

Union Water Supply System Study to Provide Additional Water System Capacity

Schedule 'C'
**Municipal Class Environmental
Assessment Study
Public Consultation Centre**

**March 7, 2024
5:00 to 7:00 pm**

**Welcome!
Please Sign In**

<https://www.unionwater.ca/public-information>



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Background and Problem Statement

Background:

Union Water Supply System (UWSS) provides water produced by the Ruthven Water Treatment Plant (WTP) to their municipal customers of Leamington, Kingsville, Essex and Lakeshore, plus several greenhouse operations in the area, through a network of distribution piping and storage reservoirs in the system. Water demands for this system have increased significantly in recent years, and accelerated growth is expected to continue in the area.

Based on the level of growth observed, in 2021 UWSS initiated a water infrastructure needs study to assess water storage and capacity needs to meet current demand and proactively support projected future capacity needs. This study estimated that an increase in treated water above the existing operating capacity of 40 ML/d is required by 2026 and of 80 ML/d is required by 2031 (to meet current and projected water system demand as well as to support growth).

Problem Statement:

Water system capacity limitations have been identified through a water infrastructure needs study and indicate that additional water system treated water capacity is required to reliably meet current and projected water demands. Works associated with providing additional water system capacity constitute upgrades to an existing water system, according to the Municipal Class Environmental Assessment (MCEA) Act. Through the MCEA process, the preferred solution and concept to provide increased water system capacity will be determined.



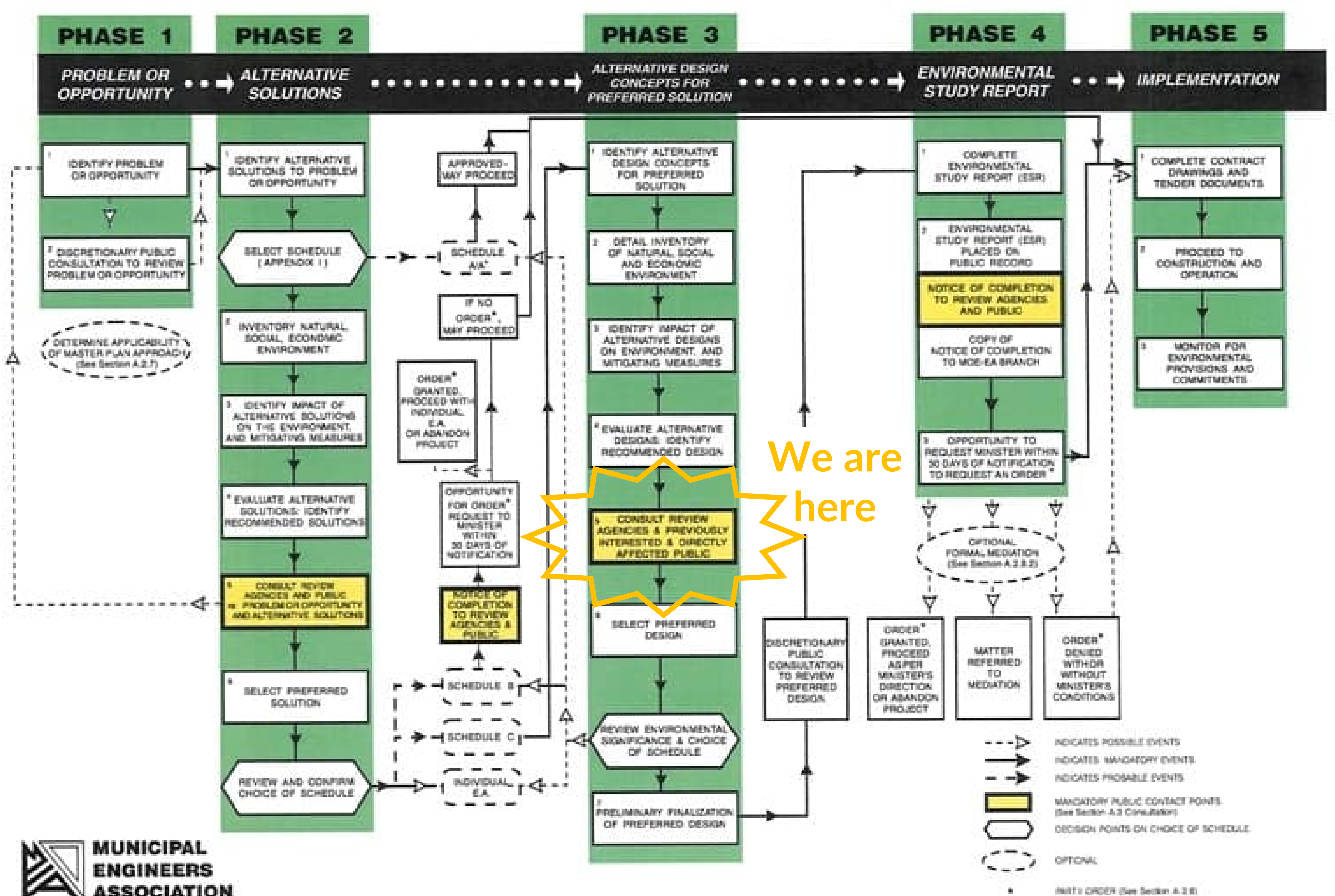
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Class Environmental Assessment Process

Municipal Class Environmental Assessment (MCEA) Process: This Study is being carried out in accordance with the five-phase MCEA process, approved for planning and designing municipal infrastructure projects, meeting requirements of *the Ontario Environmental Assessment Act*.

Schedule 'C' Class Environmental Assessment Study: The proposed works are categorized as a Schedule 'C' project, which are subject to the full planning process of a MCEA (i.e., requires completion of Phases 1 through 4 of the EA process prior to proceeding with project Implementation under Phase 5) as outlined below:



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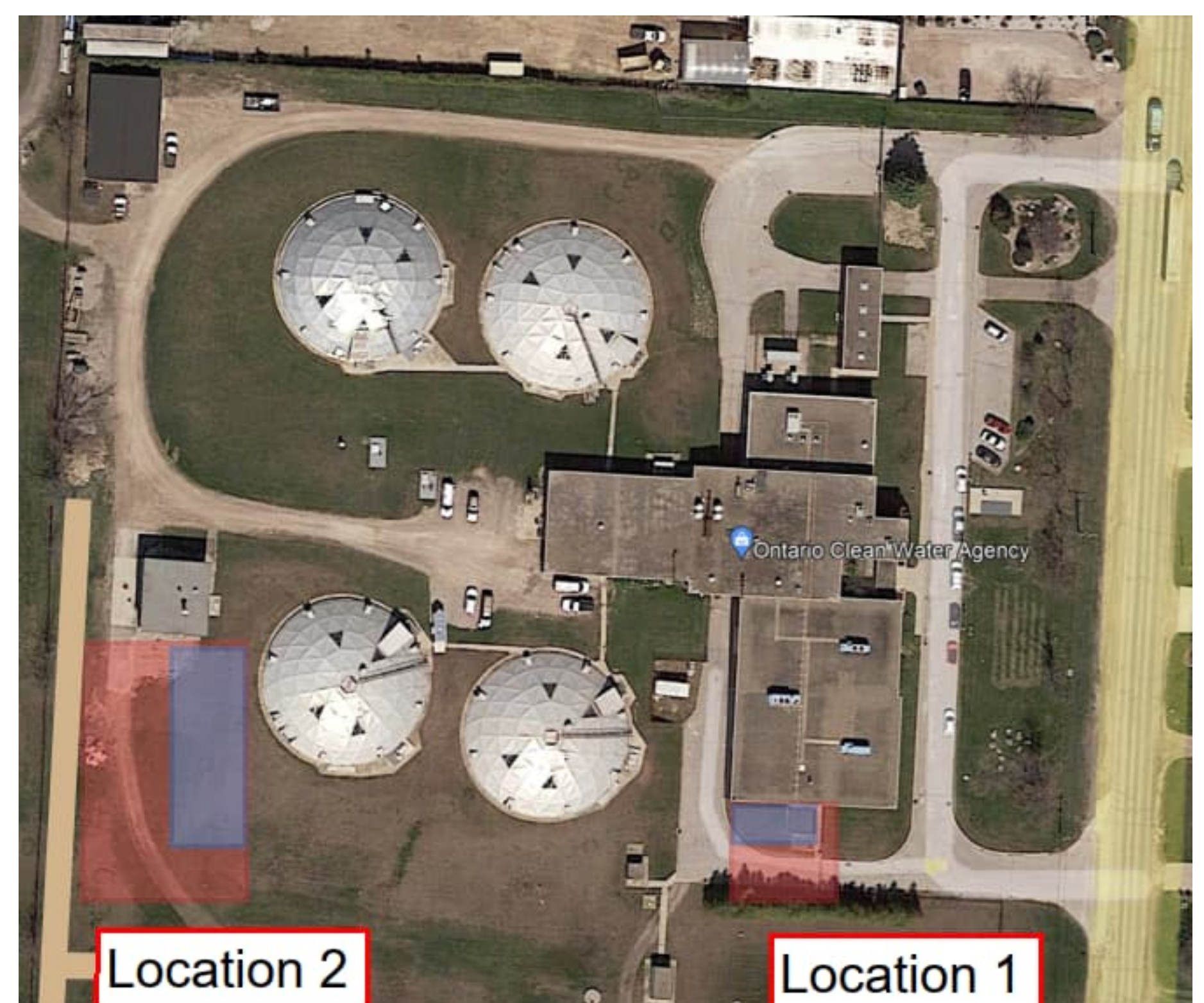
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Alternative Solutions and Screening

Alternative	Description	Is Problem Statement Addressed?	Is Alternative Feasible ?	Will The Evaluation be Carried out to Detailed Evaluation ?
“Do Nothing”	Do not increase the water system capacity	No	No – does not provide required additional capacity	No
Expansion of the Ruthven WTP	Retrofit, upgrade and expansion of the existing WTP	Yes	Yes	Yes
Additional WTP Treatment Capacity in New Building	Install additional filtration capacity housed in a new building on the WTP site	Yes	Yes	Yes
Connection to an Integrated System	Obtaining potable water from another source such as the Windsor	No	No – can only be used for emergency servicing	No

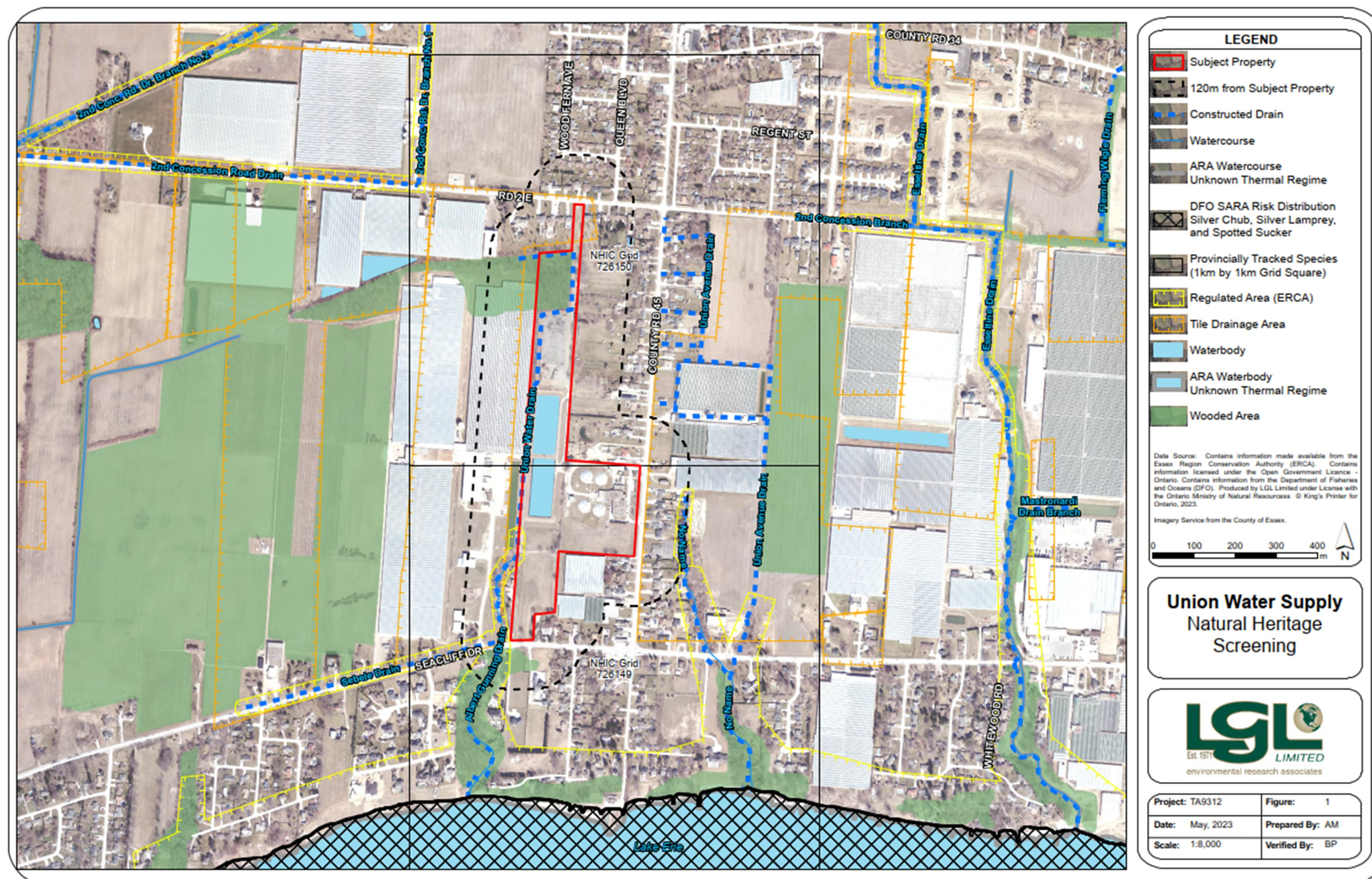
Shortlisted Alternative Solutions:

1. Expansion of the Ruthven WTP (Location 1)
2. Additional WTP Treatment Capacity in New Building (Location 2)



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Inventory of Natural Environment



The following seven types of significant natural heritage features, as outlined in the *Provincial Policy Statement* were studied:

1. Areas of Natural and Scientific Interest
2. Significant Wetlands
3. Significant Woodlots
4. Significant Valleylands
5. Habitat for Endangered and Threatened Species
6. Significant Wildlife Habitat
7. Fish Habitat

Overall, the existing condition within the WTP site is highly disturbed, and the majority of area is not anticipated to be sensitive to further disturbance. As such, the potential impacts on the natural environment of the two short-listed alternatives are anticipated to be **none to minimal**.



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Summary of Archaeological Assessment

A Stage I archaeological assessment was conducted in accordance with provisions of the *Environmental Assessment Act* and the *Provincial Policy Statement*. The study included a review of current land use, historic and modern maps, registered archaeological sites and previous studies.

The Stage 1 field inspection visually confirmed that the majority of the WTP site has been subject to extensive disturbance and no longer retains archaeological potential.

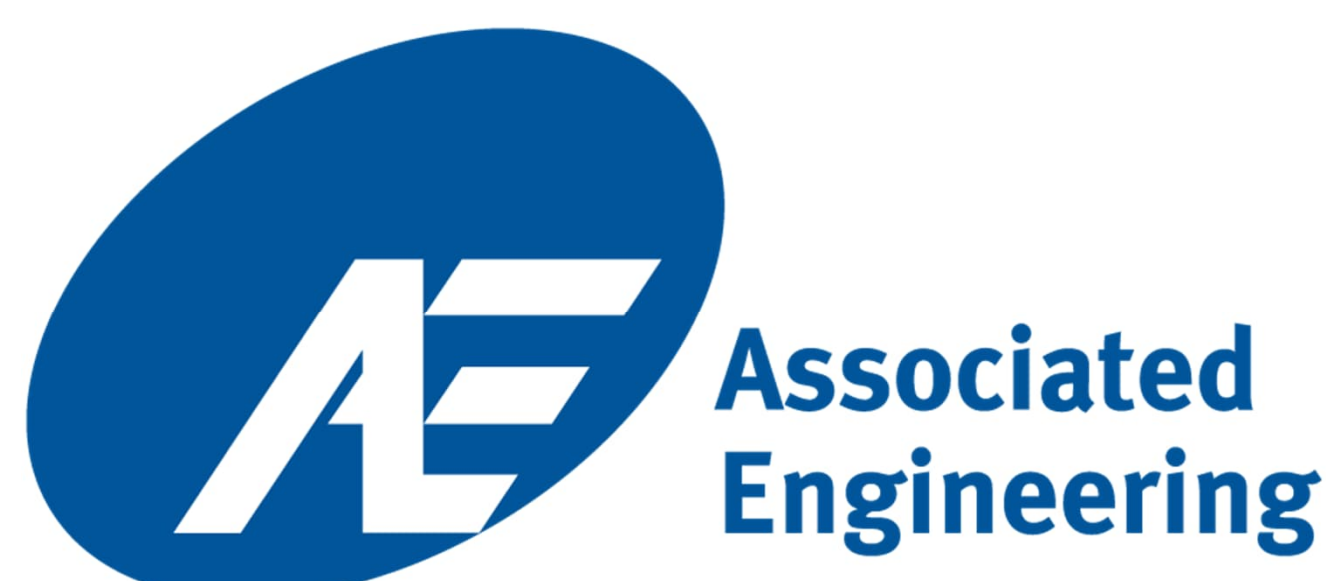
The two short-listed alternatives are located within previously disturbed areas and the potential impacts on the cultural environment are anticipated to be **none to minimal**.



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Evaluation Criteria

Objective	Evaluation Criteria
Permitting & Approvals Weight of Criteria: 10%	Permitting and Approvals: The alternative can proceed with minimal risk to implementation schedule due to approval and permit requirements.
Technical Environment Weight of Criteria: 50%	Technical Performance: The alternative will provide consistent and reliable additional capacity and redundancy for the water system with low risk to supply security. Constructability: The alternative can be constructed and/or phased on a technical and practical basis to minimize disruption to neighbouring residents including noise, dust, vibration, and truck congestion. Flexibility For Future Upgrades: The alternative provides flexibility to accommodate future WTP upgrades and state of good repair works anticipated in the WTP's capital plans. Occupational Health And Safety: The alternative represents minimal increase to potential risk or liability to water system staff health and safety from exposure to chemicals and confined space Operational & Maintenance Requirements: The ease of operation and frequency of required maintenance activities
Economic Environment Weight of Criteria: 20%	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.
Social Environment Weight of Criteria: 10%	Impact On Public During Normal Operations: The potential for the disruption of residents during normal operation Short Term Impact On Public During Construction: The potential for the disruption of residents during construction, including dust, noise, and traffic disruptions
Natural Environment Weight of Criteria: 5%	Natural Environmental Impacts: Impact to natural heritage areas
Cultural Environment Weight of Criteria: 5%	Cultural Impacts: Impact to areas identified to be of archaeological, historical or cultural significance



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Evaluation of Alternative Solutions

● highest score = most preferred

◐ middle score

○ lowest score = least preferred

Objective	Evaluation Criteria	Expansion of the Ruthven WTP	Additional WTP Capacity in New Building
Permitting & Approvals Weight of Criteria: 10%	Permitting and Approvals	◐	◐
	Technical Performance	●	●
Technical Environment Weight of Criteria: 50%	Constructability	○	◐
	Flexibility For Future Upgrades	◐	◐
	Occupational Health & Safety	●	●
	Operational & Maintenance Requirements	●	◐
Economic Environment Weight of Criteria: 20%	Life Cycle Cost	●	●
Social Environment Weight of Criteria: 10%	Impact On Public During Normal Operations	●	●
	Short Term Impact On Public During Construction	◐	●
Natural Environment Weight of Criteria: 5%	Natural Environmental Impacts	●	●
Cultural Environment Weight of Criteria: 5%	Cultural Impacts	●	●

Recommended Solution

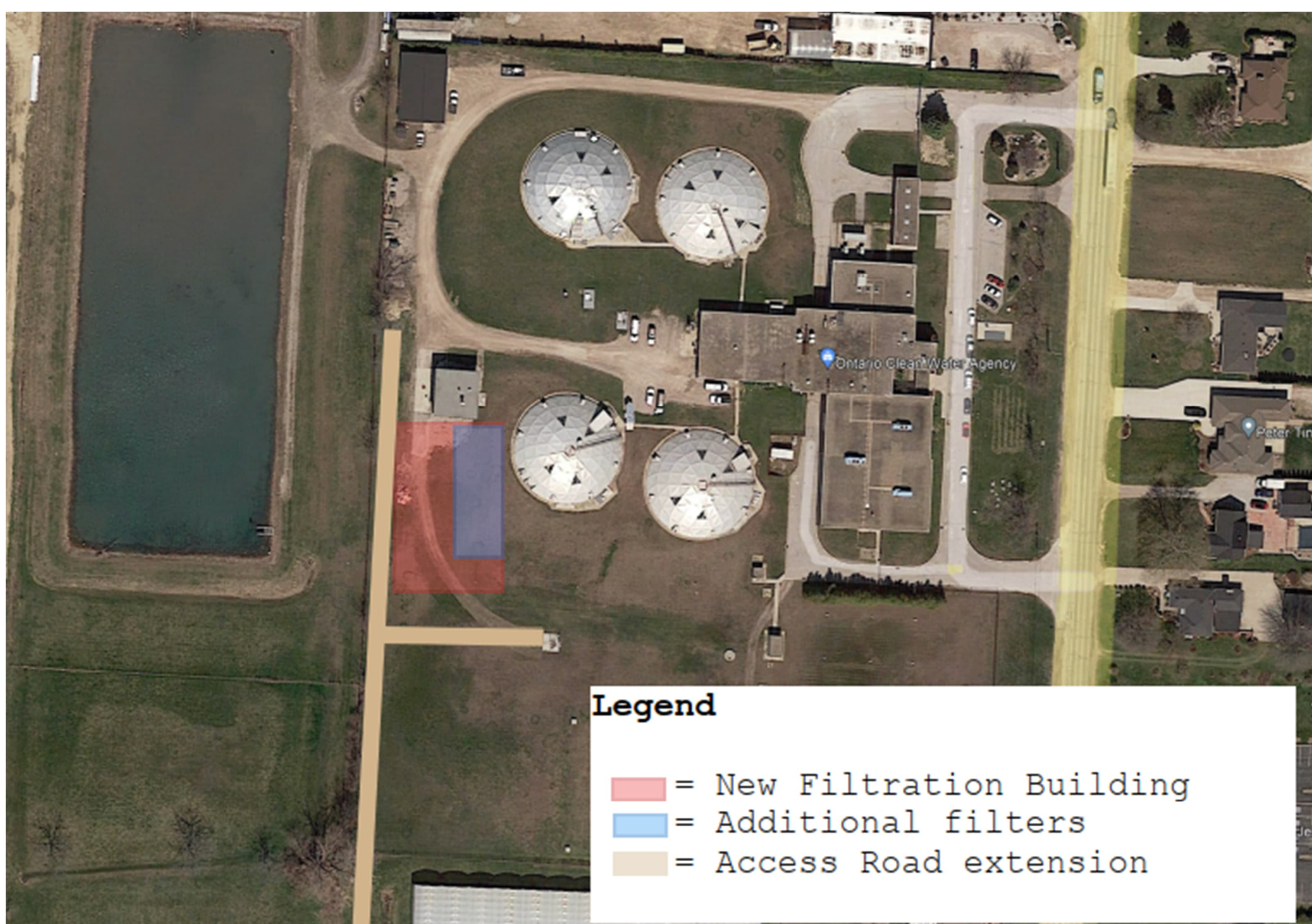


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Recommended Preferred Solution

Additional WTP Treatment Capacity in New Building

- Installation of a filtration system to produce 80 ML/d housed in a new building
- Expansion of the access road
- Installation of yard piping to/from filtration system



Mitigation Measures and Additional Studies

- No Species at Risk or Significant Natural Heritage features were identified within the study area.
- Due to this disturbance the WTP site no longer retains archaeological potential.
- WTP site is highly disturbed, and majority of area is not anticipated to be sensitive to further disturbance.

Alternative Design Concepts

Alternative	Description
3A: Conventional Dual-Media Gravity Filtration System	<ul style="list-style-type: none"> • Six (6) dual-media (sand, anthracite) gravity filters receiving influent water from clarification process • Filter effluent UV disinfection provided via common UV prior to conveyance to reservoir • Transfer pumping in a new wet well to transfer gravity filter effluent to reservoir • Two (2) backwash pumps operated to provide backwash water from wet well to filters • Air blower to provide air scour during backwashing
3B: Conventional Membrane Filtration System	<ul style="list-style-type: none"> • Five (5) ultrafiltration membrane filters receiving influent water from clarification process • Membrane pre-treatment via automatic self-cleaning strainer system to protect membranes • Permeate pumping to provide pressure required to convey water through membrane system • Filter effluent UV disinfection provided via common UV prior to conveyance to reservoir • Common membrane backwash system including chemical clean-in-place system
3C: Direct Membrane Filtration System	<ul style="list-style-type: none"> • Six (6) ultrafiltration membrane filters receiving influent water from raw water supply header • Membrane pre-treatment via automatic self-cleaning strainer system to protect membranes • Permeate pumping to provide pressure required to convey water through membrane system • Filter effluent UV disinfection provided via common UV prior to conveyance to reservoir • Common membrane backwash system including chemical clean-in-place system

Common to all alternative design concepts is implementation of additional filtration process capacity housed in a new, separate building within the existing WTP property.



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Evaluation of Alternative Design Concepts

● highest score = most preferred

◐ middle score

○ lowest score = least preferred

Objective	Evaluation Criteria	3A Conventional Gravity Filters	3B Conventional Membrane Filters	3C Direct Membrane Filters
Permitting & Approvals (5%)	Permitting and Approvals	◐	◐	◐
Technical Environment (60%)	Technical Performance	●	●	◐
	Constructability	◐	◐	◐
	Flexibility For Future Upgrades	◐	◐	●
	Occupational Health & Safety	●	◐	◐
	O & M Requirements	●	◐	◐
Economic Environment (15%)	Life Cycle Cost	●	◐	◐
Social Environment (10%)	Impact On Public During Normal Operations	●	●	●
	Short-Term Impact On Public During Construction	●	●	●
Natural Environment (5%)	Natural Environmental Impacts	●	●	●
Cultural Environment (5%)	Cultural Impacts	●	●	●

Recommended Concept



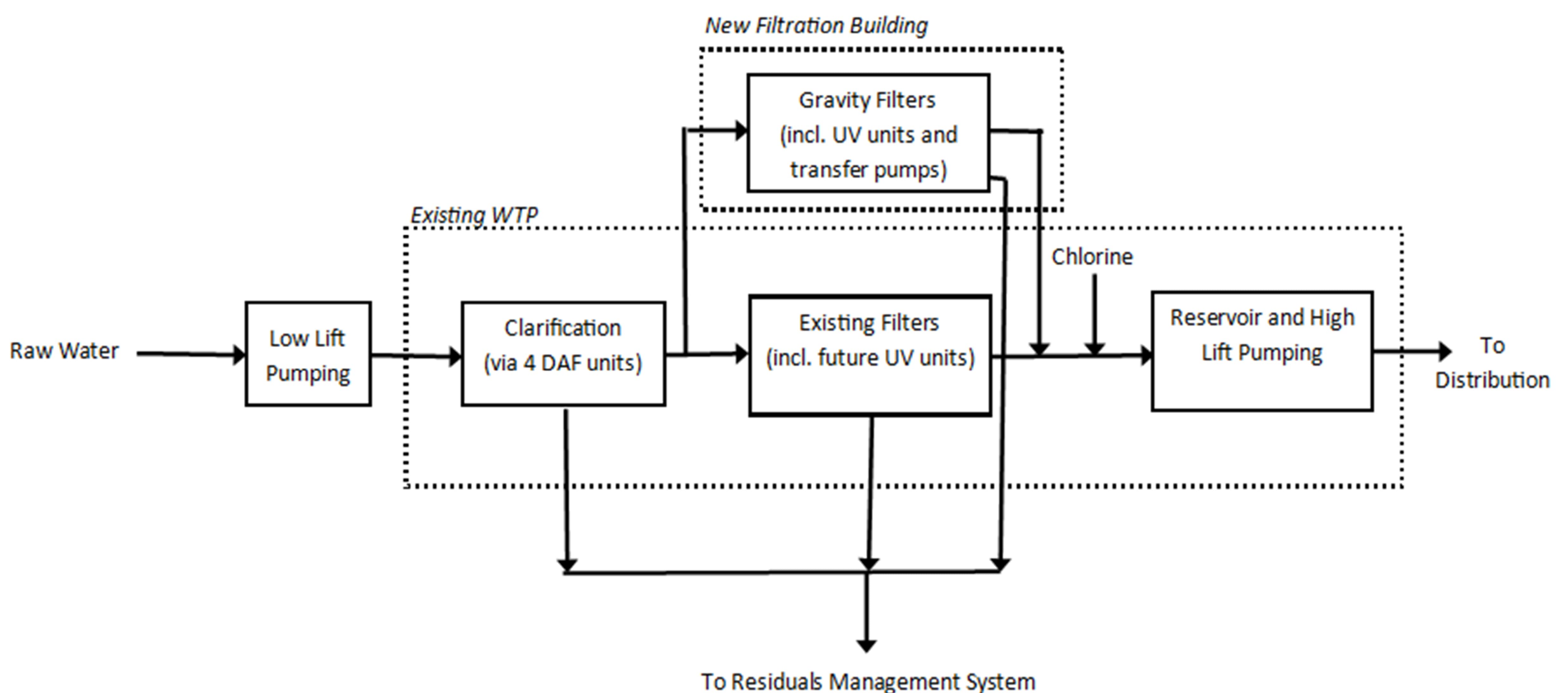
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Recommended Preferred Concept

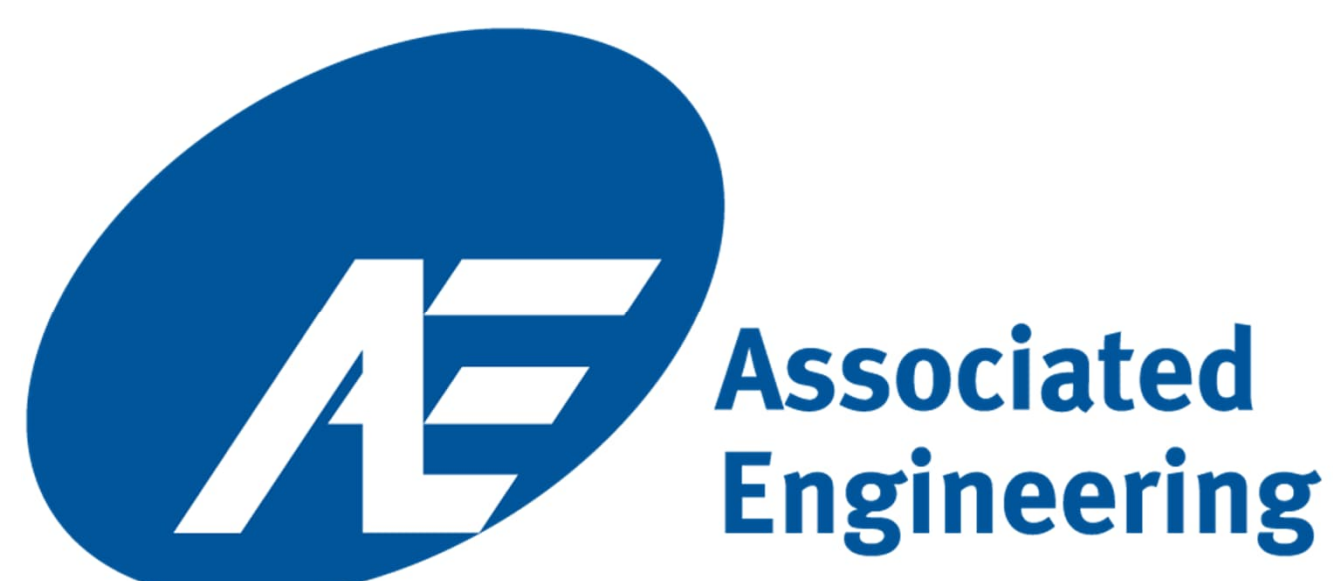
3A Conventional Dual-Media Gravity Filtration System

- Installation of a gravity filtration system receiving clarified water to produce 80 ML/d housed in new building



Mitigation Measures and Additional Studies

- No Species at Risk or Significant Natural Heritage features were identified within the study area
- Due to previous disturbance, the WTP site no longer retains archaeological potential
- WTP site is highly disturbed, and majority of area is not anticipated to be sensitive to further disturbance

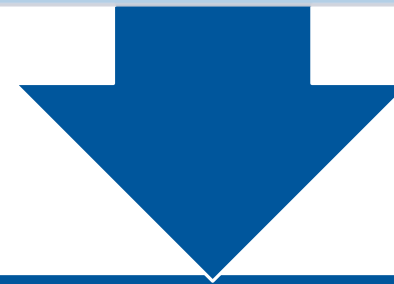


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Next Steps

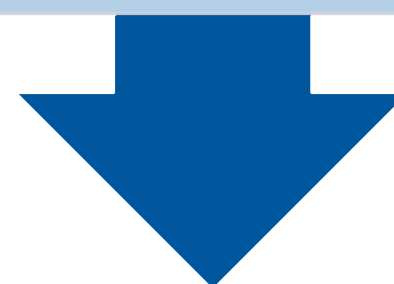
Receive PCC#2 Comments and Input from Stakeholders

March 2024



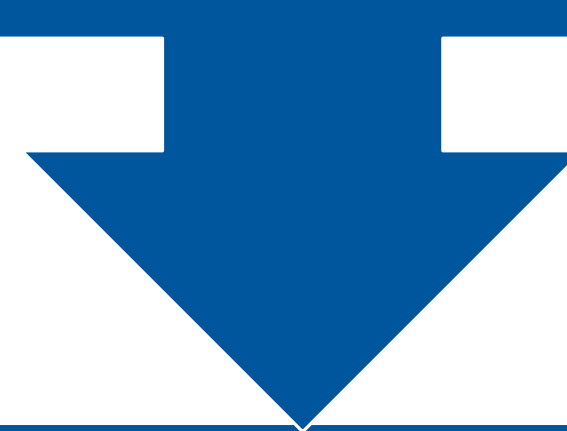
Confirm Preferred Design Concept and Finalize Draft Environmental Study Report

March 2024



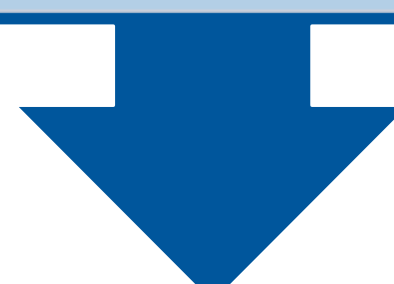
Receive Public Comments on Draft Environmental Study Report during 30-Day Review Period

March/April 2024



Finalize Environmental Study Report and Issue Notice of Study Completion

April/May 2024



Initiate Detailed Design and Implementation Phase

Summer 2024

Thank you for attending!

Questions or comments? Contact us:

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