etheostoma flabellare*	coolwater	intolerant				X		
Fathead Minnow	*Pimephales promelas*	warmwater	tolerant			X	X	X	
Goldfish	*Carassius auratus*	warmwater	tolerant			X	X	X	
Golden Shiner	*Notemigonus crysoleucas*	coolwater	intermediate				X		
Johnny Darter	*Etheostoma nigrum*	coolwater	moderately tolerant			X			
Longnose Dace	*Rhinichthys cataractae*	coolwater	moderately tolerant				X		
Northern Redbelly Dace	*Chrosomus eos*	coolwater	intermediate				X		
Pumpkinseed	*Lepomis gibbosus*	warmwater	intermediate				X		
Rainbow Darter	*Etheostoma caeruleum*	coolwater	intolerant				X	X	
Rainbow Trout	*Oncorhynchus mykiss*	*coldwater*	intolerant				X		
Round Goby	*Neogobius melanostomus*	coolwater	intermediate				X		
Silver Shiner	*Notropis photogenis*	warmwater	intolerant	THR	THR				X

Common Name	Scientific Name	Thermal Regime	Tolerance	SARA Status	SARO Status	East Sheldon Creek	Sheldon Creek	Great Lakes Boulevard Stormwater Pond	NHIC
Threespine Stickleback	*Gasterosteus aculeatus*	coolwater	intermediate				X		
White Sucker	*Catostomus commersonii*	coolwater	tolerant			X	X	X	

Species Information Source: Eakins, R. J. 2024. Ontario Freshwater Fishes Life History Database version 5.32. Online Database http://www.ontariofishes.ca

Thermal Regime: Preferred temperature range of a species

Tolerance: Ability of a species to adapt to environmental perturbations or anthropogenic stresses

SARA: Species at Risk Act 2002 Schedule 1 - official list of wildlife species at risk

ESA: Ontario Endangered Species Act, 2007

3.5 Wildlife and Wildlife Habitat

A total of 175 bird species were identified in proximity to the Study Area through review of the Ontario Breeding Bird Atas (OBBA) and eBird records, and the NHIC database. OBBA records come from a polygon surrounding the Study Area and eBird records were provided from a data collection area which includes the woodlots within the Study Area. A list of the wildlife species records compiled for the Study Area is provided below in **Appendix A**. Given that the data records incorporate areas outside of the immediate Study Area and during one observation date, not all species are likely to occur. The intent of the secondary source wildlife list is to identify species with the potential to occur across the larger geographic setting to identify any SAR and culturally significant species listed in those records that may have suitable habitat within the Study Area.

Of the bird species listed in **Appendix A**, 24 species were identified as SAR, 23 species are protected under the Fish and Wildlife Conservation Act (FWCA) and 143 species are protected under the MBCA.

Additionally, two reptile species protected under the FWCA were identified through the NHIC database and are discussed further in Section 3.6.

Background records identify the occurrence of 27 species (**Appendix A**) which are culturally significant to Indigenous Peoples (SNWSO 2025) in the vicinity of the Study Area, including several species of waterfowl, hawks, and turtles. These species provide cultural, medicinal, and sustenance importance and their preservation is required to protect First Nations harvesting rights, as well as to protect the intrinsic value of native species.

The MNRF's LIO database did not show any confirmed significant wildlife habitat (SWH) in the Study Area.

3.6 Species at Risk

The provincial *Endangered Species Act, 2007* (ESA) provides legislation to protect individuals and habitat of species at risk in Ontario. The Committee on the Status of Species at Risk in Ontario (COSSARO) is an independent body that classifies native plants or animals in one of four categories (extirpated, endangered, threatened, special concern). Those species assessed as special concern do not receive species or habitat protection under the ESA; however, their management is encouraged in order to prevent them from becoming further at risk. The MNRF maintains a database of SAR through the NHIC which organizes data into a 1 km x 1 km grid. The Study Area is located within Square IDs 17PJ0204, 17PJ0203, 17PJ0304, 17PJ0303. The database search returned records for the following SAR in **Table 2**.

Four endangered species: Northern Bobwhite (*Colinus virginianus*), Yellow-breasted Chat (*Icteria virens*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), and

American Chestnut (*Castanea dentata*) were identified in records in proximity to the Study Area. Records were also found for six threatened species: Bobolink (*Dolichonyx oryzivorus*), Eastern Meadowlark (*Sturnella magna*), Eastern Whip-poor-will (*Antrostomus vociferus*), Bank Swallow (*Riparia riparia*), Least Bittern (*Ixobrychus exilis*), Silver Shiner (*Notropis photogenis*). Several special concern species were also identified in the 1km x 1km NHIC areas reviewed.

Aquatic SAR are also provided protection under the federal Species at Risk Act, 2002 (SARA). The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) provides advice to government on the status of wildlife species. Schedule 1 of the SARA is the official list of wildlife species at risk in Canada. A search of the DFO's Aquatic Species at Risk Mapping was conducted for the Study Area. No DFO records of aquatic species at risk distribution were found in the Sheldon Creek watershed.

A desktop screening of available habitat was completed for the Study Area in the context of the SAR records noted above as well as any additional SAR identified through review of other secondary source data. The results of the desktop screening compiled thus far are provided in **Appendix B**. As a next step and to inform the subsequent detailed design phase, additional multi-season field surveys will be completed to assist in confirming the presence of potential habitat for SAR to inform measures required to mitigate impacts to SAR.

Table 2 NHIC Records for Species at Risk in the Study Area

Common Name	Scientific Name	SARA	SARO	Square 17PJ0204	Square 17PJ0203	Square 17PJ0304	Square 17PJ0303
Wood Thrush	*Hylocichla mustelina*	THR	SC	X	X	X	X
Eastern Wood-pewee	*Contopus virens*	SC	SC	X	X	X	X
Canada Warbler	*Cardellina canadensis*	SC	SC	X	X	X	X
Northern Bobwhite	*Colinus virginianus*	END	END	X	X	X	X
Eastern Meadowlark	*Sturnella magna*	THR	THR	X	X		X
Yellow-Breasted Chat	*Icteria virens*	END	END	X	X	X	X
Bobolink	*Dolichonyx oryzivorus*	SC	THR	X	X	X	
Red-headed Woodpecker	*Melanerpes erythrocephalus*	END	END	X	X	X	X
Eastern Whip-poor-will	*Antrostomus vociferus*	SC	THR			X	
Golden-winged Warbler	*Vermivora chrysoptera*	THR	SC			X	
Barn Swallow	*Hirundo rustica*	SC	SC			X	
Bank Swallow	*Riparia riparia*	THR	THR			X	
Least Bittern	*Ixobrychus exilis*	THR	THR			X	
Snapping Turtle	*Chelydra serpentina*	SC	SC	X	X	X	X
Northern Map Turtle	*Graptemys geographica*	SC	SC			X	
Silver Shiner	*Notropis photogenis*	THR	THR	X	X		X
Deepwater Sculpin – Great Lakes – Western St. Lawrence population	*Myoxocephalus thompsonii pop. 2*	SC			X	X	X
American Chestnut	*Castanea dentata*	END	END	X	X	X	X

4.0 Existing Conditions- Field Investigations

A site visit was conducted on October 25, 2024 to generally confirm conditions identified during desktop review to identify preliminary constraints and suitable habitat for SAR. Weather conditions were mostly cloudy, with a temperature of 12℃.

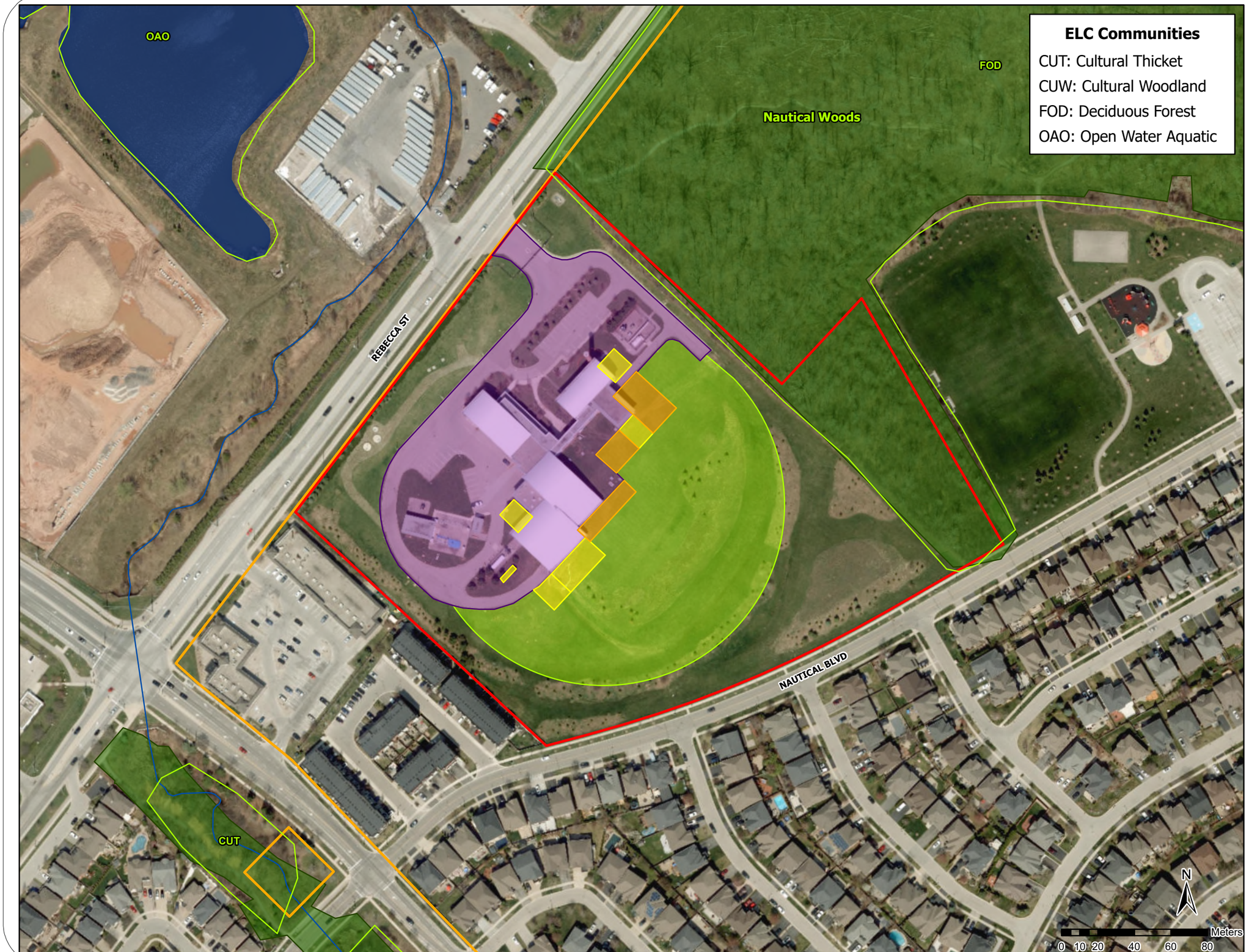
4.1 Wildlife Habitat

ELC conducted by Conservation Halton in 2017 (**Figure 2**) is generally consistent with conditions identified during 2024. Naturalized areas that provide the most suitable habitat for sensitive wildlife is within Nautical Woods and the cultural thicket within the East Sheldon Creek Valley. Both of these tracts of woodland and thicket represent a linkage opportunity for plants and wildlife as they connect to contiguous forest that extends beyond the limits of the Study Area. These habitats may also afford shelter, breeding habitat and food opportunities to many wildlife species and likely afford nesting habitat to birds protected under the MBCA. The manicured areas including parkland and residential areas are more suitable for urban-tolerant species that utilize structures for nesting and roosting. The WTP property largely contains manicured lawn, planted open grown trees, and fragmented areas of cultural meadow.

Trees with diameter >10 cm with sloughing bark or cavities have the potential to support maternal roosting habitat for bats (MNRF Guelph District, 2017). Bat maternal roosting is identified as a type of significant wildlife habitat (SWH) to be considered in Ecoregion 7E (MNRF, 2015). The criterion for significance is that a minimum of 10 cavity/snag trees per hectare of wooded habitat be present. Nautical Woods is likely to support bat habitat; however, no impacts to Nautical Woods are anticipated.

4.2 Aquatic Habitat

The morphology of East Sheldon Creek south of Rebecca Street is slow moving flats. At the time of the site investigation flow was barely perceptible. The width of the watercourse varies in this stretch, between three to four meters with a bankfull width between four to five meters. Depth varied between 0 to 30 cm and some areas of the creek were dry due to sediment buildup. Substrate varied from boulder to cobble and gravel in different reaches of the creek. Bank erosion was evident. A layer of leaves was present on the water's surface, making observation of fish presence difficult, though it is assumed fish are present. The watercourse is well shaded in this area by riparian vegetation which consists of a variety of shrub species including willow and alder as well as various herbaceous species. After the completion of the fall site visit, it was determined that there will be no discharge to East Sheldon Creek and the proposed footprint is not in proximity to the watercourse.



LEGEND

- Study Area Limits
- Burloak WTP Site
- Proposed Landscape Buffer
- Existing WTP Footprint
- Approximate New WTP Permanent Footprint
- Approximate New WTP Temporary Footprint
- Watercourse (LIO)
- Waterbody (LIO)
- Wooded Area (LIO)
- ELC Community (CH, 2017)

Burloak Water Treatment Plant

Approximate Proposed Footprint

LGL Est. 1971 LIMITED
environmental research associates

Project	TA9457	**Figure**	3
Date	April, 2025	**Prepared By**	VLG
Scale	1:2,000	**Verified By**	BP

5.0 Preferred Alternative

The proposed design includes the construction of several additions to the existing WTP to include building expansions and several buried features (Figure 4). The design will require additional associated equipment access in a buffered area adjacent to the proposed design. The design also includes plant optimization which has eliminated the need for additional residuals to be discharged to East Sheldon Creek. The impact assessment will consider all areas disturbed by project components and ground cover type impacted. Where above ground structures are proposed the disturbance is considered long-term/operational (i.e., permanent removal of vegetation). The impact assessment is preliminary and based on desktop assessment only; therefore, a conservative approach has been taken.

5.1 Impact Assessment

The proposed footprint is located outside of natural vegetation communities and in previously disturbed areas (Figure 4). Ground cover that will be impacted by the new structures is mainly manicured lawn with a small portion of ornamental cultural meadow. A buffered area around the structure footprint covers manicured lawn, cultural meadow, and some planted, open grown trees which may be used for access and construction storage. Impacts can be minimized by following the mitigation recommendations outlined in Section 5.2.

5.2 Mitigation Recommendations

This section outlines the protection/mitigation measures proposes to manage potential adverse effects on terrestrial ecosystems. Environmental effects are identified based on the current level of design and the current stage of natural heritage study. Mitigation measures presented herein have been developed conservatively and are based on the noted desktop review and field investigation. As a next step and to inform the subsequent detailed design phase, additional multi-season field studies will be completed to further inform environmental constraints and related mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works.

The potential for impacts associated with construction can first be mitigated through good project planning, avoidance of significant features, and use of best practices. Minimizing the extent of disturbance wherever possible through coordination of all projects related planning, including design, staging, and scheduling is key. This includes the incorporation of construction timing windows established for the protection of fish and wildlife, where identified, into the overall project schedule. Consideration should be given to staging/grouping of project activities in such a way that disturbance within the same area would be coordinated to limit the duration of impact. The extent of construction related activity can also be effectively isolated and secured from adjacent

natural lands through clear delineation of the work site. The isolation of the work area will also discourage the entry of wildlife into the work zone, thereby minimizing incidental encounters and the risk of incidental wildlife mortality during construction.

It is recommended that mitigation measures be reviewed at detailed design and revised accordingly with each refinement to the design

5.2.1 Soils

Excavation and grading associated with construction have the potential to suspend soil particles, which could result in eroded materials inadvertently affecting vegetation, and wildlife habitat.

Site-specific ESC measures will be identified during detailed design following the Erosion and Sediment Control Guidelines for Urban Construction (GGHA 2006). Erosion and sedimentation control measures should include:

- Placing silt fence along watercourses, ditches, and forest/woodland edges in areas of soil disturbance;
- Limiting the extent and duration that soils are exposed to the elements to the minimum area and time necessary to perform the work;
- Managing stormwater during construction to prevent contact with exposed soils; and,
- Monitoring and maintaining ESC measures during construction to ensure their effectiveness.

ESC measures are installed prior to construction and are to remain in place until construction is complete and soils have been re-stabilized.

The following measures are required to exclude silt, sediment, debris, petroleum-based substances and other deleterious materials from natural areas:

- Storage, stockpiling and staging areas will be delineated prior to construction and in accordance with the Erosion and Sediment Control Guideline for Urban Construction (GGHA 2006); and,
- All spills that could potentially cause damage to the environment will be reported to the Spills Action Centre of the MECP. In the event of a spill, containment and clean-up will be completed quickly and effectively. In addition, a Spill Prevention and Response Contingency Plan must be included in the contract package to ensure the appropriate contingency materials to absorb or contain any petroleum products/spills that may be accidentally discharged will be on site at all times.

5.2.2 Vegetation and Vegetation Communities

No provincially designated features are located within the Study Area or its vicinity; however, a locally designated significant woodland is adjacent to the proposed work area. The proposed location will result in minimal displacement of vegetation and impacts are to manicured grass, cultural meadow, and possibly, open grown trees.

The following potential effects on vegetation are noted:

- Tree removals or damage amongst open grown trees to accommodate construction access;
- Disturbance or removal of species of cultural significance to Indigenous Peoples; and,
- Loss of integrity of significant woodland edge habitat (i.e., introduction of invasive species, changes to vegetation microclimate).

At a minimum, the following protection/mitigation measures will be implemented to ensure the protection of vegetation including culturally significant species to the extent possible:

- A buffer should be applied to significant woodland (Nautical Woods) where no construction activity will occur within that buffer.
- It is recommended that access for construction avoids open grown trees. Should the finalization of the facility layout and assessment of site impacts identify a disruption to existing open grown trees, detailed design and implementation phases of the project will include a tree protection and preservation plan developed in alignment with the Region's Tree Canopy Replacement Policy (LPS31 – 08 – Tree Canopy Replacement Policy on Regionally Owned Lands). This plan will account for site-specific conditions and include appropriate tree replacement measures.
- A tree inventory to include grading limits, and staging, storage and laydown areas is recommended at detailed design to determine tree protections and refine the project design to minimize impacts to the extent feasible.
- It's recommended that appropriate protections be installed to protect trees to be retained, including safeguarding trees and natural areas from construction operations, equipment and vehicles. Prior to construction, trees and natural areas to be protected should be clearly identified in the field by the Contract Administrator and a protective barrier installed.

5.2.3 Wildlife and Wildlife Habitat

Wildlife habitat within the proposed footprint is limited to manicured grass, open grown trees, and cultural meadow. Breeding birds protected under the MBCA are likely using these habitats. Construction and operation of infrastructure part of the project has the

potential to impact wildlife and wildlife habitat. Effects related to the construction and operation include:

- Loss of integrity of woodland edge habitat (i.e., disturbance to candidate SAR using woodlot, changes to microclimates and habitat suitability);
- Wildlife and construction equipment/vehicle conflicts;
- Displacement of resident wildlife using habitat for breeding and foraging due to the removal of turf and trees;
- Temporary disturbance to wildlife from noise, and on-site construction activity. Birds listed under the MBCA that are using adjacent natural areas (shrubs, trees) or built structures as habitat may experience an incremental increase in disturbance compared to regular WTP operations; and,
- Loss of habitat for wildlife species that are culturally significant to Indigenous Peoples.

At a minimum, the following protection/mitigation measures will be implemented to ensure the protection of wildlife including culturally significant species and their habitat to the extent possible:

- Avoidance - opportunities to mitigate loss of wildlife habitat include limiting tree and vegetation removals through strategic positioning of the design footprint and storage/laydown areas within manicured/previously disturbed or open areas to the extent feasible. For example, refinement of the access route could be considered to minimize or eliminate tree removals where possible.
- A buffer should be applied to Nautical Woods where no construction activity will occur within that buffer, should Nautical Woods be habitat for SAR (i.e., bats, birds).
- Where any removal or pruning of mature, open grown trees (i.e., those outside of a treed ELC/forest community) representing candidate bat roosting habitat is proposed, timing windows to avoid the period from April 1 to November 16 (as recommended by MECP) should be employed.
- Bird species listed under the MBCA have the potential to occur within the Study Area. The MBCA prohibits the killing, capturing, injuring, taking or disturbing of migratory birds (including eggs) or the damaging, destroying, removing or disturbing of nests. The Study Area falls within Environment Canada’s Nesting Zone C1 (Nesting Period: end of March to end of August). Consequently, to comply with the requirements of the MBCA, it is recommended that disturbance, clearing or disruption of vegetation where birds may be nesting should be completed outside the window of March 15 to August 31 to avoid the breeding bird season for the majority of the species protected under the Act. In the event

that project construction must be undertaken during the breeding period, a nest screening survey should be conducted by a qualified avian biologist. If an active nest is located, a mitigation plan should be developed in consultation with Environment Canada – Ontario Region.

- Where construction is planned to occur during the active seasons for wildlife, the delineation of the construction area (e.g., silt fencing for erosion and sediment control) can serve to exclude wildlife from entering the work areas to some extent.

5.2.4 Species at Risk

Where habitat has been identified for SAR with potential to occur in the Study Area, mitigation in these areas will be addressed with a conservative approach to protect candidate SAR habitat. As a next step and to inform the subsequent detailed design phase, additional multi-season field studies will be completed to further inform these mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works. Mitigation recommendations for vegetation and wildlife in Sections 5.2.2 and 5.2.3 will serve to protect species at risk.

6.0 Future Studies

The mitigation recommendations presented in this report have been developed conservatively and are based on the presented desktop review and field investigation. As a next step and to inform the subsequent detailed design phase, additional multi-season field studies will be completed to further inform environmental constraints and related mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works. It is anticipated that these multi-season field studies will be conducted in 2025 and documented in a stand-alone report. These field studies will also support confirmation and application of required permits and approvals.

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Appendix A Background Records of Wildlife for the Study Area

Background Records of Wildlife for the Study Area

Group	Scientific Name	Common Name	SARA	SARO	FWCA	MBCA	Priority Species Halton	Six Nations Culturally Significant Species	eBird - Oakville - Burloak Woods	eBird - Oakville - (former) Bronte Woods	OBBA	NHIC
Bird	*Branta canadensis*	Canada Goose				X		X	X	X		
Bird	*Empidonax virescens*	Acadian Flycatcher	END	END		X	level 1			X		
Bird	*Empidonax alnorum*	Alder Flycatcher				X	level 3			X		
Bird	*Anas rubripes*	American Black Duck				X	level 2	X	X			
Bird	*Corvus brachyhrynchos*	American Crow							X	X		
Bird	*Spinus tristis*	American Goldfinch				X	level 3		X	X	X	
Bird	*Turdus migratorius*	American Robin				X			X	X	X	
Bird	*Anthus rubescens*	American Pipit				X			X			
Bird	*Setophaga ruticilla*	American Redstart				X	level 2		X	X		
Bird	*Spizelloides arborea*	American Tree Sparrow				X			X	X		
Bird	*Scolopax minor*	American Woodcock				X	level 4		X	X		
Bird	*Haliaeetus leucocephalus*	Bald Eagle		SC	P			X	X	X		
Bird	*Icterus galbula*	Baltimore Oriole				X			X	X		
Bird	*Riparia riparia*	Bank Swallow	THR	THR		X	level 2		X			X
Bird	*Hirundo rustica*	Barn Swallow	THR	SC		X	level 4		X	X		X
Bird	*Setophaga castanea*	Bay-breasted Warbler				X			X	X		
Bird	*Megaceryle alcyon*	Belted Kingfisher			P				X	X		
Bird	*Setophaga fusca*	Blackburnian Warbler				X	level 1		X	X		
Bird	*Setophaga striata*	Blackpoll Warbler				X				X		
Bird	*Coccyzus erythropthalmus*	Black-billed Cuckoo				X	level 2		X	X		
Bird	*Poecile atricapillus*	Black-capped Chickadee				X	level 4		X	X		
Bird	*Nycticorax nycticorax*	Black-crowned Night Heron				X	level 1		X			
Bird	*Polioptila caerulea*	Blue-grey Gnatcatcher				X	level 3		X	X		
Bird	*Vireo solitarius*	Blue-headed Vireo				X	level 3		X	X		
Bird	*Cyanocitta cristata*	Blue Jay			P				X	X		
Bird	*Mniotilta varia*	Black-and-white Warbler				X	level 3		X	X		
Bird	*Setophaga caerulescens*	Black-throated Blue Warbler				X			X	X		
Bird	*Setophaga virens*	Black-throated Green Warbler				X	level 1		X	X		

Group	Scientific Name	Common Name	SARA	SARO	FWCA	MBCA	Priority Species Halton	Six Nations Culturally Significant Species	eBird - Oakville - Burloak Woods	eBird - Oakville - (former) Bronte Woods	OBBA	NHIC
Bird	*Anas discors*	Blue-winged Teal				X	level 3	X	X			
Bird	*Vermivora Cyanoptera*	Blue-winged Warbler				X	level 1		X			
Bird	*Dolichonyx oryzivorus*	Bobolink	THR	THR		X	level 2					X
Bird	*Buteo platypterus*	Broad-winged Hawk			P		level 2	X		X		
Bird	*Certhia americana*	Brown Creeper				X	level 2		X	X		
Bird	*Molothrus ater*	Brown-headed Cowbird							X	X		
Bird	*Toxostoma rufum*	Brown Thrasher				X	level 1			X		
Bird	*Bucephala albeola*	Bufflehead				X		X	X			
Bird	*Cardellina canadensis*	Canada Warbler	THR	SC		X	level 1		X	X		X
Bird	*Setophaga tigrina*	Cape May Warbler				X			X	X		
Bird	*Thryothorus ludovicianus*	Carolina Wren				X	level 3		X	X		
Bird	*Hydroprogne caspia*	Caspian Tern				X			X	X		
Bird	*Bombycilla cedrorum*	Cedar Waxwing				X			X	X		
Bird	*Setophaga pensylvanica*	Chestnut-sided Warbler				X	level 1		X	X		
Bird	*Chaetura pelagica*	Chimney Swift	THR	THR		X			X	X		
Bird	*Spizella passerina*	Chipping Sparrow				X			X	X		
Bird	*Petrochelidon pyrrhonota*	Cliff Swallow				X	level 3		X	X		
Bird	*Quiscalus quiscula*	Common Grackle							X	X		
Bird	*Gavia immer*	Common Loon				X	level 3			X		
Bird	*Mergus merganser*	Common Merganser				X		X	X			
Bird	*Corvus corax*	Common Raven			P				X	X		
Bird	*Geothlypis trichas*	Common Yellowthroat				X			X	X		
Bird	*Oporornis agilis*	Connecticut Warbler				X			X	X		
Bird	*Accipiter cooperii*	Cooper's Hawk			P		level 3	X		X		
Bird	*Junco hyemalis*	Dark-eyed Junco				X			X	X		
Bird	*Spiza americana*	Dickcissel				X						
Bird	*Phalacrocorax auritus*	Double-crested Cormorant							X	X		
Bird	*Picoides pubescens*	Downy Woodpecker				X			X	X	X	
Bird	*Calidris alpina*	Dunlin				X			X			
Bird	*Sialia sialis*	Eastern Bluebird				X	level 1			X		

Group	Scientific Name	Common Name	SARA	SARO	FWCA	MBCA	Priority Species Halton	Six Nations Culturally Significant Species	eBird - Oakville - Burloak Woods	eBird - Oakville - (former) Bronte Woods	OBBA	NHIC
Bird	*Tyrannus tyrannus*	Eastern Kingbird				X	level 3		X	X		
Bird	*Sturnella magna*	Eastern Meadowlark	THR	THR		X	level 3					X
Bird	*Sayornis phoebe*	Eastern Phoebe				X	level 3			X		
Bird	*Megascops asio*	Eastern Screech-Owl			P				X			
Bird	*Pipilo erythrophthalmus*	Eastern Towhee				X	level 2		X	X		
Bird	*Antrostomus vociferus*	Eastern Whip-poor-will	THR	THR		X	level 2					X
Bird	*Contopus virens*	Eastern Wood-Pewee	SC	SC		X			X	X		X
Bird	*Sturnus vulgaris*	European Starling							X	X	X	
Bird	*Coccothraustes vespertinus*	Evening Grosbeak	SC	SC		X				X		
Bird	*Spizella pusilla*	Field Sparrow				X	level 3		X	X		
Bird	*Passerella iliaca*	Fox Sparrow				X			X	X		
Bird	*Cygnus olor*	Mute Swan				X		X	X			
Bird	*Cygnus columbianus*	Tundra Swan				X		X	X	X		
Bird	*Clangula hyemalis*	Long-tailed Duck				X		X	X			
Bird	*Aix sponsa*	Wood Duck				X	level 4	X	X			
Bird	*Anas strepera*	Gadwall				X	level 2	X	X			
Bird	*Ardea herodias*	Great Blue Heron				X			X	X		
Bird	*Myiarchus crinitus*	Great-crested Flycatcher				X			X	X	X	
Bird	*Bubo virginianus*	Great Horned Owl			P					X		
Bird	*Aythya marila*	Greater Scaup				X		X	X			
Bird	*Butorides virescens*	Green Heron					level 4		X			
Bird	*Regulus satrapa*	Golden-crowned Kinglet				X	level 2		X	X		
Bird	*Aquila chrysaetos*	Golden Eagle		END	P			X	X			
Bird	*Vermivora chrysoptera*	Golden-winged Warbler	THR	SC		X	level 1		X			X
Bird	*Dumetella carolinensis*	Gray Catbird				X	level 4		X	X		
Bird	*Catharus minimus*	Gray-cheeked Thrush				X			X	X		
Bird	*Picoides villosus*	Hairy Woodpecker				X			X	X		
Bird	*Zonotrichia querula*	Harris's Sparrow	SC			X			X			
Bird	*Catharus guttatus*	Hermit Thrush				X			X	X		
Bird	*Larus argentatus*	Herring Gull				X			X	X		

Group	Scientific Name	Common Name	SARA	SARO	FWCA	MBCA	Priority Species Halton	Six Nations Culturally Significant Species	eBird - Oakville - Burloak Woods	eBird - Oakville - (former) Bronte Woods	OBBA	NHIC
Bird	*Lophodytes cucullatus*	Hooded Merganser				X	level 4	X	X			
Bird	*Haemorhous mexicanus*	House Finch				X			X	X		
Bird	*Passer domesticus*	House Sparrow							X	X		
Bird	*Troglodytes aedon*	House Wren				X			X	X		
Bird	*Passerina cyanea*	Indigo Bunting				X			X	X		
Bird	*Charadrius vociferus*	Killdeer				X			X	X		
Bird	*Ixobrychus exilis*	Least Bittern	THR	THR		X	level 1					X
Bird	*Empidonax minimus*	Least Flycatcher				X			X	X		
Bird	*Calidrus minutilla*	Least Sandpiper				X			X			
Bird	*Tringa flavipes*	Lesser Yellowlegs		THR		X			X			
Bird	*Melospiza lincolnii*	Lincoln's Sparrow				X			X	X		
Bird	*Asio otus*	Long-eared Owl			P		level 1		X	X		
Bird	*Setophaga magnolia*	Magnolia Warbler				X	level 1		X	X		
Bird	*Anas platyrhynchos*	Mallard				X		X	X	X		
Bird	*Cistothorus palustris*	Marsh Wren				X	level 3			X		
Bird	*Falco columbarius*	Merlin			P			X	X	X		
Bird	*Zenaida macroura*	Mourning Dove				X			X	X		
Bird	*Geothlypis philadelphia*	Mourning Warbler				X	level 2		X	X		
Bird	*Oreothylpis ruficapilla*	Nashville Warbler				X	level 1		X	X		
Bird	*Cardinalis cardinalis*	Northern Cardinal				X			X	X	X	
Bird	*Colinus virginianus*	Northern Bobwhite	END	END	G		level 1					X
Bird	*Colaptes auratus*	Northern Flicker				X			X	X		
Bird	*Circus cyaneus*	Northern Harrier			P			X	X	X		
Bird	*Mimus polyglottos*	Northern Mockingbird				X	level 1			X		
Bird	*Setophaga americana*	Northern Parula				X			X	X		
Bird	*Anas acuta*	Northern Pintail				X		X	X			
Bird	*Stelgidopteryx serripennis*	Northern Rough-winged Swallow				X	level 2		X	X		
Bird	*Aegolius acadicus*	Northern Saw-whet Owl			P		level 1		X	X		
Bird	*Lanius excubitor*	Northern Shrike				X			X			
Bird	*Parkesia noveboracensis*	Northern Waterthrush				X	level 2			X		

Group	Scientific Name	Common Name	SARA	SARO	FWCA	MBCA	Priority Species Halton	Six Nations Culturally Significant Species	eBird - Oakville - Burloak Woods	eBird - Oakville - (former) Bronte Woods	OBBA	NHIC
Bird	*Contopus cooperi*	Olive-sided Flycatcher	SC	SC		X			X	X		
Bird	*Oreothlypis celata*	Orange-crowned Warbler				X			X	X		
Bird	*Pandion haliaetus*	Osprey			P		level 3		X			
Bird	*Seiurus aurocapilla*	Ovenbird				X	level 4		X	X		
Bird	*Setophaga palmarum palmarum*	Palm Warbler				X			X	X		
Bird	*Falco peregrinus/anatum/tundrius*	Peregrine Falcon		SC	P			X		X		
Bird	*Vireo philadelphicus*	Philadelphia Vireo				X			X	X		
Bird	*Dryocopus pileatus*	Pileated Woodpecker				X	level 2		X	X		
Bird	*Spinus pinus*	Pine Siskin				X			X	X		
Bird	*Setophaga pinus*	Pine Warbler				X	level 2		X	X		
Bird	*Haemorphous purpureus*	Purple Finch				X	level 2		X	X		
Bird	*Progne subis*	Purple Martin				X	level 2			X		
Bird	*Melanerpes carolinus*	Red-bellied Woodpecker				X	level 3		X	X		
Bird	*Sitta canadensis*	Red-breasted Nuthatch				X	level 3		X	X		
Bird	*Vireo olivaceus*	Red-eyed Vireo				X			X	X	X	
Bird	*Melanerpes erythrocephalus*	Red-headed Woodpecker	END	END		X	level 1					X
Bird	*Buteo jamaicensis*	Red-tailed Hawk			P			X	X	X		
Bird	*Agelaius phoeniceus*	Red-winged Blackbird							X	X	X	
Bird	*Larus delawarensis*	Ring-billed Gull				X			X	X		
Bird	*Aythya collaris*	Ring-necked Duck				X		X	X			
Bird	*Columba livia*	Rock Pigeon							X	X		
Bird	*Buteo lagopus*	Rough-legged Hawk			P			X	X			
Bird	*Pheucticus ludovicianus*	Rose-breasted Grosbeak				X			X	X		
Bird	*Regulus calendula*	Ruby-crowned Kinglet				X	level 4		X	X		
Bird	*Archilochus colubris*	Ruby-throated Hummingbird				X	level 3		X	X		
Bird	*Euphagus carolinus*	Rusty Blackbird	SC	SC	P				X	X		
Bird	*Passerculus sandwichensis*	Savannah Sparrow				X	level 1			X		
Bird	*Piranga olivacea*	Scarlet Tanager				X	level 2		X	X		
Bird	*Accipiter striatus*	Sharp-shinned Hawk			P		level 2	X		X		
Bird	*Limnodromus griseus*	Short-billed Dowitcher				X			X	X		

Group	Scientific Name	Common Name	SARA	SARO	FWCA	MBCA	Priority Species Halton	Six Nations Culturally Significant Species	eBird - Oakville - Burloak Woods	eBird - Oakville - (former) Bronte Woods	OBBA	NHIC
Bird	*Tringa solitaria*	Solitary Sandpiper				X			X			
Bird	*Melospiza melodia*	Song Sparrow				X			X	X	X	
Bird	*Actitis macularius*	Spotted Sandpiper				X	level 3		X			
Bird	*Piranga rubra*	Summer Tanager				X			X	X		
Bird	*Catharus ustulatus*	Swainson's Thrush				X			X	X		
Bird	*Melospiza georgiana*	Swamp Sparrow				X	level 2		X	X		
Bird	*Oreothlypis peregrina*	Tennessee Warbler				X			X	X		
Bird	*Tachycineta bicolor*	Tree Swallow				X			X	X		
Bird	*Baeolophus bicolor*	Tufted Titmouse				X	level 3			X		
Bird	*Cathartes aura*	Turkey Vulture			P		level 3		X	X		
Bird	*Catharus fuscescens*	Veery				X	level 3		X	X		
Bird	*Rallus limicola*	Virginia Rail				X	level 1		X			
Bird	*Vireo gilvus*	Warbling Vireo				X			X	X		
Bird	*Sitta carolinensis*	White-breasted Nuthatch				X			X	X		
Bird	*Zonotrichia leucophrys*	White-crowned Sparrow				X			X	X		
Bird	*Zonotrichia albicollis*	White-throated Sparrow				X	level 2		X	X		
Bird	*Cardellina pusilla*	Wilson's Warbler				X				X		
Bird	*Troglodytes hiemalis*	Winter Wren				X	level 3		X	X		
Bird	*Hylocichla mustelina*	Wood Thrush	THR	SC		X	level 4		X	X		X
Bird	*Empidonax flaviventris*	Yellow-bellied Flycatcher				X			X	X		
Bird	*Sphyrapicus varius*	Yellow-bellied Sapsucker				X	level 2		X	X		
Bird	*Icteria virens virens*	Yellow-breasted Chat	END	END		X	level 1					X
Bird	*Setophaga coronata*	Yellow-rumped Warbler				X	level 4		X	X		
Bird	*Setophaga petechia*	Yellow Warbler				X			X	X		
Reptile	*Graptemys geographica*	Northern Map Turtle	SC	SC	P			X				
Reptile	*Chelydra serpentina*	Snapping Turtle	SC	SC	G			X				

Legend

SARA Species at Risk Act Schedule 1- official list of wildlife Species at Risk

THR- threatened; a wildlife species likely to become endangered if limiting factors are not reversed

END- endangered, a wildlife species facing imminent extirpation or extinction
EXT- extirpated; a species no longer existing in the wild in Canada but occurring elsewhere
SC- species concern; a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats
SARO Ontario Endangered Species Act, 2007
END-Endangered; a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation
EXP-Extirpated; a species that no longer exists in the wild in Ontario but exists elsewhere
THR-Threatened; a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed
SC-Special Concern; a species with characteristics that make it sensitive to human activities or natural events
FWCA – Fish and Wildlife Conservation Act G- Game Species; F- Fur Bearing Species; P- Specially Protected Species
MBCA – Migratory Birds Convention Act X- protected species
Culturally Significant Species noted through personal communication with Six Nations Wildlife and Stewardship Office (SNWSO)
NHIC – **Natural Heritage Information Centre** records of provincially tracked species

Appendix B SAR Screening

Screening for Species at Risk with Potential to Occur in the Study Area

Group	Species	SARO Status	Data Source	Habitat Description	Habitat Potential within the Study Area based on Desktop Review	Recommendations
Bird	Acadian Flycatcher	Endangered	eBird	The Acadian flycatcher breeds in the understory of large, mature, closed-canopy forests, swamps and forested ravines. This bird prefers forests greater than 40 ha in size and exhibits edge sensitivity preferring the deep interior of the forest. Its nest is loosely woven and placed near the tip of branch in a small tree or shrub often, but not always, near water.	Suitable nesting habitat is not present in Study Area.	No further effort recommended.
Bird	Bald Eagle (*Haliaeetus leucocephalus*)	Special Concern	eBird	In Ontario, bald eagle nests are typically found near the shorelines of lakes or large rivers, often on forested islands. The large, conspicuous nests are typically found in large super-canopy trees along water bodies.	Suitable nesting habitat is not present in Study Area.	No further effort recommended.
Bird	Bank Swallow (*Riparia riparia*)	Threatened	eBird, NHIC	The bank swallow breeds in a variety of natural and anthropogenic habitats, including lake bluffs, stream and riverbanks, sand and gravel pits, and roadcuts. Nests are generally built in a vertical or near-vertical bank. Breeding sites are typically near open foraging sites such as rivers, lakes, grasslands, agricultural fields, wetlands and riparian woods. Forested areas are generally avoided.	Suitable nesting habitat is not present in the Study Area.	No further effort recommended.
Bird	Barn Swallow (*Hirundo rustica*)	Special Concern	eBird, NHIC	In Ontario, barn swallows breed in areas that contain a suitable nesting structure, open areas for foraging, and a body of water. This species nests in human made structures including barns, buildings, sheds, bridges, and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, lake, and river shorelines, cleared right-of-ways, and wetlands. Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused.	Potential nesting habitat on structures in the Study Area.	Breeding bird surveys.
Bird	Bobolink (*Dolichonyx oryzivorus*)	Threatened	NHIC	In Ontario, bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation. Bobolink prefers grassland habitat with a forb component and a moderate litter layer. They are most abundant in established, but regularly maintained, hayfields, but also breed in lightly grazed pastures, old or fallow fields, cultural meadows and newly planted hayfields.	Suitable nesting habitat is not present in the Study Area.	No further effort recommended.
Bird	Canada Warbler (*Cardellina canadensis*)	Special Concern	eBird, NHIC	Breeding habitat for Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets. It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks.	Potential habitat is present in Nautical Woods.	Breeding bird surveys.
Bird	Chimney Swift (*Chaetura pelagica*)	Threatened	eBird	In Ontario, chimney swift breeding habitat is varied and includes urban, suburban, rural, and wooded sites. They are most associated with towns and cities with large concentrations of chimneys. Preferred nesting sites are dark, sheltered spots with a vertical surface to which the bird can grip. Unused chimneys are the primary nesting and roosting structure, but other anthropogenic structures and large diameter cavity trees are also used.	Available habitat in the Study Area is limited but will be assessed during field investigations. Chimneys are present in residential area but residential buildings will not be impacted by project works.	Breeding bird surveys and habitat tree assessment.
Bird	Eastern Meadowlark (Sturnella magna)	Threatened	NHIC	In Ontario, the eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlark prefers moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component. They prefer well drained sites or slopes, and sites with different cover layers.	Suitable nesting habitat is not present in the Study Area.	No further effort recommended.
Bird	Eastern Whip-poor-will	Threatened	NHIC	In Ontario, the Eastern Whip-poor-will breeds in semi-open forests with little ground cover. Breeding habitat is dependent on forest structure rather than species	Potential habitat is present in Nautical Woods.	Breeding bird surveys.

Group	Species	SARO Status	Data Source	Habitat Description	Habitat Potential within the Study Area based on Desktop Review	Recommendations
				composition, and is found on rock and sand barrens, open conifer plantations and post-disturbance regenerating forest. Territory size ranges from 3 to 11 ha.		
Bird	Eastern Wood-pewee (*Contopus virens*)	Special Concern	NHIC	The Eastern Wood-pewee inhabits a wide variety of wooded upland and lowland habitats but is most commonly associated with the mid-canopy of forest clearings, and edge habitat in deciduous and mixed forests. It also occurs in anthropogenic habitats that provide an open forested aspect such as parks and suburban neighbourhoods. It prefers intermediate-age mature forest stands with little understory vegetation.	Potential habitat in woodlands.	Breeding bird surveys.
Bird	Evening Grosbeak (*Coccothraustes vespertinus)*	Special Concern	eBird	During the breeding season, the Evening Grosbeak is generally found in open, mature mixed-wood forests dominated by fir species, White Spruce and/ or Trembling Aspen. Its abundance is strongly linked to the cycle of its primary prey, the Spruce Budworm. Outside the breeding season, the species depends mostly on seed crops from tree species in the boreal forest such as firs and spruces. It is also attracted to ornamental trees that have seeds of fruit, and may visit bird feeders.	Study Area is outside of species breeding range. Species occurrence in eBird was likely migratory or wintering and not a breeding occurrence for the Study Area.	No further effort recommended.
Bird	Golden Eagle	Endangered	eBird	The golden eagle typically inhabits mountain regions and dry, rugged open country and grasslands, over which it soars in search of small mammals and other prey. This eagle usually constructs a large stick nest on a cliff ledge. However, it occasionally nests in trees, and, in the far north, will nest directly on the tundra. In Ontario, this bird is only known to occur in the Hudson Bay Lowlands.	Study Area is outside of species breeding range. Species occurrence in eBird was likely migratory and not a breeding occurrence for the Study Area.	No further effort recommended.
Bird	Golden-winged Warbler	Special Concern	eBird, NHIC	In Ontario, golden-winged warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Their preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as right-of-ways, and field edges or openings resulting from logging or burning. The nest of the golden-winged warbler is built on the ground at the base of a shrub or leafy plant, often at the shaded edge of the forest or at the edge of a forest opening.	Potential habitat is present in Study Area.	Breeding bird surveys.
Bird	Least Bittern	Threatened	NHIC	The least bittern breeds in marshes, usually greater than 5 ha, with emergent vegetation, relatively stable water levels and areas of open water. Preferred habitat has water less than 1 m deep (usually 10 – 50 cm). Nests are built in tall stands of dense emergent or woody vegetation.	Suitable nesting habitat is not present in the Study Area.	No further effort recommended.
Bird	Lesser Yellowlegs	Threatened	eBird	In Ontario, lesser yellowlegs breed in boreal wetlands including fens, bogs, edges of shallow open water, and marshes. Most breeding habitat is within complex landscape mosaics but they may use anthropogenic landscapes including road allowances, seismic lines, mine clearing, and recently clear-cut forests. Suitable breeding habitat is diverse.	Study Area is outside of species breeding range. Species occurrence in eBird was likely migratory and not a breeding occurrence for the Study Area.	No further effort recommended.
Bird	Northern Bobwhite	Endangered	NHIC	In Ontario, the northern bobwhite breeds in early successional habitats. This species requires a combination of three habitat types: woody cover, cropland and grassland. Croplands provide foraging habitat, grassland and fields are used for nesting, and dense brush provides both winter forage and year round cover. These birds nest on the ground in a shallow depression lined with grasses and other dead vegetation.	Suitable nesting habitat is not present in the Study Area.	No further effort recommended.
Bird	Olive-sided Flycatcher	Special Concern	eBird	In Ontario, olive-sided flycatcher breeding habitat consists of natural openings in coniferous or mixed forests, including bogs, burns, riparian zones, and cutover areas. They are also found in semi-open forest stands and early successional forest when tall snags and residual live trees are present. In the boreal forest it is often associated with muskeg, bogs, fens and swamps dominated by spruce and tamarack. Open areas with tall trees or snags for perching are used for foraging.	Potential habitat may be present in Nautical Woods.	Breeding bird surveys.

Group	Species	SARO Status	Data Source	Habitat Description	Habitat Potential within the Study Area based on Desktop Review	Recommendations
Bird	Peregrine Falcon	Special Concern	eBird	In Ontario, peregrine falcon breeds in areas containing suitable nesting locations and sufficient prey resources. Such habitat includes both natural locations containing cliff faces (heights of 50 - 200 m preferred) and also anthropogenic landscapes including urban centres containing tall buildings, open pit mines and quarries, and road cuts. Peregrine falcons nest on cliff ledges and crevices and building ledges. Nests consist of a simple scrape in the substrate.	Suitable nesting habitat is not present in the Study Area.	No further effort recommended.
Bird	Red-headed Woodpecker	Endangered	NHIC	In Ontario, the red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs. They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees.	Suitable nesting habitat may be present in the Study Area.	Breeding bird surveys.
Bird	Rusty Blackbird	Special Concern	eBird	In Ontario, the rusty blackbird breeds in swamps, fens, bogs and beaver ponds of boreal or mixed forests. It may also breed in dense vegetation along creeks, and on the edges of riparian forests or pasture edges. Edge habitat associated with disturbances such as clear cut or burn regeneration zones may be favoured. Rusty blackbirds nest in small trees or shrubs, close to, or over water. Nests may be in living or dead trees and stumps, but have also been found on the ground.	Study Area is outside of species breeding range and breeding is unlikely. Some potential habitat is present in riparian corridor of East Sheldon Creek but records in eBird were likely migratory or wintering.	No further effort recommended.
Bird	Wood Thrush (*Hylocichla mustelina*)	Special Concern		In Ontario, wood thrush breeds in moist, deciduous hardwood or mixed stands that are often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. This species selects nesting sites with the following characteristics: lower elevations with trees less than16 m in height, a closed canopy cover (>70 %), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter.	Suitable nesting habitat may be present in Nautical Woods.	Breeding bird surveys.
Bird	Yellow-breasted Chat	Special Concern	eBird, NHIC	In Ontario, yellow-breasted chat breeds in early successional, shrub-thicket habitats including woodland edges, regenerating old fields, railway and hydro right-of-ways, young coniferous reforestations, and wet thickets bordering wetlands. Tangles of grape and raspberry vines are features of most breeding sites. There is some evidence that the yellow-breasted chat is an area sensitive species. Nests are located in dense shrubbery near to the ground.	Suitable nesting habitat may be present in woodlands in Study Area.	Breeding bird surveys.
Mammal	Eastern Small-footed Myotis (*Myotis leibii*)	Endangered	Bat Conservation International	This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.	Suitable roost trees may be present in woodland.	Characterization of vegetation communities and habitat to determine habitat potential.
Mammal	Little Brown Myotis (*Myotis lucifugus*)	Endangered	Bat Conservation International	This species range is extensive and covers much of the province. They roost in natural and man-made structures. They require a number of large dead trees, in specific stages of decay and that project above the canopy in relatively open areas. May form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.	Suitable roost trees may be present in woodland.	Characterization of vegetation communities and habitat to determine habitat potential.
Mammal	Northern Myotis (*Myotis septentrionalis*)	Endangered	Bat Conservation International	In Ontario, this species range is extensive and covers much of the province. It will usually roost in hollows, crevices, and under loose bark of mature trees. Roosts may be established in the main trunk or a large branch of either living or dead trees. Caves or	Suitable roost trees may be present in woodland.	Characterization of vegetation communities and habitat to determine habitat potential.

Group	Species	SARO Status	Data Source	Habitat Description	Habitat Potential within the Study Area based on Desktop Review	Recommendations
				abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.		
Mammal	Tri-coloured Bat (*Perimyotis subflavus*)	Endangered	Bat Conservation International	In Ontario, tri-colored bat may roost in foliage, in clumps of old leaves, hanging moss or squirrel nests. They are occasionally found in buildings although there are no records of this in Canada. They typically feed over aquatic areas with an affinity to large-bodied water and will likely roost in close proximity to these. Hibernation sites are found deep within caves or mines in areas of relatively warm temperatures. These bats have strong roost fidelity to their winter hibernation sites.	Suitable roost trees may be present in woodland.	Characterization of vegetation communities and habitat to determine habitat potential.
Reptile	Northern Map Turtle (Graptemys geographica	Special Concern	NHIC	In Ontario, the northern map turtle prefers large waterbodies with slow-moving currents, soft substrates, and abundant aquatic vegetation. Ideal stretches of shoreline contain suitable basking sites, such as rocks and logs. Along Lakes Erie and Ontario, this species occurs in marsh habitat and undeveloped shorelines. It is also found in small to large rivers with slow to moderate flow. Hibernation takes place in soft substrates under deep water.	Suitable habitat is not present in East Sheldon Creek in the reach through the Study Area. Suitable habitat is present in stormwater ponds at the south end of the Study Area but individuals are not likely to travel the distance to the disturbance area.	Mitigation measures to exclude wildlife from the work area.
Reptile	Snapping Turtle (*Chelydra serpentina*)	Special Concern	NHIC	In Ontario, snapping turtles utilize a wide range of waterbodies, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways.	Suitable habitat is not present in East Sheldon Creek in the reach through the Study Area. Suitable habitat is present in stormwater ponds at the south end of the Study Area but individuals are not likely to travel the distance to the disturbance area.	Mitigation measures to exclude wildlife from the work area.
Fish	Deepwater Sculpin	SARA-Special Concern	NHIC	In Ontario, the Deepwater Sculpin occurs in Fairbank Lake, and lakes Huron, Nipigon, Ontario, Erie and Superior, although there is no reproducing population in Lake Erie. This fish species prefers cold, deep water (usually between 60-150 m), with soft substrates. Spawning takes place year-round, but peaks in August and early September.	Suitable habitat is not present in the Study Area.	No further effort recommended.
Fish	Silver Shiner	Threatened	NHIC	In Ontario, the Silver Shiner is found in tributaries of lakes St.Clair Thames River), Erie (Grand River) and Ontario (Bronte and Sixteen Mile Creek). They prefer moderately-flowing sections of larger streams with clear water and moderate currents. Usual substrates include gravel, rubble, boulder, and sand. Aquatic vegetation may be present or absent. The Silver Shiner most frequently occurs in deep, swift riffles and faster currents of pools below riffles. Spawning habitat is suggested to occur in relatively deep riffles.	DFO does not identify the Sheldon Creek Watershed as Silver Shiner habitat. NHIC occurrence may be from other watercourses in the area. Species presence in the area is unlikely based on minimal flows during October 2024 site visit. The preliminary design will not impact aquatic habitat.	No further effort recommended.

Appendix C Study Area Photos

Project #TA9457

Photo Appendix

Photo. 1: East Sheldon Creek in potential future discharge disturbance area, facing north, October 25, 2024.

Photo. 2: East Sheldon Creek in potential future discharge disturbance area, facing south, October 25, 2024.

Photo. 3: Riparian cultural thicket around East Sheldon Creek in potential future disturbance area, October 25, 2024.

Photo. 4: Manicured WTP property, October 25, 2024.

Photo. 5: Nautical Woods on WTP property, October 25, 2024.

Photo. 6: Nautical Woods outside of WTP property, October 25, 2024.

Project #TA9457

Photo Appendix

Photo. 7: Nautical Woods outside of WTP property, October 25, 2024.

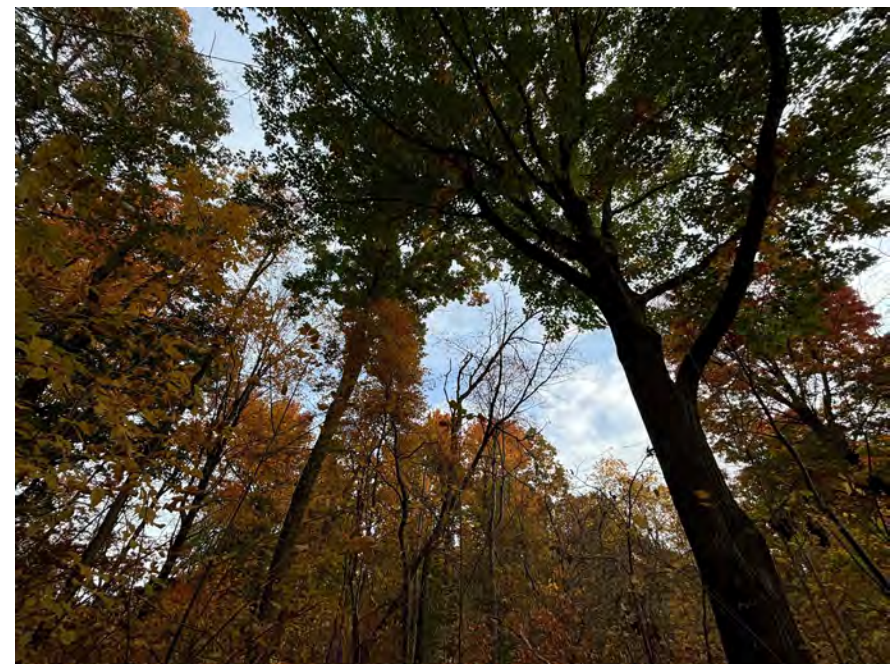

Photo. 8: Nautical Woods outside of WTP property, October 25, 2024.

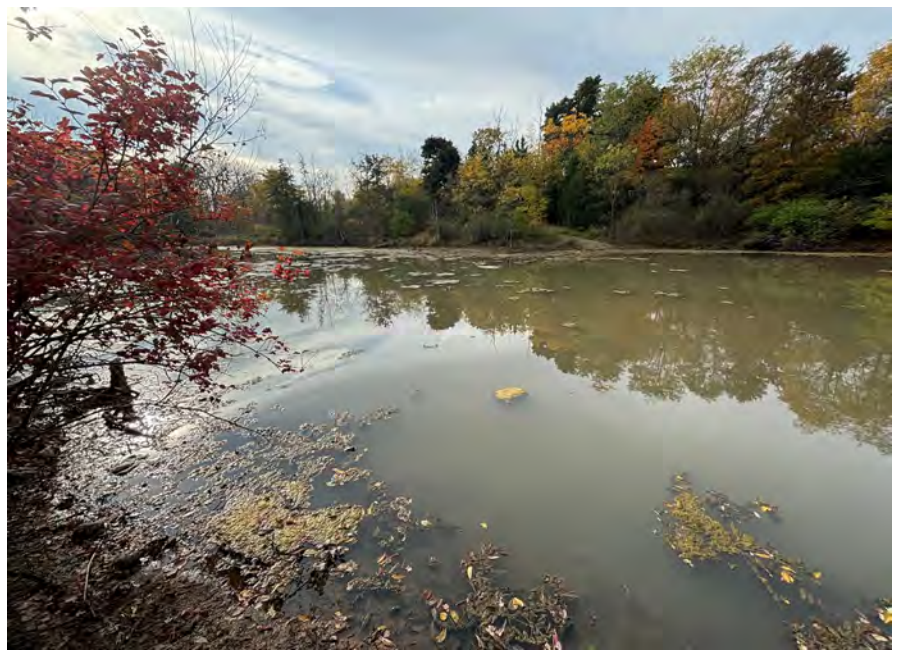

Photo. 9: Stormwater Pond at corner of Great Lakes Blvd. and Creek Path Ave., facing East, October 25, 2024.

Photo. 10: Stormwater Pond at corner of Great Lakes Blvd. and Creek Path Ave., facing West, October 25, 2024.

Photo. 11: Cultural woodland south of cultural thicket in discharge disturbance area, October 25, 2024.

APPENDIX B - CULTURAL HERITAGE SCREENING SUMMARY REPORT

Providing Archaeological & Cultural Heritage Services
528 Bathurst Street Toronto, ONTARIO M5S 2P9
T 416-966-1069 F 416-966-9723 asiheritage.ca

December 18, 2024
(Revised January 27, 2025)

TO: Anna Comerton, Associated Engineering

FROM: Lindsay Graves, M.A., C.A.H.P., Archaeological Services Inc.
Meredith Stewart, M.A., C.A.H.P., Archaeological Services Inc.

RE: **Cultural Heritage Screening Memo for the Addendum to the Burloak Water Treatment Plant Phase II Expansion, Schedule C Municipal Class Environmental Assessment, Town of Oakville, Region of Halton**

ASI File: 24CH-206

Archaeological Services Inc. (A.S.I.) was retained by Associated Engineering to complete the Ministry of Citizenship and Multiculturalism (M.C.M.) form: *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes – A Checklist for the Non-Specialist* (2022) to determine if the Burloak Water Treatment Plant (W.T.P.) in the Town of Oakville has potential for cultural heritage value or interest and to recommend whether any further cultural heritage evaluation is required. The completed checklist is provided in Appendix A.

In summary, no criteria in the checklist were met. Following a review of online heritage inventories and databases, consultation with municipal and provincial heritage staff, and a site visit, it is A.S.I.'s professional opinion that the property has no potential for cultural heritage value or interest, and no further heritage work is necessary.

The following memo includes a description of the location of the subject property, a review of online heritage inventories and databases, a summary of information gathering and consultation with relevant stakeholders, and a review of the site's existing conditions and associated photo documentation.

1.0 Location of the Property

The property (Figure 1Figure 1) is bounded by Rebecca Street to the north, Nautical Park to the east, Nautical Boulevard to the south, and the rear of the properties on Vellwood Common and the rear of the commercial building at 3420 Rebecca Street to the west. The property covers an area of approximately 16 acres.

Figure 1: Location of the property, labelled "study area" (Base Map: ©OpenStreetMap and contributors, Creative Commons-Share Alike License (C.C.-By-S.A.))

2.0 Review of Existing Heritage Inventories

A number of resources were consulted in order to determine previously identified built heritage resources and cultural heritage landscapes within and adjacent to the subject property. These resources, reviewed on 12 December 2024 include:

- The Town of Oakville's Heritage Register (Town of Oakville, 2024);
- Historical maps (including historical atlases, topographic maps, and aerial photography);
- The *Ontario Heritage Act Register* (Ontario Heritage Trust, n.d.b);
- The *Places of Worship Inventory* (Ontario Heritage Trust, n.d.c);
- The inventory of Ontario Heritage Trust easements (Ontario Heritage Trust, n.d.a);
- The Ontario Heritage Trust's *An Inventory of Provincial Plaques Across Ontario*: a PDF of Ontario Heritage Trust Plaques and their locations (Ontario Heritage Trust, 2023);
- The Ontario Heritage Trust's *An Inventory of Ontario Heritage Trust-owned properties across Ontario*: a PDF of properties owned by the Ontario Heritage Trust (Ontario Heritage Trust, 2019);
- Inventory of known cemeteries/burial sites in the Ontario Genealogical Society's online databases (Ontario Genealogical Society, n.d.);
- Canada's Historic Places website: available online, the searchable register provides information on historic places recognized for their heritage value at the local, provincial, territorial, and national levels (Parks Canada, n.d.a);
- Directory of Federal Heritage Designations: a searchable on-line database that identifies National Historic Sites, National Historic Events, National Historic People, Heritage Railway Stations, Federal Heritage Buildings, and Heritage Lighthouses (Parks Canada, n.d.b);
- Canadian Heritage River System: a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage (Canadian Heritage Rivers Board and Technical Planning Committee, n.d.); and,

- United Nations Educational, Scientific and Cultural Organization (U.N.E.S.C.O.) World Heritage Sites (U.N.E.S.C.O. World Heritage Centre, n.d.).

3.0 Community Information Gathering

The following individuals, groups, and/or organizations were contacted to gather information on known and potential built heritage resources and cultural heritage landscapes, active and inactive cemeteries, plaques and sites of commemoration, and areas of identified Indigenous interest within or adjacent to the subject property:

- Susan Schappert, Heritage Planner, Town of Oakville (email communications 11 December 2024). Email correspondence confirmed that the Town of Oakville has no cultural heritage concerns related to the property or immediate surroundings.
- The M.C.M. (email communications 10 and 11 December 2024). Email correspondence confirmed that the property is not designated by the Minister and is not a known Provincial Heritage Property, nor are any adjacent properties.
- The Ontario Heritage Trust (O.H.T.) (email communications 10 December 2024). A response indicated that the O.H.T. does not have any properties, conservation easements, or heritage plaques within or adjacent to the subject property.

4.0 Existing Conditions

A field review of the subject property was undertaken by Meredith Stewart and Michael Wilcox of Archaeological Services Inc., on 5 December 2024 to document the site's existing conditions, which are described below and captured in Figure 2 to Figure 10.

The Burloak Water Treatment Plant property includes an entrance driveway and parking areas and large buildings associated with water treatment on the northern half of the property, as well as a large open lawned area with scattered

trees, plantings, and berms on the southern half of the property (Figure 2 to Figure 6). The area surrounding the property is set in a mixed residential, commercial, and natural/recreational context. A few industrial properties are located along Rebecca Street to the north, northeast, and northwest of the subject property; the forested area associated with Nautical Park is located to the east; a residential subdivision is located to the south; and both a low-rise condominium and commercial building are located to the west (Figure 7 to Figure 10).

Figure 2: Water treatment buildings and parking lot, looking southwest (A.S.I., 2024)

Figure 3: Looking southwest to open fields, plantings, and trees on southern portion of the property (A.S.I., 2024)

Figure 4: Looking north from southeast corner of the property (A.S.I., 2024)

Figure 5: Looking west from southeast corner of the property (A.S.I., 2024)

Figure 6: Looking east from northwest corner of the property (A.S.I., 2024)

Figure 7: Looking east along Rebecca Street from entrance driveway (A.S.I., 2024)

Figure 8: Looking west along Rebecca Street from entrance driveway (A.S.I., 2024)

Figure 9: Residential subdivision south of the subject property (A.S.I., 2024)

Figure 10: Residential development to the west of the western boundary of the subject property (A.S.I., 2024)

5.0 Conclusions and Recommendations

This screening memorandum, and the attached checklist, should be saved to the project file for documentation. No further work regarding the property, from a cultural heritage perspective, is required.

6.0 References

Canadian Heritage Rivers Board and Technical Planning Committee. (n.d.). *The Rivers – Canadian Heritage Rivers System Canada's National River Conservation Program*. Canadian Heritage Rivers System. http://chrs.ca/en/rivers/

Ontario Genealogical Society. (n.d.). *OGS Cemeteries*. Digitals Collections & Library Catalogue. http://vitacollections.ca/ogscollections/2818487/data

Ontario Heritage Trust. (2019, September 30). *An Inventory of Ontario Heritage Trust-Owned Properties Across Ontario*. https://www.heritagetrust.on.ca/user_assets/documents/Inventory-of-OHT-owned-properties-ENG-Sep-30-2019-FINAL.pdf

Ontario Heritage Trust. (2023). *An Inventory of Provincial Plaques Across Ontario*. https://www.heritagetrust.on.ca/user_assets/documents/Inventory-of-provincial-plaques-ENG.pdf

Ontario Heritage Trust. (n.d.a). *Easement Properties*. Ontario Heritage Trust. https://www.heritagetrust.on.ca/en/property-types/easement-properties

Ontario Heritage Trust. (n.d.b). *Ontario Heritage Act Register*. https://www.heritagetrust.on.ca/en/pages/tools/ontario-heritage-act-register

Ontario Heritage Trust. (n.d.c). *Places of Worship Inventory*. Ontario Heritage Trust. https://www.heritagetrust.on.ca/en/places-of-worship/places-of-worship-database

Parks Canada. (n.d.a). *Canada's Historic Places*. www.historicplaces.ca

Parks Canada. (n.d.b). *Directory of Federal Heritage Designations*. https://www.pc.gc.ca/apps/dfhd/search-recherche_eng.aspx

Town of Oakville. (2024). *Heritage Property Register*. https://www.oakville.ca/business-development/planning-development/heritage-planning/heritage-districts-properties/

U.N.E.S.C.O. World Heritage Centre. (n.d.). *World Heritage List*. U.N.E.S.C.O. World Heritage Centre. http://whc.unesco.org/en/list/

Appendix A

Ontario

Ministry of Tourism, Culture and Sport

Programs & Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7

Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

A Checklist for the Non-Specialist

The **purpose of the checklist** is to determine:

- if a property(ies) or project area:
    - is a recognized heritage property
    - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
    - the main project area
    - temporary storage
    - staging and working areas
    - temporary roads and detours

Processes covered under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

Cultural Heritage Evaluation Report (CHER)

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

Project or Property Name

Burloak WTP Phase II Expansion

Project or Property Location (upper and lower or single tier municipality)

Town of Oakville, Halton Region

Proponent Name

Associated Engineering

Proponent Contact Information

Anna Comerton, Suite 200, 165 Commerce Valley Drive, Markham, ON, L3T 7V8

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☑

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

	Yes	No
2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value?	☐	☑

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Is the property (or project area):		
a. identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?	☐	☑
b. a National Historic Site (or part of)?	☐	☑
c. designated under the *Heritage Railway Stations Protection Act*?	☐	☑
d. designated under the *Heritage Lighthouse Protection Act*?	☐	☑
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	☐	☑
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	☐	☑

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☑
b. has or is adjacent to a known burial site and/or cemetery?	☐	☑
c. is in a Canadian Heritage River watershed?	☐	☑
d. contains buildings or structures that are 40 or more years old?	☐	☑

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☐	☑
b. has a special association with a community, person or historical event?	☐	☑
c. contains or is part of a cultural heritage landscape?	☐	☑

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority

Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
    - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

For more information, see the Ministry of Tourism, Culture and Sport's Ontario Heritage Toolkit or Standards and Guidelines for Conservation of Provincial Heritage Properties.

In this context, the following definitions apply:

- **qualified person(s)** means individuals – professional engineers, architects, archaeologists, etc. – having relevant, recent experience in the conservation of cultural heritage resources.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may already be in place for identifying potential cultural heritage resources, including:

- one endorsed by a municipality
- an environmental assessment process e.g. screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport (MTCS) under the Ontario government's Standards & Guidelines for Conservation of Provincial Heritage Properties [s.B.2.]

Part A: Screening for known (or recognized) Cultural Heritage Value

2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value?

Respond 'yes' to this question, if all of the following are true:

A property can be considered not to be of cultural heritage value if:

- a Cultural Heritage Evaluation Report (CHER) - or equivalent - has been prepared for the property with the advice of a qualified person and it has been determined not to be of cultural heritage value and/or
- the municipal heritage committee has evaluated the property for its cultural heritage value or interest and determined that the property is not of cultural heritage value or interest

A property may need to be re-evaluated, if:

- there is evidence that its heritage attributes may have changed
- new information is available
- the existing Statement of Cultural Heritage Value does not provide the information necessary to manage the property
- the evaluation took place after 2005 and did not use the criteria in Regulations 9/06 and 10/06

Note: Ontario government ministries and public bodies [prescribed under Regulation 157/10] may continue to use their existing evaluation processes, until the evaluation process required under section B.2 of the Standards & Guidelines for Conservation of Provincial Heritage Properties has been developed and approved by MTCS.

To determine if your property or project area has been evaluated, contact:

- the approval authority
- the proponent
- the Ministry of Tourism, Culture and Sport

3a. Is the property (or project area) identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value e.g.:

i. designated under the *Ontario Heritage Act*

- individual designation (Part IV)
- part of a heritage conservation district (Part V)

Individual Designation – Part IV

A property that is designated:

- by a municipal by-law as being of cultural heritage value or interest [s.29 of the *Ontario Heritage Act*]
- by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]. **Note**: To date, no properties have been designated by the Minister.

Heritage Conservation District – Part V

A property or project area that is located within an area designated by a municipal by-law as a heritage conservation district [s. 41 of the *Ontario Heritage Act*].

For more information on Parts IV and V, contact:

- municipal clerk
- Ontario Heritage Trust
- local land registry office (for a title search)

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ii. subject of an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act*

An agreement, covenant or easement is usually between the owner of a property and a conservation body or level of government. It is usually registered on title.

The primary purpose of the agreement is to:

- preserve, conserve, and maintain a cultural heritage resource
- prevent its destruction, demolition or loss

For more information, contact:

- Ontario Heritage Trust - for an agreement, covenant or easement [clause 10 (1) (c) of the *Ontario Heritage Act*]
- municipal clerk – for a property that is the subject of an easement or a covenant [s.37 of the *Ontario Heritage Act*]
- local land registry office (for a title search)

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iii. listed on a register of heritage properties maintained by the municipality

Municipal registers are the official lists - or record - of cultural heritage properties identified as being important to the community.

Registers include:

- all properties that are designated under the *Ontario Heritage Act* (Part IV or V)
- properties that have not been formally designated, but have been identified as having cultural heritage value or interest to the community

For more information, contact:

- municipal clerk
- municipal heritage planning staff
- municipal heritage committee

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iv. subject to a notice of:

- intention to designate (under Part IV of the *Ontario Heritage Act*)
- a Heritage Conservation District study area bylaw (under Part V of the *Ontario Heritage Act*)

A property that is subject to a **notice of intention to designate** as a property of cultural heritage value or interest and the notice is in accordance with:

- section 29 of the *Ontario Heritage Act*
- section 34.6 of the *Ontario Heritage Act.* **Note**: To date, the only applicable property is Meldrum Bay Inn, Manitoulin Island. [s.34.6]

An area designated by a municipal by-law made under section 40.1 of the *Ontario Heritage Act* as a **heritage conservation district study area**.

For more information, contact:

- municipal clerk – for a property that is the subject of notice of intention [s. 29 and s. 40.1]
- Ontario Heritage Trust

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v. included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties

Provincial heritage properties are properties the Government of Ontario owns or controls that have cultural heritage value or interest.

The Ministry of Tourism, Culture and Sport (MTCS) maintains a list of all provincial heritage properties based on information provided by ministries and prescribed public bodies. As they are identified, MTCS adds properties to the list of provincial heritage properties.

For more information, contact the MTCS Registrar at registrar@ontario.ca.

3b. Is the property (or project area) a National Historic Site (or part of)?

National Historic Sites are properties or districts of national historic significance that are designated by the Federal Minister of the Environment, under the *Canada National Parks Act*, based on the advice of the Historic Sites and Monuments Board of Canada.

For more information, see the National Historic Sites website.

3c. Is the property (or project area) designated under the *Heritage Railway Stations Protection Act*?

The *Heritage Railway Stations Protection Act* protects heritage railway stations that are owned by a railway company under federal jurisdiction. Designated railway stations that pass from federal ownership may continue to have cultural heritage value.

For more information, see the Directory of Designated Heritage Railway Stations.

3d. Is the property (or project area) designated under the *Heritage Lighthouse Protection Act*?

The *Heritage Lighthouse Protection Act* helps preserve historically significant Canadian lighthouses. The Act sets up a public nomination process and includes heritage building conservation standards for lighthouses which are officially designated.

For more information, see the Heritage Lighthouses of Canada website.

3e. Is the property (or project area) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office?

The role of the Federal Heritage Buildings Review Office (FHBRO) is to help the federal government protect the heritage buildings it owns. The policy applies to all federal government departments that administer real property, but not to federal Crown Corporations.

For more information, contact the Federal Heritage Buildings Review Office.

See a directory of all federal heritage designations.

3f. Is the property (or project area) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?

A UNESCO World Heritage Site is a place listed by UNESCO as having outstanding universal value to humanity under the Convention Concerning the Protection of the World Cultural and Natural Heritage. In order to retain the status of a World Heritage Site, each site must maintain its character defining features.

Currently, the Rideau Canal is the only World Heritage Site in Ontario.

For more information, see Parks Canada – World Heritage Site website.

Part B: Screening for potential Cultural Heritage Value

4a. Does the property (or project area) contain a parcel of land that has a municipal, provincial or federal commemorative or interpretive plaque?

Heritage resources are often recognized with formal plaques or markers.

Plaques are prepared by:

- municipalities
- provincial ministries or agencies
- federal ministries or agencies
- local non-government or non-profit organizations

For more information, contact:

- municipal heritage committees or local heritage organizations – for information on the location of plaques in their community
- Ontario Historical Society's Heritage directory – for a list of historical societies and heritage organizations
- Ontario Heritage Trust – for a list of plaques commemorating Ontario's history
- Historic Sites and Monuments Board of Canada – for a list of plaques commemorating Canada's history

4b. Does the property (or project area) contain a parcel of land that has or is adjacent to a known burial site and/or cemetery?

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulations, Ontario Ministry of Consumer Services – for a database of registered cemeteries
- Ontario Genealogical Society (OGS) – to locate records of Ontario cemeteries, both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to locate early cemeteries

In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.

4c. Does the property (or project area) contain a parcel of land that is in a Canadian Heritage River watershed?

The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage.

Canadian Heritage Rivers must have, and maintain, outstanding natural, cultural and/or recreational values, and a high level of public support.

For more information, contact the Canadian Heritage River System.

If you have questions regarding the boundaries of a watershed, please contact:

- your conservation authority
- municipal staff

4d. Does the property (or project area) contain a parcel of land that contains buildings or structures that are 40 or more years old?

A 40 year 'rule of thumb' is typically used to indicate the potential of a site to be of cultural heritage value. The approximate age of buildings and/or structures may be estimated based on:

- history of the development of the area
- fire insurance maps
- architectural style
- building methods

Property owners may have information on the age of any buildings or structures on their property. The municipality, local land registry office or library may also have background information on the property.

Note: 40+ year old buildings or structure do not necessarily hold cultural heritage value or interest; their age simply indicates a higher potential.

A building or structure can include:

- residential structure
- farm building or outbuilding
- industrial, commercial, or institutional building
- remnant or ruin
- engineering work such as a bridge, canal, dams, etc.

For more information on researching the age of buildings or properties, see the Ontario Heritage Tool Kit Guide Heritage Property Evaluation.

Part C: Other Considerations

5a. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) is considered a landmark in the local community or contains any structures or sites that are important to defining the character of the area?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has potential landmarks or defining structures and sites, for instance:

- buildings or landscape features accessible to the public or readily noticeable and widely known
- complexes of buildings
- monuments
- ruins

5b. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) has a special association with a community, person or historical event?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has a special association with a community, person or event of historic interest, for instance:

- Aboriginal sacred site
- traditional-use area
- battlefield
- birthplace of an individual of importance to the community

5c. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) contains or is part of a cultural heritage landscape?

Landscapes (which may include a combination of archaeological resources, built heritage resources and landscape elements) may be of cultural heritage value or interest to a community.

For example, an Aboriginal trail, historic road or rail corridor may have been established as a key transportation or trade route and may have been important to the early settlement of an area. Parks, designed gardens or unique landforms such as waterfalls, rock faces, caverns, or mounds are areas that may have connections to a particular event, group or belief.

For more information on Questions 5.a., 5.b. and 5.c., contact:

- Elders in Aboriginal Communities or community researchers who may have information on potential cultural heritage resources. Please note that Aboriginal traditional knowledge may be considered sensitive.
- municipal heritage committees or local heritage organizations
- Ontario Historical Society's "Heritage Directory" - for a list of historical societies and heritage organizations in the province

An internet search may find helpful resources, including:

- historical maps
- historical walking tours
- municipal heritage management plans
- cultural heritage landscape studies
- municipal cultural plans

Information specific to trails may be obtained through Ontario Trails.

APPENDIX C - NOTICE OF COMMENCEMENT

NOTICE OF COMMENCEMENT

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY

Addendum to the Burloak Water Treatment Plant Phase 2 Expansion
Town of Oakville, PR2581B

About the Study

To ensure all residents and businesses continue to have reliable access to high-quality drinking water, Halton Region is initiating an Addendum to the Municipal Class Environmental Assessment (MCEA) Study completed in 2012 for the Burloak Water Treatment Plant (WTP) Phase 2 Expansion, in the Town of Oakville.

To meet future demands and support growth into 2031, the 2012 MCEA Study set out to increase water treatment capacity at the Burloak WTP from 55,000 m^3/day to 165,000 m^3/day, as identified in the 2011 Sustainable Halton Water and Wastewater Master Plan.

The MCEA process requires renewal for studies when a project has not commenced within ten years of its completion. This Addendum will re-evaluate the pre-treatment and residuals treatment processes presented in the 2012 MCEA Study, in the current environmental setting.

Approximate limits of the study area.

Process and Consultation

The study will be carried out in accordance with Schedule C of the MCEA, (October 2000, as amended 2007, 2011, 2015, 2023 and 2024), which is an approved process under the *Ontario Environmental Assessment Act*. Consultation with the public, review agencies and Indigenous Communities is a key element of the MCEA process and input will be sought at key milestones throughout this study. Upon completion of the study, an Addendum to the Environmental Study Report will be prepared and placed on the public record for a minimum 30-day review period. The document will detail the planning and consultation process and the preferred alternative for the water treatment plant.

Comments and More Information

Comments received through the course of the study will be considered and documented in the Addendum to the Environmental Study Report. For more information on the study and consultation process, please visit the Municipal Class Environmental Assessment Studies page on **halton.ca**. If you would like to be added to the study mailing list, please contact one of the project team members below.

Alexandria Rees
Project Manager I
Halton Region
1151 Bronte Road
Oakville, Ontario L6M 3L1
905-825-6000, ext. 2803
Alexandria.rees@halton.ca

Anna Comerton, Ph.D., P.Eng.
Manager, Water Planning & Studies
Associated Engineering
200, 165 Commerce Valley Drive West
Markham, Ontario L3T 7V8
437-317-9056
comertona@ae.ca

This notice was first issued December 18, 2024.

Anna Comerton

From:	Anna Comerton
Sent:	December 23, 2024 3:54 PM
To:	[redacted]
Cc:	Rees, Alexandria
Subject:	Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement
Attachments:	Notice of Commencement_Addendum_Burloak WTP MCEA.pdf

Dear Sir/Madam:

Please see attached the Notice of Commencement for the Municipal Class Environmental Assessment Study ('Study') Addendum to the Burloak Water Treatment Plant (WTP) Phase 2 Expansion.

To ensure all residents and businesses continue to have reliable access to high-quality drinking water, Halton Region is initiating an Addendum to the Study completed in 2012 for the Burloak WTP Phase 2 Expansion, in the Town of Oakville. The Municipal Class Environmental Assessment (MCEA) process requires renewal for studies when a project has not commenced within ten years of its completion. This Addendum will re-evaluate the preferred design solution for this WTP expansion presented in the 2012 MCEA Study, in the current environmental setting.

This notice is sent to your attention as it was deemed that you may be an interested stakeholder.

If you would like more information about this Study for the Burloak WTP Phase 2 Expansion or would like to be removed from the Study's contact list, please contact the undersigned.

Thank you,
Anna

Anna Comerton, Ph.D., P.Eng.
Manager, Water Planning & Studies
Associated Engineering (Ont.) Ltd.
Suite 200, 165 Commerce Valley Drive West, Markham, ON L3T 7V8
Tel: 416.622.9502 | Cel: 416.937.6250 | Dir: 437.317.9056

Anna Comerton

From:	Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent:	January 20, 2025 10:05 AM
To:	[redacted]
Cc:	Longworth, Erin; Nicolardi, Andrew; Anna Comerton; Elia Edwards; Rees, Alexandria; Passera Lavoie, Alexander
Subject:	Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study
Attachments:	Notice of Commencement_Addendum_Burloak WTP MCEA.pdf; Archaeological gap analysis report.pdf; Natural heritage assessment report.pdf; NOC Letter_Burloak WTP MCEA_HDI.pdf

Good Morning,

Halton Region has retained Associated Engineering (Ont.) Ltd. to assist with the completion of an Addendum to the Municipal Class Environmental Assessment (MCEA) Study completed in 2012 for the Burloak Water Treatment Plant Phase 2 Expansion, in the Town of Oakville.

The MCEA process requires renewal for studies when a project has not commenced within ten years of its completion. The Addendum will re-evaluate and confirm the preferred alternative for the pre-treatment and residuals treatment train presented in the 2012 MCEA Study, in the current environmental setting.

Please find attached our Cover Letter and Notice of Commencement for further details.

Also find attached for your reference the Archaeological Gap Analysis and Natural Heritage Report. The Stage 1 and 2 Archaeological Assessment, dated 2000, can be downloaded at the following:

http://2big4email.halton.ca/en/downloadfiles.aspx?param=hj2rcMujeh8v8RwiJEOQ7weQuAleQuAl

I understand that The Regional Municipality of Halton is in active discussion with HDI regarding an Agreement for document review and site participation for archaeological related work on Regional projects. For more information about this Agreement, please contact Jody Johnson at Jody.Johnson@halton.ca. Please be advised that any individuals attending a project site must have an executed Agreement with The Regional Municipality of Halton.

If you have any questions regarding the study, please contact the undersigned.

Best regards,
Chris Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7134 | 1-866-442-5866

APPENDIX D - NOTICE OF ADDENDUM

NOTICE OF ADDENDUM

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY

Addendum to the Burloak Water Treatment Plant Phase 2 Expansion
Town of Oakville, PR-2581B

About the study

To ensure all residents and businesses continue to have reliable access to high-quality drinking water, Halton Region has undertaken an Addendum to the Municipal Class Environmental Assessment (MCEA) Study completed in 2012 for the Burloak Water Treatment Plant (WTP) Phase 2 Expansion, in the Town of Oakville.

To meet future demands and support growth into 2031, the 2012 MCEA Study set out to increase water treatment capacity at the Burloak WTP from 55,000 m^3/day to 165,000 m^3/day, as identified in the 2011 Sustainable Halton Water and Wastewater Master Plan.

The MCEA process requires renewal for studies when a project has not commenced within ten years of its completion. This Addendum has re-evaluated the pre-treatment and residuals treatment processes presented in the 2012 MCEA Study, in the current environmental setting.

Approximate limits of the study area.

Process and consultation

The Addendum was carried out in accordance with the Municipal Engineers Association's MCEA Process (October 2000, as amended 2007, 2011, 2015, 2023 and 2024), which is an approved process under Ontario's *Environmental Assessment Act*. The Addendum to the 2012 MCEA Study documents the planning and decision-making process undertaken for this study.

The preferred alternative identified through the Addendum for the Burloak WTP Phase 2 Expansion includes particulate removal, primary disinfection, taste and odour control, and process residuals management. The treatment process components follow the same approach as outlined in the 2012 MCEA Study, with an updated approach to the process for residuals management.

Comments and more information

Starting September 3, 2025, and ending October 3, 2025, the Addendum to the 2012 MCEA Study is being placed on public record for a 30-day review period, in accordance with the requirements of the MCEA Process (October 2000, as amended 2007, 2011, 2015, 2023 and 2024). Subject to comments received during the review

period and the receipt of necessary approvals, Halton Region intends to proceed with the detailed design and construction of the Burloak WTP Phase 2 Expansion. The Addendum to the 2012 MCEA Study is available online for public review through the Municipal Class Environmental Assessment Studies page on **halton.ca**.

If you wish to review the report in hard copy or require an alternative format to meet accessibility needs, please contact one of the project team members below.

Written comments or questions may be provided to Halton Region's Project Manager, Christopher Pasquale, on or before October 3, 2025. 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, 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's contact information and full name.

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 review the request. The request should be sent by letter mail or email to:

Minister of Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
Minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5
905-825-6000, ext. 7556
EABDirector@ontario.ca

Requests should also be copied to Halton Region's Project Manager, Christopher Pasquale, by letter mail or email. For more information about this project, please visit the Municipal Class Environmental Assessment Studies page on **halton.ca**.

Christopher Pasquale, P.Eng., PMP
Project Manager
Halton Region
1151 Bronte Road
Oakville, ON L6M 3L1
905-825-6000, ext. 7134
Christopher.Pasquale@halton.ca

Anna Comerton, Ph.D., P.Eng.
Manager, Water Planning & Studies
Associated Engineering
200, 165 Commerce Valley Drive West
Markham, Ontario L3T 7V8
437-317-9056
comertona@ae.ca

This notice was first issued September 3, 2025.

APPENDIX E - COMMENTS RECEIVED DURING ADDENDUM

Anna Comerton

From: Rees, Alexandria <Alexandria.Rees@halton.ca>
Sent: January 10, 2025 11:35 AM
To: Anna Comerton
Cc: Elia Edwards; Passera Lavoie, Alexander
Subject: FW: Burloak Water Treatment Plant Phase 2 Expansion

Follow Up Flag: Follow up
Flag Status: Completed

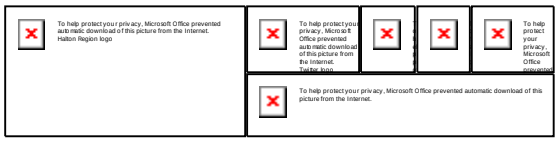
Hi Anna,

For your records, please see the below request from a resident who lives in the Lakeshore Woods neighbourhood. She would like to be contacted for future project updates.

I've added her to the stakeholder registry under members of the public and public interest groups.

Thank you,
Alex

Alexandria Rees (she/her/hers)
Project Manager I
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 2803 | 1-866-442-5866



From: Rees, Alexandria
Sent: Friday, January 10, 2025 10:58 AM
To: 'Angelica [redacted]
Subject: RE: Burloak Water Treatment Plant Phase 2 Expansion

Good morning Angelica,

Thank you for contacting me.

I have added you to the distribution list.

Have a great day,
Alex

From: Angelica [redacted]
Sent: Friday, January 10, 2025 10:05 AM
To: Rees, Alexandria <Alexandria.Rees@halton.ca>
Subject: Burloak Water Treatment Plant Phase 2 Expansion

Hi Alexandria,

I'm a resident of the Lakeshore Woods neighborhood, I'd like to be added to the study mailing list to track the progress of the expansion of the treatment plant.

Thanks in advance for your time,

Angelica [redacted]

Anna Comerton

From: Deborah [redacted]
Sent: January 23, 2025 4:02 PM
To: Rees, Alexandria
Cc: Anna Comerton; Pasquale, Christopher
Subject: Re: Burloak water treatment plant phase 2 expansion

Follow Up Flag: Follow up
Flag Status: Completed

Thank you very much for sending the link and the update on contacts.

I will print the package and start reading.

Many thanks, Deborah

On Tue, Jan 21, 2025 at 4:57 PM Rees, Alexandria <Alexandria.Rees@halton.ca> wrote:

> Hi Deborah,
>
> Thank you for your patience while I gathered the following information.
>
> A copy of the 2012 Schedule C Municipal Class Environmental Assessment for the Burloak Water Treatment Plant Phase 2 Expansion, and it's appendices can be found at the following link:
> http://2big4email.halton.ca/en/downloadfiles.aspx?param=arPlUs3c1EPnINPGT2tZeqo2AeQuAleQuAl
>
> Please note that Christopher Pasquale (Christopher.Pasquale@halton.ca) will be the new Halton Region Project Manager on this project. Please feel free to reach out to him or Anna Comerton (comertona@ae.ca) should you have further questions.
>
> Thank you,
>
> Alex

From: Deborah [redacted]
Sent: Friday, January 17, 2025 3:04 PM
To: Rees, Alexandria <Alexandria.Rees@halton.ca>
Cc: Anna Comerton <comertona@ae.ca>
Subject: Re: Burloak water treatment plant phase 2 expansion

Thank you very much for your response Alexandria.

Where would I get a copy of the original 2012 MCEA study?

Many thanks, Deborah

On Thu, Jan 16, 2025 at 12:48 PM Rees, Alexandria <Alexandria.Rees@halton.ca> wrote:

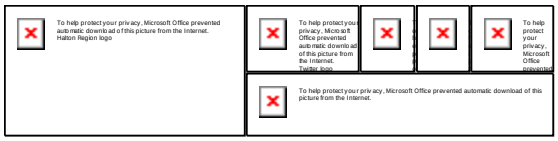
> Hi Deborah,
>
> Thank you for your email.
>
> You have been added to our project stakeholder list and will be contacted for future project updates.
>
> The Municipal Class Environmental Assessment (MCEA) process requires renewal for studies when a project has not commenced within ten years of its completion, to ensure that the project and mitigation measures are still valid in the current environmental setting. As such Halton Region is conducting an Addendum to the original MCEA Study which was completed in 2012. Through the Addendum, we are re-evaluating and confirming a limited scope of the project which includes the preferred pre-treatment and residuals treatment processes that were selected in the 2012 MCEA Study.

For an Addendum, the EA Act does not require public information centres, however, stakeholders and residents are welcome to submit comments throughout the project via the project webpage. All stakeholders and residents will also have the opportunity to review and provide comments on the Addendum to the Environmental Study Report during the 30-day review period which will also be available on the project webpage. We anticipate that the Addendum to the Environmental Study Report will be available in Spring, 2025.

Thank you,

Alex

Alexandria Rees (she/her/hers)
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 2803 | 1-866-442-5866



From: Deborah [redacted]
Sent: Monday, January 13, 2025 1:17 PM
To: Rees, Alexandria <Alexandria.Rees@halton.ca>; comertona@ae.ca
Subject: Burloak water treatment plant phase 2 expansion

Hello Alexandra and Anna;

I live at 270 Vellwood Common and would like to be put on the list for all communications involving the Burloak water treatment municipal class environment assessment Study.

I hope the expansion does not include moving any closer to our residential site on Vellwood Common. This would destroy real estate values and reduce enjoyment in our rear yards.

Do you have an initial timeline for us and when would the first meeting be held.

Many thanks, Deborah

Subject: FW: Automatic reply: Municipal Class Enviromental Assessment Study - Addendum to the Burloak Water Treatment Plant Phase 2 expansion
Sent: 2025-03-13, 9:42:57 AM
From: Pasquale, Christopher<Christopher.Pasquale@halton.ca>
To: Anna Comerton; Hemant Arora

Follow Up Flag: Follow up
Flag Status: Flagged

FYI for Addendum report and Appendix H.

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
289-834-4731 x7134 | 1-866-442-5866

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From: Pasquale, Christopher
Sent: Monday, March 10, 2025 9:26 AM
To: Joan [redacted]
Cc: Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>
Subject: RE: Automatic reply: Municipal Class Enviromental Assessment Study - Addendum to the Burloak Water Treatment Plant Phase 2 expansion

Good morning Joan,

I hope you had a nice weekend. Thank you for reaching out. We will add you to the study mailing list.

Thanks,
Chris

From: Joan [redacted]
Sent: Sunday, March 9, 2025 11:25 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Subject: Fwd: Automatic reply: Municipal Class Enviromental Assessment Study - Addendum to the Burloak Water Treatment Plant Phase 2 expansion

Good morning Christopher,

Would you please add me to the study mailing list for the above property?

Thank you

Begin forwarded message:

From: "Rees, Alexandria" <Alexandria.Rees@halton.ca>
Subject: Automatic reply: Municipal ClassEnvironmental Assessment Study - Addendum to the Burloak Water Treatment Plant Phase 2 expansion
Date: February 28, 2025 at 5:55:22 PM EST
To: Joan [redacted]

Hello,

Thank you for your email.

Please be advised that I am currently out of the office and will be returning August 2026. In my absence, please contact the following:

Addendum to the Burloak WTP Phase 2 Expansion Schedule C MCEA: Christopher Pasquale (Christopher.Pasquale@halton.ca)

Halton Hills #4 Wastewater Pumping Station – Premier Gateway Employment Area Schedule B MCEA: Christopher Pasquale (Christopher.Pasquale@halton.ca)

Georgetown Water Transfer: Graham Giles (Graham.Giles@halton.ca)

For all other inquiries, please contact Erin Longworth (Erin.Longworth@halton.ca).

Please note your email is not being forwarded.

Thank you,
Alex

Subject: RE: Status of Burloak EA
Sent: 2025-04-02, 8:01:36 AM
From: Pasquale, Christopher<Christopher.Pasquale@halton.ca>
To: [redacted] Martin
Cc: Anna Comerton

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Martin,

Thank you for your email.

We anticipate releasing the outcome of the Addendum to the Burloak Water Treatment Plant Phase 2 Expansion to the general public in Summer 2025. I will ensure that you are added to our mailing list so you receive future updates and project notifications as they become available.

Please feel free to reach out if you have any further questions or need additional information.

Thanks,
Christopher Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure and Environmental Services
Public Works
Halton Region
289-834-4731 x7134 | 1-866-442-5866

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From: [redacted] Martin [redacted]
Sent: Tuesday, April 1, 2025 8:56 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Subject: RE: Status of Burloak EA

Hi Christopher,
My email to Alexandria just bounced back. See below, appreciate any update.
Regards,
Martin

From: [redacted] Martin
Sent: April 1, 2025 8:52 AM
To: alexandria.rees@halton.ca
Subject: Status of Burloak EA

Hi Alexandria,
I left you a VM last week on your office phone. I'm interested in how the EA is going for the Region and when you think the first sign of outcome from the EA will be released to the general public.

Regards,
Martin [redacted]

Subject: RE: Municipal Class Environmental Assessment Study – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion – Town of Oakville – PR2581B
Sent: 2025-05-05, 10:54:48 AM
From: Pasquale, Christopher<Christopher.Pasquale@halton.ca>
To: Petrucci, Tony

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Tony,

Thank you for your email. You have been added to the mailing list for the above-mentioned project.

Thanks,
Christopher Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure and Environmental Services
Public Works
Halton Region
289-834-4731 x7134 | 1-866-442-5866

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From: Petrucci, Tony [redacted]
Sent: Friday, May 2, 2025 4:31 PM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Subject: FW: Municipal Class Environmental Assessment Study – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion – Town of Oakville – PR2581B

Hello Christopher,

Please see request below sent to Alexandria. Thank you and have a nice weekend.

Best Regards,

Tony Petrucci, P.Eng.
Senior Project Manager
Public Agencies & Utilities – East Region

Black & Veatch
50 Minthorn Blvd, Suite 300, Markham, ON L3T 7X8

[redacted]

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From: Petrucci, Tony
Sent: Friday, May 2, 2025 4:28 PM
To: alexandria.rees@halton.ca
Subject: Municipal Class Environmental Assessment Study – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion – Town of Oakville – PR2581B

Hello Alexandria,

I would like to be added to the contact list for the above-mentioned project that is currently undergoing a Class EA Addendum. Thank you and have a nice weekend.

Best Regards,

Tony Petrucci, P.Eng.
Senior Project Manager
Public Agencies & Utilities – East Region

Black & Veatch
50 Minthorn Blvd, Suite 300, Markham, ON L3T 7X8
[redacted]

Building a World of Difference.®

Please consider the environment before printing my email
Please note that the information and attachments in this email are intended for the exclusive use of the addressee and may contain confidential or privileged information. If you are not the intended recipient, please do not forward, copy or print the message or its attachments. Notify me at the above address and delete this message and any attachments. Thank you.

Subject: Re: Burloak Water Treatment Plant - Design Exitension Information
Sent: 2025-05-11, 5:31:57 PM
From: Hassan [redacted]
To: Pasquale, Christopher
Cc: Anna Comerton

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Christopher,

Thank you very much for your response to my email, the information provided and including my name on the project mailing list.

I was mostly concerned with the setback as related to noise or potential pollution during construction or later during operation. Based on my experience with living close to the facility and my design experience of similar facilities, maintaining the current setback seems to be the right solution for the mitigation of those issues.

Sincerely,

Hassan [redacted]
[redacted]Vellwood Commons
Oakville, ON
L6L 0E8

On May 6, 2025, at 4:57 PM, Pasquale, Christopher <Christopher.Pasquale@halton.ca> wrote:

Hi Hassan,

Thank you for your email regarding the proposed design concept for the Burloak Water Treatment Plant Phase 2 Expansion. I am the contact for the project in Alex's absence. We apologize for the delay in responding and will be updating the project website with current contact information.

The study underway is required by the Municipal Class Environmental Assessment (MCEA) process for projects that have not commenced within ten years of their completion. At this point, we are not anticipating any significant changes to the layout contemplated in the 2012 MCEA Study (Environmental Study Report) which maintains approximately the same distance from the western property line to the existing water treatment plant buildings as the current layout.

We have added your name to the project mailing list and you will receive a Notice of Addendum when the documentation is posted for review on the project website at halton.ca. We anticipate that the Notice will be issued by early summer.

If you have any further questions or comments, please don't hesitate to reach out.

Best regards,

Christopher Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure and Environmental Services
Public Works
Halton Region
289-834-4731 x7134 | 1-866-442-5866

Halton Region logo Twitter logo Facebook logo LinkedIn logo YouTube logo

From: Hassan [redacted]
Sent: Thursday, May 1, 2025 6:10 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>; comertona@ae.ca
Subject: Re: Burloak Water Treatment Plant - Design Exitension Information

Dear Sir or Madame,

I am following up on my emails below and if you will be able to also add my name to the study mailing list.

Please advise on who I can contact to receive a copy of the information I asked for on my email to Ms. Rees below.

Sincerely,

Hassan [redacted]
[redacted]Vellwood Common, Oakville

On Apr 28, 2025, at 5:01 PM, Hassan [redacted] wrote:

Dear Sir,

I received an automated reply to my email to Ms. Rees with reference to your email and wonder if you will be able to help me with my request or direct my email to the right person.
Thank you very much for your help.

Sincerely,
Hassan [redacted]

From: Hassan [redacted]
Date: April 28, 2025 at 4:55:36 PM EDT
To: Alexandria.rees@halton.ca
Subject: Burloak Water Treatment Plant - Design Exitension Information

Dear Ms. Rees,

I am a resident of one of the adjacent town houses to the Burloak WTP as well as I am a professional architect.

I am seeking information about the proposed design of the plant, specifically about its potential proximity to our houses but did not find much information on the region site.

Would you be able to guide me on where I can obtain such information and what is the process planned for commenting on the design?

Thank you for your help.

Sincerely,
Hassan [redacted]
[redacted]Vellwood Common,
Oakville, ON.

APPENDIX F - REVIEW AGENCY AND STAKEHOLDER CONSULTATION

Anna Comerton

From: Farr, Andrew <Andrew.Farr@halton.ca>
Sent: January 14, 2025 1:45 PM
To: O'Meara, Sean
Cc: Carr, Gary; Jonathan McNeice; Gray, Bob; Jones, Lee Anne; Longworth, Erin; Rees, Alexandria
Subject: RE: [EXTERNAL] Notice of Commencement, Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C MCEA, Ward 1, Town of Oakville, PR-2581B

Hello Councillor O'Meara,

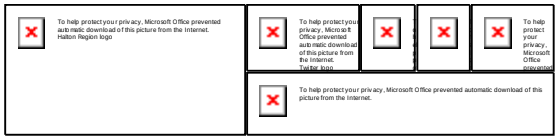
Thank you for your inquiry.

Through the Municipal Class Environmental Assessment (MCEA) Addendum, we are updating a limited scope of the 2012 MCEA which includes re-evaluating and confirming the preferred alternatives for the pre-treatment and residuals treatment processes. These processes will require additional buildings and tanks within the existing property. Landscaping plans for the facility may be developed during the design and construction phase.

Through the planning and design process, we will be mindful of the Town's tree canopy goals and consider the communities' desire for added green space at the back of the property, while ensuring that the total footprint of the site can accommodate required future expansions of the facility to ensure that we can accommodate the growing water servicing needs of the Region.

Thank you,

Andrew Farr, P.Eng.
Commissioner, Public Works
Public Works
Halton Region
905-825-6000, ext. 6040 | 1-866-442-5866



From: Sean O'Meara <sean.o'meara@oakville.ca>
Sent: Tuesday, January 7, 2025 11:24 AM
To: Rees, Alexandria <Alexandria.Rees@halton.ca>; Jonathan McNeice <jonathan.mcneice@oakville.ca>
Cc: Gray, Bob <Bob.Gray@halton.ca>; Farr, Andrew <Andrew.Farr@halton.ca>; Jones, Lee Anne <LeeAnne.Jones@halton.ca>; Longworth, Erin <Erin.Longworth@halton.ca>; Lisa.Crapsi@burlington.ca
Subject: RE: [EXTERNAL] Notice of Commencement, Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C MCEA, Ward 1, Town of Oakville, PR-2581B

Alexandria,

Thank you for circulating. In the past, I have tried to work with the Region have more trees planted behind the Plant to meet both our tree canopy goals and provide added green space for the residents backing onto the plant.

Can you tell me if this would be the appropriate time to bring this up or is this solely an internal expansion?

Thanks,

Sean

From: Rees, Alexandria <Alexandria.Rees@halton.ca>
Sent: Wednesday, December 18, 2024 8:35 AM
To: Sean O'Meara <sean.o'meara@oakville.ca>; Jonathan McNeice <jonathan.mcneice@oakville.ca>; Sharman, Paul <Paul.Sharman@burlington.ca>; ward5@burlington.ca
Cc: Mayor Rob Burton <Mayor@oakville.ca>; mayor@burlington.ca; Gray, Bob <Bob.Gray@halton.ca>; Farr, Andrew <Andrew.Farr@halton.ca>; Jones, Lee Anne <LeeAnne.Jones@halton.ca>; Longworth, Erin <Erin.Longworth@halton.ca>; Lisa.Crapsi@burlington.ca
Subject: [EXTERNAL] Notice of Commencement, Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C MCEA, Ward 1, Town of Oakville, PR-2581B

Good Morning,

Halton Region is initiating an Addendum to the 2012 Schedule C Municipal Class Environmental Assessment (MCEA) Study for the Burloak Water Treatment Plant Phase 2 Expansion, located at 3380 Rebecca Street, Ward 1, in the Town of Oakville. The expansion of the Burloak WTP was subsequently deferred as water demands continued to be met with the existing water treatment plants. Based on new growth forecasts, the expansion of the Burloak WTP is now required to continue meeting the Region's projected water servicing needs. The MCEA process requires renewal for studies when a project has not commenced within ten years of its completion, therefore, the Region is initiating an Addendum to the 2012 MCEA Study. The Addendum will re-evaluate the pre-treatment and residuals treatment processes presented in the 2012 MCEA Study, in the current environmental setting.

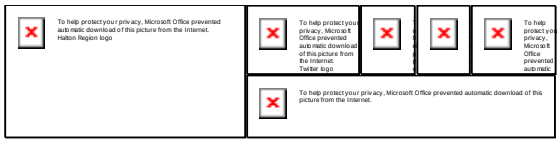
A memo regarding the commencement of the Addendum to the 2012 MCEA Study was included in the agenda for the Regular Meeting of Regional Council No. 15-24, held on Wednesday, December 11, 2024. A copy of the Notice of Commencement is also attached and will be advertised on Inside Halton (InsideHalton.com) and posted on Halton.ca starting today, Wednesday, December 18, 2024.

If you have any questions or concerns about the Addendum to the 2012 MCEA Study, please let me know.

Thank you,
Alexandria

Alexandria Rees (she/her/hers)
Project Manager I
Infrastructure Planning & Policy
Public Works

Halton Region
905-825-6000, ext. 2803 | 1-866-442-5866



Anna Comerton

From: Anna Comerton
Sent: March 21, 2025 1:23 PM
To: Ben Davis; Pasquale, Christopher; Passera Lavoie, Alexander
Cc: Elia Edwards; Marianne Maertens
Subject: RE: Burloak WTP EA - Intro Meeting with Conservation Halton - Presentation Slides

Hi Ben,
Thank you for your email.
We will incorporate your request below regarding the natural hazards constraints and include a related figure.
We also acknowledge your comment related to residuals management and understand that reverting to an approach that includes discharge to Sheldon Creek would require additional discussion/review and related approval/permits.
We are currently working with the Region to finalize the draft Addendum to the Environmental Study Report. You will be provided with the Notice of Addendum (and the report) once it is ready. We currently estimate that this will be in approximately May.
Best regards,
Anna

Anna Comerton, Ph.D., P.Eng.
Manager, Water Planning & Studies
Associated Engineering (Ont.) Ltd.
Suite 200, 165 Commerce Valley Drive West, Markham, ON L3T 7V8
Tel: 416.622.9502 | Cel: 416.937.6250 | Dir: 437.317.9056

Associated Engineering respectfully acknowledges that the lands on which we live and work are the ancestral territories of the Indigenous Peoples, who have cared for these lands since time immemorial.

From: Ben Davis <bdavis@hrca.on.ca>
Sent: March 12, 2025 5:13 PM
To: Anna Comerton <comertona@ae.ca>; Pasquale, Christopher <christopher.pasquale@halton.ca>; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>
Cc: Elia Edwards <edwardse@ae.ca>; Marianne Maertens <mmaertens@hrca.on.ca>
Subject: RE: Burloak WTP EA - Intro Meeting with Conservation Halton - Presentation Slides

Hi Anna,

Thank you for providing the slide deck from our meeting with the new information for the updated water treatment reclamation, including a change in the design for residuals backwash management. The proposed design change for residuals management means that the previously assessed discharge and new outlet design to Sheldon Creek in the regulated area is no longer required.

The proposed design elements of the Phase 2 works were discussed to be proposed outside of the regulated area. Confirmation of this will be provided once updated drawings are provided to CH. If works are proposed within a CH regulated area, approval/permits from CH will be required.

It is requested that the following information be included in the forthcoming submission:

1. Natural Hazards Constraints: Provide a figure or drawing with the new plan for the proposed design works including the CH approximate regulatory limits.

2. Residuals Management: If the design for residuals management is reverted back to the plan where discharge water is proposed be released to Sheldon Creek, please contact CH staff as approval/permits from CH will be required. For example, CH has additional modeling information to provide so the previous assessment of the design can be updated from the 2012 EA.

Thank you,
Ben

Conservation Halton

Ben Davis, CAN-CISEC
Regional Infrastructure Team Lead

2596 Britannia Road West, Burlington, ON L7P 0G3
905.336.1158 ext.2278 | bdavis@hrca.on.ca
conservationhalton.ca

From: Anna Comerton <comertona@ae.ca>
Sent: February 24, 2025 4:56 PM
To: Ben Davis <bdavis@hrca.on.ca>; Pasquale, Christopher <christopher.pasquale@halton.ca>; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>
Cc: Elia Edwards <edwardse@ae.ca>; Marianne Maertens <mmaertens@hrca.on.ca>
Subject: RE: Burloak WTP EA - Intro Meeting with Conservation Halton - Presentation Slides

Hi Ben/Marianne,
Thanks again for meeting with us last week and the good discussion.
As promised, please find attached a copy of the slide deck that was used to help guide our discussion. I've added the draft WTP expansion conceptual site layout drawing at the end of the deck for reference. As discussed, this will be used to develop a more 'public friendly' figure to show the expansion and site layout – this is in development and will be included in the Addendum to the Environmental Study Report. We will keep you updated on the timing of that report but expect it will be shared in approximately April.
Regards,
Anna

Anna Comerton, Ph.D., P.Eng.
Manager, Water Planning & Studies

Associated Engineering
Toronto, ON

Direct: 437.317.9056
Mobile: 416.937.6250
Email: comertona@ae.ca

-----Original Appointment-----
From: Anna Comerton
Sent: February 5, 2025 1:49 PM
To: Anna Comerton; Ben Davis; Pasquale, Christopher; Passera Lavoie, Alexander
Cc: Elia Edwards; Marianne Maertens
Subject: Burloak WTP EA - Intro Meeting with Conservation Halton
When: February 18, 2025 1:00 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Hi Ben,
As a follow up to our email exchange in response to the Notice of Commencement, we are scheduling this introduction meeting. Please share this invitation with any others from the Conservation Halton team that you'd like to have in attendance.
See attached for proposed meeting agenda.
Best regards,
Anna

Anna Comerton, Ph.D., P.Eng.
Manager, Water Planning & Studies
Associated Engineering (Ont.) Ltd.
Suite 200, 165 Commerce Valley Drive West, Markham, ON L3T 7V8
Tel: 416.622.9502 | Cel: 416.937.6250 | Dir: 437.317.9056

Microsoft Teams Need help?

Join the meeting now

Meeting ID: 264 394 669 41

Passcode: mo3r7Bn9

Dial in by phone

+1 647-749-9360,,44550446# Canada, Toronto

Find a local number

Phone conference ID: 445 504 46#

Join on a video conferencing device

Tenant key: 52820866@t.plcm.vc

Video ID: 119 172 401 0

More info

For organizers: Meeting options | Reset dial-in PIN

Anna Comerton

From:	EA Notices to CRegion (MECP) <eanotification.cregion@ontario.ca>
Sent:	January 16, 2025 10:08 AM
To:	Anna Comerton; Rees, Alexandria
Cc:	Bell, Trevor (MECP); EA Notices to CRegion (MECP)
Subject:	RE: Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement
Attachments:	MECP Acknowledgement of NOC-MEA Sch C Addendum-HR Burloak WPP Ph2 Expansion.pdf; Supporting Attachment - Proponent's Intro to Delegation of Procedural Aspects of Consultation with Aboriginal Communities.pdf; Supporting Attachment - Species at Risk Proponents Guide to Preliminary Screening (May 2019).pdf
Follow Up Flag:	Follow up
Flag Status:	Completed
Categories:	Red Category

Happy New Year, Alexandria Rees and Anna Comerton! Hope you all had a great time during the holiday season 😊

Attached please find the acknowledge letter and relevant supporting information for the above noted project. If you have any questions regarding the information shared, please let us know.

Thank you,

Chunmei Liu (she/her) | Regional Environmental Planner

Environmental Assessments Branch, Ontario Ministry of the Environment, Conservation and Parks | 7th Flr, 135 St Clair Ave W, Toronto, ON M4V 1P5 | Chunmei.Liu@ontario.ca | 437-249-3102

From: Anna Comerton <comertona@ae.ca>
Sent: Monday, December 23, 2024 3:51 PM
To: EA Notices to CRegion (MECP) <eanotification.cregion@ontario.ca>; Liu, Chunmei (MECP) <Chunmei.Liu@ontario.ca>; Bell, Trevor (MECP) <Trevor.Bell@ontario.ca>
Cc: Rees, Alexandria <alexandria.rees@halton.ca>
Subject: Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement

Dear Sir/Madam:

Please see attached the Notice of Commencement for the Municipal Class Environmental Assessment Study ('Study') Addendum to the Burloak Water Treatment Plant (WTP) Phase 2 Expansion.

To ensure all residents and businesses continue to have reliable access to high-quality drinking water, Halton Region is initiating an Addendum to the Study completed in 2012 for the Burloak WTP Phase 2 Expansion, in the Town of Oakville. The Municipal Class Environmental Assessment (MCEA) process requires renewal for studies when a project has not commenced within ten years of its completion. This Addendum will re-evaluate the preferred design solution for this WTP expansion presented in the 2012 MCEA Study, in the current environmental setting.

This notice is sent to your attention as it was deemed that you may be an interested stakeholder.

If you would like more information about this Study for the Burloak WTP Phase 2 Expansion or would like to be removed from the Study's contact list, please contact the undersigned.

Thank you,
Anna

Anna Comerton, Ph.D., P.Eng.
Manager, Water Planning & Studies
Associated Engineering (Ont.) Ltd.
Suite 200, 165 Commerce Valley Drive West, Markham, ON L3T 7V8
Tel: 416.622.9502 | Cel: 416.937.6250 | Dir: 437.317.9056

Associated Engineering respectfully acknowledges that the lands on which we live and work are the ancestral territories of the Indigenous Peoples, who have cared for these lands since time immemorial.

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

1st Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Téléc. : 416 314-8452

January 16, 2025

Alexandria Rees
Project Manager I
Halton Region
1151 Bronte Road
Oakville, Ontario L6M 3L1
905-825-6000, ext. 2803
Alexandria.rees@halton.ca
***BY EMAIL ONLY

Re: **Addendum to the Burloak Water Treatment Plant Phase 2 Expansion**
Regional Municipality of Halton
Municipal Class Environmental Assessment Addendum, Schedule C
Acknowledgement of Notice of Commencement

Dear Alexandria Rees,

This letter is in response to the Notice of Commencement for the addendum to the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the Regional Municipality of Halton (proponent) has indicated that the addendum is following the approved environmental planning process for a Schedule C project under the Municipal Class Environmental Assessment (Class EA).

The **updated (August 2022)** 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.

The site is located within treaty 3 ¾. 1795, within the traditional territory and claim of the Mississaugas of the Credit First Nation and, within the 1701 Nanfan deed which provides the ability to exercise harvesting activities. 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 addendum to the proposed project:

- **Mississaugas of the Credit First Nation**
- **Six Nations of the Grand (elected council)**
    - **HCCC/HDI (traditional council)**

Nothing in this advice should prevent the proponent from reaching out to Indigenous communities with whom they have an established relationship or with whom they are seeking to develop a relationship to get their input/ideas associated with the projects. 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 after 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 based on 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.

Please ensure a copy of the final notice and addendum report is sent to the ministry's Central Region EA notification email account (eanotification.cregion@ontario.ca).

Should you or any members of your project team have any questions regarding the material above, please contact me at chunmei.liu@ontario.ca.

Sincerely,

Chunmei Liu
Regional Environmental Planner – Central Region
Project Review Unit, Environmental Assessment Branch

Cc: Marco Mazzuca, Supervisor, Project Review Unit, MECP
Neil Hannington, Manager, Halton Peel District Office, MECP
Susan Eves, Water Compliance Supervisor, XYZ District Office, MECP
Anna Comerton, Manager, Associated Engineering

Enclosed: Areas of Interest

Attached: Client's Guide to Preliminary Screening for Species at Risk

A Proponent's Introduction to the Delegation of Procedural Aspects of Consultation with Aboriginal Communities

AREAS OF INTEREST (v. August 2022)

It is suggested that you check off each section after you have considered / addressed it.

Planning and Policy

- Applicable plans and policies should be identified in the report, and the proponent should describe how the proposed project adheres to the relevant policies in these plans.
    - Projects located in MECP Central or Eastern Region may be subject to the **Oak Ridges Moraine Conservation Plan (2017)** or the **Lake Simcoe Protection Plan (2014)**.
    - Projects located in MECP Central, Southwest or West Central Region may be subject to the **Niagara Escarpment Plan (2017)**.
    - Projects located in MECP Central, Eastern, Southwest or West Central Region may be subject to the **Greenbelt Plan (2017)**.
    - Projects located in MECP Northern Region may be subject to the **Growth Plan for Northern Ontario (2011).**

- The **Provincial Policy Statement (2024)** 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 Source Protection Information Atlas, which is an online mapping tool available to the public. 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 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, for projects located in Central Region 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, 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 a 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.

The public can 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 of the Environment, Conservation and Parks
Ministry of the Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
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
EABDirector@ontario.ca

Anna Comerton

From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: February 11, 2025 11:06 AM
To: Brian Gregatti
Cc: Filip Szymanski; Longworth, Erin; Jing Liu; Philip Kelly; Paul Allen; Kristina Parker
Subject: RE: [EXTERNAL] RE: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

Hi Brian,

I hope you're well. Thank you for your response and review of the storm sewer system capacity.

Your assessment that the storm sewer system cannot accommodate any backwash water from the Burloak WTP will inform our review of feasible alternative solutions for managing WTP process residuals.

Consistent with our updated project goals for the Burloak WTP expansion, we will short-list and prioritize alternative solutions that minimize the volume of process residuals generated and that do not include discharge of residuals to the storm sewer system as part of the management strategy.

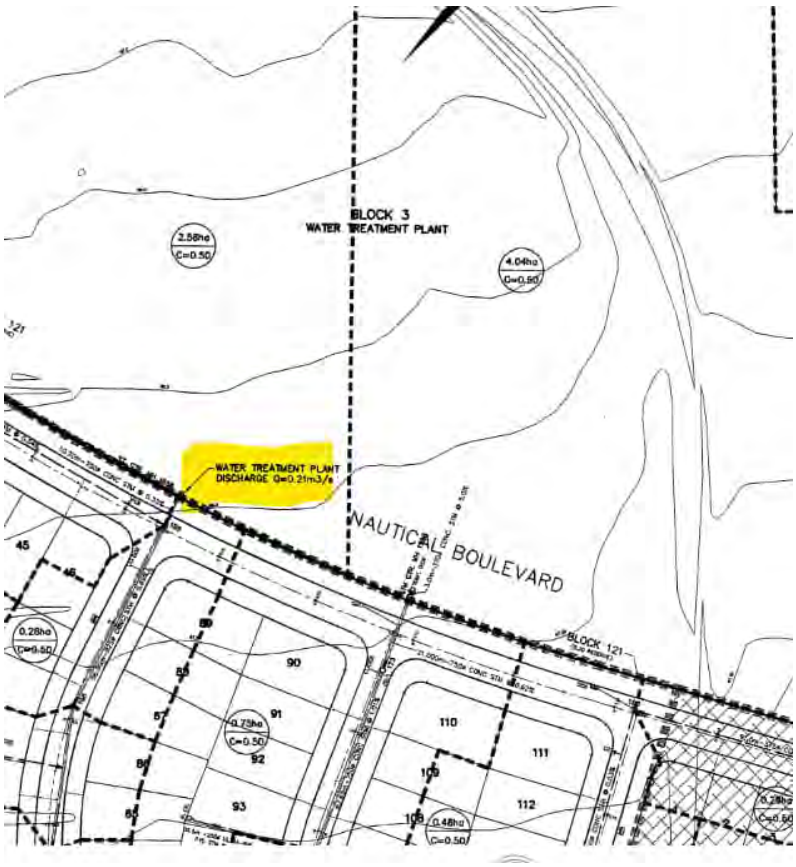
I hope you have a wonderful remainder of the week and thanks again for your help with this.

Thanks,
Christopher Pasquale

From: Brian Gregatti <brian.gregatti@oakville.ca>
Sent: Wednesday, February 5, 2025 11:13 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: Filip Szymanski <filip.szymanski@oakville.ca>; Longworth, Erin <Erin.Longworth@halton.ca>; Jing Liu <jing.liu@oakville.ca>; Philip Kelly <philip.kelly@oakville.ca>; Paul Allen <paul.allen@oakville.ca>; Kristina Parker <kristina.parker@oakville.ca>
Subject: RE: [EXTERNAL] RE: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

Good Morning Christopher,

I've had the chance to take look at MCEA, the provided info below, and the as-built drawings/storm sewer design sheets. In general, the storm sewer systems on Nautical Blvd, Milkweed Way (MH165B drainage point) and Butterfly Lane (MH173B drainage point) were designed to convey the 5 year flows from the site based on the design standards at the time. Please see a snippet of the drainage plan below:



The 210 L/s noted in the drainage plan was in addition to the 5 year flows. The MCEA by Aecom suggests that the storm sewer was designed to convey flows during the 100 year storm plus the 210 L/s backwash. This is not correct.
While the storm sewers are some what oversized for the 5 year storm on Butterfly Lane and further downstream, some of that capacity would be taken up by increases in imperviousness we are seeing throughout the Town on residential properties. Additionally, with updated rainfall intensities, the actual flow rates are a bit higher then what was previously calculated and run closer to the capacity of the storm sewer.

On Milkweed Way (MH165B drainage point), the sewer does not appear to be oversized. For reference, see the storm sewer design sheet below which includes a 210 L/s base flow from the Water Treatment Plant and reflects the 5 year storm conditions:

From Nautical Blvd.-W		165				0.96	11.96	
From Block Future Develop.		165				1.29	11.51	
Milkweed Way	165	166	0.28	0.50	0.140	2.39	11.96	96.98
	166	167	0.43	0.50	0.215	2.61	12.38	94.87
	167	168	0.32	0.50	0.160	2.77	12.75	93.08
	168	169	0.11	0.50	0.055	2.82	13.38	90.29
	169	170	0.57	0.50	0.285	3.11	13.51	89.72
	170		0.18	0.50	0.090	3.20		
		171	0.07	0.50	0.035	3.23	14.19	86.93
	171	Ex. 162	0.23	0.50	0.115	3.35	14.51	85.70
						3.11	14.98	

The highlighted column on the left is the flow rate and the column on the right is the capacity. With updated runoff coefficients (0.65 lower limit for single lot residential areas) and rainfall intensities, the is minimal/no residual capacity available. For reference the MH168-MH169 section using the most up to date Town standards would

produce a flow rate of 0.95m^3/s **without** including the 210 L/s base flow, bringing the sewer at capacity under 5 year conditions. As such adding additional backwash to this system is not recommended. This also doesn't take into account 100 year storm conditions, at which point there capacity in the system would be inadequate for the backwash line.

This is my preliminary analysis. If you would like to discuss further, please let me know and we can set up time chat.

Regards,
Brian

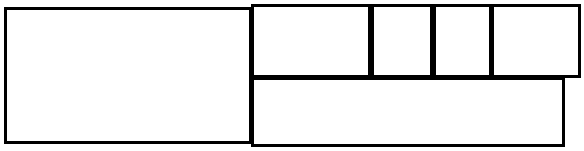
Brian Gregatti
Development Engineer
Planning & Development
Town of Oakville | 905-845-6601, ext. 3343 | www.oakville.ca

Vision: A vibrant and livable community for all

From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: Wednesday, February 5, 2025 8:05 AM
To: Kristina Parker <kristina.parker@oakville.ca>; Paul Allen <paul.allen@oakville.ca>; Brian Gregatti <brian.gregatti@oakville.ca>
Cc: Filip Szymanski <filip.szymanski@oakville.ca>; Longworth, Erin <Erin.Longworth@halton.ca>; Jing Liu <jing.liu@oakville.ca>; Philip Kelly <philip.kelly@oakville.ca>
Subject: RE: [EXTERNAL] RE: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

Apologies, forgot the 2012 MCEA Study Report. Please see attached.

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
289-834-4731 x7134 | 1-866-442-5866



From: Pasquale, Christopher
Sent: Wednesday, February 5, 2025 8:02 AM
To: Kristina Parker <kristina.parker@oakville.ca>; Paul Allen <paul.allen@oakville.ca>; Brian Gregatti <brian.gregatti@oakville.ca>

Cc: Filip Szymanski <filip.szymanski@oakville.ca>; Longworth, Erin <Erin.Longworth@halton.ca>; Jing Liu <jing.liu@oakville.ca>; Philip Kelly <philip.kelly@oakville.ca>
Subject: RE: [EXTERNAL] RE: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

Hi Kristina,

I hope you're well. Thank you for looping in Brian Gregatti. Unfortunately, storm sewer design sheets were not included in the 2012 MCEA Study Report.

Brian - Can you please review my original inquiry below and advise? I've reattached the original 2012 MCEA Study Report and also included a figure below from Section 4.2.1 Sanitary and Stormwater Management that shows existing stormwater infrastructure servicing the Burloak WTP. If a meeting would be helpful, I'd be happy to coordinate a Teams invitation.

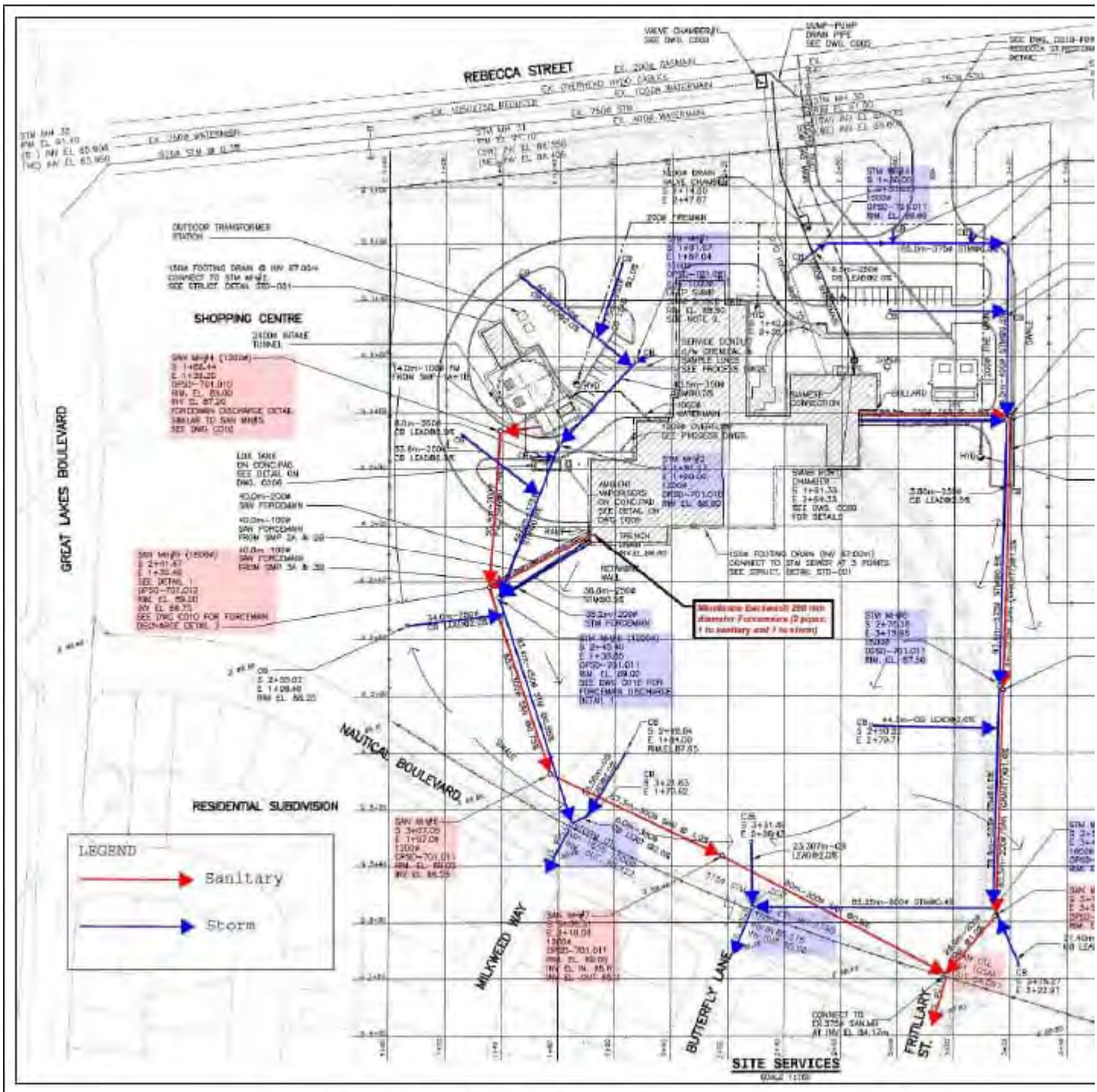


Figure 6 Burloak WPP Site Layout Showing Existing Site Services

Thanks,
Christopher Pasquale

From: Kristina Parker <kristina.parker@oakville.ca>
Sent: Tuesday, February 4, 2025 10:31 PM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>; Paul Allen <paul.allen@oakville.ca>; Brian Gregatti <brian.gregatti@oakville.ca>
Cc: Filip Szymanski <filip.szymanski@oakville.ca>; Longworth, Erin <Erin.Longworth@halton.ca>; Jing Liu <jing.liu@oakville.ca>; Philip Kelly <philip.kelly@oakville.ca>

Subject: RE: [EXTERNAL] RE: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

Hi Christopher,
I've copied Brian Gregatti, Development Engineer for the west side of Oakville. We can see what we have for storm sewer design sheets from the town's records. These design sheets and ay updates Brian is aware of for this area can be used to calculate any residual capacity.

Are the storm sewer design sheets within the earlier MCEA? Likely they would be the same.
Thanks,

Kristina Parker, M.A.Sc., P.Eng.
Manager Development Services
Planning & Development
Town of Oakville | 905-845-6601, ext. 3889 | f: 905-338-4414 | www.oakville.ca

From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: Friday, January 31, 2025 9:57 AM
To: Paul Allen <paul.allen@oakville.ca>; Kristina Parker <kristina.parker@oakville.ca>
Cc: Longworth, Erin <Erin.Longworth@halton.ca>; Jing Liu <jing.liu@oakville.ca>; Philip Kelly <philip.kelly@oakville.ca>
Subject: RE: [EXTERNAL] RE: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

Hi Paul,

Happy Friday! I hope you're well. Thank you for the information and for looping in Kristina Parker.

Kristina - Can you please review my inquiry below and advise? If a meeting would be helpful, I'd be happy to coordinate a Teams invitation.

Thanks,
Christopher Pasquale

From: Paul Allen <paul.allen@oakville.ca>
Sent: Friday, January 31, 2025 8:09 AM
To: Philip Kelly <philip.kelly@oakville.ca>; Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: Longworth, Erin <Erin.Longworth@halton.ca>; Jing Liu <jing.liu@oakville.ca>; Kristina Parker <kristina.parker@oakville.ca>
Subject: RE: [EXTERNAL] RE: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

Hi Christopher,

I have forwarded your message to Kristina Parker, Manager Development Services. Her team looks after CLI ECA applications for development and external applicants, which would include the Region. Kristina's group will be able to assist you with your CLI ECA information request.

My team only reviews internal town CLI ECA applications from our Design and Construction group.

Thanks,

Paul

Paul Allen, M.B.A., P. Eng.
Manager - Infrastructure & Asset Mgmt Planning
Corporate Asset Management
Town of Oakville | 905-338-4424, ext. 4424 | f: 905-338-4159 | www.oakville.ca

---

From: Philip Kelly <philip.kelly@oakville.ca>
Sent: Thursday, January 30, 2025 12:05 PM
To: 'Pasquale, Christopher' <Christopher.Pasquale@halton.ca>; Paul Allen <paul.allen@oakville.ca>
Cc: Longworth, Erin <Erin.Longworth@halton.ca>; Jing Liu <jing.liu@oakville.ca>
Subject: RE: [EXTERNAL] RE: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

Hi Christopher:

Looks like the Region is interested in whether or not there is spare capacity in a storm sewer.

Our Asset Management group, oversees CLI ECA matters and determines whether or not there is spare capacity in a Town storm sewer. Paul Allen manages that program and hence looping in Paul Allen to guide the Region through what would be the Town's requirements to review same.

Sincerely

Philip Kelly

Philip Kelly, M.Sc, P.Eng
Manager - Design & Construction
Transportation and Engineering
Town of Oakville | 905-845-6601, ext. 3298 | f: 905-338-4414 | www.oakville.ca

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From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: Thursday, January 30, 2025 8:20 AM
To: Jing Liu <jing.liu@oakville.ca>
Cc: Philip Kelly <philip.kelly@oakville.ca>; Longworth, Erin <Erin.Longworth@halton.ca>

Subject: [EXTERNAL] RE: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

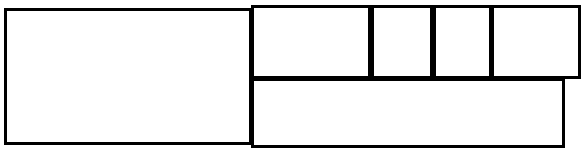
> You don't often get email from christopher.pasquale@halton.ca. Learn why this is important

Morning Jing Liu,

I hope you're well. I wanted to kindly follow-up on my inquiry below. Any information you can provide would be greatly appreciated.

Thanks,
Christopher Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
7134/289-834-4731 | 1-866-442-5866



From: Pasquale, Christopher
Sent: Thursday, January 23, 2025 3:06 PM
To: jing.liu@oakville.ca
Cc: philip.kelly@oakville.ca; Longworth, Erin <Erin.Longworth@halton.ca>
Subject: Addendum to Burloak WTP Phase 2 Expansion Schedule C MCEA Study - Confirmation of Storm Sewer Capacity

Hi Jing Liu,

I hope you're well. Halton Region has recently initiated an Addendum to the Municipal Class Environmental Assessment (MCEA) Study completed in 2012 for the Burloak Water Treatment Plant (WTP) Phase 2 Expansion, in the Town of Oakville. Please see attached Notice of Study Commencement.

Through the 2012 MCEA Study, it was identified that the storm sewer system has a spare capacity of 210 L/s to receive Burloak WTP residuals, taking into account overall storm sewer capacity and allocation reserved for site draining and the 100-year storm flow. Additional details of the provided calculation for total allocation are available in Section 4.2.1 of the 2012 MCEA Study Report. Please see screenshot below and full report attached.

4.2.1 Sanitary and Stormwater Management

The existing stormwater management system at the Burloak WPP site was reviewed in detail by AECOM as part of this Class EA Study. The site is generally divided into two drainage sections encompassing the west drainage section that drains to the existing stormwater manhole (STM MH) 165 B (on the west side) and the east drainage section that drains to the existing STM MH 173 B (on the east Side). Figure 6 shows the location of the manholes currently onsite and the flow distribution for the sanitary and stormwater management system.

The total allocation for STM MH 165B is 569 L/s, which includes 359 L/s for a drainage area of 2.58 ha suitable for a 100-year storm. The total allocation for STM MH 173 B is 562 L/s for a drainage area of 4.04 ha and a 100-year storm. The total combined allocation for the entire plant site is 1,131 L/s (569 L/s + 562 L/s), which includes 921 L/s (359 L/s + 562 L/s) from a 100-year storm flow and a spare capacity of 210 L/s.

Flows from two stormwater manholes 165 B and 173 B ultimately drain to the Stormwater Pond B located at the intersection of Great Lakes Boulevard and Creek Path Avenue. Stormwater Pond B has been designed to treat the total runoff volumes from the 2.58 and 4.04 hectare areas. The storm sewers (or minor system) were sized to accommodate the 5-year peak flowrates of 359 and 562 L/s generated from those areas. The pond inlet (or sewer outlet) was also sized based on those flows. However, the pond's design does not consider those flowrates (as they are only peak flowrates).

Through the ongoing Addendum to the MCEA Study, WTP process residuals management is being reviewed and re-evaluated. This includes the alternative of continuing with the current practice of discharging non-chemical process residuals (i.e., that meet water quality requirements for discharge to the environment). Following the Phase 2 Expansion of the Burloak WTP, the maximum rate of residuals discharge to the storm sewer is estimated to be 115 L/s. Per the above determination in the 2012 MCEA Study, an available spare capacity of 210 L/s is available to accommodate our estimated maximum discharge of residuals to the storm sewer system (i.e., the 115 L/s). **However, we are seeking review and confirmation from the Town of the current estimated available spare capacity to accept Burloak WTP residuals so we can evaluate this alternative accordingly (and adjust, if required).**

Can I please get your help with this? If it would be helpful to setup a meeting to discuss further, I would be happy to coordinate a Teams meeting invitation.

Thanks very much,
Christopher Pasquale

Anna Comerton

From:	Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent:	July 11, 2025 1:20 PM
To:	Smythe, Liam (He/Him) (MCM); Archaeology (MCM)
Cc:	Anna Comerton; Elia Edwards; Hemant Arora; Barboza, Karla (She/Her) (MCM); Giles, Graham
Subject:	RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]
Follow Up Flag:	Follow up
Flag Status:	Flagged

Hi Liam,

I'm following up on our recent correspondence to provide a brief update on the project.

As noted in your previous message, the Archaeology Program Unit (APU) advised that the Stage 1 and 2 Archaeological Assessment completed by Archaeoworks Inc. in 2000 does not meet the *Standards and Guidelines for Consultant Archaeologists* which came into effect in 2011. In response, our consultant team has initiated a new Stage 1 Archaeological Assessment for the study area, and a draft report has now been prepared.

The next step will involve consultation with First Nations and Indigenous Communities, who will be given the opportunity to review and comment on the draft report. Following that consultation, we will share the report with the APU for their review.

We'll continue to keep you informed as this work progresses.

Thanks,
Chris

From: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Sent: Thursday, May 8, 2025 1:29 PM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>; Archaeology (MCM) <archaeology@ontario.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>; Green-Battiston, Melissa <Melissa.Green-Battiston@halton.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Good afternoon Christopher,

Thank you for following up, please accept my apologies for not responding earlier.

The Stage 1-2 archaeological assessment carried out by Archaeoworks was completed twenty-five years ago. When reviewing Environmental Assessments involving older archaeological assessments, APU reviews the report against the

requirements of the *Standards and Guidelines for Consultant Archaeologists* which came into effect in 2011. The *Standards and Guidelines* provides the processes and standards for archaeologists conducting land-based archaeology in Ontario. They set out the basic, technical processes and reporting requirements for conducting archaeological fieldwork. Following standards and guidelines set out by MCM is a condition of a licence to conduct archaeological fieldwork in Ontario. Following APU's review, it was determined that the 2000 Stage 1-2 report does not meet the requirements of the *Standards and Guidelines*. As noted in my previous email the 2024 Gap Analysis completed by ASI generally contains the information that would be found in a current Stage 1 report but is not formatted as such.

We continue to recommend that you (or your licensed archaeologist) contact archaeology@ontario.ca if you have not done so already, and they will be able to assist you.

Best regards,

Liam Smythe, CAHP (he/him)
Heritage Advisor (A) | Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
416-301-4797 | Liam.Smythe@ontario.ca

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From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: Thursday, May 1, 2025 9:25 AM
To: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>; Archaeology (MCM) <archaeology@ontario.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>; Green-Battiston, Melissa <Melissa.Green-Battiston@halton.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Hi Liam,

I hope you're well. Just kindly following up on my email below.

Please let me know if you need anything else from me.

Thanks so much,
Christopher Pasquale

From: Pasquale, Christopher
Sent: Wednesday, April 16, 2025 10:22 AM
To: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>; Archaeology (MCM) <archaeology@ontario.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>; Green-Battiston, Melissa <Melissa.Green-Battiston@halton.ca>

Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Hi Liam,

I hope you're well. As a follow up to my previous email, I want to provide some additional context. This Addendum to the 2012 MCEA Study ('Addendum') is being completed due to a time lapse in implementation (i.e., more than 10 years has passed, and the works have not been initiated). This Addendum provides the opportunity to review the preferred water treatment plant expansion design concept in the current environment and confirm that the mitigation measures identified through the 2012 MCEA Study are still valid.

As it relates to archaeological resources, the 2012 MCEA Study determined that there are no outstanding recommendations for additional archaeological assessments to be addressed. The Burloak Water Treatment Plant Phase 2 Expansion design is free of archaeological concern with no further assessments or mitigations required. As part of the process for the Addendum, we reviewed the MCM's 'Criteria for Evaluating Archaeological Potential' and completed the screening questions (attached). Our response to question 2 (i.e., Has an archaeological assessment been prepared for the property (or project area) and been accepted by MTCS?) was 'Yes'. As such, our understanding is that the rest of the checklist is not completed, and we are expected to follow the recommendations in the archaeological assessment reports completed by Archaeoworks. These previous assessments are summarized in the Archaeological Gap Analysis Report (attached) that were shared with you previously and will be submitted as an appendix to this Addendum to the 2012 MCEA Study Environmental Study Report. The attached graphic shows the previous assessment completed by Archeoworks, the field conditions around the time of that assessment (2004), and the significant ground disturbance that followed (2007).

Can you please share the name and contact information (phone and email) of the person at APU who noted a concern with the archaeological assessments (Stages 1 and 2) completed by Archaeoworks for this study area that are entered into the Ontario Public Register of Archaeological Reports? We would appreciate the opportunity to speak with them directly for clarification.

Thanks,
Christopher Pasquale

From: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Sent: Monday, April 7, 2025 9:59 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>; Archaeology (MCM) <archaeology@ontario.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Good morning Chris,

I hope you had a good weekend as well. Please let ASI know they can reach out to APU directly at archaeology@ontario.ca.

Best,

Liam Smythe, CAHP (he/him)
Heritage Advisor (A) | Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
416-301-4797 | Liam.Smythe@ontario.ca

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From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: Monday, April 7, 2025 9:38 AM
To: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Hi Liam,

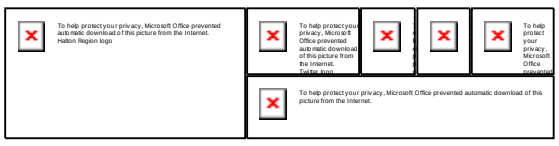
I hope you had a nice weekend. Thank you for the update and for coordinating with the Archaeology Program Unit (APU). We appreciate the information regarding the Stage 1-2 report and the recommended next steps.

To ensure that ASI fully understands APU's perspective and the requirements for updating their report, they would like to contact MCM/APU directly.

I hope this sounds okay. Please let me know if you have any concerns with this approach.

Thanks,
Chris

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure and Environmental Services
Public Works
Halton Region
289-834-4731 x7134 | 1-866-442-5866



From: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Sent: Friday, April 4, 2025 9:12 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Good morning Chris,

Thank you again for your patience on this item. I have spoken with the Archaeology Program Unit (APU) and can provide the following information:

APU has informed me that the Stage 1-2 report completed by Archaeoworks in 2000 does not meet the requirements of the 2011 *Standards and Guidelines for Consultant Archaeologists.*

Their recommendation would be to complete a new Stage 1 report for the study area. The Gap Analysis completed by ASI is essentially a Stage 1 report, however it is not formatted as such. APU recommends that the licenced archaeologist take out a Project Information Form (PIF) number for the Gap Analysis report and submit it as a Stage 1 assessment for MCM's review.

Please let me know if you need more information.

Best regards,

Liam Smythe, CAHP (he/him)
Heritage Advisor (A) | Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
416-301-4797 | Liam.Smythe@ontario.ca

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From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: Friday, March 28, 2025 11:52 AM
To: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Hi Liam,

Thank you for the update. I appreciate you following up with the Archaeology Program Unit today. No problem at all about the delay; I understand these things can take time.

Looking forward to hearing from you when you have more information.

Thanks,
Chris

From: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Sent: Friday, March 28, 2025 11:40 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Good morning Christopher, thanks for the response.

I have not received any further information form the Archaeology Program Unit but will follow up with them today.

Please accept my apologies for the delay.

Liam Smythe, CAHP (he/him)
Heritage Planner | Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
416-301-4797 | Liam.Smythe@ontario.ca

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From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: Friday, March 28, 2025 8:27 AM
To: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Good morning Liam,

I hope you're doing well. I just wanted to follow up on my previous email regarding the Archaeology Program Unit at MCM. Have you received any updates from them?

Looking forward to hearing from you.

Thanks again,
Chris

From: Pasquale, Christopher
Sent: Monday, March 10, 2025 8:49 AM
To: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Cc: comertona@ae.ca; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Good morning Liam,

I hope you had a nice weekend. No problem.

Please let me know when you hear back from MCM's Archaeology Program Unit.

Thanks,
Chris

From: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Sent: Friday, March 7, 2025 1:44 PM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: comertona@ae.ca; Longworth, Erin <Erin.Longworth@halton.ca>; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>
Subject: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Good afternoon Christopher,

Please accept my apologies for the delay in responding to you.

Thank you for providing a response to MCM's initial comments, and providing the Final 2012 MCEA Report, Archaeology Gap Analysis, and Cultural Heritage Screening Memo.

As noted, a Stage 1-2 Archaeological Assessment was completed in 2001 which has been entered into the Register. ASI notes in the gap analysis that the 2001 report meets the requirements of the 2011 *Standards and Guidelines for Consultant Archaeologists,* however, as there have been considerable changes in legislation relating to archaeological assessments over the past twenty-four years, I have reached out to MCM's Archaeology Program Unit for further input on this report.

I will provide a response as soon as possible.

Best regards,

Liam Smythe, CAHP (he/him)
Heritage Planner | Citizenship, Inclusion and Heritage Division

Ministry of Citizenship and Multiculturalism | Ontario Public Service
416-301-4797 | Liam.Smythe@ontario.ca

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From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: Tuesday, February 11, 2025 8:26 AM
To: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Cc: Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>; comertona@ae.ca; Longworth, Erin <Erin.Longworth@halton.ca>; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>; edwardse <edwardse@ae.ca>; Hemant Arora <arorah@ae.ca>
Subject: RE: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Hi Liam,

I hope you're well. Thank you for your email and initial response letter. As requested, please see the hyperlink below to download the 2012 MCEA Final Report for your records.

http://2big4email.halton.ca/en/downloadfiles.aspx?param=XSNdYXbZaPlUsj95lA5HhWZu0pcFgeQuAleQuAl

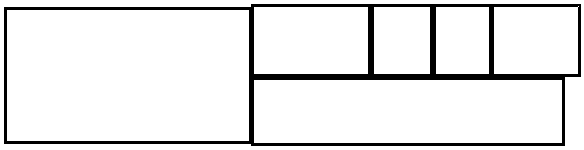
One relevant Stage 1 and 2 Archaeological Assessment related to the current Burloak WTP Phase II Expansion preliminary project limits was identified within the MCM's Past Portal Database. This report (by Archeoworks, Inc., 2000) was entered into the Ontario Public Register of Archaeological Reports on March 30, 2001. Our consultant team completed the attached Archaeological Gap Analysis under this addendum to the 2012 MCEA. It was confirmed that the above referenced Stage 1 and 2 Archaeological Assessment completely covers the study area for the Burloak WTP Phase II Expansion as well as the anticipated construction disturbance area within the current project design. Following the review of the Stage 1 and 2 Archaeological Assessment, it was determined that there are no outstanding recommendations for additional archaeological assessments that have not already been addressed.

Our consultant team has also completed the Heritage Screening Checklist under this addendum to the 2012 MCEA. The checklist and additional details are provided in the attached Cultural Heritage Screening Report for your reference. In summary, no criteria in the checklist were met. The study area was determined to have no potential for cultural heritage value or interest.

I hope this is helpful. Please let me know if you have any questions or concerns.

Thanks,
Christopher Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
289-834-4731 x7134 | 1-866-442-5866



From: Smythe, Liam (He/Him) (MCM) <Liam.Smythe@ontario.ca>
Sent: Wednesday, February 5, 2025 12:51 PM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>; comertona@ae.ca
Subject: FW: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Good afternoon Christopher,

I received an out-of-office message from Alexandria Rees indicating that you are the current contact for the Burloak WTP Phase 2 Expansion Schedule C MCEA.

I am forwarding the email below with the attached initial letter from the Ministry of Citizenship and Multiculturalism to ensure you have received it.

Best regards,

Liam Smythe, CAHP (he/him)
Heritage Planner | Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
416-301-4797 | Liam.Smythe@ontario.ca

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From: Smythe, Liam (He/Him) (MCM)
Sent: Wednesday, February 5, 2025 12:45 PM
To: alexandria.rees@halton.ca
Cc: comertona@ae.ca; Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>
Subject: MCM Response - Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement [MCM File # 24EA034]

Good afternoon Alexandria,

Thank you for providing the Ministry of Citizenship and Multiculturalism (MCM) with the Notice of Commencement for this EA Addendum project. Please find MCM's initial letter on this project attached. Do not hesitate to contact us if you require additional information.

I also wanted to ask if it would be possible for MCM to obtain a copy of the 2012 EA report for our records?

Thanks in advance,

Liam Smythe, CAHP (he/him)
Heritage Planner | Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
416-301-4797 | Liam.Smythe@ontario.ca

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From: Anna Comerton <comertona@ae.ca>
Sent: Monday, December 23, 2024 3:58 PM
To: Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>; Minkin, Dan (MCM) <Dan.Minkin@ontario.ca>
Cc: Rees, Alexandria <alexandria.rees@halton.ca>
Subject: Burloak WTP Phase 2 Expansion MCEA Addendum – Notice of Commencement

Dear Sir/Madam:

Please see attached the Notice of Commencement for the Municipal Class Environmental Assessment Study ('Study') Addendum to the Burloak Water Treatment Plant (WTP) Phase 2 Expansion.

To ensure all residents and businesses continue to have reliable access to high-quality drinking water, Halton Region is initiating an Addendum to the Study completed in 2012 for the Burloak WTP Phase 2 Expansion, in the Town of Oakville. The Municipal Class Environmental Assessment (MCEA) process requires renewal for studies when a project has not commenced within ten years of its completion. This Addendum will re-evaluate the preferred design solution for this WTP expansion presented in the 2012 MCEA Study, in the current environmental setting.

This notice is sent to your attention as it was deemed that you may be an interested stakeholder.

If you would like more information about this Study for the Burloak WTP Phase 2 Expansion or would like to be removed from the Study's contact list, please contact the undersigned.

Thank you,
Anna

Anna Comerton, Ph.D., P.Eng.
Manager, Water Planning & Studies
Associated Engineering (Ont.) Ltd.
Suite 200, 165 Commerce Valley Drive West, Markham, ON L3T 7V8
Tel: 416.622.9502 | Cel: 416.937.6250 | Dir: 437.317.9056

Associated Engineering respectfully acknowledges that the lands on which we live and work are the ancestral territories of the Indigenous Peoples, who have cared for these lands since time immemorial.

APPENDIX G - FIRST NATIONS AND INDIGENOUS COMMUNITIES CONSULTATION

Anna Comerton

From:	Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent:	January 20, 2025 10:05 AM
To:	mark.laforme@mncfn.ca
Cc:	abby.laforme@mncfn.ca; adam.laforme@mncfn.ca; Longworth, Erin; Nicolardi, Andrew; Anna Comerton; Elia Edwards; Rees, Alexandria; Passera Lavoie, Alexander
Subject:	Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study
Attachments:	Notice of Commencement_Addendum_Burloak WTP MCEA.pdf; Archaeological gap analysis report.pdf; Natural heritage assessment report.pdf; NOC Letter_Burloak WTP MCEA_MCFN.pdf

Good Morning,

Halton Region has retained Associated Engineering (Ont.) Ltd. to assist with the completion of an Addendum to the Municipal Class Environmental Assessment (MCEA) Study completed in 2012 for the Burloak Water Treatment Plant Phase 2 Expansion, in the Town of Oakville.

The MCEA process requires renewal for studies when a project has not commenced within ten years of its completion. The Addendum will re-evaluate and confirm the preferred alternative for the pre-treatment and residuals treatment train presented in the 2012 MCEA Study, in the current environmental setting.

Please find attached our Cover Letter and Notice of Commencement for further details.

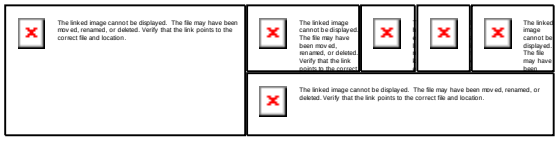
Also find attached for your reference the Archaeological Gap Analysis and Natural Heritage Report. The Stage 1 and 2 Archaeological Assessment, dated 2000, can be downloaded at the following:

http://2big4email.halton.ca/en/downloadfiles.aspx?param=hj2rcMujeh8v8RwiJEOQ7weQuAleQuAl

If you have any questions regarding the study, please contact the undersigned.

Best regards,
Chris Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7134 | 1-866-442-5866



Anna Comerton

From:	Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent:	January 20, 2025 10:05 AM
To:	consultations@metisnation.org
Cc:	Longworth, Erin; Nicolardi, Andrew; Anna Comerton; Elia Edwards; Rees, Alexandria; Passera Lavoie, Alexander
Subject:	Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study
Attachments:	Notice of Commencement_Addendum_Burloak WTP MCEA.pdf; Archaeological gap analysis report.pdf; Natural heritage assessment report.pdf; NOC Letter_Burloak WTP MCEA_MNO.pdf

Good Morning,

Halton Region has retained Associated Engineering (Ont.) Ltd. to assist with the completion of an Addendum to the Municipal Class Environmental Assessment (MCEA) Study completed in 2012 for the Burloak Water Treatment Plant Phase 2 Expansion, in the Town of Oakville.

The MCEA process requires renewal for studies when a project has not commenced within ten years of its completion. The Addendum will re-evaluate and confirm the preferred alternative for the pre-treatment and residuals treatment train presented in the 2012 MCEA Study, in the current environmental setting.

Please find attached our Cover Letter and Notice of Commencement for further details.

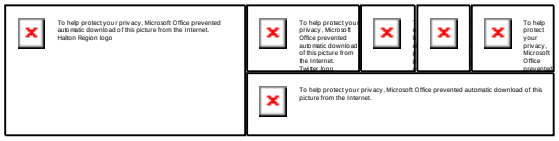
Also find attached for your reference the Archaeological Gap Analysis and Natural Heritage Report. The Stage 1 and 2 Archaeological Assessment, dated 2000, can be downloaded at the following:

http://2big4email.halton.ca/en/downloadfiles.aspx?param=hj2rcMujeh8v8RwiJEOQ7weQuAleQuAl

If you have any questions regarding the study, please contact the undersigned.

Best regards,
Chris Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7134 | 1-866-442-5866



Anna Comerton

From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: January 20, 2025 11:35 AM
To: Peter Graham
Cc: Longworth, Erin; Nicolardi, Andrew; Anna Comerton; Elia Edwards; Rees, Alexandria; Passera Lavoie, Alexander
Subject: RE: Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study

Hi Peter,

I hope you had a nice weekend. Thanks for confirming your interest in this project. We will send you the results of the in-season field studies when available.

I hope you have a wonderful remainder of the week.

Thanks,
Chris

From: Peter Graham <LRCS@sixnations.ca>
Sent: Monday, January 20, 2025 11:31 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Subject: RE: Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study

Good morning Christopher,

Just confirming we have an interest in this project. Please send us the results of the in-season field studies when available.

Thank you, Peter

From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: January 20, 2025 10:05 AM
To: Dawn Russell <dawnrussell@sixnations.ca>
Cc: Lonny Bomberry <lonnybomberry@sixnations.ca>; Trevor Bomberry <adnb@sixnations.ca>; Peter Graham <LRCS@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Tayler Hill <tayler.hill@sixnations.ca>; Lauren Jones <laurenjones@sixnations.ca>; nativelandsltd@gmail.com; Longworth, Erin <Erin.Longworth@halton.ca>; Nicolardi, Andrew <Andrew.Nicolardi@halton.ca>; comertona@ae.ca; edwardse@ae.ca; Rees, Alexandria <Alexandria.Rees@halton.ca>; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>
Subject: [External] Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study

Good Morning,

Halton Region has retained Associated Engineering (Ont.) Ltd. to assist with the completion of an Addendum to the Municipal Class Environmental Assessment (MCEA) Study completed in 2012 for the Burloak Water Treatment Plant Phase 2 Expansion, in the Town of Oakville.

The MCEA process requires renewal for studies when a project has not commenced within ten years of its completion. The Addendum will re-evaluate and confirm the preferred alternative for the pre-treatment and residuals treatment train presented in the 2012 MCEA Study, in the current environmental setting.

Please find attached our Cover Letter and Notice of Commencement for further details.

Also find attached for your reference the Archaeological Gap Analysis and Natural Heritage Report. The Stage 1 and 2 Archaeological Assessment, dated 2000, can be downloaded at the following:

http://2big4email.halton.ca/en/downloadfiles.aspx?param=hj2rcMujeh8v8RwiJEOQ7weQuAleQuAl

If you have any questions regarding the study, please contact the undersigned.

Best regards,
Chris Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
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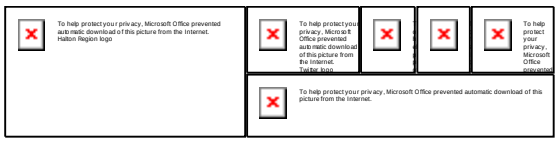

Subject: RE: Burloak Water Treatment Plant (WTP) 2012 ESR/NHA
Sent: 2025-02-24, 9:57:35 AM
From: Pasquale, Christopher<Christopher.Pasquale@halton.ca>
To: Lauren Vanderlingen
Cc: Anna Comerton; Elia Edwards; Hemant Arora; Passera Lavoie, Alexander

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Follow Up Flag: Follow up
Flag Status: Completed

Hi Lauren,

I hope you had a nice weekend! My week is off to a great start thanks, I hope the same for you.

No problem at all. Please see the hyperlink below to download the 2012 ESR with appendices.

http://2big4email.halton.ca/en/downloadfiles.aspx?param=dU1ibUbj2kflDuY3dTrEXAeQuAleQuAl

If you have any questions or concerns, please let me know.

Thanks,
Chris

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
289-834-4731 x7134 | 1-866-442-5866

Halton Region logo Twitter logo Facebook logo LinkedIn logo YouTube logo

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From: Lauren Vanderlingen <wsma@sixnations.ca>
Sent: Monday, February 24, 2025 9:27 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Subject: Burloak Water Treatment Plant (WTP) 2012 ESR/NHA

Good Morning Chrstopher,

I hope your week is off to a great start!

I have been reviewing the 2024 Natural Heritage Assessment addendum for the Burloak Water Treatment Plant and would appreciate some additional information.

If possible, could the 2012 Environmental Study Report/ Natural Heritage Assessment, be sent to me?
I am having a hard time interpreting the addendum, as it leads me to believe there have not been any in-field surveys conducted up to this point. While I understand there are plans to carry out such surveys in the coming months, I would like to review the previous assessments and surveys for reference.

Thank you in advance.

Sincerely,

Lauren Vanderlingen,

Wildlife and Stewardship Technician, Lands and Resources

Six Nations of the Grand River Elected Council

P (519) 445-0330 ext. 5430

A 1721 Chiefswood Road (P.O. Box 5000), Ohsweken, ON, N0A 1M0

Anna Comerton

From:	Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent:	August 27, 2025 10:32 AM
To:	Lauren Vanderlingen
Cc:	Peter Graham; Lauren Jones; Anna Comerton; Giles, Graham; Nicolardi, Andrew
Subject:	RE: Burloak Water Treatment Plant
Attachments:	SNGR_Comment Response Log_20250827.pdf; SNGR_Response Letter_20250827.pdf
Follow Up Flag:	Follow up
Flag Status:	Flagged

Hi Lauren,

Thank you for sharing the Six Nations Wildlife and Stewardship Office's comments on our comment/response log. We also appreciate receiving the updated draft plant and animal lists, along with the Environment Levy Policy.

Please find attached our response for your review.

We value the ongoing dialogue and appreciate your continued engagement.

Warm regards,
Christopher Pasquale

From: Lauren Vanderlingen <wsma@sixnations.ca>
Sent: Thursday, June 19, 2025 11:36 AM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: Peter Graham <LRCS@sixnations.ca>; Lauren Jones <laurenjones@sixnations.ca>; Anna Comerton <comertona@ae.ca>; Green-Battiston, Melissa <Melissa.Green-Battiston@halton.ca>; Nicolardi, Andrew <Andrew.Nicolardi@halton.ca>
Subject: Re: Burloak Water Treatment Plant

Hello Christopher,

Attached is the Six Nations Wildlife and Stewardship Office's comment's for the Halton Region's Response Log on Burloak Water Treatment Plant Phase 2 Expansion.

I have also attached the Six Nations Wildlife and Stewardship Office's updated draft plant and animal lists as well as the Six Nations of the Grand River's Environment Levy Policy for you and whomever it may concern to review. I hope it proves to be a valuable resource when conducting wildlife assessments, and for any site restoration and compensation vegetation plantings pertaining to this project.

Similar to our last share of the Plant List, I want to highlight the precautionary statements at the top of the Plant/Animal Lists :

I just wanted to highlight the precautionary statement(s) that is at the top of the chart(s):
The chart is a "best approximation" of plant species that may be of interest and importance to the community of Six Nations. This is intended to be a living document. It should not be considered a complete guide or sole reference when considering traditional plant/animal species. Please consult additional reputable resources to ensure correct identification of species in the field. This List is meant to be kept as an internal resource to Proponents and should not be shared unless express permission has been received by the Six Nations of the Grand River Elected Council/CAP Team.

Thank you for hearing our concerns, and your efforts to address them. We hope to continue having these discussions and building a strong relationship with your team.

Sincerely,

Lauren Vanderlingen

From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: Tuesday, June 3, 2025 3:38 PM
To: Lauren Vanderlingen <wsma@sixnations.ca>
Cc: Peter Graham <LRCS@sixnations.ca>; Lauren Jones <laurenjones@sixnations.ca>; Anna Comerton <comertona@ae.ca>; Green-Battiston, Melissa <Melissa.Green-Battiston@halton.ca>; Nicolardi, Andrew <Andrew.Nicolardi@halton.ca>
Subject: [External] RE: Burloak Water Treatment Plant

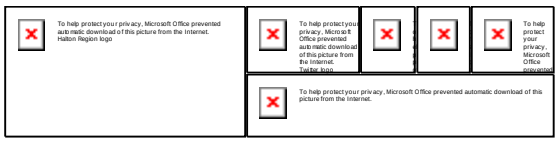
Hi Lauren,

Thank you for your detailed review of the 2012 Burloak Water Treatment Plant Phase 2 Expansion Municipal Class Environmental Assessment (MCEA) Environmental Study Report, and the draft Natural Heritage Assessment developed as part of the current Addendum to the 2012 MCEA Study.

Please see attached for our response.

Thanks,
Christopher Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure and Environmental Services
Public Works
Halton Region
289-834-4731 x7134 | 1-866-442-5866



From: Lauren Vanderlingen <wsma@sixnations.ca>
Sent: Friday, March 14, 2025 12:37 PM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: Peter Graham <LRCS@sixnations.ca>; Lauren Jones <laurenjones@sixnations.ca>
Subject: Burloak Water Treatment Plant

Good Afternoon Chris.

I hope you are doing well.

Attached is the Six Nations Wildlife and Stewardship Office's review of the 2024 Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class EA.

I have also attached the Six Nations Wildlife and Stewardship Office's draft plant list for you and whomever it may concern to review. I hope it proves to be a valuable resource for any site restoration and compensation vegetation plantings pertaining to this project.

I just wanted to highlight the precautionary statement that is at the top of the chart:
The chart is a "best approximation" of plant species that may be of interest and importance to the community of Six Nations. This is intended to be a living document. It should not be considered a complete guide or sole reference when considering traditional plant species. Please consult additional reputable resources to ensure correct identification of species in the field. This List is meant to be kept as an internal resource to Proponents and should not be shared unless express permission has been received by the Six Nations of the Grand River Elected Council/CAP Team.

Thank you for sending the Addendum to the Six Nations CAP team and hearing our concerns. We hope to continue having these discussions and building a strong relationship with your team.

Sincerely,

Lauren Vanderlingen,

Wildlife and Stewardship Technician, Lands and Resources
Six Nations of the Grand River Elected Council

P (519) 445-0330 ext. 5430

A 1721 Chiefswood Road (P.O. Box 5000), Ohsweken, ON, N0A 1M0

Public Works
Infrastructure & Environmental Services
1151 Bronte Road
Oakville, ON L6M 3L1

June 3, 2025

Lauren Vanderlingen
Wildlife and Stewardship Technician, Lands and Resources
Six Nations of the Grand River Elected Council
1721 Chiefswood Road (P.O. Box 5000)
Ohsweken, ON, N0A 1M0
wsma@sixnations.ca

Re: Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study – Response to March 14, 2025 Email

Dear Ms. Vanderlingen:

Thank you for your email dated March 14, 2025, and for your detailed review of the 2012 Burloak Water Treatment Plant Phase 2 Expansion Municipal Class Environmental Assessment (MCEA) Environmental Study Report, and the draft Natural Heritage Assessment developed as part of the current Addendum to the 2012 MCEA Study (the 'Addendum'). We have provided a response to your individual review comments in the attached comment/response log, which will be reflected in the Final Natural Heritage Assessment included with the Addendum.

Since sharing the previous draft Natural Heritage Assessment with Six Nations of the Grand River on January 20, 2025, the Addendum has progressed including the review and re-evaluation of the water treatment plant expansion concept. In particular, the key considerations have been reviewed and updated to reflect the current environmental context, which includes:

The residuals management approach will be sustainable and consider the existing limitations of the sanitary and storm sewer system serving the water treatment plant and seek to eliminate the need to consider discharging treated process residuals to the environment via the Sheldon Creek. The overall expansion concept will look for opportunities to minimize the volume of process residuals that must be managed.

As such, the previously identified preferred residuals management/discharge alternative (i.e., discharge to the East Sheldon Creek) was not short-listed or evaluated through the Addendum. Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable. We expect that this modification to the water treatment plant expansion design concept addresses the concerns that you shared related to potential impacts in/near the East Sheldon Creek.

The mitigation recommendations presented in the Natural Heritage Assessment completed for the Addendum have been developed conservatively and are based on the desktop review and field investigations documented in the report.

As a next step and to inform the subsequent detailed design phase, additional multi-season in-field studies will be completed to further inform environmental constraints and related mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works. It is anticipated that these multi-season in-field studies will be conducted in 2025 and documented in a separate stand-alone report. These multi-season in-field studies will also support confirmation and application of required permits and approvals. The multi-season in-field studies will incorporate the flora and fauna species of importance per your suggestion and the provided draft plant list. As per our email on January 20, 2025, to Peter Graham, Six Nations of the Grand River Land Use Officer, we commit to sharing the results of the multi-season in-field studies once they are available.

We would like to thank you for sharing your comments. While the Region will continue to keep the Six Nations of the Grand River informed of project developments, should you or your colleagues have any questions, please do not hesitate to contact me by email at Christopher.Pasquale@halton.ca or phone at 905-825-6000, extension 7134.

Sincerely,

Christopher Pasquale, P.Eng., PMP
Project Manager, Halton Region

Attachment:

Comment/Response Log

Response Log for Comments Received from the Six Nations of the Grand River on March 14, 2025
Submittal: Natural Heritage Assessment – DRAFT (circulated to Six Nations of the Grand River on January 20, 2025)

Item Number	Section/Page Reference	Comment	Response
1	Introduction, p. 1	The Six Nations Wildlife and Stewardship Office (SNWSO) requests clarification on the expected timeline for the Phase 2 expansion, as well as the expected timeline from Phase 2 to the final Phase 4/Ultimate expansion.	To meet future water demands and support population growth, the additional treatment capacity provided by the Burloak Water Treatment Plant (WTP) Phase 2 Expansion is required by 2031. The ultimate expansion of the Burloak WTP is expected to be required by 2051, based on Halton Region's ongoing Integrated Master Plan for Water, Wastewater and Transportation. The detailed design phase for the Burloak WTP Phase 2 Expansion is scheduled for 2025–2026, with construction and implementation to follow. The timelines for construction and implementation will be determined and refined through the detailed design phase, which will commence after the completion of the Addendum to the 2012 Municipal Class Environmental Assessment (MCEA) Study Environmental Study Report (the 'Addendum').
2	Introduction, p. 1	The ESR states if Conservation Halton (CH) or the Town of Oakville does not approve Option R1, alternate treatments R5 and R6 will be reconsidered. The proponent's scoring/weighting method for selecting the preferred WTP treatment does not align with the Indigenous Perspective. SNWSO emphasizes that environmental factors should be prioritized, as the needs of the environment are no less important than human needs. SNWSO supports Option R6, which scored higher for environmental considerations (minimized chemical use and discharge quality/quantity), while Option R1 only outperformed on costs. SNWSO urges the proponent to prioritize environmental care, as protecting water is essential for a sustainable and healthy future and fulfills our obligation to future generations.	Through the Addendum, the key considerations have been reviewed and updated to reflect the current environmental context, which includes: *The residuals management approach will be sustainable and consider the existing limitations of the sanitary and storm sewer system serving the WTP and seek to eliminate the need to consider discharging treated process residuals to the environment via the Sheldon Creek. The overall expansion concept will look for opportunities to minimize the volume of process residuals that must be managed.* As such, the previously identified preferred residuals management/discharge alternative (i.e., discharge to the East Sheldon Creek) was not short-listed or evaluated through the Addendum. **Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.**
3	Introduction, p. 1	The 2012 ESR states that Option R1 requires discharging clarified supernatant into East Sheldon Creek, subject to regulatory approval. Please clarify if an Environmental Compliance Act Permit from the MECP has been obtained, as this would ensure regular discharge monitoring (daily for the first week, then weekly). SNWSO also encourages the proponent to meet Provincial Water Quality Objectives (PWQO) for creek discharge. These measures would address SNWSO's concerns regarding potential chemical contributions to the creek.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to water quality and aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.
4	Section 2.4, p. 5	SNWSO encourages the proponent to exceed legislative buffer requirements to better protect natural features and ecosystem services. We as a society need to do more for our environments, not the bare minimum. Based on Beacon (2012) guidelines: - A 61 meter buffer is ideal for shielding wildlife and their habitats from disturbance To maintain water quality, SNWSO recommends buffers of at least:	Consistent with the mitigation measures recommended through the 2012 MCEA Study, a buffer zone will be created between the construction areas and the Nautical Woods to avoid disturbance to this area. The details of the buffer zone will be confirmed and refined through the detailed design phase for the Burloak WTP Phase 2 Expansion.

Item Number	Section/Page Reference	Comment	Response
		- 31 meters for moving waters (rivers, creeks etc.) - 41 meters for wetlands (evaluated or not) SNWSO also recommends a bare minimum buffer of 30 meters for other natural features/ habitats (e.g., woodlands, ANSI, Valleylands etc). Beacon Environmental. (2012). Ecological buffer guideline review. Prepared for Credit Valley Conservation.	
5	Section 3, p. 8	The 2012 ESR assumed the 2005 geotechnical investigation would continue to cover the entire WTP site, but noted that detailed investigations would be needed for the Phase 2 expansion. Have these geotechnical investigations been conducted in 2024/2025? If not, when does the proponent plan to carry them out?	Additional geotechnical investigation work to inform the design of the Burloak WTP Phase 2 Expansion will be completed through the detailed design phase, which is currently scheduled for 2025–2026.
6	Section 3.2.3, p. 10	SNWSO is pleased that Nautical Woods (formerly Bronte Burloak Woods) is classified as Significant and will be properly protected (see previous buffer comment). If tree removals (on-site) or encroachments into natural features (e.g., Nautical Woods/Sheldon Creek valley) are required, SNWSO advocates for a 10:1 tree and 1:1 snag replacement ratio. Both living and dead trees provide essential ecosystem services and wildlife habitat. Tree replacements and re-planting plans will help to preserve vital wildlife corridors, as discussed in section 4.1. The 10:1 ratio aims to account for plant die-off and to increase canopy cover for future generations (human and non-human beings) to rely and benefit from.	A buffer zone will be created between the construction areas and the Nautical Woods. No construction works or impacts near/at the Sheldon Creek are planned. Tree removals within the Nautical Woods are not anticipated. The remainder of the Burloak WTP property largely contains manicured lawn, planted ornamental trees and fragmented areas of cultural meadow. The construction areas will be re-planted and re-vegetated after the construction works are completed. Should the finalization of the facility layout and assessment of site impacts identify a disruption to existing open grown trees, detailed design and implementation phases of the project will include a tree protection and preservation plan developed in alignment with the Region's Tree Canopy Replacement Policy (LPS31-08 – Tree-Canopy Replacement Policy on Regionally Owned Lands). This plan will account for site-specific conditions and include appropriate tree replacement measures.
7	Section 3.3, p. 11	The 2012 ESR and 2011 vegetative assessments identify several species of cultural, medicinal, and sustenance importance to Six Nations (SN), including Sugar Maple, White Pine, White Birch, Red-Osier Dogwood, Raspberry, Red Oak, and Basswood. Please refer to the Six Nations Plant List for additional important species. Follow-up assessments, should consider both flora and fauna species of importance, such as deer, turtles, waterfowl, wild turkey, hawks, fur-bearing mammals, and fish. These species, whether SAR or not, are significant to Indigenous Peoples and should be factored into decision-making (i.e. the mitigation hierarchy), to protect First Nations hunting and harvesting rights. What steps are being taken to apply the mitigation hierarchy and avoid, minimize, mitigate, and/or offset impacts on species of importance?	Thank you for sharing the Six Nations Plant List. Revisions to the Natural Heritage Assessment have been made to incorporate the occurrence and potential for these species, and mitigation plans will consider these species. As a next step and to inform the subsequent detailed design phase, additional multi-season in-field studies will be completed to further inform environmental constraints and related mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works. It is anticipated that these multi-season in-field studies will be conducted in 2025 and documented in a separate stand-alone report. These planned multi-season in-field studies will consider the flora species of cultural importance as provided in the plant list as well as the noted fauna species of importance.
8	Section 3.4, p. 11	AECOM's 2011 aquatic habitat assessments may no longer reflect current conditions (i.e aquatic habitat, fish and benthic communities), due to a decade's worth of changes in water levels, flows, bank stability, and vegetation cover. The Chartered Institute of Ecology and Environmental	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.

Item Number	Section/Page Reference	Comment	Response
		Management (CIEEM) recommends updating surveys older than three years, which SNWSO supports. While desktop reviews are a good start, in-field assessments are necessary for a comprehensive understanding of current site conditions, and potential impacts. SNWSO urges the proponent to conduct in-field investigations of aquatic habitat (updated), fish and benthic invertebrates in East Sheldon Creek, following best management practices (BMPs) (e.g., OBBN, MNRF electrofishing protocols).	
9	Table 1, p. 12	Please refer to the previous comment regarding the absence of in-field fish surveys. While not all 22 fish species may reside in the East Sheldon Creek study area, they could enter via downstream connections. How is the presence of fish, including SAR species, being addressed and mitigated for during the Burloak WTP expansion? SNWSO strongly urges the proponent to apply the mitigation hierarchy to ensure effective measures are in place to maintain or improve wildlife habitats and populations within the study area.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.
10	Table 1, p. 12	Please clarify why the following species, discussed in the 2012 ESR, were excluded from the 2024 update: - NHIC historical data for Shortnose Cisco (END) – 20-year-old record - CH data on Brown Trout (a species of importance to SN) It is concerning that these species were omitted from the chart. SNWSO believes it is crucial to include them to provide a comprehensive understanding of the species present (or potentially present) and the potential impacts the WTP discharge pipe may have on them.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.
11	Table 1, p. 12	Rainbow Trout is a species of importance to SN, for medicinal, sustenance and cultural purposes. How will their presence in the Sheldon Creek Watershed be accommodated for? Please see previous comment regarding the inclusion of species of importance in follow up assessments.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.
12	Section 3.6, p. 14	SNWSO is hesitant to fully rely on the federal/provincial SAR ranking system as the sole means of protecting native species, as legislation often lacks the foresight needed. Society should focus on preventing species from being added to SAR lists or requiring legislative protection in the first place. All native species are worthy of protection, and serve a purpose within the environment, whether or not they are classified as SAR/SOCC. What measures will the proponent take to ensure that all species of flora and fauna (including their habitat) will be protected and mitigated for?	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable. The main environmental sensitivity in proximity to the area that could be impacted by the Burloak WTP Phase 2 Expansion construction works are the Nautical Woods adjacent to the eastern property line. A buffer zone will be created between the construction areas and the Nautical Woods to avoid disturbance to this area. Terrestrial communities and open grown trees on/near the Burloak WTP site have the potential to support wildlife SAR, MBCA-protected species and others not on these lists. Related mitigation measures that will be implemented during construction include: • Avoid disturbance, clearing or disruption of vegetation from March 15 to August 31 to avoid the breeding season for the majority of the species protected under the MBCA and to comply with requirements of the Act.

Item Number	Section/Page Reference	Comment	Response
			• Complete removal or pruning of any open grown trees with the potential to provide roosting habitat for bats in the form of suitable cavities outside the roosting period of March 15 to November 16. • Re-plant and re-vegetate construction areas after the expansion works are complete. The Region is proceeding with multi-season in-field studies starting in Spring 2025 to inform the subsequent detailed design phase of the project and support confirmation and application of required permits and approvals. The proposed mitigation measures outlined above will be further refined based on the results of these studies during the detailed design phase of the project. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase of the project.
13	Table 2, p. 16	Turtles, whether SAR or not, are culturally significant to the people of Six Nations. As no herpetofauna surveys have been conducted, SNWSO recommends multi-year, multi-season basking and nesting surveys using standard protocols to assess turtle use and account for annual variability. For example, MNRF's (2015) Protocol notes that Blanding's Turtles may not nest in the same site every year, so multi-year surveys will increase the results accuracy. Comprehensive surveys will also inform effective mitigation measures, such as creating basking habitat, to protect turtles in the area.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable. Multi-season in-field studies are planned for 2025 to inform the subsequent detailed design phase and will incorporate the herpetofauna as suggested. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase for the Burloak WTP Phase 2 Expansion.
14	Section 4, p. 17	The original vegetation assessment was conducted in November 2011, and the LGL site investigation in October 2024. Both surveys were conducted late in the growing season, limiting the ability to accurately identify all herbaceous plants in the study area. While vegetation surveys are planed for 2025, SNWSO encourages using a multi-year, multi-season approach (spring, summer, fall), to gain a more comprehensive understanding of the area's vegetation and inform strong mitigation and restoration plans.	As a next step and to inform the subsequent detailed design phase, additional multi-season in-field studies will be completed to further inform environmental constraints and related mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works. It is anticipated that these multi-season in-field studies will be conducted in 2025 and documented in a separate stand-alone report. These studies will include multi-season vegetation surveys. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase for the Burloak WTP Phase 2 Expansion.
15	Section 4, p. 17	Please clarify why in-season field surveys have not been conducted. As noted previously, SNWSO encourages the proponent to use BMPs to conduct multi-season, multi-year surveys and establish a strong a baseline, which will be crucial for assessing impacts, applying the mitigation hierarchy, informing effective mitigation measures, and evaluating their long-term success.	The mitigation recommendations presented in the Natural Heritage Assessment completed for the Addendum have been developed conservatively and are based on the desktop review and field investigations documented in the report. As a next step and to inform the subsequent detailed design phase, additional multi-season in-field studies will be completed to further inform environmental constraints and related mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works. It is anticipated that these multi-season in-field studies will be conducted in 2025 and documented in a separate stand-alone report. These multi-season in-field studies will also support confirmation and application of required permits and approvals.
16	Section 4.1, p. 17	In addition to the 10:1 tree replacement ratio, SNWSO recommends a comprehensive restoration strategy, including native vegetation planting (terrestrial and riparian), invasive species management, and wildlife corridor/habitat creation on- and off-site (e.g., East Sheldon Creek riparian areas) to offset natural feature loss. Refer to the Six Nations Plant List to guide planting and ensure species of importance to SN are included.	A re-planting and re-vegetation plan incorporating native plantings, along with overall landscaping design, will be developed through the detailed design phase for the Burloak WTP Phase 2 Expansion. Thank you for sharing the Six Nations Plant List and the information regarding the Six Nations native plant nursery.

Item Number	Section/Page Reference	Comment	Response
		The ESR notes signs of previous restoration work in Reach 1 (e.g., tree supports, landscaping cloth). A potential mitigation measure is to remove unnecessary tree supports and re-vegetate exposed landscape cloth. Please contact Kayanase, a Six Nations native plant nursery, to supply plants and potentially assist with restoration planning, planting, and invasive species removal. Contact them early to invite participation: www.kayanase.ca.	
17	Section 4.1, p. 17	With 7/8 of Ontario's bat species on the SAR list or soon to be, SNWSO urges the proponent to conduct multi-season, multi-year bat surveys. Using BMP's start with bat habitat assessments, followed by Entry/Exit surveys and passive acoustic monitoring if habitat is present. For Tri-coloured bat maternity roosts, field visits should occur during leaf-on season (MNRF, 2017). SNWSO believes Nautical Park and East Sheldon Creek Valley have high potential for bat roosting and foraging habitats, both of which are crucial for their survival. If surveys are not conducted, assume SWH for bats is present and apply the mitigation hierarchy. Consider installing bat habitat features (e.g., chamber boxes, rock pile hibernacula, Brandenbark structures etc.), but prioritize avoiding the removal/disturbance of bat habits, as bats have high site fidelity and artificial habitats carry many uncertainties/knowledge gaps.	Multi-season in-field studies are planned for 2025 to inform the subsequent detailed design phase and will incorporate SAR habitat assessment, significant wildlife assessment and incidental wildlife assessment. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase for the Burloak WTP Phase 2 Expansion.
18	Section 4.2, p. 18	Site investigations in October 2024 and November/December 2011 did not capture year-round flows in East Sheldon Creek, such as spring freshet or summer low flows. A multi-season assessment is needed to better understand the creek's hydrology and inform design and mitigation strategies. The presence of watercress in Reaches 2/3 suggests groundwater discharge, which could pose contamination risks near the discharge pipe, if not properly understood. Has water quality in East Sheldon Creek been assessed? If not, this is crucial for baseline data and post-WTP discharge comparisons. While TTS will be limited, dechlorination will occur, and aluminum residuals will likely be captured by coagulants; what additional measures will be taken to prevent downstream water quality impacts? Will discharge quality be monitored frequently, and is there a monitoring plan in place? Will PWQOs be followed? Could bio-polymer coagulants replace traditional chemicals? Please provide more details on how aquatic habitat and water quality will be maintained or improved post-construction (aside from dilution).	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to water quality and aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.
19	Section 4.2, p. 18	Please clarify if the proponent plans to use a flow/energy dissipater at the discharge outlet to minimize scouring and erosion. Also please confirm if channel flow and creek integrity will be monitored before (baseline data) and after construction, and if erosion pins will be installed to track changes in the creek bed and banks. These measures were 'recommended' in Appendix D; however, SNWSO has not yet seen confirmation of their intended use.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact from scouring and erosion as presented in the 2012 MCEA Environmental Study Report is no longer applicable.

Item Number	Section/Page Reference	Comment	Response
20	Section 4.2, p. 18	SNWSO has significant concerns regarding the current situation. We strongly recommend updating and conducting assessments for fisheries, benthic invertebrates, hydrology, vegetation, and water quality to ensure a thorough understanding of the site's existing conditions. These assessments are essential for effectively mitigating potential impacts from the WTP and preventing risks to the creek habitat.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.
21	Section 5, p. 18	The 2012 ESR mentions that groundwater discharge may be required for expansion construction, with discharge directed to a temporary siltation pond with filter screens to minimize soil and foundation material movement. Please clarify if this siltation pond is pre-existing or if a new one will be built, and if so, where it will be located? Please refer to SNWSO's buffer recommendations to ensure surrounding natural features are not impacted. Additionally, please provide more details on the erosion and sedimentation control measures to be used.	It is anticipated that dewatering will be required during excavation to manage precipitation and/or groundwater entering the excavation. The details and anticipated dewatering volume/flow will be confirmed through the detailed design phase of the project and confirmation of size/location/depth of underground structures as well as the related geotechnical and hydrogeological information. Applicable approvals/permits will be secured once this information is confirmed and the related requirements and mitigation measures will be included in the general construction contract specifications. A siltation pond is not pre-existing and the requirement for and details of such a pond will be confirmed through the above process. Similarly, erosion and sedimentation control measures will also be confirmed through the detailed design phase of the project and implemented accordingly.
22	Section 5, p. 18	The ESR notes that a contingency plan for fuel spills will be developed, but it has not yet been provided. SNWSO recommends refueling on a paved surface rather than a permeable area to prevent spills from infiltrating into the soil or discharge ponds and to protect surrounding natural features.	Construction constraints and mitigation measures related to fuel spills will be addressed through the detailed design phase for the Burloak WTP Phase 2 Expansion and included in the general construction contract specifications. These specifications typically relate to pollution control in general and include constraints on location of refueling, fuel and other waste disposal, and disposal and spill containment/cleanup plans.
23	Section 5, p. 18	SNWSO is pleased to see that future in-field surveys are to be conducted. As previously discussed, please conduct surveys following a multi-season, multi-year approach, and please include surveys for herpetofauna (i.e frogs, salamanders, turtles, snakes), which have not been considered at this point.	Multi-season in-field studies are planned for 2025 to inform the subsequent detailed design phase and will incorporate the herpetofauna as suggested. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase for the Burloak WTP Phase 2 Expansion.
24	Section 5, p. 18	SNWSO understands there will be a monitoring plan for East Sheldon Creek. SNWSO advises conducting long-term, post-construction monitoring (for a minimum of 5-10 years) to ensure the WTP expansion and discharge outlet do not negatively impact East Sheldon Creek, Nautical Woods, or wildlife habitats. Monitoring should include surveys on hydrology (thermal channel flow and bank integrity), aquatic habitat, wildlife (birds, bats, fish, benthic invertebrates, herpetofauna), vegetation (follow up on restoration/replanting), and species important to SN should be considered. When details on the monitoring plans are available, please provide them to SNWSO.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. A monitoring plan related to the East Sheldon Creek discharge is no longer applicable. The Region will confirm the details and plans for additional monitoring beyond 2025 through the detailed design phase for the Burloak WTP Phase 2 Expansion.

Public Works
Infrastructure & Environmental Services
1151 Bronte Road
Oakville, ON L6M 3L1

August 27, 2025

Lauren Vanderlingen
Wildlife and Stewardship Technician, Lands and Resources
Six Nations of the Grand River Elected Council
1721 Chiefswood Road (P.O. Box 5000)
Ohsweken, ON, N0A 1M0
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Re: Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study – Response to June 19, 2025 Email

Dear Ms. Vanderlingen:

Thank you for your email dated June 19, 2025, and for your review of our June 3, 2025, responses to your individual comments on the 2012 Burloak Water Treatment Plant Phase 2 Expansion Municipal Class Environmental Assessment (MCEA) Environmental Study Report, and the draft Natural Heritage Assessment developed as part of the current Addendum to the 2012 MCEA Study (the 'Addendum'). We have provided a response to each of your most recent comments in the attached comment/response log.

We would like to thank you for sharing your most recent comments. While the Region will continue to keep the Six Nations of the Grand River informed of project developments, should you or your colleagues have any questions, please do not hesitate to contact me by email at Christopher.Pasquale@halton.ca or phone at 905-825-6000, extension 7134.

Sincerely,

Christopher Pasquale, P.Eng., PMP
Project Manager, Halton Region

Attachment:

Comment/Response Log

Response Log for Comments Received from the Six Nations of the Grand River on June 19, 2025
Submittal: Natural Heritage Assessment – DRAFT (circulated to Six Nations of the Grand River on January 20, 2025)

Item Number	Section/Page Reference	Comment (March 14, 2025)	Response (June 3, 2025)	Comment (June 19, 2025)	Response (August 27, 2025)
1	Introduction, p. 1	The Six Nations Wildlife and Stewardship Office (SNWSO) requests clarification on the expected timeline for the Phase 2 expansion, as well as the expected timeline from Phase 2 to the final Phase 4/Ultimate expansion.	To meet future water demands and support population growth, the additional treatment capacity provided by the Burloak Water Treatment Plant (WTP) Phase 2 Expansion is required by 2031. The ultimate expansion of the Burloak WTP is expected to be required by 2051, based on Halton Region's ongoing Integrated Master Plan for Water, Wastewater and Transportation. The detailed design phase for the Burloak WTP Phase 2 Expansion is scheduled for 2025–2026, with construction and implementation to follow. The timelines for construction and implementation will be determined and refined through the detailed design phase, which will commence after the completion of the Addendum to the 2012 Municipal Class Environmental Assessment (MCEA) Study Environmental Study Report (the 'Addendum').	No further comments. Thank you for the timeline.	Thank you, we appreciate your continued collaboration.
2	Introduction, p. 1	The ESR states if Conservation Halton (CH) or the Town of Oakville does not approve Option R1, alternate treatments R5 and R6 will be reconsidered. The proponent's scoring/weighting method for selecting the preferred WTP treatment does not align with the Indigenous Perspective. SNWSO emphasizes that environmental factors should be prioritized, as the needs of the environment are no less important than human needs. SNWSO supports Option R6, which scored higher for environmental considerations (minimized chemical use and discharge quality/quantity), while Option R1 only outperformed on costs. SNWSO urges the proponent to prioritize environmental care, as protecting water is essential for a sustainable and healthy future and fulfills our obligation to future generations.	Through the Addendum, the key considerations have been reviewed and updated to reflect the current environmental context, which includes: *The residuals management approach will be sustainable and consider the existing limitations of the sanitary and storm sewer system serving the WTP and seek to eliminate the need to consider discharging treated process residuals to the environment via the Sheldon Creek. The overall expansion concept will look for opportunities to minimize the volume of process residuals that must be managed.* As such, the previously identified preferred residuals management/discharge alternative (i.e., discharge to the East Sheldon Creek) was not short-listed or evaluated through the Addendum. **Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.**	Thank you for taking Six Nations Wildlife and Stewardship Office's (SNWSO) concerns into consideration and for your efforts to address them.	Thank you, we appreciate your continued collaboration.

Item Number	Section/Page Reference	Comment (March 14, 2025)	Response (June 3, 2025)	Comment (June 19, 2025)	Response (August 27, 2025)
3	Introduction, p. 1	The 2012 ESR states that Option R1 requires discharging clarified supernatant into East Sheldon Creek, subject to regulatory approval. Please clarify if an Environmental Compliance Act Permit from the MECP has been obtained, as this would ensure regular discharge monitoring (daily for the first week, then weekly). SNWSO also encourages the proponent to meet Provincial Water Quality Objectives (PWQO) for creek discharge. These measures would address SNWSO's concerns regarding potential chemical contributions to the creek.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to water quality and aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.		
4	Section 2.4, p. 5	SNWSO encourages the proponent to exceed legislative buffer requirements to better protect natural features and ecosystem services. We as a society need to do more for our environments, not the bare minimum. Based on Beacon (2012) guidelines: - A 61 meter buffer is ideal for shielding wildlife and their habitats from disturbance To maintain water quality, SNWSO recommends buffers of at least: - 31 meters for moving waters (rivers, creeks etc.) - 41 meters for wetlands (evaluated or not) SNWSO also recommends a bare minimum buffer of 30 meters for other natural features/ habitats (e.g., woodlands, ANSI, Valleylands etc). Beacon Environmental. (2012). Ecological buffer guideline review. Prepared for Credit Valley Conservation.	Consistent with the mitigation measures recommended through the 2012 MCEA Study, a buffer zone will be created between the construction areas and the Nautical Woods to avoid disturbance to this area. The details of the buffer zone will be confirmed and refined through the detailed design phase for the Burloak WTP Phase 2 Expansion.	SNWSO requests that the proponent commit to establishing a minimum buffer of 30m to protect the Nautical Woods from potential impacts such as dust, vegetation removal, habitat disturbance etc. Should the detailed design phase reveal that a larger buffer is feasible, that would be welcomed. However, SNWSO maintains that a 30-metre buffer represents the bare minimum necessary for effective protection.	The project-specific mitigation measures, including the buffer zone details, will be further developed following the 2025 multi-season in-field studies and the detailed design phase of the WTP expansion. As the project advances, we will provide updated information on these measures, including the proposed and feasible buffer zone.
5	Section 3, p. 8	The 2012 ESR assumed the 2005 geotechnical investigation would continue to cover the entire WTP site, but noted that detailed investigations would be needed for the Phase 2 expansion. Have these geotechnical investigations been conducted in 2024/2025? If not, when does the proponent plan to carry them out?	Additional geotechnical investigation work to inform the design of the Burloak WTP Phase 2 Expansion will be completed through the detailed design phase, which is currently scheduled for 2025–2026.		

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6	Section 3.2.3, p. 10	SNWSO is pleased that Nautical Woods (formerly Bronte Burloak Woods) is classified as Significant and will be properly protected (see previous buffer comment). If tree removals (on-site) or encroachments into natural features (e.g., Nautical Woods/Sheldon Creek valley) are required, SNWSO advocates for a 10:1 tree and 1:1 snag replacement ratio. Both living and dead trees provide essential ecosystem services and wildlife habitat. Tree replacements and re-planting plans will help to preserve vital wildlife corridors, as discussed in section 4.1. The 10:1 ratio aims to account for plant die-off and to increase canopy cover for future generations (human and non-human beings) to rely and benefit from.	A buffer zone will be created between the construction areas and the Nautical Woods. No construction works or impacts near/at the Sheldon Creek are planned. Tree removals within the Nautical Woods are not anticipated. The remainder of the Burloak WTP property largely contains manicured lawn, planted ornamental trees and fragmented areas of cultural meadow. The construction areas will be re-planted and re-vegetated after the construction works are completed. Should the finalization of the facility layout and assessment of site impacts identify a disruption to existing open grown trees, detailed design and implementation phases of the project will include a tree protection and preservation plan developed in alignment with the Region's Tree Canopy Replacement Policy (LPS31-08 – Tree-Canopy Replacement Policy on Regionally Owned Lands). This plan will account for site-specific conditions and include appropriate tree replacement measures.	All construction areas should be replanted exclusively with native plant species. The use of ornamental or cultivated (hybrid) species is strongly discouraged, as these often provide low-quality or inaccessible pollen and nectar for native pollinators. In many cases, their altered floral structures inhibit pollinators from accessing the essential resources needed to support healthy local ecosystems. SNWSO has reviewed the Region's Tree Canopy Replacement Policy and respectfully urges the proponent to exceed the current 2:1 to 4:1 replacement ratios based on DBH. SNWSO recommends a minimum 10:1 tree and 1:1 snag replacement ratio, regardless of DBH, to ensure a net increase in canopy cover and to support a healthy environment for future generations.	The construction areas will be re-planted and re-vegetated with native plant species as requested. Halton Region recognizes the intrinsic value of trees and woodlands in both urban and rural environments, including their role in supporting biodiversity, enhancing community well-being, and helping to offset greenhouse gas emissions. To maintain or increase woodland and tree cover, the Region's Tree-Canopy Replacement Policy on Regionally Owned Lands (LPS31-08) outlines requirements for the removal and replacement of these resources on Regionally owned lands. This policy applies to all Region-led capital projects, including water, wastewater, and transportation infrastructure. Where infrastructure projects may result in the removal or disturbance of existing trees, Halton Region is committed to minimizing impacts and implementing appropriate mitigation measures during the detailed design and implementation phases. In accordance with the Tree-Canopy Replacement Policy, the following measures will be implemented for all Region-led infrastructure projects where tree removal or disturbance may occur: • A Tree Protection and Preservation Plan will be prepared by a certified arborist or qualified professional during the detailed design and implementation phases. The plan will: o Include a comprehensive tree inventory documenting the location, species, size, and condition of trees within the study area.

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					○ Provide an impact assessment identifying which trees are to be removed, retained with injury, or retained with no injury. ○ Outline mitigation measures to minimize impacts to existing trees during construction. ○ Include an analysis of compensation requirements for trees affected by the project, based on the policy. ○ Be tailored to site-specific conditions and identify appropriate strategies for tree protection, preservation, and replacement. • Tree replacement will be based on the canopy cover lost, rather than the number of trees removed, and will follow the Canopy Replacement Schedule outlined in the policy. • Replacement species will be native and ecologically appropriate, excluding invasive species. Planting may occur on-site or off-site, depending on feasibility. Halton Region is committed to implementing the mitigation measures identified in the Tree Protection and Preservation Plan and will engage with relevant and interested parties, including First Nations and Indigenous Communities, as projects advance through design and construction.
7	Section 3.3, p. 11	The 2012 ESR and 2011 vegetative assessments identify several species of cultural, medicinal, and sustenance importance to Six Nations (SN), including Sugar Maple, White Pine, White Birch, Red-Osier Dogwood, Raspberry, Red Oak, and Basswood. Please refer to the Six Nations Plant List for additional important species.	Thank you for sharing the Six Nations Plant List. Revisions to the Natural Heritage Assessment have been made to incorporate the occurrence and potential for these species, and mitigation plans will consider these species.	Thank you for using the Six Nations Plant List to guide your assessments of culturally significant species, and to better mitigate/accommodate for these species. Our office has recently completed a corresponding list of fauna species of	Thank you for providing the list of fauna species of importance.

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		Follow-up assessments, should consider both flora and fauna species of importance, such as deer, turtles, waterfowl, wild turkey, hawks, fur-bearing mammals, and fish. These species, whether SAR or not, are significant to Indigenous Peoples and should be factored into decision-making (i.e. the mitigation hierarchy), to protect First Nations hunting and harvesting rights. What steps are being taken to apply the mitigation hierarchy and avoid, minimize, mitigate, and/or offset impacts on species of importance?	As a next step and to inform the subsequent detailed design phase, additional multi-season in-field studies will be completed to further inform environmental constraints and related mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works. It is anticipated that these multi-season in-field studies will be conducted in 2025 and documented in a separate stand-alone report. These planned multi-season in-field studies will consider the flora species of cultural importance as provided in the plant list as well as the noted fauna species of importance.	importance. Please refer to the attached Animal List for further information.	
8	Section 3.4, p. 11	AECOM's 2011 aquatic habitat assessments may no longer reflect current conditions (i.e aquatic habitat, fish and benthic communities), due to a decade's worth of changes in water levels, flows, bank stability, and vegetation cover. The Chartered Institute of Ecology and Environmental Management (CIEEM) recommends updating surveys older than three years, which SNWSO supports. While desktop reviews are a good start, in-field assessments are necessary for a comprehensive understanding of current site conditions, and potential impacts. SNWSO urges the proponent to conduct in-field investigations of aquatic habitat (updated), fish and benthic invertebrates in East Sheldon Creek, following best management practices (BMPs) (e.g., OBBN, MNRF electrofishing protocols).	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.	Although process residuals are no longer planned for discharge into East Sheldon Creek, construction still poses risks of sedimentation, dust, and contaminants entering the waterway—potentially degrading water quality, increasing turbidity, and harming aquatic habitats essential for fish and herpetofauna.	The overall Environmental Management Plan will be developed during the subsequent detailed design phase and will include erosion and sediment control, dust and mud control, and other applicable control and mitigation measures for potentially impacted areas.
9	Table 1, p. 12	Please refer to the previous comment regarding the absence of in-field fish surveys. While not all 22 fish species may reside in the East Sheldon Creek study area, they could enter via downstream connections. How is the presence of fish, including SAR species, being addressed and mitigated for during the Burloak WTP expansion? SNWSO strongly urges the proponent to apply the mitigation hierarchy to ensure effective measures are in place to maintain or improve wildlife habitats and populations within the study area.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.	Please see comment response to Item #8.	Please see response to Item #8.

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10	Table 1, p. 12	Please clarify why the following species, discussed in the 2012 ESR, were excluded from the 2024 update: - NHIC historical data for Shortnose Cisco (END) – 20-year-old record - CH data on Brown Trout (a species of importance to SN) It is concerning that these species were omitted from the chart. SNWSO believes it is crucial to include them to provide a comprehensive understanding of the species present (or potentially present) and the potential impacts the WTP discharge pipe may have on them.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.	Please see comment response to Item #8.	Please see response to Item #8.
11	Table 1, p. 12	Rainbow Trout is a species of importance to SN, for medicinal, sustenance and cultural purposes. How will their presence in the Sheldon Creek Watershed be accommodated for? Please see previous comment regarding the inclusion of species of importance in follow up assessments.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.	Please see comment response to Item #8.	Please see response to Item #8.
12	Section 3.6, p. 14	SNWSO is hesitant to fully rely on the federal/provincial SAR ranking system as the sole means of protecting native species, as legislation often lacks the foresight needed. Society should focus on preventing species from being added to SAR lists or requiring legislative protection in the first place. All native species are worthy of protection, and serve a purpose within the environment, whether or not they are classified as SAR/SOCC. What measures will the proponent take to ensure that all species of flora and fauna (including their habitat) will be protected and mitigated for?	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable. The main environmental sensitivity in proximity to the area that could be impacted by the Burloak WTP Phase 2 Expansion construction works are the Nautical Woods adjacent to the eastern property line. A buffer zone will be created between the construction areas and the Nautical Woods to avoid disturbance to this area. Terrestrial communities and open grown trees on/near the Burloak WTP site have the potential to support wildlife SAR, MBCA-protected species and others not on these lists. Related mitigation measures that will be implemented during construction include: • Avoid disturbance, clearing or disruption of vegetation from March 15 to August 31 to avoid the breeding season for the majority of the species protected under the MBCA and to comply with requirements of the Act. • Complete removal or pruning of any open grown trees with the potential to provide roosting habitat for bats in the form of suitable cavities outside the roosting period of March 15 to November 16. • Re-plant and re-vegetate construction areas after the expansion works are complete.	While avoiding vegetation removal during the bat and bird active season is a positive step, it is a legislative requirement and, in SNWSO's view, represents the bare minimum. These measures appear to be driven by regulatory compliance rather than a genuine commitment to wildlife welfare. SNWSO strongly encourages the proponent to go beyond minimum requirements to meaningfully protect and accommodate local wildlife. Following the 2025 field investigations—and any subsequent surveys—the proponent should begin developing species-specific mitigation measures tailored to the birds, herpetofauna, and mammals identified within the study area. Examples may include: installing species-specific bird and bat boxes (e.g., rocket or chamber boxes), Bradenbark structures, incorporating natural channel design techniques, creating rock piles for snake hibernacula, placing basking logs for turtles and frogs, and positioning felled logs to provide cover for salamanders.	Project-specific mitigation measures will be further refined and detailed following the 2025 multi-season in-field studies, during the subsequent detailed design phase of the project. The information from these studies and project-specific mitigation measures will be shared upon completion.

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			The Region is proceeding with multi-season in-field studies starting in Spring 2025 to inform the subsequent detailed design phase of the project and support confirmation and application of required permits and approvals. The proposed mitigation measures outlined above will be further refined based on the results of these studies during the detailed design phase of the project. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase of the project.		
13	Table 2, p. 16	Turtles, whether SAR or not, are culturally significant to the people of Six Nations. As no herpetofauna surveys have been conducted, SNWSO recommends multi-year, multi-season basking and nesting surveys using standard protocols to assess turtle use and account for annual variability. For example, MNRF's (2015) Protocol notes that Blanding's Turtles may not nest in the same site every year, so multi-year surveys will increase the results accuracy. Comprehensive surveys will also inform effective mitigation measures, such as creating basking habitat, to protect turtles in the area.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable. Multi-season in-field studies are planned for 2025 to inform the subsequent detailed design phase and will incorporate the herpetofauna as suggested. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase for the Burloak WTP Phase 2 Expansion.		
14	Section 4, p. 17	The original vegetation assessment was conducted in November 2011, and the LGL site investigation in October 2024. Both surveys were conducted late in the growing season, limiting the ability to accurately identify all herbaceous plants in the study area. While vegetation surveys are planed for 2025, SNWSO encourages using a multi-year, multi-season approach (spring, summer, fall), to gain a more comprehensive understanding of the area's vegetation and inform strong mitigation and restoration plans.	As a next step and to inform the subsequent detailed design phase, additional multi-season in-field studies will be completed to further inform environmental constraints and related mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works. It is anticipated that these multi-season in-field studies will be conducted in 2025 and documented in a separate stand-alone report. These studies will include multi-season vegetation surveys. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase for the Burloak WTP Phase 2 Expansion.	Thank you. When details become available, please provide SNWSO with updates on multi-season surveys, any additional monitoring plans, and proposed mitigation measures for implementation.	Thank you, we appreciate your continued collaboration. This information will be provided once available.
15	Section 4, p. 17	Please clarify why in-season field surveys have not been conducted.	The mitigation recommendations presented in the Natural Heritage Assessment completed for the Addendum have been developed conservatively and are		

Item Number	Section/Page Reference	Comment (March 14, 2025)	Response (June 3, 2025)	Comment (June 19, 2025)	Response (August 27, 2025)
		As noted previously, SNWSO encourages the proponent to use BMPs to conduct multi-season, multi-year surveys and establish a strong a baseline, which will be crucial for assessing impacts, applying the mitigation hierarchy, informing effective mitigation measures, and evaluating their long-term success.	based on the desktop review and field investigations documented in the report. As a next step and to inform the subsequent detailed design phase, additional multi-season in-field studies will be completed to further inform environmental constraints and related mitigation measures to be implemented and monitored through the construction of the water treatment plant expansion works. It is anticipated that these multi-season in-field studies will be conducted in 2025 and documented in a separate stand-alone report. These multi-season in-field studies will also support confirmation and application of required permits and approvals.		
16	Section 4.1, p. 17	In addition to the 10:1 tree replacement ratio, SNWSO recommends a comprehensive restoration strategy, including native vegetation planting (terrestrial and riparian), invasive species management, and wildlife corridor/habitat creation on- and off-site (e.g., East Sheldon Creek riparian areas) to offset natural feature loss. Refer to the Six Nations Plant List to guide planting and ensure species of importance to SN are included. The ESR notes signs of previous restoration work in Reach 1 (e.g., tree supports, landscaping cloth). A potential mitigation measure is to remove unnecessary tree supports and re-vegetate exposed landscape cloth. Please contact Kayanase, a Six Nations native plant nursery, to supply plants and potentially assist with restoration planning, planting, and invasive species removal. Contact them early to invite participation: www.kayanase.ca.	A re-planting and re-vegetation plan incorporating native plantings, along with overall landscaping design, will be developed through the detailed design phase for the Burloak WTP Phase 2 Expansion. Thank you for sharing the Six Nations Plant List and the information regarding the Six Nations native plant nursery.		
17	Section 4.1, p. 17	With 7/8 of Ontario's bat species on the SAR list or soon to be, SNWSO urges the proponent to conduct multi-season, multi-year bat surveys. Using BMP's start with bat habitat assessments, followed by Entry/Exit surveys and passive acoustic monitoring if habitat is present. For Tri-coloured bat maternity roosts, field visits should occur during leaf-on season (MNRF, 2017). SNWSO believes Nautical Park and East Sheldon Creek Valley have high	Multi-season in-field studies are planned for 2025 to inform the subsequent detailed design phase and will incorporate SAR habitat assessment, significant wildlife assessment and incidental wildlife assessment. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase for the Burloak WTP Phase 2 Expansion.	As previously discussed, SNWSO encourages the proponent to conduct targeted surveys for all wildlife species—not only for Species at Risk (SAR), Species of Special Concern (SC) or Significant Wildlife Habitat (SWH)—as all species and their habitats contribute to ecosystem health and are worthy of protection. Surveys focusing solely on SAR, SC, and SWH often	Species of importance to First Nations, as previously identified by SNWSO, will be included in the 2025 multi-season in-field studies.

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		potential for bat roosting and foraging habitats, both of which are crucial for their survival. If surveys are not conducted, assume SWH for bats is present and apply the mitigation hierarchy. Consider installing bat habitat features (e.g., chamber boxes, rock pile hibernacula, Brandenbark structures etc.), but prioritize avoiding the removal/disturbance of bat habits, as bats have high site fidelity and artificial habitats carry many uncertainties/knowledge gaps.		overlook species important to First Nations, potentially infringing on Treaty Rights. Surveys should adhere to best management practices to produce robust baseline data, which is essential for developing comprehensive, site-specific mitigation measures that exceed standard legislative requirements. We urge the proponent to go beyond minimum obligations to fully understand the wildlife utilizing the study area, and assess and mitigate for the direct, indirect, and cumulative impacts of this project on their survival and wellbeing.	
18	Section 4.2, p. 18	Site investigations in October 2024 and November/December 2011 did not capture year-round flows in East Sheldon Creek, such as spring freshet or summer low flows. A multi-season assessment is needed to better understand the creek's hydrology and inform design and mitigation strategies. The presence of watercress in Reaches 2/3 suggests groundwater discharge, which could pose contamination risks near the discharge pipe, if not properly understood. Has water quality in East Sheldon Creek been assessed? If not, this is crucial for baseline data and post-WTP discharge comparisons. While TTS will be limited, dechlorination will occur, and aluminum residuals will likely be captured by coagulants; what additional measures will be taken to prevent downstream water quality impacts? Will discharge quality be monitored frequently, and is there a monitoring plan in place? Will PWQOs be followed? Could bio-polymer coagulants replace traditional chemicals? Please provide more details on how aquatic habitat and water quality will be maintained or improved post-construction (aside from dilution).	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to water quality and aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.		
19	Section 4.2, p. 18	Please clarify if the proponent plans to use a flow/energy dissipater at the discharge outlet to minimize scouring and erosion. Also please confirm if channel flow and creek integrity will be monitored before (baseline data)	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact from scouring and erosion as presented in the		

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		and after construction, and if erosion pins will be installed to track changes in the creek bed and banks. These measures were 'recommended' in Appendix D; however, SNWSO has not yet seen confirmation of their intended use.	2012 MCEA Environmental Study Report is no longer applicable.		
20	Section 4.2, p. 18	SNWSO has significant concerns regarding the current situation. We strongly recommend updating and conducting assessments for fisheries, benthic invertebrates, hydrology, vegetation, and water quality to ensure a thorough understanding of the site's existing conditions. These assessments are essential for effectively mitigating potential impacts from the WTP and preventing risks to the creek habitat.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. The related potential impact to aquatic habitat as presented in the 2012 MCEA Environmental Study Report is no longer applicable.		
21	Section 5, p. 18	The 2012 ESR mentions that groundwater discharge may be required for expansion construction, with discharge directed to a temporary siltation pond with filter screens to minimize soil and foundation material movement. Please clarify if this siltation pond is pre-existing or if a new one will be built, and if so, where it will be located? Please refer to SNWSO's buffer recommendations to ensure surrounding natural features are not impacted. Additionally, please provide more details on the erosion and sedimentation control measures to be used.	It is anticipated that dewatering will be required during excavation to manage precipitation and/or groundwater entering the excavation. The details and anticipated dewatering volume/flow will be confirmed through the detailed design phase of the project and confirmation of size/location/depth of underground structures as well as the related geotechnical and hydrogeological information. Applicable approvals/permits will be secured once this information is confirmed and the related requirements and mitigation measures will be included in the general construction contract specifications. A siltation pond is not pre-existing and the requirement for and details of such a pond will be confirmed through the above process. Similarly, erosion and sedimentation control measures will also be confirmed through the detailed design phase of the project and implemented accordingly.	Does this siltation pond have the potential to contribute to local groundwater flows? Could contaminants or sediments from the pond leach into the groundwater? How often will accumulated sediments be removed, and what is the plan for their disposal? When available SNWSO requests further details on the ESC measures to be used.	These items will be confirmed during the subsequent detailed design phase of the project. Additionally, the overall Environmental Management Plan, including erosion and sediment control (ESC) measures, will be developed during this phase and can be shared for review once available.
22	Section 5, p. 18	The ESR notes that a contingency plan for fuel spills will be developed, but it has not yet been provided. SNWSO recommends refueling on a paved surface rather than a permeable area to prevent spills from infiltrating into the soil or discharge ponds and to protect surrounding natural features.	Construction constraints and mitigation measures related to fuel spills will be addressed through the detailed design phase for the Burloak WTP Phase 2 Expansion and included in the general construction contract specifications. These specifications typically relate to pollution control in general and include constraints on location of refueling, fuel and other waste disposal, and disposal and spill containment/cleanup plans.		
23	Section 5, p. 18	SNWSO is pleased to see that future in-field surveys are to be conducted. As previously discussed, please conduct	Multi-season in-field studies are planned for 2025 to inform the subsequent detailed design phase and will		

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		surveys following a multi-season, multi-year approach, and please include surveys for herpetofauna (i.e frogs, salamanders, turtles, snakes), which have not been considered at this point.	incorporate the herpetofauna as suggested. The Region will confirm the details and plans for additional monitoring and surveys (i.e., beyond 2025) through the detailed design phase for the Burloak WTP Phase 2 Expansion.		
24	Section 5, p. 18	SNWSO understands there will be a monitoring plan for East Sheldon Creek. SNWSO advises conducting long-term, post-construction monitoring (for a minimum of 5-10 years) to ensure the WTP expansion and discharge outlet do not negatively impact East Sheldon Creek, Nautical Woods, or wildlife habitats. Monitoring should include surveys on hydrology (thermal channel flow and bank integrity), aquatic habitat, wildlife (birds, bats, fish, benthic invertebrates, herpetofauna), vegetation (follow up on restoration/replanting), and species important to SN should be considered. When details on the monitoring plans are available, please provide them to SNWSO.	Discharging process residuals to the East Sheldon Creek is no longer under consideration. A monitoring plan related to the East Sheldon Creek discharge is no longer applicable. The Region will confirm the details and plans for additional monitoring beyond 2025 through the detailed design phase for the Burloak WTP Phase 2 Expansion.		

Anna Comerton

From:	Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent:	January 20, 2025 10:05 AM
To:	info@hdi.land
Cc:	Longworth, Erin; Nicolardi, Andrew; Anna Comerton; Elia Edwards; Rees, Alexandria; Passera Lavoie, Alexander
Subject:	Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study
Attachments:	Notice of Commencement_Addendum_Burloak WTP MCEA.pdf; Archaeological gap analysis report.pdf; Natural heritage assessment report.pdf; NOC Letter_Burloak WTP MCEA_HDI.pdf

Good Morning,

Halton Region has retained Associated Engineering (Ont.) Ltd. to assist with the completion of an Addendum to the Municipal Class Environmental Assessment (MCEA) Study completed in 2012 for the Burloak Water Treatment Plant Phase 2 Expansion, in the Town of Oakville.

The MCEA process requires renewal for studies when a project has not commenced within ten years of its completion. The Addendum will re-evaluate and confirm the preferred alternative for the pre-treatment and residuals treatment train presented in the 2012 MCEA Study, in the current environmental setting.

Please find attached our Cover Letter and Notice of Commencement for further details.

Also find attached for your reference the Archaeological Gap Analysis and Natural Heritage Report. The Stage 1 and 2 Archaeological Assessment, dated 2000, can be downloaded at the following:

http://2big4email.halton.ca/en/downloadfiles.aspx?param=hj2rcMujeh8v8RwiJEOQ7weQuAleQuAl

I understand that The Regional Municipality of Halton is in active discussion with HDI regarding an Agreement for document review and site participation for archaeological related work on Regional projects. For more information about this Agreement, please contact Jody Johnson at Jody.Johnson@halton.ca. Please be advised that any individuals attending a project site must have an executed Agreement with The Regional Municipality of Halton.

If you have any questions regarding the study, please contact the undersigned.

Best regards,
Chris Pasquale

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7134 | 1-866-442-5866

Anna Comerton

From: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Sent: January 24, 2025 7:57 AM
To: Benjamin Labbe
Cc: Longworth, Erin; Nicolardi, Andrew; Anna Comerton; Elia Edwards; Rees, Alexandria; Passera Lavoie, Alexander
Subject: RE: Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study

Follow Up Flag: Follow up
Flag Status: Completed

Hi Benjamin,

Happy Friday! I hope you're well.

No problem. Thank you for reviewing the Notice and archaeological reports. I'm glad you don't have any concerns or additional comments at this time. We will continue to keep you informed as the Addendum progresses.

I hope you have a wonderful weekend.

Thanks,
Chris

Christopher Pasquale, P.Eng., PMP
Project Manager II
Infrastructure Planning & Policy
Public Works
Halton Region
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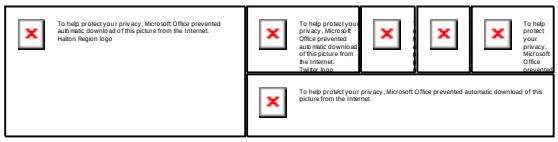

From: Benjamin Labbe <Benjamin.Labbe@wendake.ca>
Sent: Thursday, January 23, 2025 3:51 PM
To: Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Cc: Longworth, Erin <Erin.Longworth@halton.ca>; Nicolardi, Andrew <Andrew.Nicolardi@halton.ca>; comertona@ae.ca; edwardse@ae.ca; Rees, Alexandria <Alexandria.Rees@halton.ca>; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>
Subject: RE: Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study

Kwe Christopher,

Thank you for sending the notice and offering a chance to review the archaeological reports. The Gap Analysis prepared by ASI did not raise outstanding concern from our perspective. Thus, we do not feel the need to undertake a thorough peer review of the archaeological assessments and do not have additional comments on the Addendum for the moment.

Tiawenhk,

NATION HURONNE-WENDAT
Bureau du Nionwentsïo

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Conseiller en consultations

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De : Pasquale, Christopher <Christopher.Pasquale@halton.ca>
Envoyé : 20 janvier 2025 10:05
À : consultations <consultations@wendake.ca>
Cc : Longworth, Erin <Erin.Longworth@halton.ca>; Nicolardi, Andrew <Andrew.Nicolardi@halton.ca>; comertona@ae.ca; edwardse@ae.ca; Rees, Alexandria <Alexandria.Rees@halton.ca>; Passera Lavoie, Alexander <Alexander.PasseraLavoie@halton.ca>
Objet : Notice of Study Commencement – Addendum to the Burloak Water Treatment Plant Phase 2 Expansion Schedule C Municipal Class Environmental Assessment Study

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If you have any questions regarding the study, please contact the undersigned.

Best regards,
Chris Pasquale

Christopher Pasquale, P.Eng., PMP
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