Regional Municipality of Peel
Environmental Assessment for the Arthur P. Kennedy Water Treatment Plant - Reservoir Expansion

Environmental Study Report (ESR)

2024-10-15	0	Final	Carson Brennen/ Wenjuan Mu	Oya Koc	Oya Koc
Date	**Rev.**	**Status**	**Prepared By**	**Checked By**	**Approved By**

List of Tables

List of Figures

List of Appendices

List of Abbreviations

Definition	Abbreviation
Archaeological Services Inc.	ASI
Arthur P. Kennedy Water Treatment Plant	Arthur P. Kennedy WTP
Association for the Advancement of Cost Engineering International	AACE
Built Heritage Resources	BHRs
Cultural Heritage Landscapes	CHLs
Environmental Assessment Act	EAA
Environmental Study Report	ESR
High Lift Pumping Station	HLPS
Low Lift Pumping Station	LLPS
Million Litre	ML
Million Litres of water per day	(ML/d)
Ministry of Environment, Conservation and Parks	MECP
Ministry of Municipal Affairs and Housing	MMAH
Municipal Engineers Association	MEA
Natural Heritage Impact Assessment	NHIA
Occupational Health and Safety Act	OHSA
Ontario Clean Water Agency	OCWA
Ozone/Biologically Activated Carbon Contactors/Ultraviolet Reactors/Membrane Filtration	OBM2
Ozone/Biologically Active Carbon Contactors/Membrane	OBM1
Point Load Test	PLT
Project File Report	PFR
Public Information Centre	PIC
Regional Official Plan	ROP
Schedule C Municipal Class Environmental Assessment Study	Class EA

Definition	Abbreviation
Sequential Excavation Method	SEM
Significant Wildlife Habitat	SWH
Stage 1 Archaeological Assessment	Stage 1AA
Stage 2 Archaeological Assessment	Stage 2AA
The Regional Municipality of Peel	Region
The Regional Municipality of Peel's Water and Wastewater Servicing Master Plan	MP
Unconfined Compressive Strength	UCS
Water Treatment Plant	WTP

Executive Summary

Background

The Regional Municipality of Peel (Region) is responsible for municipal water and wastewater systems. These systems provide a safe, efficient, and cost-effective water supply. The lake-based water system in the Region includes the Arthur P. Kennedy Water Treatment Plant (WTP). Initially constructed in 1952, the Arthur P. Kennedy WTP has a treatment capacity of 1,200 million litre (ML) per day and serves the residents of eastern Mississauga, Brampton, Bolton and York Region.

The Region's Water and Wastewater Servicing Master Plan (MP) address servicing requirements for lake-based areas up to 2041. The MP determined that the current water treatment plant capacity can meet projected demand but identified the need to expand the 23 ML water storage reservoir at the Arthur P. Kennedy WTP.

An update in 2020 to the Ministry of Municipal Affairs and Housing's (MMAH) *A Place to Grow: Growth Plan for Greater Golden Horseshoe* extended the planning horizon to 2051. Consequently, Peel's Council approved a revised Regional Official Plan (ROP) in April 2022, projecting a population of 2,280,000 by 2051 and determined that the Region's facilities must adapt to accommodate the anticipated increase in water and wastewater needs.

The Region completed the Schedule C Municipal Class Environmental Assessment (EA) Study to examine the need and justification for the reservoir expansion at the existing Arthur P. Kennedy WTP in the City of Mississauga. It is expected that while the reservoir is being expanded for the Arthur P. Kennedy WTP site, the plant would still meet the water demand for the 2051 planning horizon, and the size of the additional reservoir is reviewed against the updated population forecast numbers and operational needs.

This Environmental Study Report (ESR) documents Phase 1, 2, 3, and 4 of the Class EA. The ESR will be available for public review for a period of 30 days. Results of the public review will be incorporated into the final report and submitted to the Ministry of Environment, Conservation and Parks (MECP).

Municipal Class Environmental Assessment

Under the provisions of the Ontario *Environmental Assessment Act*, 1990 (EAA) and Ontario Regulation 334, certain types of provincial and municipal undertakings can meet the requirements of the Act through the use of an approved environmental planning process referred to as a Class EA.

The Class EA process provides a decision-making framework by which a Group or "Class" of undertakings can be planned and implemented in a way that fulfills the requirements of the Act without proponents having to undertake an Individual Environmental Assessment. Upon completion of the process, the undertaking is considered approved and does not require formal submission to the MECP.

The Municipal Class EA guidance document prepared by the Municipal Engineers Association (MEA) (dated October 2000, as amended in 2015) outlines the approved five phase process for the planning and design of municipal infrastructure.

- Phase 1 includes the problem identification.
- Phase 2 includes the identification of the preferred solution.
- Phase 3 includes the identification of the preferred design concept.
- Phase 4 includes the documentation of the EA process; and
- Phase 5 includes the detailed design and construction of the project.

Consultation occurs at key milestones throughout the process. This input is essential to ensure that issues are identified early in the process and can be addressed prior to moving forward and making final recommendations.

Problem/Opportunity Statement

The problem/opportunity statement prepared in Phase 1 for the Arthur P. Kennedy WTP Municipal Class EA has been defined as follows:

"Additional in-plant treated water storage, reservoir, was identified for the Arthur P. Kennedy WTP to enhance sustainable water services by increasing storage redundancy and water supply reliability and security in the Region of Peel. The additional reservoir capacity will align with the demands and further expansion requirements for the Arthur P. Kennedy WTP to meet the Region's Best Planning Estimates and corresponding water demand projections, as set out in the 2020 Water and Wastewater Master Plan for the Lake-Based Systems, and subsequent Provincial Growth Plan Amendment."

Public, Agency and Indigenous Communities Consultation

The public and agency consultation process of this Class EA involved several key steps to ensure transparency and gather input from stakeholders. A Notice of Commencement was issued to inform the public and relevant agencies about the project and its scope. Additionally, two Public Information Centres (PIC) were held to receive feedback and incorporate comments into the Project's design. Agencies and stakeholders were also invited to review and comment on the project at various stages.

Throughout the process, information was shared via project websites, newsletters, and public notices to keep all stakeholders informed and engaged. The consultation aims to identify concerns, gather local knowledge, and incorporate public and agency feedback into the project planning. All feedback is documented and addressed in the ESR, which outlines how concerns have been considered and mitigated in the final project design. This inclusive process ensures that the project meets community needs and complies with regulatory requirements.

As required by the EAA, meaningful consultation with Indigenous communities, the public and stakeholders is an essential step of the Class EA process. Indigenous communities, as rights holders, have unique engagement and consultation requirements. A letter of notice was issued by the Region on September 29th, 2022, to announce the start of the Project, as well as to outline the Reports that the Region of Peel plans to share with Indigenous communities for comment.

The completion of the ESR is finalized with the issuance of a Notice of Completion inviting Indigenous communities, agencies and the public to review and provide input on the document within the 30 calendar-day review period. The Notice will identify the locations where the ESR can be reviewed.

Development and Evaluation of Alternative Solutions

The preliminary screening phase evaluated all of the proposed Alternative Solutions to identify the solutions that align with the project's objectives and deserve further consideration. Identified solutions must meet all established screening criteria to advance in the Class EA Study. The short-listed alternative solutions include Alternative Solution 2 – Northwest Reservoir and Alternative Solution 3 - Southwest Reservoir. Alternative Solution 2 is located at the Northwest property, north of Advanced Treatment OBM2 (Ozone/Biologically Activated Carbon Contactors/Ultraviolet Reactors/Membrane Filtration) and west of East Avenue. Alternative Solution 3 is situated at the baseball diamond location, south of the existing East Reservoir and east of OBM1 (Ozone/Biologically Active Carbon Contactors/Membrane). This site lies to the south of the existing East Reservoir and to the east of OBM1.

Each Alternative Solution was evaluated to ensure it effectively addresses the issues identified in the Problem/Opportunity Statement. Solutions that did not improve the existing situation were excluded. The Region's long-term growth was considered, emphasizing the need for the new reservoir to accommodate future needs. The impact on natural heritage features was assessed for each solution, aiming to avoid significant environmental impacts. Input from the public and stakeholders were considered crucial for evaluating the feasibility and acceptability of each Alternative Solution. Solutions that did not meet these criteria were not advanced to the next phase of the Class EA Study.

Preferred Alternative Solution

Alternative 2, Northwest Reservoir offers several advantages including, minimal impact to wildlife and natural vegetation, maintenance of recreational space, and the preservation of community green spaces. The design integrates smoothly with existing East Reservoir infrastructure while maintaining independent functionality and features a modern exterior aesthetic.

Proposed Mitigation of Potential Impacts Related to the Expansion Works

The proposed Project construction of the preferred Alternative Solution is within the Region's property limits. Mitigation measures are outlined within the ESR to address potential impacts that may result from Project development.

The reservoir access building is a modern design with glazing and metal panels, aiming to integrate aesthetically with the existing plant while incorporating sustainable elements like translucent panels for natural light diffusion. Post-construction, landscaping plans will blend into the natural environment, with minimal grading and a focus on relocating mature trees to mitigate visual impacts.

Managing increased truck traffic on East Avenue Road and the plant access road is crucial during construction. Measures include setting specific work hours, limiting access to designated entrances, and informing local residents in advance of any disruptions. Noise mitigation strategies involve equipping vehicles and machinery with noise-reducing devices and adhering to local noise by-laws throughout the construction period.

Addressing environmental concerns, such as disturbance to natural heritage features, involves careful planning and adherence to seasonal restrictions for vegetation removal. Replanting and re-vegetation efforts post-construction will aim to restore disturbed areas with native species, supporting local biodiversity goals.

Geotechnical considerations for the reservoir expansion necessitate additional investigations and specific mitigation measures, such as borehole drilling, groundwater management, erosion control, and excess soil management. These efforts are designed to minimize impacts on soil and water quality during construction, ensuring compliance with regulatory requirements.

Throughout the project, the Region commits to clear and consistent communication with stakeholders and the public, providing updates on construction schedules, potential disruptions, and ongoing mitigation efforts. This approach aims to enhance transparency, address community concerns, and facilitate a successful implementation.

Conclusions and Recommendations

The Region's Class EA study for the Arthur P. Kennedy WTP Reservoir Expansion Project identified Alternative 2, Northwest Reservoir as the preferred recommended site location. The Northwest Reservoir offers integration into existing infrastructure and alignment with the with goals of the Region's MP.

While each of the alternative solutions were assessed based on potential impacts recommended mitigation measures were offered to address these concerns. Construction activities during the implementation stage of the Project could result in impacts resulting from increased traffic, visual aesthetic considerations, noise, dust and disturbance to the natural environment. The mitigation measures, detailed within this ESR, provide a framework to reduce these potential impacts and minimize their effect on the local community and natural environment. Further, the Class EA found that Alternative 2, Northwest Reservoir had no significant impacts to the study area. It is recommended that the Region pursue Alternative 2, Northwest Reservoir, as the preferred site location for the Project and proceed with the design suggested in this report. The ESR is completed when the Notice of Completion is Issued, inviting Indigenous Communities, agencies, and the public to review and provide feedback on the document within a 30-day review period.

The construction of the reservoir expansion is expected to start in late 2026 or early 2027, dependent upon approval of the construction budget By Region Council.

1. Introduction and Background

The Region, encompassing the City of Mississauga, the City of Brampton, and the Town of Caledon, is responsible for planning, constructing, operating, and maintaining the municipal water and wastewater systems within its boundaries. These systems must ensure the safe, efficient, and cost-effective supply of water to customers. The OCWA operates and maintains the Region's lake-based facilities.

In 2020, the Region updated its MP[1] to address water and wastewater servicing needs for lake-based service areas up to the 2041 planning horizon. The assessment of water treatment plant capacity indicated that the existing plant capacity can accommodate the projected water demand within this timeframe. However, the 2020 MP identified the need to expand the existing 23 ML treated water storage reservoir at the Arthur P. Kennedy WTP to align with other plants in the Region.

In mid-2020, Amendment 1 to A Place to Grow: *Growth Plan for Greater Golden Horseshoe*[2] extended the planning horizon to 2051. In response, the Regional Council approved the updated Regional Official Plan (ROP) in April 2022, with population forecasts for 2051. This plan, currently under provincial approval, anticipates a population of 2,280,000 people by 2051. The Region must be able to accommodate the water and wastewater servicing needs associated with this growth.

The Region is served by the Arthur P. Kennedy WTP and Lorne Park WTP, which together form the Lake-Based Water System. The Arthur P. Kennedy WTP primarily serves the central and east sides of the system, including portions of York Region, while Lorne Park WTP serves the west side. Figure 1-1 presents the overall Region's distribution system and location of the Arthur P. Kennedy WTP.

The Arthur P. Kennedy WTP, initially built in 1952, has undergone multiple expansions and upgrades, with the latest in 2014. It now has a total installed treatment capacity of 1,200 ML of water per day (ML/d), making it one of the largest membrane treatment facilities globally. The plant currently includes one reservoir with a capacity of 23 ML, constructed in 2004.

The Region completed the Schedule C Municipal Class Environmental Assessment (EA) Study to examine the need and justification for the reservoir expansion at the existing Arthur P. Kennedy WTP in the City of Mississauga. It is expected that, while the reservoir at the Arthur P. Kennedy site is being expanded, the plant will still meet the water demand for the 2051 planning horizon. The additional reservoir will be reviewed against updated population forecasts and operational needs.

[1] *Region of Peel 2020 Water & Wastewater Master Plan for the Lake-Based System – Volume 3 Water Master Plan (BluePlan, 2020)*
[2] *A Place to Grow: Growth plan for the Greater Golder Horseshoe (The Minister of Municipal Affairs and Housing, 2020)*

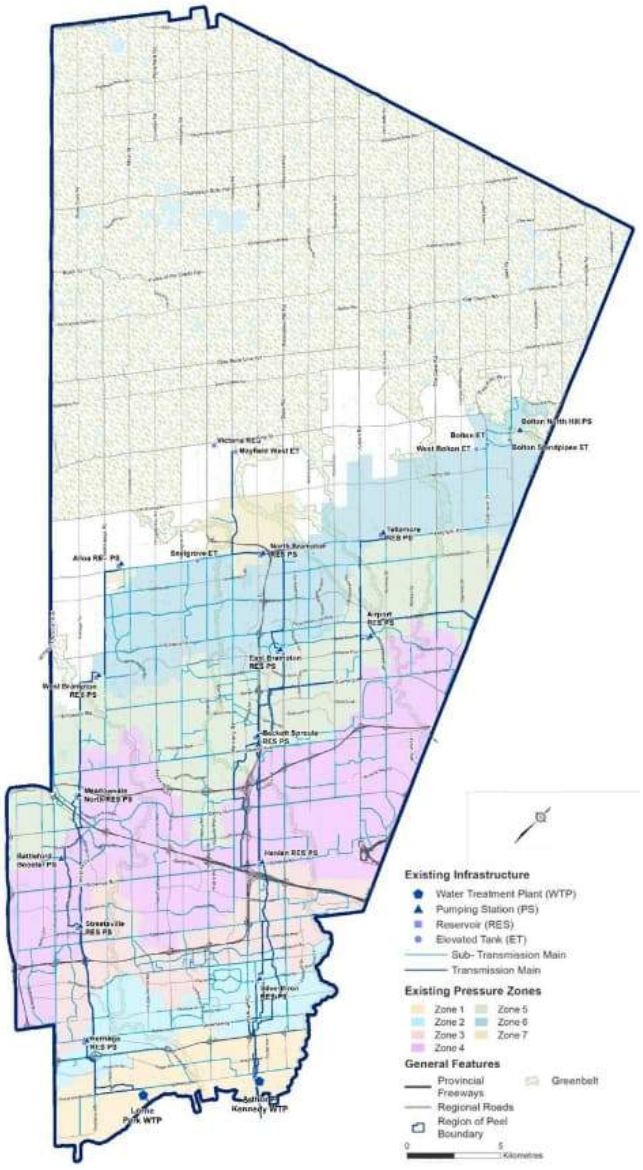


Figure 1-1: Overall Existing Region of Peel Lake-Based Water Distribution System (Referred from 2020 MP)

1.1 Objectives of Class EA Study

The main objectives of the Class EA study are to evaluate potential configurations for providing the necessary storage required to service the projected growth and long-term servicing needs of the area serviced by the Arthur P. Kennedy WTP. The preferred design concept should be sustainable, technically, and environmentally sound, economically mindful with respect to capital and operating costs and aligned with the long-term plans established in the 2020 MP and the current official plan.

The Class EA Study followed four distinct phases. Phase 1 of the Class EA included the preparation of the study area profile including the considerations of baseline population data, growth commitments in the areas to 2051, study purposes and objectives, and determination and justification of the size requirement of the new water reservoir to support the proposed growth within the Region and development of the problem or opportunity statement. Phase 2 identified Alternative Solutions to address the problem or opportunity that was developed as part of Phase 1 of the Project. It also established the preferred solution while incorporating input from the public and review agencies. Phase 3 examined alternative methods for implementing the preferred solution, based upon the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects. Phase 4 includes the documentation of the EA process in this Environmental Study Report (ESR).

Other Class EA objectives include facilitating comprehensive consultation with affected and interested parties to allow sharing of ideas, education, testing of creative solutions, developing alternatives, and documenting the planning and decision-making process in this ESR.

1.2 Objectives of the Environmental Study Report

The ESR describes the planning and decision-making process followed during the Class EA Study for the Reservoir Expansion at the Arthur P. Kennedy WTP. The ESR describes the:

- Various alternative solutions and design concepts considered for the reservoir expansion,
- The evaluation methodology and criteria used to assess the different alternatives,
- Anticipated potential impacts,
- Proposed mitigation measures associated with the alternatives,
- The rationale for selecting the preferred solution and implementation plans.

The Class EA process also allows members of the public, Indigenous communities, interest groups, and approval agencies to review the ESR during a 30-day review period. This period provides individuals the opportunity to raise any outstanding concerns regarding the project with the Region. If issues cannot be resolved by the Region during this period, an individual may request the MECP to take action. The Ministry may order the project to comply with Part II of the EAA, requiring it to follow the requirements of an individual environmental assessment. This request must be submitted in writing to the Minister. If no Part II Order requests are received within the 30-day review period, the project will proceed through the detailed design and construction phases as outlined in the ESR.

1.3 Report Outline

This report was created to fulfill the requirements set by the MEA Municipal Class EA Planning Process (October 2000, as amended in 2015). It consolidates all phases of the planning process into a single document and incorporates steps deemed necessary to comply with the EAA. This report comprises the following sections:

Section 1: Introduction – Provides an overview of the Report, its purpose, and the significance of the Project.

Section 2: Class Environmental Assessment Process – Outlines the Class EA process, detailing the steps required to comply with regulatory requirements and ensure environmental protection.

Section 3: Public Agency Consultation Process – Describes the methods and strategies used to engage and consult with public agencies, ensuring their input and collaboration throughout the Project.

Section 4: Project Study Area Overview – Provides a detailed description of geographic area under study, including environmental, cultural, and socio-economic characteristics.

Section 5: Preliminary Alternative Solutions – Lists the initial alternative solutions considered for the reservoir expansion, including brief descriptions and justifications for each.

Section 6: Evaluation Process – Explains the criteria and methodology used to evaluate the preliminary alternative solution.

Section 7: Preliminary Screening of Alternative Solutions – Summarizes the initial screening process of the alternatives, identifying which options were considered viable.

Section 8: Preliminary Screening Results – Presents the results of the preliminary screening, highlighting which alternatives were shorted and provides rationale.

Section 9: Detailed Evaluation of Reservoir Expansion Alternatives – Provides an in-depth analysis of the selected reservoir expansion alternatives, comparing their potential impacts and benefits.

Section 10: Preferred Alternative Concept Based on Best Value Approach – Identifies the preferred alternative based on a best value approach, balancing economic, environmental, and social factors.

Section 11: Proposed Mitigation of Potential Impacts and Monitoring – Details the proposed measures to mitigate identified potential impacts and outlines the monitoring plan to ensure compliance and effectiveness.

2. Municipal Class Environmental Assessment

The EAA is a legislative framework established to ensure that significant environmental effects of projects are considered before they proceed. Enacted in 1975 and regularly updated, the EAA mandates that major public and private sector projects undergo a thorough assessment process to identify, predict, and mitigate potential environmental impacts. The Act emphasizes public consultation and transparency, requiring project proponents to engage with stakeholders and consider their input throughout the assessment process. This ensures that environmental, social, and economic factors are integrated into the decision-making process, promoting sustainable development and safeguarding environmental quality.

The EAA outlines a comprehensive assessment procedure, which includes the preparation of an EA report, review and approval by the MECP, and opportunities for public input and appeals. The assessment can vary in complexity, from streamlined assessments for smaller projects to more detailed and rigorous evaluations for larger, more impactful ones. The Act also allows for the designation of individual projects for special consideration and establishes mechanisms for compliance and enforcement. The EAA serves as a critical tool for environmental governance in Ontario, ensuring that the potential impacts of projects are responsibly managed and mitigated.

2.1 Principles of Environmental Planning

The EAA prescribes a set of five key principles for successful environmental assessment planning, including:

Early and Ongoing Consultation: Engage affected parties early and continuously throughout the planning process to foster cooperation. The proponent should involve potentially affected parties as soon as possible to enhance the understanding of environmental issues before selecting the preferred solution. Affected parties may include approval agencies, the public, Indigenous communities, property owners, interest groups, and other municipalities.

Consideration of Alternatives: Evaluate a reasonable range of alternatives, including functionally different "alternatives to" and "alternative methods" for implementing the solution. The "Do nothing" alternative must also be considered as a benchmark for comparison.

Assessment of Environmental Effects: Identify and consider the impact of each alternative on all aspects of the environment, including natural, social, cultural, technical, and economic factors.

Systematic Evaluation and Decision-Making: Evaluate the advantages and disadvantages of alternatives to determine their net environmental effects. The planning process should include distinct evaluation points, focusing on a preferred alternative. The decision-making process should be phased, recognizing the dynamic nature of environmental decision-making and adapting to changing conditions and new information.

Clear Documentation: Provide clear and complete documentation of the planning process to ensure "traceability" in decision-making. Documentation should detail the approach and adherence to the principles of environmental assessment planning throughout the process

2.2 Class Environmental Assessment Process

The Municipal Class EA process recognizes that there are varying levels of impact requiring a greater or lesser amount of assessment, depending on the nature of the work, the estimated cost and the potential impacts on the environment (which includes natural, social, economic, cultural and technical components). There are four “schedules” of undertakings defined in the Municipal Class EA to account for this variation. These schedules include:

Schedule A:	These projects are limited in scale and include emergency operational and maintenance activities. Schedule A projects are deemed pre-approved without the need for further assessment.
Schedule A+	Schedule A+ projects are also pre-approved but require the proponent to advise the public of the initiative prior to implementation.
Schedule B	These projects have the potential for some adverse environmental effects and include improvements and minor expansions of existing facilities. For Schedule B projects, the proponent must undertake a screening process, including consultation with those who may be affected by the undertaking. At the conclusion of the process, a Project File Report (PFR) is prepared to document the findings.
Schedule C	These projects have the potential for significant environmental effects and include new facilities and major expansions to existing facilities. Schedule C projects must follow the full planning and decision-making process outlined in the Class EA, including the preparation of an ESR.

Although the Project corresponds to a Schedule B Municipal Class EA, based on the description of ‘Establish new or expand/replace existing water storage facilities’, the Region determined that the project should be undertaken as a Schedule C EA to allow for additional opportunities for engagement with Indigenous communities, agencies and the public, given the proximity of the Study Area to established residential communities.

2.3 Planning and Design Phases of Class Environmental Assessment

The Class EA process follows a structured approach to ensure environmental protection and regulatory compliance. The main elements of the Class EA planning process are incorporated in the following four phases for this study:

Phase 1: Problem or Opportunity Identification

In the initial phase, the need for the reservoir expansion is identified and documented. This involves understanding the current capacity issues and future demands on the water treatment plant. Public and stakeholder input is gathered to ensure a comprehensive understanding of the problem and opportunity statement.

Phase 2: Alternative Solutions Identification and Evaluation

During Phase 2, a range of alternative solutions to address the identified problem and opportunity is developed. Each alternative is evaluated based on environmental, technical, social, and economic criteria. This phase includes extensive consultation with stakeholders, including public agencies, Indigenous communities, and the general public. The goal is to identify a shortlist of feasible alternatives for further detailed analysis.

Phase 3: Alternative Design Concepts for the Preferred Solution

In Phase 3, detailed design concepts for the preferred alternative are developed. This includes a thorough assessment of potential environmental impacts and the identification of mitigation measures to minimize negative effects. Further stakeholder consultation is conducted to refine the preferred solution and ensure it meets the community's needs and regulatory requirements. The final preferred design concept is then selected based on a comprehensive evaluation of all factors.

Phase 4: Environmental Study Report

The completion of the three Class EA phases is followed by creation of the ESR. The ESR documents the entire Class EA process and includes the results of all public and stakeholder engagements. The goal of the ESR is to provide a clear rationale for development of the preferred solution. The flowchart below describes each of the Class EA phases, their required activities, and how they interact.

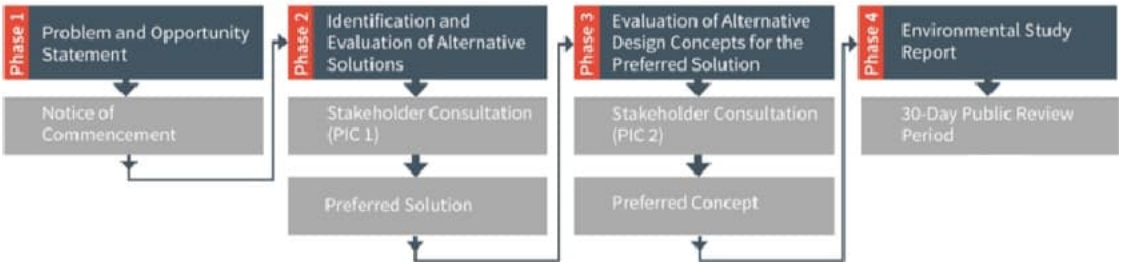


Figure 2-1: Municipal Class EA Process

3. Public, Indigenous and Agency Consultation Process

3.1 Consultation and Communication Program

In accordance with the Class EA, the Region completed meaningful consultation efforts with the public, Indigenous communities, relevant stakeholders, City of Mississauga Councillors, interested groups and local community members. Engagement and consultation activities achieved the prescribed regulatory requirements of the Class EA study. Engagement efforts included a Canada Post mail campaign, regular communications with Indigenous communities, individual meetings with affected stakeholders, and the hosting of two PICs.

A Project Contact List was established at the initial phase of the project, outreach was conducted through a mailing initiative, and meetings were held in cooperation with City of Mississauga Ward 1 Councillor Stephen Dasko.

On March 20th, 2024, emails with attached copies of the PIC 2 Notice were sent following Agencies and Ministries:

- Ontario Clean Water Agency.
- Ministry of Tourism, Culture and Sport.
- Ministry of the Environment, Conservation and Parks.
- Ministry of Municipal Affairs and Housing.
- Ministry of Natural Resources.
- Ministry of Indigenous Relations and Reconciliation.
- Ministry of Economic Development, Job Creation and Trade.
- Ministry of Agriculture, Food and Rural Affairs.
- Infrastructure Ontario.

A meeting between the region and Councillor Dasko was held on April 9th, 2024, during which representatives of the region provided an overview of PIC 2.

3.2 Public Consultation, Communication Strategies and Tactics

3.2.1 Contact List

A Contact List was developed and regularly updated with information of individuals that requested regular notifications of project milestones. Individuals on the contact list receive direct notifications for all future meetings and consultation activities. Following the completion of PIC 2, the contact list was updated with the information from participants of the PIC that requested regular notifications of Project milestones. The project contact list can be found in Appendix A.

3.2.2 PIC Notification Letters

PIC notification letters were sent to each identified local landowner within 1km of the WTP, extending from Lakeshore Road East southerly to Lake Ontario, and from east of Montbeck Crescent to East Avenue extending to the western limits of the Douglas Kennedy Park. Copies of both PIC notices were posted to the Peel Region public website. The PIC 1 notice detailed the location, date, and time of the PIC and invited community members, stakeholders, and Indigenous communities to the event. The purple highlighted area shown in Figure 3-1 shows the notice distribution area.

The PIC 2 notice was distributed by Canada Post Admail to landowners within a 1km radius of the WTP. It was also distributed by email to the government ministries, agencies, and Indigenous communities. This notice offered an overview of the study, an explanation of the Class EA study process, and an invitation to attend PIC 2.

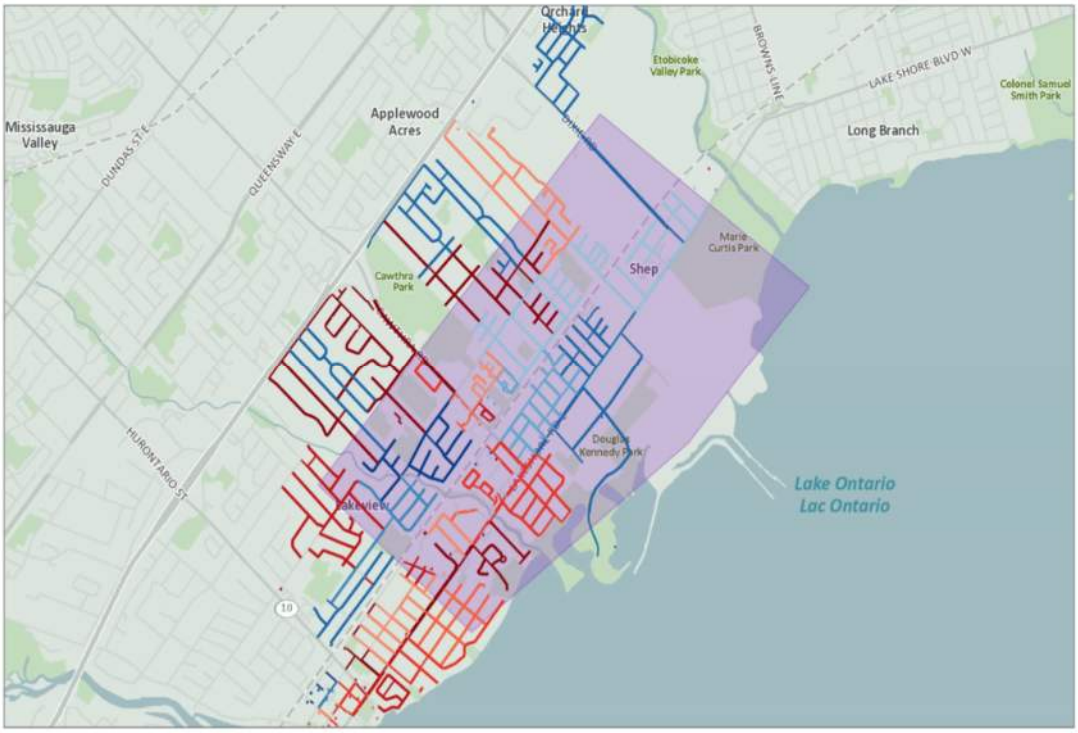


Figure 3-1: Precision Target Map of PIC Notice Distribution Area

3.2.3 Notice Distribution Emails

Similar to the PIC notification letters, notice distribution emails were sent to identified Indigenous communities, ministries, and agencies related to each PIC. These emails advised recipients of past communications related to the Class EA for the expansion of the Arthur P. Kennedy WTP Reservoir, informed them of the PICs, and provided details of their dates and locations. Copies of the Notice Distribution Emails and correspondence with Indigenous communities can be found in Appendix G.

3.2.4 Public Engagement Meeting Format

The Project Team from the Region and Hatch hosted the first PIC on October 18, 2023, at Saint Dominic Separate School to solicit information and suggestions on the purpose of the Study, the Study Area, issues and concerns within the Study Area, the list of alternatives, and next steps in the study process. A PIC 1 notice and invitation was provided to stakeholders, Indigenous communities, landowners within the Study Area, ministries, and agencies. Participants of PIC 1 were encouraged to actively engage in discussion with the Project team and review the proposed options. Presentation boards, which provided an overview of the Project, were arranged throughout the venue and focused on impacts to the public. These presentation boards (Appendix C) were then uploaded to the Peel Region website and were made accessible as required by the Ontario Disabilities Act.

A PIC 2 notice was distributed by Canada Post Admail to landowners, within a 1 km buffer of Arthur P. Kennedy WTP. It was also distributed by email to the government ministries, agencies, and Indigenous Rights holders. This notice offered an overview of the Study, an explanation of the Class EA Study process, and an invitation to attend the PIC 2. Additionally, individuals on the Public Contact List were also sent email invitations, with a copy of the PIC 2 Notice attached.

PIC 2 was held in an open house format in a conference room in the Administration Building of the Arthur P. Kennedy WTP on March 20, 2024, from 6:00pm to 8:00pm. The PIC 2 Boards (Appendix D) were arranged in a circular format around the conference room.

Project Team members greeted attendees at the entrance of the Administration Building and directed them to the PIC 2 location in the conference room. Additional members of the Project Team were present for the duration of the PIC 2 to answer any questions from community members, facilitate the sign-in of each guest, and encouraged participants to complete corresponding feedback forms.

A total of 22 members of the public attended PIC 2, while six members of the Project Team were present to host the meeting. The City of Mississauga Ward 1 Councillor, Stephen Dasko, was also present to advocate for the Project.

3.2.5 Physical Feedback Form and Online Comment Period

Physical feedback forms were offered to each attendee of PIC 1. Attendees were encouraged to complete the form, which prompted respondents to record their comments and concerns related to the proposed solutions. Physical Feedback Forms were collected at the end of the PIC 1 and are reflected in the Tracking Log. A total of one Physical Feedback Form was submitted at the PIC.

An Online Comment Period was provided to the public following PIC 1 on October 18, 2023, until to November 18, 2023. Like the Physical Feedback Form, stakeholders and Indigenous Rights holders were encouraged to submit questions, comments, and concerns via email to the Region. The review process for the submitted Online Comments included reviewing the email, recording information into the Tracking Log, and punctually replying to the email. A total of six emails were received with responses provided to each.

During PIC 2, meeting participants were encouraged to submit questions or comments on the presentation boards through a physical Feedback Form or via email to the Region. Following PIC 2, materials were made available online through the Region's website, for participants and community members to review and provide feedback. Both the Feedback Form and website indicated that feedback was requested to be returned to the Region by May 1, 2024.

3.2.6 Tracking Log

A Tracking Log was created and updated to record feedback from the Online Comment Period. Information recorded included contact information, the contents of the email, the Region's email response, and significant engagement milestones. Refer to Appendix B for a copy of the tracking log. The Tracking Log was updated consistently throughout the Class EA process and reflects comments from both PIC 1 and PIC 2.

3.3 Summary of Public Issues, Comments and Concerns

Public feedback for each PIC was received through email correspondence and Feedback Forms. Feedback garnered from the PICs was generally positive, with concerns mainly focused on the minimization of construction impacts and the potential removal of the baseball diamond. The public shared positive feedback in response to the preliminary preferred Alternative Solution since it did not impact the existing baseball diamond.

A summary of feedback from Stakeholders, Indigenous Rights holders and PIC attendees is presented below in Table 3-1.

Table 3-1: Summary of PIC 1 & 2 Public Feedback

Public Issue	Comments	Concerns
1. Impact of the three sites options on taxes in relation to the comparative costs.	• Respondents to the Physical Feedback Form were interested in how taxes were affected by the three Alternative Options.	• Community members are concerned about the different tax implications from each Alternative Option.
2. Visual and aesthetic appeal of site options.	• Will there be smells associated with the development? What are the impacts to traffic congestion in the local area?	• Residents show concern for the Project's visual appeal, related smells, and impacts to traffic congestion. (Especially during the construction phase.)
3. Aversion to development within Hydro-corridor.	• Community members use the Hydro-corridor as a recreation facility and are opposed development at this site.	• Community members have expressed concerns with the lack of recreational green space in the Study Area and fear the development within the Hydro-corridor will only exacerbate this problem.
4. Necessity of the Arthur P. Kennedy WTP reservoir expansion.	• General comments were made regarding the necessity of the Arthur P. Kennedy WTP expansion and whether clean water could be pumped from a separate reservoir.	• Concerns related to the necessity of the Arthur P. Kennedy WTP reservoir expansion which required further explanation of the plant operational security and redundancy requirements.
5. Addition of arrows indicating locations of buildings on maps.	• Inclusion of arrows on PIC boards would improve readability of Study Area maps.	• Lack of arrows on PIC boards made it difficult to identify landmarks.
6. Minimization of construction impacts	• PIC attendees commented on the mitigation measures in place for the planned construction	• Concerns related to multiple infrastructure projects in the local area and increased levels of industrial construction.
7. Concerns over the removal of the baseball diamond	• Local residents vocally opposed the removal of the baseball diamond at Alternative Solution 3, Southeast Reservoir.	• Removal of baseball diamond would have impact on recreation opportunities in the local area.

3.4 Agency Consultation

A consultation meeting with Hydro-One took place on November 11, 2023. During the meeting, Hatch provided an overview of the project background and presented an Alternative Solution involving a Reservoir in the Hydro Corridor Land. The purpose of this meeting was to gather feedback and specific comments from Hydro One, particularly regarding any future plans for the site and any site-specific issues.

Hydro-One clarified that they intend to retain the right of way for the "Hydro Corridor Land" for potential future transmission needs. However, they have not yet defined specific plans for the land's future use. Importantly, they expressed willingness to grant an easement to the Region for the proposed infrastructure projects, subject to certain conditions:

- Construction of buildings beneath the transmission cables is prohibited, except for those related to electrical purposes.
- Any proposed infrastructure must not hinder Hydro One's potential future plans for expanding transmission, even though these plans are currently unspecified. The land may be used for new transmission circuits, towers, or other developments, and Hydro One maintains flexibility for any future uses.
- Construction of a new reservoir and pumping station within this site would cover the entire site and would require that the ownership of the site needs to be transferred to the Region; very limited to no useable area would be left for Hydro-One.

A request for meeting was sent to the City of Mississauga, no response was received until the date of this report’s completion submission.

4. Project Study Area Overview

4.1 Study Area Location and Site Features

The Arthur P. Kennedy WTP is located within the Lakeview neighbourhood surrounded by well-established parks and recreational areas and industrial district. West of the facility, the neighbourhood on Montbeck Crescent has been evolving since its inception in the 1950s. On the east side of the property, a dense mixed-use residential development known as the Lakeview Village is under construction, replacing abandoned land. In addition, a large modern mixed-use residential development known as Rangeview Estates has been proposed north of the site which is currently occupied with industrial and commercial buildings. A redevelopment project on the north of the plant along the East Avenue to increase the supply of new rental units is underway by the Region's housing development department.

The approximate limits of the Study Area extend from Lakeshore Road East southerly to Lake Ontario, and from just east of Montbeck Crescent to East Avenue extending to the western limits of Douglas Kennedy Park. The Study Area also includes a location referred as Hydro-Corridor Property located 1.2 km east of the plant site, presented in Figure 4-1.

Figure 4-1: Study Area

4.2 Existing Water Treatment Plant and Facilities

The Arthur P. Kennedy WTP is one of the world's largest water treatment facilities, with a rated capacity to produce 1,200 ML/d. Plant developments began on the west side of the site and evolved eastwards as capacity increased from an original 10 ML/d in 1953 to the current rating of 1,200 ML/d.

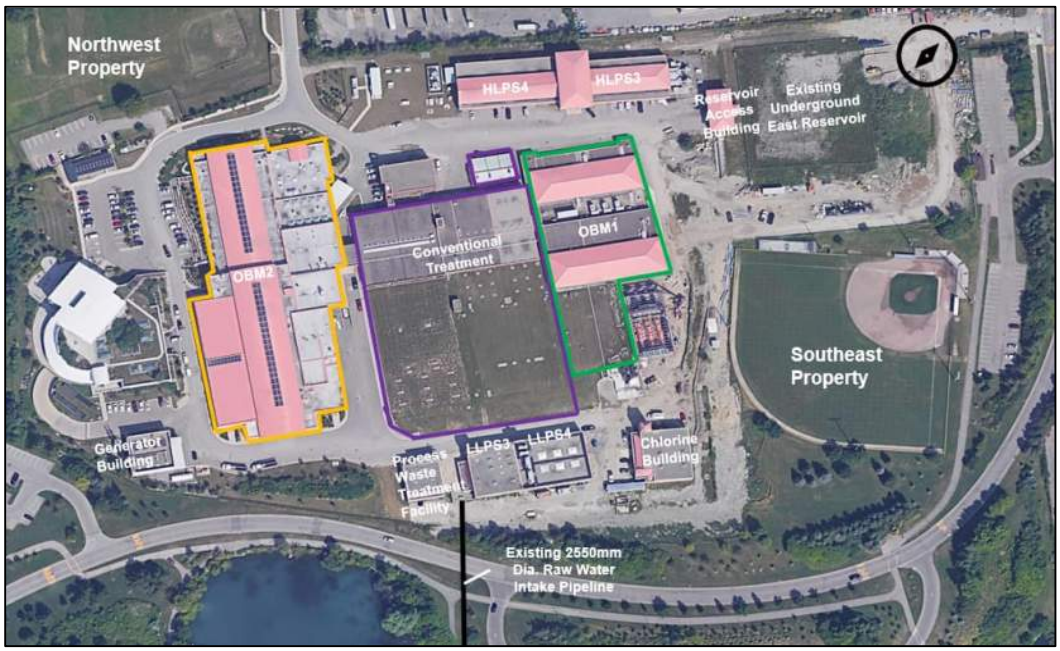


Figure 4-2: Overall Site Plan of Athur P. Kennedy WTP

An overall site plan for the Arthur P. Kennedy WTP is presented in Figure 4-2 and a simplified process flow diagram for the plant is shown in Figure 4-3. The following represents the key features of the plant:

1. Intake Pipeline: 2550 mm diameter intake pipe located on the south of the plant extends to Lake Ontario.
2. Low lift Pumping Stations (LLPS): LLPS3 and LLPS4 are situated south of the plant, with provision for a future intake at its eastern limit of the LLPS.
3. Conventional (CNV) Filtration Treatment Plant: The CNV plant has a rated capacity of 400 ML/d. The main treatment processes consist of five flocculation tanks and settling basins followed by 16 conventional dual media filters. Coagulation is practiced at the flash mixer in the low lift header.
4. Advanced Treatment OBM1 (Ozone/Biologically Activated Carbon Contactors/Membrane Filtration): Added into production in 2007 and located east of the CNV Plant. OBM1 has a rated capacity of 400 ML/d. The main treatment processes consist of two ozone contactors, five biologically active carbon contactors (BACC) and 12 membrane trains.

5. Advanced Treatment OBM2 was constructed in 2011 and is located west of the CNV plant. OBM2 has a rated capacity of 400 ML/d. The main treatment processes consist of two ozone contactors, five BACC, five low pressure UV reactors and 12 membrane trains. The plant was designed with the provision to expand the capacity to 465 ML/d by populating the sixth BACC, adding UV, and converting the membrane immersion tanks to production filters.
6. A 25 ML treated water storage reservoir is provided on the east side of the property and collects treated water from three treatment trains.
7. High Lift Pumping Stations (HLPS): HLPS 3 and 4 are currently in operation, taking water from the reservoir and distributing it to 2 pressure zones. The HLPS was built with some level of redundancy.
8. Ancillary facilities: Various ancillary facilities can be found along the site perimeter. These include a chlorine building in the southeast corner, a standby power building in the southwest corner, and an Administrative/Maintenance Building in the northwest corner.

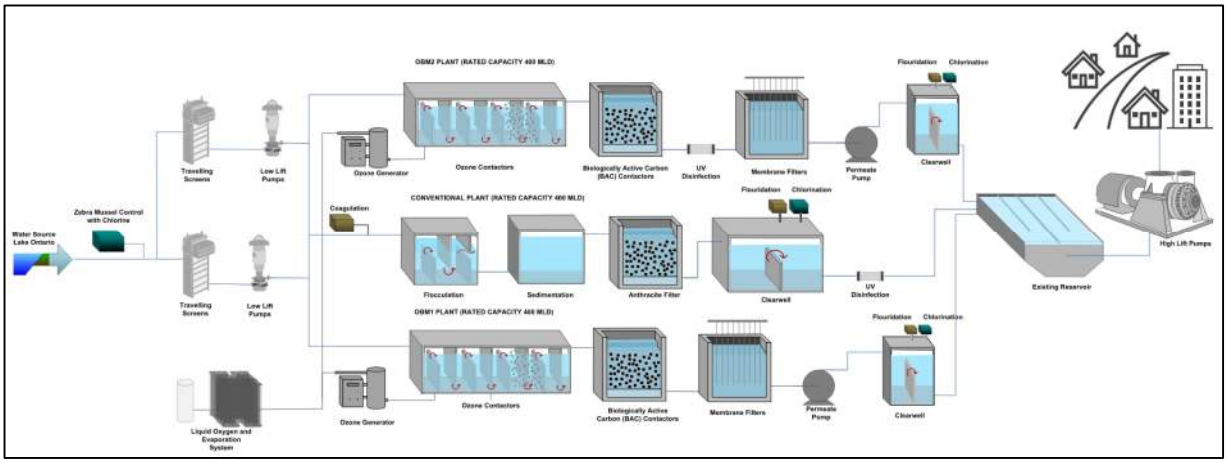


Figure 4-3: Existing Arthur P. Kennedy WTP Process Flow Diagram (courtesy of Region)

4.3 Land Use and Recreational Uses

The Arthur P. Kennedy WTP, and surrounding areas are located in the Lakeview neighbourhood of Mississauga, within the Region. The existing Arthur P. Kennedy WTP is designated as “Utility” on Schedule 10 (Land Use) of the Mississauga Official Plan (2021) and as a Special Site 9 under the Lakeview Local Area Plan. The Arthur P. Kennedy WTP is also categorized as a Utility under Mississauga’s Zoning By-law 0225-20072[3] and is subject to the regulations of Zone U-1 (City of Mississauga, 2021).

[3] *Mississauga Zoning By-law No. 0225-2007 (City of Mississauga, 2007)* https://www.mississauga.ca/apps/zoningbylaw/#/

Under Schedule 10 and By-law 0225-2007, the area surrounding Arthur P. Kennedy WTP is composed primarily of residential, commercial, and recreational land types (Region of Peel, 2003; Region of Peel, 2008; City of Mississauga, 2021) The land south of Arthur P. Kennedy WTP is classified primarily under Schedule 10 as Public Open Space (i.e., Lakefront Promenade Park, A.E. Crookes Park). The area immediately north of Arthur P. Kennedy WTP is primarily designated as Residential Medium Density land use under Schedule 10. This area is undergoing Municipal Comprehensive Review to better align with recent Zoning By-law changes.

Additionally, land use designations within the locations of the potential properties are as follows:

Northwest Property: East of the Arthur P. Kennedy WTP facility is the site of the former Byngmount Beach Public School, which was purchased by the Region in 2013 following its closure in 2010. Schedule 10 classifies this area and the lands east of Arthur P. Kennedy WTP as Residential Low Density II. Under By-law 0225-2007, the area is designated as Zones R3-75 (Residential) and H-RA2-59 (Residential).

Southeast Property: The lands extending east of Arthur P. Kennedy WTP are classified by Schedule 10 as Residential Medium Density and Public Open Space (i.e., Douglas Kennedy Park. Under By-law 0225-2007, this area is designated under Zones OS2 (Open Space – City Park), U-1 (Utility), and E2-21 (Employment).

Hydro Corridor Land: Lands located within the footprint of the existing hydro corridor, approximately 1 km north of the WTP are designated as Utility under Schedule 10. Areas surrounding the transmission line are considered Greenland and appear to be managed (i.e. mowed). Residential and Mixed Use land use designations border this site to the south and to the west. This area is also identified as “Natural Hazards” lands, likely due to the presence of Serson Creek and its ravine system.

4.4 Natural Features Overview

A Natural Heritage Impact Assessment (NHIA) was conducted to evaluate terrestrial and aquatic environmental features in support of the Class EA. A 120-meter buffer was applied around the existing Arthur P. Kennedy WTP and potential design alternatives for expansion, defining the Project Study Area.

The NHIA included a desktop and literature review, incorporating assessments such as Ecological Land Classification, screening for Significant Wildlife Habitat (SWH) to identify Candidate SWH, and vegetation inventory of vascular plants within the study area. Additionally, breeding bird surveys were conducted to provide comprehensive background information.

The findings of the NHIA concluded that most of the Project Study Area is composed of previously disturbed land, which is generally less sensitive when compared to undisturbed land; and no significant natural heritage features were documented within the Project Study Area.

4.5 Archaeological Resources

A Stage 1 Archaeological Assessment has been completed for both Northwest[4] and Southeast[5] properties in 2017 and 2008 respectively, which recommended Stage 2 test pit surveys be conducted for parts of the study area.

Archaeological Services Inc. (ASI) was contracted by Hatch, on behalf of the Region, to conduct a Stage 2 Archaeological Assessment following the recommendations of the Stage 1 reports and in accordance with the *Standards and Guidelines for Consultant Archaeologists*[6].

Based on the Stage 1 results, approximately 2.25 ha of Stage 2 test pit survey is required at the Northwest Property and approximately 1.6 ha of Stage 2 test pit survey is required at the Southeast property. However, due to the current lease agreement with the City of Mississauga and the potential damage to the baseball diamond from the test pit digging, the Stage 2 survey was conducted solely on the Northwest Property.

The Stage 2 test pit survey for the Northwest Property was conducted in May, June, and July 2024. Approximately 12.8% of the study area, primarily manicured lawn, was systematically surveyed, while an additional 18% underwent judgmental test pit survey due to potential previous disturbance. During this survey, three Indigenous lithic findspots were uncovered within disturbed fill layers. These artifacts—a Flake Fragment, a Biface, and a Secondary Knapping Flake—were identified as secondary deposits rather than primary archaeological deposits. As such, they were deemed to lack significant cultural heritage value or interest, and no further archaeological assessment is required for these specific findspots. Stage 2 Archaeological Assessment report can be found in Appendix E.

However, ASI was unable to complete a survey of the entire Northwest Property due to access restrictions caused by an ongoing construction project. The remaining unsurveyed areas of the Northwest Property will be subjected to a Stage 2 test pit survey during detailed design phase prior to initiation of the construction.

4.6 Built Heritage Resources and Cultural Heritage Landscapes

Archaeological Services Inc. (ASI) completed a Cultural Heritage Report (Appendix F) detailing an inventory of known and potential built heritage resources (BHRs) and cultural heritage landscapes (CHLs) within the project study areas (Northwest and Southeast Properties).

[4] *Stage 1 Archaeological Assessment – 930 East Avenue (WSP Canada Inc., 2017 June), PIF#: P365-0109-2017*
[5] *2008 Class EA Phase 2 of the Lakeview Water Treatment Plant Expansion Program - Appendix A: Stage 1 Archaeological Assessment (AA) for Proposed Expansion to the Lakeview WTP (Archaeoworks Inc., 2007 December), CIF#: P029-452-2007*
[6] *Standards and Guidelines for Consultant Archaeologists (MECP, 2011 Jan).* Standards and Guidelines for Consultant Archaeologists | ontario.ca

The results of background historical research and a review of secondary source material, including historical mapping, indicate a study area with a rural land use history dating back to the early-nineteenth century that developed into a suburban context in the twentieth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed that there is one known CHL-Lakefront Promenade Park in the study area. No additional potential BHRs or CHLs were identified during the background information review and fieldwork.

The Northwest Reservoir alternative is not expected to directly impact the CHL, as construction effects are considered to be limited and temporary as the greenspace that is not enclosed by the new fence will be available for public, casual recreational use following construction.

The construction of the Southeast Reservoir is anticipated to result in direct adverse impacts to the Lakefront Promenade Park CHL as the baseball diamond of Douglas Kennedy Park will be removed. The passive recreation areas within the CHL are heritage attributes of the CHL.

From a cultural heritage perspective, the Northwest Reservoir is the preferred option because the limited and temporary nature of the impacts.

Regardless of the option chosen, where feasible, the proposed construction activities should be designed in a manner that avoids all impacts to CHL. Where the proposed limits of disturbance cannot be revised to avoid impacts, the depth and extent of the construction activities should be limited to reduce impacts to CHL to the extent practical.

4.7 Geotechnical and Hydrogeological Considerations

Figure 4-4 presents the historical borehole location plan from previously completed Geotechnical investigations reports available to Hatch within the Study Area:

- The Paramedic Services Satellite Station at 938 East Avenue, Mississauga, Ontario;
- The Proposed HFM1 Access Chamber and W1 Meter Chamber; and
- The Lakeview WTP Expansion project.

Previous investigations revealed that the general area is characterized by shale bedrock of the Georgian Bay Formation at depths between 1.1 and 2.7 meters below ground surface (mbgs). In the “2017 Report on Geotechnical Investigation Paramedic Services Satellite Station 1: 938 East Avenue, Mississauga, Ontario”, WSP reported the Unconfined Compressive Strength (UCS) and Point Load Test (PLT) of the shale. The average UCS was found to be 26 MPa and the average PLT was 8 MPa, indicating a “very weak to medium strong rock”. The shale bedrock at the site is overlaid by fill material and a complex of silty clay till mixed with weathered shale. Past investigations indicate that groundwater levels vary between 3.4 and 4.9 mbgs. The groundwater levels are subject to seasonal fluctuations and rainfall patters, and perched groundwater tables may be encountered in the cohesive fill and soil materials.

For the purpose of this study, it has been assumed that the conditions found during past investigations continue to exist for the Northwest property; however, it is expected that a targeted detailed geotechnical investigation will need to be carried out to assist during the detailed design and construction of the reservoir expansion.

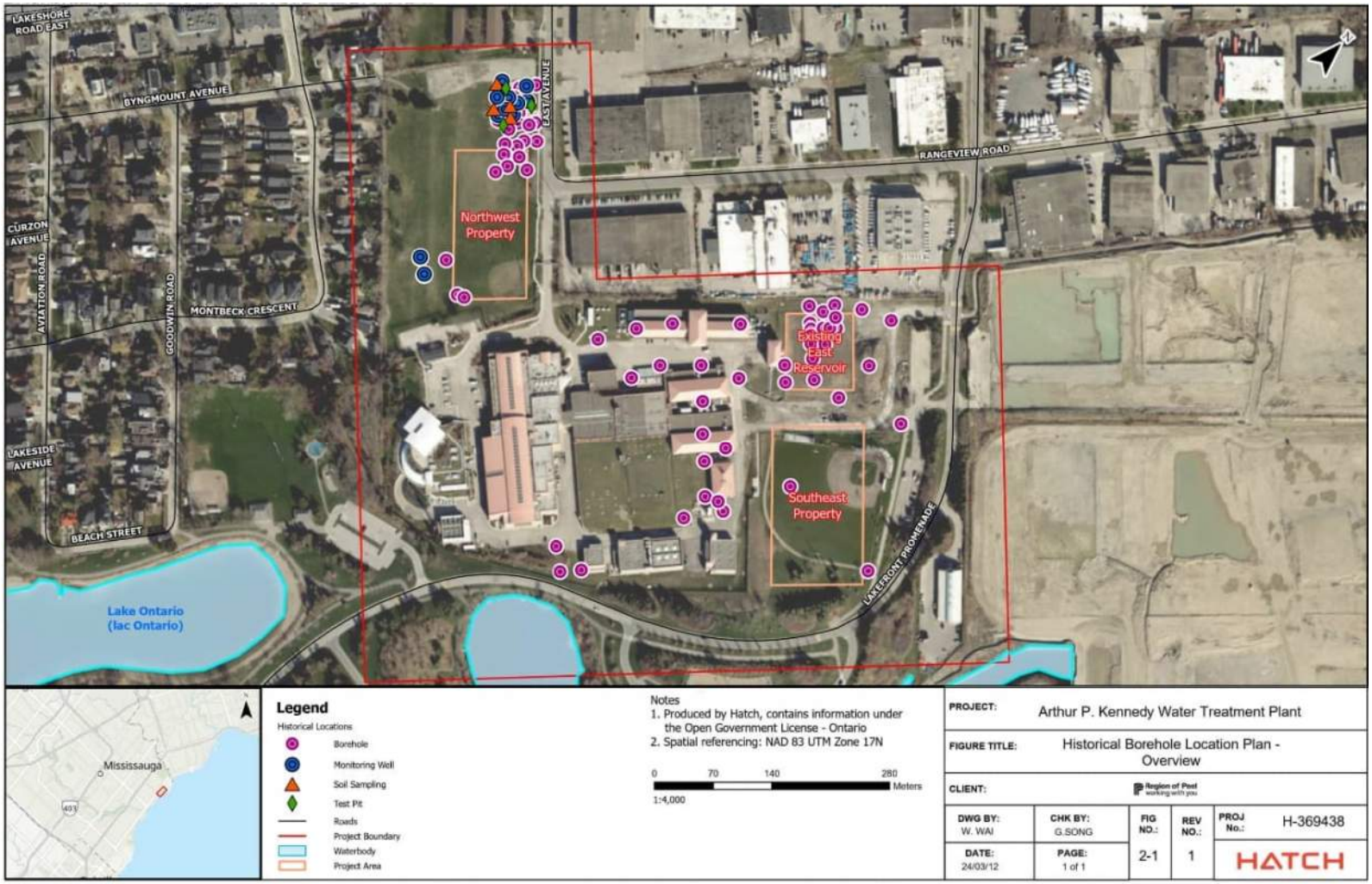


Figure 4-4: Historical Borehole Location Plan

4.8 Indigenous Communities and Rights Holders Consultation

Consultation conducted during the 2008 EA indicated there were no Indigenous comprehensive land claims with the respective study area. The following Indigenous organizations and Indigenous communities were consulted as part of the 2008 EA:

- Indian and Northern Affairs Canada
- Department of Indian and Northern Affairs
- Ontario Secretariat of Aboriginal Affairs
- Chiefs of Ontario
- Mississaugas of the New Credit First Nation
- Six Nations of the Grand River Territory

Consultation undertaken by the Region for this study included outreach and notices to the following Indigenous organizations and Indigenous communities:

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

Each of the identified organisations or communities received Notices of Commencement, Notices of the PICs, an opportunity to participate in the Stage 2 AA, and an invitation to review the alternatives and the preliminary preferred option. These identified organisations and communities will also have an opportunity to review and provide comment on this report. Consultation materials, including the Engagement Tracker, can be found in the Appendix B.

5. Evaluation Methodology

The project team has established an evaluation framework to guide the development and assessment of reservoir expansion alternatives for the Arthur P. Kennedy WTP. This framework plays a pivotal role in selecting the preferred alternative design concept. The evaluation process is structured following seven steps:

Step 1: Constraints, Opportunities, Identify and Define a Vision for the plant and its context in the Local Community (Phase 1)

Step 2: Develop Long List for Alternative Solutions (Phase 2)

Step 3: Complete Screening and Develop Preferred Solutions (Phase 2)

Step 4: Develop Alternative Design Concepts (Phase 3)

Step 5: Complete Detailed Evaluation of Alternative Design Concepts (Phase 3)

Step 6: Identify Preliminary Preferred Alternative Concept Based on Best Value Approach (Phase 3)

Step 7: Confirm Preferred Solutions Based on Comments from Public and Review Agencies (Phase 3)

This structured approach ensures a balanced and systematic selection of the most appropriate reservoir location for the Arthur P. Kennedy WTP considering both practical constraints and the long-term vision for the facility within the community.

6. Confirmation of Constraints, Opportunities and Vision for the Plant

Phase 1 of the Class EA Study confirmed the need and guiding principles for the proposed reservoir expansion at the Arthur P. Kennedy WTP, as follows:

- The plant will continue to be the main drinking water source for Peel as well as portions of York Region for decades to come. Therefore, the plant will need to have a plan to meet the water demand beyond 2051.
- The reservoir site needs to be selected to allow the highest capacity of storage.
- The plant will continue to be part of the growing neighborhood and be an integral part of the neighborhood's future. Addition of new infrastructure should align with the future use of the site.

The Region developed a principles and policies paper during the 2017 MP and reviewed/updated it as part of the 2013 and 2020 MP updates. The objective is to guide water servicing strategies development with the goal of providing high-level service to the public through building and maintaining efficient, reliable, sustainable, and well-managed water systems. The major policies and guiding principles that are relevant to this project suggest the following requirements:

- **Planning Horizon** – It is recognized that the Region always needs to consider growth beyond the current planning horizon and strategic oversizing. Therefore, the space allocation for a new reservoir expansion should consider long-term growth.
- **System Reliability and Security** – It is recognized that all systems are susceptible to some level of failure or breakdown or need to be taken out of service for regular maintenance. It is reasonable to provide a level of reliability to ensure an acceptable level of service is maintained. Currently, there is one reservoir with one pipeline from each treatment train to one of the cells of the reservoir. Redundancy for storage and piping is identified.
- **Level of Service** – The level of service objectives requires consistency with best management and process equipment within facilities. Therefore, this principle also seeks to match best management practices from similar size plants. This is also recognized in the 2020 MP that the reservoir storage volumes in relation with the plant capacities for the Arthur P. Kennedy WTP is different from the Lorne Park WTP.

6.1 Recommended Minimum Volume of Reservoir

In general, the treated water storage facility at the WTP serves multiple purposes, as follows, and the required volume is determined in alignment with these purposes:

1. Plant storage should be sized in conjunction with distribution system storage capacity to relieve the treatment facilities from following fluctuations in water use and minimize the on/off cycling of the treated water pumps.

2. Plant storage should be sized so that in-plant water uses such as backwash water supply can maintain a relatively constant flow.
3. Plant storage should also consider adequate disinfectant contact time as part of the primary disinfection or as a backup to the primary disinfection system at some capacity.

The assessment of the above-listed design guidelines, and the Region's major policies and principles show that the governing rule for determining the size of the proposed reservoir would be system reliability and the specific level of service requirements as outlined below:

- Keeping consistency with the level of service requirement with Lorne Park WTP and other similar size plants in Ontario shows that the Arthur P. Kennedy WTP requires a total reservoir storage volume to provide a minimum of 1.3 to 2 hours of water supply at the rated plant capacity.
- Arthur P. Kennedy WTP requires increased redundancy for the reservoir, which means an increased storage for treated plant flow either with or without a connection to the existing reservoir.

Table 6-1 summarizes the minimum additional reservoir volume requirement by 2051.

Table 6-1: Water Demand Growth and Reservoir Capacity for Arthur P. Kennedy WTP

	Existing	**2041[1]**	**2051[2]**
Maximum Day Demand (ML/d)	-	1,053	1,160
Residential	-	-	561
Employment	-		233
York	-	331	331
Maximum Day Demand (ML/d)[3]			1,160
Storage Time (hours)	0.5	1.3	1.3
Required Reservoir Capacity (ML)	23	57	63
Proposed New Reservoir Capacity (ML)	-	**34**	**40**

[1] Data collected from the 2020 MP.
[2] Data collected from the Peel 2051 Regional Official Plan 2051 (April 2022).
[3] The Pressure District 1C system occasionally needs to supply peak hour demand, there are instantaneous times where the volume pumped out of the HLP1C and HLP2C increases to ~1,160ML/D.

It is recommended that the proposed reservoir volume is considered a minimum requirement, which will include evaluation alternatives for locations and design concepts.

6.2 Problem/Opportunity Statement

The problem/opportunity statement was developed as part of Phase 1 of the Class EA, defined as follows:

"Additional in-plant treated water storage, reservoir, was identified for the Arthur P. Kennedy WTP to enhance sustainable water services by increasing storage redundancy and water supply reliability and security in the Region of Peel. The additional reservoir capacity will align with the demands and further expansion requirements for the Arthur P. Kennedy WTP to meet the Region's Best Planning Estimates and corresponding water demand projections, as set out in the 2020 Water and Wastewater Master Plan for the Lake-Based Systems, and subsequent Provincial Growth Plan Amendment."

7. Long List of Alternatives

A comprehensive review of the available properties for a new reservoir was completed to identify Alternative Solutions that align with the project objectives. The project team identified four Alternative Solutions as presented in Table 7-1.

Table 7-1 Long List of Alternative Solutions

Alternative Solutions	Description
Alternative 1 - Do Nothing	Maintain the existing reservoir of the Arthur P. Kennedy WTP with no improvements other than regular maintenance. This alternative is used as a baseline comparison for other alternatives.
Alternative 2 – Northwest Reservoir	The new reservoir would be located in the Northwest corner of the WTP site. Treated water would be conveyed to a new reservoir from the treatment train on the west and drained to the High Lift pumping station through a tunnel.
Alternative 3 – Southeast Reservoir	The new reservoir would be located in the Southeast corner of the WTP site, where the baseball diamond is located. The filtered water would be conveyed from the treatment train on the east and drained to the high lift pumping station through the existing reservoir and pipes.
Alternative 4 – Reservoir in the Hydro Corridor Land	The new reservoir would be located in the hydro corridor property west of Haig Blvd and north of Lakeshore Road East. The reservoir access and pumping building would be positioned on the south side of the site with entrance from the Lakeshore Road East.

Figure 7-1 indicates the two onsite locations considered for the new reservoir, including: Alternative 2 (Northwest Property, Former Byngmount Beach Public School) and Alternative 3 (Southeast Property), where property is leased for a baseball diamond). Figure 7-2 presents the location of Alternative 4, referred to as the Hydro-Corridor Land located 1.2 km east of the plant site.

Figure 7-1: Two Potential Onsite Properties for Reservoir Expansion

Figure 7-2: Off site Hydro-Corridor Property

7.1 Preliminary Screening of Alternative Solutions

7.1.1 Description of Preliminary Screening Criteria

The preliminary screening phase is a crucial step aimed at thoroughly examining all proposed Alternative Solutions. The objective is to identify solutions that align with the project's objectives and merit further consideration during the development of alternative concepts. Therefore, it is expected that the Alternative Solutions need to meet all of the screening criteria; as these criteria are considered “must-meet” criteria. If an Alternative Solution does not meet all criteria, it cannot be advanced to the next phase of the Class EA Study.

Several key criteria were employed during this screening process:

1. **Alignment with Problem Statement:** Each Alternative Solution was assessed to determine if it effectively addresses the problem statement developed as part of Phase 1. Solutions that failed to improve upon the existing situation were eliminated from consideration.
2. **Technical and Planning Criteria:**
    - **Long-Term Planning Horizon:** The planning horizon of the Region was taken into account, emphasizing the importance of considering long-term growth. The space allocation for the new reservoir should accommodate future needs and developments.
    - **Best Management Practice:** A comparison was made to ascertain if the proposed solutions could achieve the same level of service as similar-sized plants, ensuring that the project aligns with best management practices.
    - **System Reliability and Security:** Compares the ability of each solution to provide a level of reliability to ensure an acceptable level of service is maintained. Currently, there is one reservoir with one pipeline from each treatment train to one of the cells of the reservoir, except conventional treatment plant is equipped with two pipelines. Redundancy for storage and piping is identified.
3. **Environmental Protection:** Natural heritage features were identified for each Alternative Solution to determine significant features and potential impacts. Impacts on significant heritage features should be avoided where possible.
4. **Public and Agency Feedback:** Feedback from the public and stakeholders' meetings were considered as valuable input to gauge the feasibility and acceptability of each Alternative Solution.

7.2 Screening and Preferred Alternative Solutions

The screening criteria were applied to the Alternative Solutions and the results are presented below in Table 7-2.

Alternative Solutions 2 and 3 complied equally with the *Alignment with Problem Statement* and *Technical and Planning* criteria. With respect to *Environmental Protection,* both alternatives have limited wildlife habitat and vegetation, and both require a Stage 2 Archeological Investigation. Alternative Solution 2 (Northwest Reservoir) contains land regulated by the Credit Valley Conservation Authority and a permit may be required for construction, but significant challenges are not expected in acquiring this. With respect to *Public and Agency Feedback*, there were some concerns submitted by the public about losing the existing baseball diamond if Alternative Solution 3 (Southeast Reservoir) was chosen. Minimal concerns were submitted for Alternative Solution 2.

Alternative Solution 1 (Do Nothing) failed to comply with nearly all criteria, mainly because this solution did not improve the Region's storage capacity of treated water, a key objective of the project. Alternative Solution 4 (Reservoir in Hydro Corridor Lands) was in compliance with all criteria except one, *Public Agency and Feedback*. Hydro-One holds the right to use the Hydro-corridor Property for their facilities and their future plans for the site do not allow for any other use of the site.

In summary, two Alternative Solutions, including the Do Nothing and Reservoir in the Hydro-Corridor Property options, did not meet the screening criteria and will not be considered in the next phase of the EA Study. The two other Alternative Solutions, including the Northwest Reservoir and Southeast Reservoir, met all screening criteria and were advanced as preferred solutions to Phase 3 of the Class EA Study.

Table 7-2: Screening of Long List of Alternatives

Criteria	Sub-Criteria	Rationale	Alternative 1 Do Nothing		Alternative 2 Northwest Reservoir		Alternative 3 Southeast Reservoir		Alternative 4 Reservoir in the Hydro Corridor Land	
Alignment with Problem Statement		Assessed to determine if the solution effectively addresses the problem statement and project objectives.	**Does not Meet**	Failed to meet the project objectives and problem statement since it offered no improvements.	**Meets**	Successfully addresses the problem statement and project objectives.	**Meets**	Successfully addresses the problem statement and project objectives.	**Meets**	Successfully addresses the problem statement and project objectives.
Technical and Planning	**Long Term Planning Horizon**	Future plans, needs, and developments of the Region were taken into consideration.	**Does not Meet**	Failed to take future needs into consideration.	**Meets**	Allows for future capacity expansions within the site.	**Meets**	Allows for future capacity expansions within the site.	**Meets**	Allows for future capacity expansions within the site.
	Best Management Practice	A comparison was made with other plant in the Region to ensure same level of service and alignment with best management practices.	**Does not Meet**	Does not achieve required level of service.	**Meets**	Offers a similar level of service to the Lorne Park WTP, ensuring at least 1.3 - 2 hours of water supply.	**Meets**	Offers a similar level of service to the Lorne Park WTP, ensuring at least 1.3 - 2 hours of water supply.	**Meets**	Offers a similar level of service to the Lorne Park WTP, ensuring at least 1.3 - 2 hours of water supply.
	System Reliability and Security	The ability of the solution to provide a level of reliability to ensure an acceptable level of service is maintained. Redundancy for storage and piping is identified.	**Does not Meet**	Does not provide system reliability and security.	**Meets**	Provides redundancy and security for plant operations.	**Meets**	Provides redundancy and security for plant operations.	**Meets**	Provides some level of redundancy and security to the treated water storage.
Environmental Protection		Natural heritage features were identified to determine significant features and potential impacts. Significant cultural heritage resources should be avoided where possible.	**Meets**	No impact on significant cultural heritage resources.	**Meets**	Limited wildlife habitat and natural vegetation communities exist within the footprint of the former school grounds. A small portion in the southwest corner overlaps with a portion of the Credit Valley Conservation Authority (CVC) regulated lands; likely do not constitute a risk to flooding after stormwater management policies are implemented. Stage 1 Archaeological Assessment completed on this property in 2017 indicated that Stage 2AA was recommended.	**Meets**	The baseball diamond area has limited wildlife and natural vegetation. There is a need for a Stage 2 archaeological assessment, as stated in the previous Class EA, 2008.	**Meets**	Limited wildlife habitat and natural vegetation communities exist within the area. The area is considered Regulated Lands by the CVC.
Public and Agency Feedback		Feedback from public and stakeholders' meetings was considered as valuable input to gauge the feasibility and acceptability of the solution.	**Does not Meet**	No feedback was considered as no improvement proposed.	**Meets**	The site is currently vacant and used recreationally, offering limited aesthetic value. A new fence around the Reservoir Access Building will slightly reduce the available green space. Public concerns are minimal.	**Meets**	Parking lots and the bike lane will still be available for public use. The primary public concern is the loss of the baseball diamond facility.	**Does not Meet**	Hydro One's plans for the property does not align with the Region's project objectives.

8. Short Listed Alternatives

8.1 Overview

Figure 8-1 presents the two short listed alternatives, including the Northwest Reservoir and Southeast Reservoir.

Figure 8-1: Short-Listed Alternative Solutions (onsite) for Reservoir Expansion

8.2 Alternative Solution 2 – Northwest Reservoir

The new reservoir would be located at the Northwest property, north of Advanced Treatment OBM2 (Ozone/Biologically Activated Carbon Contactors/Ultraviolet Reactors/Membrane Filtration) and west of East Avenue.

Figure 8-2: Proposed Northwest Reservoir Layout

- The available space for a reservoir on the Northwest property is constrained by existing transmission mains and valve chambers on the west and the East Avenue Paramedic Satellite Station on the north side. The reservoir would be positioned within the site to gain the highest volume with proper setbacks and facility access.
- No major grade elevation change would be required at the proposed site.
- Based on the conceptual layout of the reservoir, presented in Figure 8-2, the proposed area for the reservoir would be approximately 8,110 m^2, and the estimated working volume would be approximately 43,310 m^3 with 5.34 m water depth and two storage cells.

- The new reservoir access building would be located on the south end of the reservoir, with access provided from the current access road, and would be large enough to accommodate all pertinent electrical and mechanical equipment related to the large gates, valves, and instruments. It would also provide stair access leading to the reservoir cells.
- A new fence would be provided to enclose the new Reservoir Access Building and valve chambers.
- The treated water from OBM2 flows to the existing reservoir through a minimum 1800mm pipe. The existing pipe includes provision for a future reservoir connection outside the building. An extension of the existing 1800mm pipe would allow the flow from OBM2 to be drained to the new and existing reservoirs as directed by valves located at the Tee junction.
- High Lift Pumping Station (HLPS) No.4 was designed with a provision to connect a line from a future reservoir. The inlet well at the west end of the HLPS has a 4500mm diameter knock out wall allowing for a future connection to be made without interrupting the operation of the pumps. Constructing a minimum 4000mm diameter drain line connecting the reservoir to the HLPS would require a 6m wide sequential excavation method (SEM) tunnel to be constructed with a 12 m diameter shaft. The tunnel would be 10m to 14m below ground surface.
- This option would allow an ultimate rated plant capacity of ~1,940 ML/d, including a couple of future expansions at the plant site: a new Reservoir at the Northwest property, and expansion of the existing OBM2; and conversion of the existing conventional treatment plant to advanced treatment (OBM) with a new Southeast OBM at the existing Baseball Diamond Area.

8.3 Alternative Solution 3 - Southwest Reservoir

The new reservoir would be situated at the baseball diamond location, south of the existing East Reservoir and east of OBM1 (Ozone/Biologically Active Carbon Contactors/Membrane). This site lies to the south of the existing East Reservoir and to the east of OBM1.

Figure 8-3: Proposed Southeast Reservoir Layout

- No requirement for significant grading or elevation adjustment.
- Based on the conceptual layout of the reservoir, presented in Figure 8-3, the proposed area for the reservoir would be approximately 8,976 m^2, with a working storage volume of approximately 47,000 m^3.
- The new reservoir access building would be located on the northside of the reservoir, with access from the current access road. This building would be sized large enough to house all necessary electrical and mechanical equipment associated with large gates, valves, and instruments; and it would provide stair access leading to the individual reservoir cells.

- On the south side, a new fence would be built to redefine the perimeter of the WTP, and the new reservoir would l be built within this boundary. In conjunction with the Low Lift Pumping Station (LLPS) 5, the chlorine building would be relocated to the western end of the Southeast property, maintaining a 5m safe separation distance between the relocated chlorine building and the new reservoir.
- To facilitate the inflow of water, these two reservoir inlet cells would be linked at the end of East Reservoir inlet cells by means of two 3000mm pipes. These two pipes would in turn be connected to a single 3600mm pipe, receiving treated water from four separate treatment trains. The finished water would travel through each reservoir cell and exit through the reservoir channel, which would be individually connected to HLPS via two 3000mm pipe. This would allow the water from both reservoir outlets to pass through the same two 3000mm suction conduits that supply water to the HLPS.
- This option would allow an ultimate rated plant capacity of ~1,847 ML/d, including a couple of future expansions at the plant site: new Reservoir at the existing Baseball Diamond Area, expansion of existing OBM2, conversion of existing conventional treatment plant to advanced treatment and new Northwest OBM at the Northwest property.

9. Detailed Evaluation of Reservoir Expansion Alternatives

A detailed evaluation of both alternatives was carried out to confirm the ability of the two alternatives to accommodate the required capacity expansion of the reservoir, and satisfy the various environmental, socio-economic and cultural, planning and technical, community acceptability, and fiscal/economic evaluation criteria. The results of the cost estimate evaluation, detailed alternative assessment and recommendations for capacity expansion is provided in the following sections.

9.1 Cost Estimates Comparison

9.1.1 Basis of Cost Estimate

This cost estimate has been prepared using a divisional format, which includes divisional totals for each option, providing a detailed breakdown of costs. The estimate is classified as a Class 5 Estimate by the Association for the Advancement of Cost Engineering International (AACE) and is considered reliable to an accuracy range of -30% to +50% at the conceptual design level. The data used for this estimate is sourced from Hatch's proprietary database, R.S.Means, and the expertise of our design engineers and cost estimators.

Any escalation of the 2023 cost estimate for the future years should be done based on the construction cost indexes.

9.1.2 Cost Estimating Basis/Assumptions

The total cost estimate has been prepared using the following basis and assumptions:

- Site Plan Excavation: Estimates have been based on assumptions that excavated material is considered non-impacted and can be reused on-site as well as being disposed of offsite in non-regulated locations.
- Building estimates are approximated from their size and type of construction based on historical information from past treatment projects.
- Process equipment and yard piping estimates are based on vendor quotations or historical data from past treatment projects.
- The following cost multipliers were applied:
  - General contractor’s overhead and profit: 10%
  - Construction Contingency: 30%
  - Escalation during Construction to mid-point: 5%
  - Engineering and Approval (including Contingency): 25%

9.1.3 Cost Comparison Summary

Conceptual cost estimates of Reservoir Expansion Alternative 2 and 3 were prepared based on the conceptual layouts developed and with consideration to building footprint, major process equipment, site preparation and construction.

Table 9-1: Cost Comparison of Alternative Solutions

Reservoir Expansion Alternative Solutions	Estimated Cost
Alternative 2 – Northwest Reservoir	$120 Million
Alternative 3 – Southeast Reservoir	$85 Million

The estimated capital cost for the reservoir on the Northwest site is approximately $120 million, while the estimated project cost for the reservoir on the Southeast site is around $85 million. The significant cost difference between the Northwest and Southeast reservoir options is primarily due to the construction of the tunneled drain lines needed to connect the proposed reservoir to the existing HLPS and the potential requirement for interconnecting valve chambers. These valve chambers facilitate the interconnection between different treatment trains, enhancing system reliability and security.

9.2 Detailed Evaluation Assessment

A comprehensive assessment of the reservoir expansion alternatives described in Section 8 is summarized in Table 9-2. Expansion options were examined with consideration of the key factors and assessed based on their perceived impacts.

Table 9-2: Detailed Assessment Criteria and Description

Evaluation Criteria	Alternative 2 Northwest Reservoir		Alternative 3 Southeast Reservoir	
	Description	**Impact**	**Description**	**Impact**
Environmental Protection - Natural				
Natural Features	• No natural vegetation communities exist within the area. • Limited wildlife habitat exists within the footprint. • A small part of the southwest corner of the land within the CVC regulated lands. However, the surrounding areas are heavily developed and likely pose no flooding risk after implementing stormwater management policies.	**Moderate Impact**	• No natural vegetation communities exist within the area. • Limited wildlife habitat exists within the footprint of the diamond.	**Moderate Impact**
Social Cultural/Socio - Economic Environment				
Land Use and Recreational Use	• Currently vacant land that provides little aesthetic value, some public use recreationally. • New reservoir would reduce publicly available green area.	**Moderate Impact**	• Closure of the current baseball diamond for recreational activities.	**Highest Impact**
Archaeological, Built and Cultural Heritage Resources	• Stage 1 Archaeological Assessment (2017) was completed and noted most of the site disturbed. Stage 2 Archaeological Assessment of partial Northwest Property is completed, rest of survey will be conducted later.	**Moderate Impact**	• Stage 1 Archaeological Assessment (2008) (under PIF numbers # P029-452-2007)was completed and found the baseball field might have archaeological significance the study area to have archaeological potential. • The Stage 2 Archaeological Assessment is not included in this ESR, detailed reasoning can be found in Section 4.5.	**Moderate Impact**

Evaluation Criteria	Alternative 2 Northwest Reservoir		Alternative 3 Southeast Reservoir	
	Description	**Impact**	**Description**	**Impact**
	• No direct impacts are anticipated to the Lakefront Promenade Park CHL.	**No Impact**	• The removal of the baseball diamond would not be a direct adverse impact as it is not a heritage attribute of the CHL, nor would the resulting change in land use impact the overall heritage value of the CHL.	**No Impact**
Indigenous Interest	• No Indigenous comprehensive land claims within study area.	**No Impact**	• No Indigenous comprehensive land claims within study area.	**No Impact**
Net Impacts to Communities	• Some buffers from the residential area to Northwest Reservoir; Minimum impact after construction both visual and public use of the land. • Closer to the residential area • No future structured facility for public use would be allowed.	**Moderate Impact**	• Southeast property is within the plant site, with less residential communities' impacts. • The existing baseball diamond would be permanently removed.	**Highest Impact**
Planning and Technical Consideration				
Reservoir Capacity	• Provides 43,300 cubic meter storage volume.	**Moderate Benefit**	• Provides 47,000 cubic meter storage volume.	**Highest Benefit**
Level of Service	• Maintains water supply without treatment plant running; 1.46 hours at 2051 water demand numbers, 0.94 hours at ultimate plant capacity.	**Moderate Benefit**	• Maintains water supply without treatment plant running; 1.54 hours at 2051 water demand numbers. 1.04 hours at ultimate plant capacity.	**Highest Benefit**
Ultimate Plant Rated Capacity	• ~ 1,940 ML/d with expansion on the other available sites.	**Highest Benefit**	• ~ 1,847 ML/d with expansion on the other sites.	**Moderate Benefit**
Integration with Existing Plant	• More complex integration to the existing plant operation and achieving compliance.	**Moderate Benefit**	• Easier integration to the existing plant operation and compliance.	**Highest Benefit**

Evaluation Criteria	Alternative 2 Northwest Reservoir		Alternative 3 Southeast Reservoir	
	Description	**Impact**	**Description**	**Impact**
Operation and Redundancy	• Provides full redundancy for the reservoir and security of plant operation.	**Highest Benefit**	• New reservoir provides limited level of redundancy to the reservoir.	**Minimal Benefit**
Constructability	• A tunnel construction for reservoir drain to high lift pumping station increases the complexity and duration of construction.	**Moderate Benefit**	• New reservoir construction would be connected to the existing reservoir which requires shutdown and creates potential risk on the existing reservoir.	**Minimal Benefit**
Fiscal Responsibility				
Capital Cost	• Higher capital cost mainly attributed to tunneled connection from reservoir to the pumping station.	**Moderate Benefit**	• Lower capital cost, with no extra major infrastructures except on-site piping connection.	**Highest Benefit**
Operation & Maintenance Cost	• No major increase.	**Moderate Benefit**	• No major increase.	**Moderate Benefit**

The key differentiators for the alternative expansion options, as highlighted in Table 10-2 are:

- Both the Northwest and Southeast Properties have similar, minimal impacts on terrestrial features, as they are located on previously disturbed land. The Southeast Reservoir is the most favorable option, minimizing impacts on aquatic environments.
- Direct adverse impacts are anticipated to affect the Lakefront Promenade Park CHL as a result of the Southeast Reservoir alternative. The construction of Southeast Reservoir would result in the removal of the baseball diamond within Douglas Kennedy Park. However, the removal of the baseball diamond would not be a direct adverse impact as it is not a heritage attribute of the CHL, nor would the resulting change in land use impact the overall heritage value of the CHL. The Northwest Reservoir will likely have limited and temporary impacts to the Lakefront Promenade Park CHL. Construction impacts of the Northwest Reservoir are considered minimal, and the greenspace outside the new fence would remain open for public recreational use post-construction.
- The Northwest Reservoir design concept offers additional water storage and can operate on its own if the East Reservoir is not in service, for maintenance or other reasons. This independence enhances the reliability and security of the water supply system, ensuring water service continues without interruption. On the other hand, the Southeast Reservoir would be connected with the existing East Reservoir, enabling the new reservoir to be filled and discharged via East Reservoir. If the existing East Reservoir experiences an outage or goes out of service, this operating approach may not allow the two reservoirs to function in parallel as intended.
- Both alternatives are able to meet the projected water storage needs for 2051, with the Southeast Reservoir providing slightly higher additional capacity (47 ML) than the Northwest Reservoir (43.3 ML).
- Construction of the Northwest Reservoir involves tunneling, increasing complexity and project costs, whereas the Southeast Reservoir's integration with existing infrastructure poses coordination challenges but lower initial capital expenses.

10. Preferred Alternative Concept Based on Best Value Approach

10.1 Description

After thorough evaluation, the preliminary preferred alternative design concept is Alternative 2 – Northwest Reservoir, which offers the following advantages:

- The site of the former Byngmount School, Northwest Property, designated for the Northwest Reservoir, hosts limited wildlife habitats and sparse natural vegetation. This characteristic ensures a lower environmental footprint for the project.
- The Northwest Reservoir design allows for the continued recreational use of the surrounding Northwest Property, preserving community green spaces.
- The proposed reservoir will integrate seamlessly with the current East Reservoir infrastructure while maintaining the ability to function independently.
- The Northwest Reservoir facilitates easier access for maintenance activities, potentially leading to reduced long-term operation and maintenance expenses.
- Following construction, the design of Northwest Reservoir will have a modern and aesthetically pleasing new look, especially considering the new residential developments that are planned adjacent to the site.

10.2 Required Permits and Approvals

Permits and approvals required to implement the preferred design for the Arthur P. Kennedy WTP Reservoir Expansion as shown in Table 10-1.

Table 10-1: Arthur P Kennedy WTP Reservoir Expansion – Permits and Approvals

Approval Agency	Permits/Approval Required
Ministry of Environment and Climate Change	• Amendment to Drinking Water Works Permit • Amendment to Drinking Water License
City of Mississauga	• Site Plan Approval • Building Approval
Credit Valley Conservation Authority (CVC)	Article I. CVC Permit application under Section 28 of the Conservation Authorities Act (and pursuant Ontario Regulation 41/24)

10.3 Implementation Schedule

The Reservoir Expansion project is scheduled to implement as follows:

- Detailed Design and Tender Phases: November 2024 to December 2025
- Construction and Commissioning: January 2026 to December 2028

  The construction timing is dependent upon approval of the construction budget by Peel Council.

11. Proposed Mitigation of Potential Impacts and Monitoring

The following section describes of some of the impacts anticipated during construction of the preferred reservoir design concept, described in this report, as well as some mitigation measures proposed to minimize or avoid such anticipated impacts.

As with any other construction project, there will be some potential impacts to the public and environment in areas such as noise, dust, vibration and visuals during the construction period. All construction work must be carried out in accordance with the Occupational Health and Safety Act (OHSA) and other local regulations. Specific mitigation measures, as described below, are recommended for implementation to reduce anticipated potential impacts.

11.1 Environmental Considerations and Mitigation Measures

11.1.1 Visual/Architectural

The proposed reservoir access building, which is the only above ground structure of the reservoir, will adopt a modern design distinct from the existing buildings on the site, favouring glazing and metal panels. Figure 11-1 represents rendering of proposed Reservoir Access Building.

Figure 11-1: Northwest Reservoir – Rendering, 3D Model

The building's proposed material palette will mirror the materials found in the existing plant, but with a modern touch added through the use of clean metal panels and translucent panels. These translucent panels will permit diffused natural light to enter the valve room during the day. At night, they will enable the structure to cast light outward, creating a light box effect on the site. The central feature wall will serve as an accent wall, marking the access stairs that connect to the lower level. The staircase will be designed to receive light from both the east and west sides with the use of clear glazing. The central feature includes a raised, curved roof that maintains the architectural continuity with the existing water treatment plant.

11.1.2 Landscaping

The site will be landscaped following construction of the proposed works. It is proposed to provide landscaping that will blend into the natural surrounding environment and require minimal maintenance. Minimal grading is anticipated for the site.

Several mature trees on the east side of the Northwest property will be removed to allow construction of the new reservoir but will be replanted on the west side of the property.

11.1.3 Truck Traffic

Most of the construction activities associated with the Northwest Reservoir will be contained within the site property limits. Increased truck traffic will be experienced on the East Avenue Road and the existing plant access road during the duration of construction from the delivery of construction equipment, construction materials and removal of excavated material from the site. The proposed mitigation measures include the following:

- Appropriate hours of work will be specified in the contract.
- Truck access to and from the site will be limited to the existing entrance on the East Avenue, avoiding residential areas.
- Any lane closures will be completed in accordance with best practices to protect the safety of the workers and the general public.
- Residents in the area will be kept informed ahead of time of any road closures and anticipated timing, as well as the overall schedule of construction.
- All standard best practices for vehicle and pedestrian safety will be employed throughout the construction areas.

11.1.4 Noise

Potential noise effects are anticipated in connection with construction traffic and construction equipment. Noise during operation of the Northwest Reservoir is not expected to differ from the existing conditions. The proposed mitigation measures include the following:

- Ensuring all vehicles and construction equipment are equipped with effective muffling devices and are operated in a fashion to minimize noise in the project area.

- Throughout the construction period, the Region will ensure the contractors undertake measures to reduce noise disturbances as much as possible and adhere to local noise by-laws.

11.1.5 Dust and Mud

Construction traffic could create additional dust and/or mud. The proposed mitigation measures include the following:

- Dust control measures such as the application of water to be implemented as required.
- The Region will ensure the contractor maintain public roadways clean and free of mud on a consistent basis.

11.1.6 Vibration

Based on the soil information available and the proposed expansion, excavation is expected to be carried out by drilling in the rock using large excavators to remove the rock. Some vibration may be felt; however, structural and/or cosmetic impacts are not expected due to the distances of residences away from the site. In addition, drilling will be confined to the working hours permitted under the local by-laws.

11.1.7 Disturbance of Existing Natural Environment

There is limited vegetation on the existing site and the land is previously disturbed, which is generally considered less sensitive. Excavation for the proposed Northwest Reservoir and Access House will require the removal of an estimated three mature trees and grass, existing fill, and native soil prior to the placement of foundation material, and construction of new structure. The proposed mitigation measures include the following:

- Construction areas will be replanted and re-vegetated after the expansion is complete.
- Vegetation clearing and/or grubbing should be kept to a minimum and areas should be restored to equal or better condition with native, non-invasive species that are reflective of vegetation common to the Region.
- Vegetation removal should take place outside the local breeding season for birds and bats October 1 to March 31 to comply with the Migratory Birds Convention Act (MBCA) and Endangered Species Act (ESA). Due to the uncertainty that lies with nest sweeps during construction, especially during leaf-on conditions, it is recommended that all tree clearing occur outside the above-noted breeding bird window.
- Treed areas to be preserved should be protected using protective hoarding according to the City's Tree Preservation By-law and Public By-law following future consultation with the City's Urban Forestry Department.
- Removal of trees and vegetation within the park setting should also be limited to the extent feasible. Where tree removals are required, post-construction rehabilitation should be implemented.

- Pre-construction monitoring and monitoring during construction is recommended with additional monitoring of restoration works as directed and further refined during the detailed design phase.
- Suitable erosion and sedimentation control measures will be placed around the construction areas, where appropriate.

11.1.8 Geotechnical Mitigation Measurements

The proposed reservoir expansion will require additional geotechnical investigation to guide the design and construction process. The scope of this investigation and the placement of necessary boreholes will be detailed in subsequent project stages. However, based on the previous geotechnical investigations, the following mitigation measures are proposed during the construction phase:

- The drilling of additional boreholes for the purpose of detailed design, verification of rock elevation and excess soil management within the southern footprint of the proposed buried reservoir location and connecting tunnels.
- The construction of the new facility may necessitate drilling of the shale for removal, control of granular bedding below existing structures, shoring of existing structures, and management of groundwater and surface water.
- Excavation dewatering may be required due to precipitation and groundwater entering the excavation and/or the granular fill.
- Based on the slow percolation rates through the rock and clay layers, a permit to pump water is not expected to be required. However, pumping discharges should comply with the MECP, Region of Peel, and other relevant agencies.
- The site should be graded to minimize runoff entering the excavation. Remaining groundwater and precipitation should be removed by sump pumps around the excavation perimeter.
- Discharge is expected to be directed to a temporary siltation pond within the plant site, maintained during construction by periodic silt removal. The anticipated groundwater to be discharged, as well as the discharge method, will be confirmed during the detailed geotechnical investigation.
- Dewatering operations will use appropriate filter screens to prevent soil or foundation material removal and control solids concentrations in the discharge.
- The verification of the locations and depths of existing underground utilities prior to any excavation or drilling.

These measures aim to minimize potential impacts during construction and ensure the successful implementation of the preferred reservoir design concept.

11.1.9 Additional Stage 2 Archaeological Assessment

As discussed in Section 4.5, a complete Stage 2 Archaeological Assessment of the Northwest Reservoir property was not possible due to property accesses restrictions resulting from an ongoing construction project. The remaining un-surveyed portion of the property will be subject to a Stage 2 AA during the detailed design phase, prior to any construction activities.

11.1.10 Property Requirements

The Byngmount Beach Public School land was purchased in 2013 to accommodate future growth at the Arthur P. Kennedy WTP. Since 2013, a new paramedic satellite station has been constructed, and the Region will be building affordable housing along Lakeshore Boulevard (East Avenue Redevelopment Project).

There is no requirement for the Region to purchase additional property for this preliminary preferred alternative. There is sufficient land available within the existing site to construct of the new Northwest Reservoir.

Appendix A

Contact List

Title	First Name	Last Name	Company/Organization	Department	Job Title	Business City	Province	PostalCode	Business Phone	Business Fax	Email Address	Notes	Comments	Source
	INDIGENOUS COMMUNITIES													
Mr.	Hohahes Leroy	Hill	Haudenosaunee Confederacy Chiefs Council		Chiefs Council Secretary	Ohsweken	ON	N0A 1M0			hdi2@bellnet.ca			MECP Letter / Email from contact
			Haudenosaunee Development Institute			Ohsweken	ON	N0A 1M1	519-445-4222		info@hdi.land			
Grand Chief	Remy	Vincent	Huron-Wendat Nation		Chief	Wendake	QC	G0A 4V0			Louis.lesage@wendake.ca			
Mr.	Maxime	Picard	Huron-Wendat Nation		Project Coordinator, Ontario	Wendake	QC	G0A 4V0	418-843-3767		maxime.picard@cnhw.qc.ca			MECP Letter / Email from contact
Ms.	Tina	Durand	Huron-Wendat Nation		Chiefs Council Secretary	Wendake	QC	G0A 4V0	418-843-3767 x. 2102		tina.durand@cnhw.qc.ca			MECP Letter / Email from contact
Chief	R. Stacey	Laforme	Mississaugas of the Credit First Nation		Chief	Hagersville	ON	N0A 1H0			stacey.laforme@mncfn.ca			
Councillor	Fawn	Sault	Mississaugas of the Credit First Nation	Environment & Sustainability Stewardship for Land, Air, Water & Natural Reso	Councillor	Hagersville	ON	N0A 1H0			fawns@mncfn.ca			
Councillor	Cathie	Jamieson	Mississaugas of the Credit First Nation		Environment Sustainability Councillor	Hagersville	ON	N0A 1H0	905-768-1133		cathiej@mncfn.ca			
Mr.	Mark	Laforme	Mississaugas of the Credit First Nation		Director	Hagersville	ON	N0A 1H0	905-768-4260		Mark.laforme@mncfn.ca			
Chief	Mark B.	Hill	Six Nations of the Grand River		Chief	Ohsweken	ON	N0A 1M0	519-732-2905		markhill@sixnations.ca			
Mr.	Lonny	Bomberry	Six Nations of the Grand River		Lands & Resources Director	Ohsweken	ON	N0A 1M0			lonnybomberry@sixnations.ca			
Ms.	Shirley	Debassie	MNO Toronto and York Metis Council		President	Toronto	ON	M5A 2P9			Squirl_24@hotmail.com	Secondary email: consultations@metisnation.org		
	PROVINCIAL MINISTRIES													
Sir/Madam			Infrastructure Ontario		Notice Review						noticereview@infrastructureontario.ca			
Ms.	Jackie	Van De Valk	Ministry of Agriculture, Food and Rural Affairs	Land Use Policy & Stewardship, Food Safety and Environmental Policy Branch	Rural Planner	Elora	ON	N0B 1S0	519-846-3415		Nancy.Rutherford@ontario.ca			Previous Peel/Mississauga Study
Ms.	Rachael	Manson-Smith	Ministry of Indigenous Relations and Reconciliation	Ministry Partnerships Unit	Manager (Acting)	Toronto	ON	M7A 2E6	416-325-7032					Previous Peel/Mississauga Study
Mr.	Michael	Falconi	Ministry of Economic Development, Job Creation and Trade	Cabinet Office Liaison Unit	Manager	Toronto	ON	M5S 2S3	647-325-9535		michael.falconi@ontario.ca			GRT Review Team
Mr.	Michael	Helfinger	Ministry of Economic Development, Job Creation and Trade	Cabinet Office Liaison and Policy Support Unit	Senior Policy Advisor	Toronto	ON	M5S 2S3	416-434-4799		michael.helfinger@ontario.ca	Email address rejected		GRT Review Team
Sir/Madam			Ministry of Indigenous Relations and Reconciliation	EA- First Nations		Toronto	ON	M7A 2E6			moeccpermissions@ontario.ca			Previous Peel/Mississauga Study
Mr.	Steven	Strong	Ministry of Natural Resources and Forestry	Aurora District Office	District Planner	Aurora	ON	L4G 0L8	905-709-7366	905-713-7360	steven.strong@ontario.ca		Position Confirmed Oct 31/2019	Previous Peel/Mississauga MSP Study
Mr.	Darryl	Lyons	Ministry of Municipal Affairs and Housing	Community Planning and Development (West)	Manager	Toronto	ON	M5G 2E5	416-585-6048	416-585-6882	michael.elms@ontario.ca			GRT Review Team
Sir/Madam			Ministry of the Attorney General	Strategic Policy and Planning	Director	Toronto	ON	M2N 0A4						Previous Peel/Mississauga MSP Study
Mr.	Trevor	Bell	Ministry of the Environment, Conservation and Parks	Central Region, Technical Support	Environmental Resource Planner & EA Coordinator	Toronto	ON	M2M 4J1	416-326-3577		trevor.bell@ontario.ca		Emailed Jan 16, 2018	MOECC Government Review Team - For Peel Region
Ms.			Ministry of the Environment, Conservation and Parks	EA Notification		Toronto	ON	M4V 1P5	416-326-3477		eanotification.cregion@ontario.ca			June 2017 MOECC Gov Review Team Contact - Added Jan 15, 2018
Ms.	Aurora	Mcallister	Ministry of the Environment, Conservation and Parks		Management Biologist	Aurora	ON	L4G 0L8	905-713-7732		aurora.mcallister@ontario.ca	On Maternity Leave until September 2021		
Mr.	Daniel	Delaquis	Ministry of the Environment, Conservation and Parks	Sir, Pesticides & Environmental Planning	Supervisor	Toronto	ON	M2M 4J1						
Ms.	Karla	Barboza	Ministry of Tourism, Culture and Sport	Heritage Planning Unit, Program and Services Branch	Team Lead (A), Heritage	Toronto	ON	M7A 0A7	416-314-7120		Karla.barboza@ontario.ca			GRT Review Team
Mr.	Dan	Minkin	Ministry of Tourism, Culture and Sport	Heritage Planning Unit, Program and Services Branch	Heritage Planner	Toronto	ON	M7A 0A7	406-314-7147		dan.minkin@ontario.ca			GRT Review Team
Ms.	Darja	Keith	Ministry of Tourism, Culture and Sport	Sport, Recreation and Community Programs Division Policy Unit	Manager	Toronto	ON	M7A 1S5	416-212-9311		darja.keith@ontario.ca			GRT Review Team
Ms.	Carol	Oitment	Ministry of Tourism, Culture and Sport	Sport, Recreation and Community Programs Division Policy Unit	Policy Advisor	Toronto	ON	M7A 1S5	416-314-7205		carol.oitment@ontario.ca	Email address rejected		GRT Review Team
Mr.	Christopher	Payette	Ontario Clean Water Agency	Utility Management Services	Manager, Safety Process & Compliance	Mississauga	ON	L5A 4G1	905-491-4000 (HQ)		cpayette@owca.com			
Mr.	George	Kairys	Ontario Clean Water Agency	Operations and Maintenance Services	Manager, Mechanical & Electrical Operations	Mississauga	ON	L5A 4G1	905-491-4000 (HQ)		gkairys@ocwa.com			
Mr.	Darcy	McDonald	Ontario Clean Water Agency	Operations and Maintenance Services	Senior Manager, Operatrion	Mississauga	ON	L5A 4G1	905-491-4000 (HQ)		dmacdonald@ocwa.com	rjunkin@ocwa.com tbender@ocwa.com		
Mr.	Masoud	Afrazeh	Ontario Clean Water Agency	Operations and Maintenance Services	Operations Coordinator	Mississauga	ON	L5A 4G1	905-491-4000 (HQ)		mafrazeh@ocwa.com			
	CONSERVATION AUTHORITIES													
Mr.	Jakub	Kilis	Credit Valley Conservation	Environmental Assessment - Project Contact	Manager (Acting), Infrastructure and Regulation	Mississauga	ON	L5N 6R4	905-670-1615 x287		Jakub.Kilis@cvc.ca			Peel SWMP Point of Contact
Ms.	Christine	Zimmer	Credit Valley Conservation	Water and Climate Change Sciences	Senior Manager, Water and Climate Change Science	Mississauga	ON	L5N 6R4	905-670-1615 x229		christine.zimmer@cvc.ca			Peel SWMP Point of Contact
Ms.	Kerry	Mulchansingh	Credit Valley Conservation	Source Protection Area	Program Manager, Hydrogeology	Mississauga	ON	L5N 6R4	905-670-1615 x383		kerry.mulchansingh@cvc.ca	Contact added - jennifer stephens (no longer at TRCA) mentioned to add		
Mr.	Craig	Jacques	Credit Valley Conservation	Watershed Plans and Source Water Protection	Specialist	Mississauga	ON	L5N 6R4	905-670-1615 ext 551		craig.jacques@cvc.ca			
	CITY REPRESENTATIVES													
Ms.	Aiysha	Syed	City of Mississauga	Transportation and Works Department, Infrastructure Planning & Engineering	Project Lead	Mississauga	ON	L5B 3C1	905-615-3200 ext.4782		Aiysha.Syed@mississauga.ca	On Maternity Leave until July 2021		
Mr.	Scott	Perry	City of Mississauga			Mississauga	ON	L5B 3C1	905-615-3200 x 5161		scott.perry@mississauga.ca	Temporary Contact Added - Aiysha Syed on Maternity Leave until July 2021		
Ms.	Leslie	Green	City of Mississauga	Transportation & Works Department	Manager of Transportation Projects	Mississauga	ON	L5B 3C1	905-615-3200 x 4197		leslie.green@mississauga.ca			Previous Peel/Mississauga MSP Study
Ms.	Emma	Calvert	City of Mississauga	Transportation & Infrastructure Planning Division	Manager of Development Engineering	Mississauga	ON	L5B 3C1	905-615-3200		emma.calvert@mississauga.ca			Previous Peel/Mississauga MSP Study
Ms.	Felicia	Wong	City of Mississauga	Planning & Building, Development South Section	Administrativer Assistant	Mississauga	ON	L5B 3C1	905-615-3200 x 5533		felicia.wong@mississauga.ca			Previous Peel/Mississauga MSP Study
Mr.	Geoff	Wright	City of Mississauga	Transportation & Works	Commissioner	Mississauga	ON	L5B 3C1	905-615-3200 x 5544		Martin.Powell@mississauga.ca			Previous Peel/Mississauga MSP Study
Mr.	Joe	Muller	City of Mississauga	Heritage Planning	Supervisor	Mississauga	ON	L5B 3C1	905-615-3200 x 5366		joe.muller@mississauga.ca	Contact Updated - previous contact retired		Previous Peel/Mississauga MSP Study
Ms.	Sharon	Chapman	City of Mississauga	Parks Planning		Mississauga	ON	L5B 3C1	905-615-3200 x 5370		sharon.chapman@mississauga.ca			
	Sangita	Manandhar	City of Mississauga	Parks Planning		Mississauga	ON	L5B 3C1	905-615-3200 x 3997		sangita.manandhar@mississauga.ca			
Ms	Evelyn	Krolicka	City of Mississauga			Mississauga	ON	L5B 3C1	905-615-3200 x 5921		evelyn.krolicka@mississauga.ca			
	REGIONAL REPRESENTATIVES													
Mr.	Teodor	Kochmar	Regional Municipality of Peel	Municipalities and Services	Manager Water Facilities Engineering and Reliability	Brampton	ON	L6T 4B9			teodor.kochmar@peelregion.ca			
Ms.	Sogol	Bandehali	Regional Municipality of Peel	Public Works	Project Manager, Water & Wastewater Infrastructure Planning & Studies	Brampton	ON	L6T 4B9			sogol.bandehali@peelregion.ca			
Mr.	Jeff	Smith	Regional Municipality of Peel	Corporate Services	Real Property Asset Manager	Brampton	ON	L6T 4B9	905-791-7800 x 7667		jeff.smith@peelregion.ca			
Ms.	Lori-Ann	Thomsen	Regional Municipality of Peel	Municipalities and Services / Facility Acquisitions	Manager Real Estate Real Property and Facility Acquisitions	Brampton	ON	L6T 4B9			lori-ann.thomsen@peelregion.ca			
Mr.	Marwan	Kassay	Regional Municipality of Peel	Housing	Project Manager Housing Development Office	Brampton	ON	L6T 4B9			marwan.kassay@peelregion.ca			
	October	Bell	Regional Municipality of Peel	Municipalities and Services / Water Management	Supervisor Water Compliance and Optimization	Brampton	ON	L6T 4B9			october.bell@peelregion.ca			
Mr.	Chris	Perera	Regional Municipality of Peel	Municipalities and Services / Water Management	Specialist, Water Quality and Compliance	Brampton	ON	L6T 4B9			chris.perera@peelregion.ca			
Mr.	Joshua	Ashurst	Regional Municipality of Peel	Public Works	Advisor Water/Wastewater Hydraulic Model Program	Brampton	ON	L6T 4B9	416-791-7800 x 8357		joshua.ashurst@peelregion.ca			
Mr.	Rick	MacLeod	Regional Municipality of Peel	Municipalities and Services	Manager, Automation and Data Solutions	Brampton	ON	L6T 4B9			rick.macleod@peelregion.ca			
Mr.	Frank	Pugliese	Regional Municipality of Peel	Municipalities and Services	Manager Contract Administrative and Oversight	Brampton	ON	L6T 4B9			frank.pugliese@peelregion.ca			
Mr.	Mark	Schiller	Regional Municipality of Peel	Municipalities and Services / Water Management	Director, Water and Wastewater	Brampton	ON	L6T 4B9	905-791-7800 x 7752		mark.schiller@peelregion.ca			
	COMMUNITY SERVICES													
Ms.	Nancy	Macdonald-Duncan	City of Mississauga	Fire and Emergency Services	Acting Fire Chief	Mississauga	ON	L5N 7C3	905-615-3570		nancy.macdonald-duncan@mississauga.ca	Former chief (Tim Beckett) retired from City of Missisauga - replacement contact information updated		Previous Peel/Mississauga MSP Study
Mr.	Nish	Duraiappah	Peel Region Police		Chief	Brampton	ON	L6V 3W6			nish.duraiappah@policepeel r.ca			Previous Peel/Mississauga MSP Study
Mr.	Peter	Dundas	Region of Peel	Peel Regional Paramedic Services	Chief and Director	Brampton	ON	L6R 3S8			peter.dundas@peelregion.ca			Previous Peel/Mississauga MSP Study
			Region of Peel	Housing Department							.@peelregion.ca			
			Region of Peel	Real Easte Department							.@peelregion.ca			
	UTILITIES													
Mr.	John	La Chapelle	Bell Canada		Planner/Manager	Scarborough	ON	M1P 4E2			rowcentre@bell.ca			Previous Peel/Mississauga MSP Study
Mr.	Jim	Leworthy	Bell Canada		Manager, Municipal Access	Newmarket	ON	L3Y 6J7			james.leworthy@bell.ca			Previous Peel/Mississauga MSP Study
Mr.	Jim	Arnott	Enbridge Gas Distribution Inc.		Municipal Coordination Advisor/GTA Project Planner	North York	ON	M2J 1P8	416-758-7901		jim.arnott@enbridge.com			Previous Peel/Mississauga MSP Study
Sir/Madam			Enbridge Pipelines Inc - Eastern Region	Right-of-Way Group					1-800-668-2951		notifications@enbridge.com			Previous Peel/Mississauga MSP Study
			Enbridge Pipelines Inc - Eastern Region								est.reg.crossing@enbridge.com			
Mr.	Roland	Herman	Enersource	Hydro Mississauga	Executive Vice President & Chief Operating Officer	Mississauga	ON	L5C 3K1			roland.herman@enersourceenerso.ca			Previous Peel/Mississauga MSP Study
Mr.	Daniel J.	Pastoric	Enersource	Hydro Mississauga	President & Chief Executive Officer	Mississauga	ON	L5C 3K1			daniel j..pastoric@enersourceenerso.ca			Previous Peel/Mississauga MSP Study
Mr.	Brian	McCormick	Hydro One Networks		Manager of Environmental Services	Toronto	ON	M5G 2P5			brian.mccormick@networkshydro .ca			Previous Peel/Mississauga MSP Study
Mr.	Farooq	Qureshy	Hydro One Networks	Transmission Planning		Toronto	ON	M5G 2P5			farooq.qureshy@HydroOne.com;			Previous Peel/Mississauga MSP Study
Mr.	Greg	Gowan	Hydro One								greg.gowan@hydroone.com			
Ms.	Rosella	Fazio	Hydro One Networks	Transmission Lines Sustainment, Investment Planning	Manager	Toronto	ON	M5G 2P5	416-345-6411		rossella.fazio@hydroone.com	Email address rejected - confirm email and contact		
Sir/Madam			Hydro One Telecom		Manager of Engineering	Brampton	ON	L7A 1E8	905-460-5564		.@telecomhydro .ca			Previous Peel/Mississauga MSP Study
Mr.	Edgar	Henriquez	Rogers Cable		Environmental Coordinator	Mississauga	ON	L5C 3T6	905-897-6457		edgar.henriquez@rci.rogers.com			Previous Peel/Mississauga MSP Study
Ms.	Agatha	La Donne	Rogers Cable		Planning Coordinator	Mississauga	ON	L5C 3T6			agatha.la donne@cablerogers.ca			
Mr.	Richard	Humpage	Rogers Cable		Environmental Coordinator	Richmond Hill	ON	L4C 3S5	905-780-7014		richard.humpage@rci.rogers.com			Previous Peel/Mississauga MSP Study
Mr.	Satish	Kumar	Trans-Northern Pipelines Ltd	Crossings and Facilities	Coordinator	Richmond Hill	ON	L4B 3P6	905-770-3353	905-770-8675	satish.kumar@ltdtrans-.ca		Contact not confirmed	Previous Peel/Mississauga MSP Study
Mr.	Jeremy	Getson	Union Gas Ltd.	Utility Service	Manager						jgetson@uniongas.com			Previous Peel/Mississauga MSP Study
			Alectra Ultilies			Mississauga	ON	L5N 7A6	1-833-253-2872		.@ultiliesalectr.ca			
	SPECIAL INTEREST GROUPS													
			Lakeview Development			Mississauga	ON	L5E 0A8			.@developmentlakevi.ca			
Ms.	Paula	Tenuta	Building Industry and Land Development Association	Vice-President, Policy & Government Relations	Director Government Relations	North York	ON	M3B 2V9	416-391-3445	416-391-2118	ptenuta@bildgta.ca			
Ms.	Alana	De Gasperis	Building Industry and Land Development Association		Planning Coordinator	North York	ON	M3B 2V9	416-391-2921	416-391-2118	alana.de gasperis@associationbuildi.ca		Confirm new BILD head office location	Previous Peel/Mississauga MSP Study
Mr.	Bryan	Tuckey	Building Industry and Land DevelopmentAssociation (BILD)		President and Chief Executive Officer	North York	ON	M3B 2V9	416-391-3445	416-391-2118	bryan.tuckey@bild)buildi.ca		Confirm new BILD head office location	Previous Peel/Mississauga MSP Study
Mr.	Ken	Patterson	Credit River Anglers Association		Director	Mississauga	ON	L5M 1K8	905-814-5794		ken.patterson@associationcredit.ca			Previous Peel/Mississauga MSP Study
Ms.	Stephanie	Cox	Dufferin-Peel Catholic District SchoolBoard	Planning Department	Manager	Mississauga	ON	L5R 1C5	905-890-0708 x24163	905-890-1557	stephanie.cox@dpcdsb.org			Previous Peel/Mississauga MSP Study
Ms.	Jayme	Gaspar	Heritage Mississauga		Executive Director	Mississauga	ON	L5K 1R2	905-828-8411 x. 31	905-828-8176	jgaspar@heritagemississauga.org			Previous Peel/Mississauga MSP Study
Mr.	Tim	Beneteau	Mississauga Bassmasters		President						info@mississaugabassmasters.com			Previous Peel/Mississauga MSP Study
Ms.	Mary Ellen	Bench	Mississauga Canoe Club		Commodore	Mississauga	ON	L5H 2E1	905-274-2127		mary ellen.bench@clubmissis.ca			Previous Peel/Mississauga MSP Study
Ms.	Shari	Morgoch	Mississauga Canoe Club		Commodore	Mississauga	ON	L5H 2E1	905-274-2127		commodore@gomissygo.ca			Previous Peel/Mississauga MSP Study
Mr.	Amar	Singh	Peel District School Board	Planning and Accommodation Department	Planning Assistant	Mississauga	ON	L5R 1C6	905-890-1010	905-890-6747	amar.singh@boardpeel d.ca			Previous Peel/Mississauga MSP Study
Ms.	Suzanne	Blakeman	Peel District School Board	Planning and Accommodation Department	Manager	Mississauga	ON	L5R 1C6	905-890-1010 x2216		suzanne.blakeman@peelsb.com	Contact updated - previous contact retired		Previous Peel/Mississauga MSP Study
Ms.	Krystina	Koops	Dufferin-Peel Catholic District School Board		Planner				905-890-0708 x24407		krystina.koops@dpcdsb.org			Previous Peel/Mississauga MSP Study
Mr.	Ric	Cooper	Port Credit BIA		Chair	Mississauga	ON	L5G 1H3			ric.cooper@biaport c.ca			Previous Peel/Mississauga MSP Study
	Rea	Lingo-Santiguida	Lakeview Ratepayers Association			Mississauga	ON	L5G 4S6			rea.lingo-santiguida@associationlakevi.ca			
	Ranjana	Mitra	Community Environment Alliance of Peel								info@communityenvironment.org			
Ms.	Lorraine	Symmes	Credit River Alliance								lsymmes@netidea.com			
Mr.	Don	Morrison	South-Peel Naturalists Club								mtrading@cogeco.ca			
Ms.	Mary	Simpson	Town of Port Credit Association								TOPCA@topca.net			

Appendix B

Engagement Tracking Logs

Indigenous Community	From (Person)	Recipient	Theme	Email	Date of Receipt	Comment/Question	Notes
Mississaugas of the Credit First Nation	Abby Laforme	Janice Hatton (RoP)	Notice of Commencement	Abby.laforme@mncfn.ca	10/7/2022	MCFN DOCA is interested in learning more about Arthur P. Kennedy Water Treatment Plant Expansion. Please let MCFN DOCA when you have availability for a virtual meeting.	
Six Nations of the Grand River	Tanya Hill-Montour	Janice Hatton (RoP)	Notice of Commencement / Archaeological review	Tanyahill-montour@sixnations.ca	10/12/2022	I am writing in regard to the schedule C Municipal Class Environmental Assessment Study notices provided to SNGREC. The Archaeological department has interest in the Stage 1 Archaeological Assessment. Our interest regarding Archaeology is review and possible feedback in the stage 1 AA also if required Stage 2 participation in any fieldwork that may be proposed	
Dominique Ste-Marie Nation Huronne-Wendat	Dominic Sainte Marie	Janice Hatton (RoP)	Notice of Commencement / Archaeological review	Dominic.Sainte-Marie@wendake.ca	10/7/2022	Could you please let us know if any archaeological studies or fieldwork will be necessary as part of this project?	
Haudenosaunee Development Institute		Janice Hatton (RoP)	Follow-Up to Notice of Commencement		1/1/2023	Hatch to follow-up via phone call to HDI to confirm schedule and their interest in participating in the Project.	
Huron-Wendat	Lori-Jeanne Bolduc		Archaelogical studies and fieldwork	consultations@wendake.ca		Kwe, Thank you for your email. Could you please let us know if any archaeological studies or fieldwork will be necessary as part of this project? Also, please note that we have updated our way of processing consultations. Any new consultation or project notice must be sent to the following email address: consultations@wendake.ca. Tiawenhk,	
All Indigenous Communities	Madalyn Murray (Hatch)	All Indigenous Communities	Notice of PIC	madalyn.murray@hatch.com	9/29/2023	Hello there, As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The first PIC will be hosted at Cawthra Secondary School on October 18, 2023 from 6:30pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,	A second round of emails were sent out on 10/2/2023 to new ministry emails that received bounce backs Notice of PIC was attached Cc'd Janice Hatton, Oya Koc, Mark Armstrong, Wenjuan Mu

Indigenous Community	From (Person)	Recipient	Theme	Email	Date of Receipt	Comment/Question	Notes
Huron-Wendat	Janice Hatton (Region of Peel)	Maxime Picard; Tina Durand	Notice of PIC 2	tina.durand@cnhw.qc.ca; maxime.picard@cnhw.qc.ca; admnistration@cnhw.qc.ca	3/20/2024	Good afternoon, As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion at the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at Arthur P. Kennedy Water Treatment Plant (2nd Floor Training Room) on April 17, 2024, from 6pm-8pm. A copy of the Notice of Public Information Centre #2 is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you, Janice Hatton (she/her) Project Manager, Engineering – Water Treatment and Facilities Engineering Services Division Public Works Region of Peel cell: 416-859-4768	Attached PIC 2 Notice CC'd: Oya; Mark; Wenjuan; Carson
Mississaugas of the Credit First Nation	Janice Hatton (Region of Peel)	Claire S; Fawn S; Mark Laforme	Notice of PIC 2	claires@mncfn.ca; fawns@mncfn.ca; Mark.laforme@mncfn.ca	3/20/2024	Good afternoon, As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion at the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at Arthur P. Kennedy Water Treatment Plant (2nd Floor Training Room) on April 17, 2024, from 6pm-8pm. A copy of the Notice of Public Information Centre #2 is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you, Janice Hatton (she/her) Project Manager, Engineering – Water Treatment and Facilities Engineering Services Division Public Works Region of Peel cell: 416-859-4768	Attached PIC 2 Notice CC'd: Oya; Mark; Wenjuan; Carson

Indigenous Community	From (Person)	Recipient	Theme	Email	Date of Receipt	Comment/Question	Notes
Six Nations of the Grand River	Janice Hatton (Region of Peel)	Lonny Bomberry; Sherilyn Hill	Notice of PIC 2	lonnybomberry@sixnations.ca; sherilynhill@sixnations.ca;	3/20/2024	Good afternoon, As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion at the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at Arthur P. Kennedy Water Treatment Plant (2nd Floor Training Room) on April 17, 2024, from 6pm-8pm. A copy of the Notice of Public Information Centre #2 is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you, Janice Hatton (she/her) Project Manager, Engineering – Water Treatment and Facilities Engineering Services Division Public Works Region of Peel	Attached PIC 2 Notice CC'd: Oya; Mark; Wenjuan; Carson
Metis Nation of Ontario	Janice Hatton (Region of Peel)	Shirley Debassige	Notice of PIC 2	Squirl_24@hotmail.com	3/20/2024	Good afternoon, As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion at the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at Arthur P. Kennedy Water Treatment Plant (2nd Floor Training Room) on April 17, 2024, from 6pm-8pm. A copy of the Notice of Public Information Centre #2 is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you, Janice Hatton (she/her) Project Manager, Engineering – Water Treatment and Facilities Engineering Services Division Public Works Region of Peel cell: 416-859-4768	Attached PIC 2 Notice CC'd: Oya; Mark; Wenjuan; Carson

Organization	From (Person)	Recipient	Theme	Email	Date of Receipt	Comment/Question	Response	Status	Date of Response	Notes
MECP	Trevor Bell	Karley Cianchino (Hatch)	Notice of Commencement	Trevor.bell@ontario.ca	12-Oct-22	Thanks for providing the Notice of Commencement for your project. I have forwarded your request to review your list of potentially interested Indigenous communities to the appropriate staff and I will respond to you as soon as possible. In the meantime, can you kindly return the attached completed Project Information Form. I have also attached instructions for providing Class EA notifications to the ministry for your reference.	PIF was completed and sent over to Trevor.	Complete	13-Oct-22	
MNRF	Lain Quigley	Karley Cianchino (Hatch)	Notice of Commencement	lain.quigley@ontario.ca	11-Oct-22	Thank you for circulating the notice of study commencement to our Ministry. Please see the attached file for information on available resources helpful in identifying MNRF mandated interests. During an initial screening I have flagged an abandoned petroleum well that exists close to the boundaries of the study area, for more information please see the file. Should you have any questions or are seeking any other MNRF resources please feel free to reach out.	Thank you for sharing this information with the Region of Peel and Hatch. We will review the attachment and let you know if we have any questions.	Complete	11-Oct-22	
Minisitry of Citizenship and Multiculturalism	Liam Smythe	Madalyn Murray (Hatch)	Notice of Commencement	Liam.Smythe2@ontario.ca	1-Dec-23	2023-12-01_TIP_KennedyWaterTreatment_Minisitry of Citizenship and Multiculturalism_InitialLetter.pdf In the letter, they have requested information regarding archaeological resources (including land and marine), built heritage resources (including bridges and monoments) and cultural heritage landscapes.		TBD		
Infrastructure Ontario	Carson Brennen (Hatch)	Infrastructure Ontario	PIC 2 Notice	noticereview@infrastructureontario.ca	3/20/2024	Hello Infrastructure Ontario, As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at the Arthur P. Kennedy Water Treatment Plan on April 17th, 2024 from 6pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,				PIC 2 Notice Attached CC'd Janice, Oya, Mark, Wenjuan

Organization	From (Person)	Recipient	Theme	Email	Date of Receipt	Comment/Question	Response	Status	Date of Response	Notes
Ministry of Agriculture, Food and Rural Affairs	Carson Brennen (Hatch)	Ministry of Agriculture, Food and Rural Affairs	PIC 2 Notice	Nancy.Rutherford@ontario.ca	3/20/2024	As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at the Arthur P. Kennedy Water Treatment Plan on April 17th, 2024 from 6pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,				PIC 2 Notice Attached CC'd Janice, Oya, Mark, Wenjuan
Ministry of Economic Development, Job Creation and Trade	Carson Brennen (Hatch)	Ministry of Economic Development, Job Creation and Trade	PIC 2 Notice	michael.falconi@ontario.ca; michael.helfinger@ontario.ca	3/20/2024	As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at the Arthur P. Kennedy Water Treatment Plan on April 17th, 2024 from 6pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,				PIC 2 Notice Attached CC'd Janice, Oya, Mark, Wenjuan
Ministry of Indigenous Relations and Reconciliation	Carson Brennen (Hatch)	Ministry of Indigenous Relations and Reconciliation	PIC 2 Notice	moeccpermissions@ontario.ca	3/20/2024	As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at the Arthur P. Kennedy Water Treatment Plan on April 17th, 2024 from 6pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,				PIC 2 Notice Attached CC'd Janice, Oya, Mark, Wenjuan

Organization	From (Person)	Recipient	Theme	Email	Date of Receipt	Comment/Question	Response	Status	Date of Response	Notes
Ministry of Natural Resources	Carson Brennen (Hatch)	Ministry of Natural Resources	PIC 2 Notice	steven.strong@ontario.ca	3/20/2024	As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at the Arthur P. Kennedy Water Treatment Plan on April 17th, 2024 from 6pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,				PIC 2 Notice Attached CC'd Janice, Oya, Mark, Wenjuan
Ministry of Municipal Affairs and Housing	Carson Brennen (Hatch)	Ministry of Municipal Affairs and Housing	PIC 2 Notice	michael.elms@ontario.ca	3/20/2024	As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at the Arthur P. Kennedy Water Treatment Plan on April 17th, 2024 from 6pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,				PIC 2 Notice Attached CC'd Janice, Oya, Mark, Wenjuan
Ministry of the Environment, Conservation and Parks	Carson Brennen (Hatch)	Ministry of the Environment, Conservation and Parks	PIC 2 Notice	trevor.bell@ontario.ca; eanotification.cregion@ontario.ca; aurora.mcallister@ontario.ca	3/20/2024	As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at the Arthur P. Kennedy Water Treatment Plan on April 17th, 2024 from 6pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,				PIC 2 Notice Attached CC'd Janice, Oya, Mark, Wenjuan

Organization	From (Person)	Recipient	Theme	Email	Date of Receipt	Comment/Question	Response	Status	Date of Response	Notes
Ministry of Tourism, Culture and Sport	Carson Brennen (Hatch)	Ministry of Tourism, Culture and Sport	PIC 2 Notice	Karla.barboza@ontario.ca; dan.minkin@ontario.ca; darja.keith@ontario.ca; carol.oitment@ontario.ca	3/20/2024	As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at the Arthur P. Kennedy Water Treatment Plan on April 17th, 2024 from 6pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,				PIC 2 Notice Attached CC'd Janice, Oya, Mark, Wenjuan
Ontario Clean Water Agency	Carson Brennen (Hatch)	Ontario Clean Water Agency	PIC 2 Notice	cpayette@owca.com; gkairys@ocwa.com; dmacdonald@ocwa.com; mafrazeh@ocwa.com	3/20/2024	As discussed in our outreach dated October 7, 2022, the Regional Municipality of Peel has initiated a Schedule 'C' Municipal Class Environmental Assessment (EA) to review alternatives to identify a preferred design for the reservoir expansion to the Arthur P. Kennedy Water Treatment Plant (WTP), located in the City of Mississauga. As part of the EA process, the Regional Municipality of Peel will be hosting Public Information Centres (PIC). The second PIC will be hosted at the Arthur P. Kennedy Water Treatment Plan on April 17th, 2024 from 6pm-8pm. A copy of the Notice of Public Information Centre is attached to this email for your reference. If there are any questions, please do not hesitate to reach out. Thank you,				PIC 2 Notice Attached CC'd Janice, Oya, Mark, Wenjuan
Ministry of the Environment, Conservation and Parks	Krish Selvakumar	Carson Brennen (Hatch)	PIC 2 Notice	krishna.selvakumar@ontario.ca	3/21/2024	Hi Carson, Thank you for following up on the second PIC in regard to the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion, Schedule C, Class Environmental Study. I've filed the copy of the Notice of PIC. Please continue to share any relevant updates on the project. Have a nice day!				CC'd Janice, Oya, Mark, Wenjuan
Ministry of Citizenship and Multiculturalism (MCM)	Liam Smythe	Carson Brennen (Hatch)	Notice of Completion Comments	Liam.Smythe@ontario.ca	12/2/2024	Dear Janice Hatton: Thank you for providing the Ministry of Citizenship and Multiculturalism (MCM) with/that the Notice of Completion for the above-referenced project, and for making the Environmental Study Report available for review. MCM's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage. Comments We have reviewed the Regional Municipality of Peel – Environmental Assessment for the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion – Environmental Study Report prepared by Hatch Ltd., dated October 15, 2024. We have the following comments and observations:...	Hello Mr. Smythe, The Region has reviewed and agreed with the comments provided by the Ministry of Citizenship and Multiculturalism. We have addressed all the comments raised and have updated the Environmental Study Report (ESR) accordingly.	Complete	12/16/2024	CC'd Janice, Oya, Mark, Wenjuan

Appendix C

Public Information Centre 1 Presentation Boards

Public Information Centre 1

Arthur P. Kennedy

Water Treatment Plant (WTP)

Reservoir Expansion

Class Environmental Assessment (EA) Study

Region of Peel

October 18, 2023

HATCH

Region of Peel
working with you

Land Acknowledgements

We would like to begin by acknowledging the land on which we gather, and which the Region of Peel operates, is part of the Treaty Lands and Territory of the Mississaugas of the Credit. For thousands of years, Indigenous peoples inhabited and cared for this land, and continue to do so today.

In particular we acknowledge the territory of the Anishinabek, Huron-Wendat, Haudenosaunee and Ojibway/Chippewa peoples; the land that is home to the Metis; and most recently, the territory of the Mississaugas of the Credit First Nation who are direct descendants of the Mississaugas of the Credit.

Public Information Centre 1

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Purpose of the Study:

- Provide a design concept for additional water storage for the WTP to ensure long-term reliable water treatment and supply.

Help us help you!

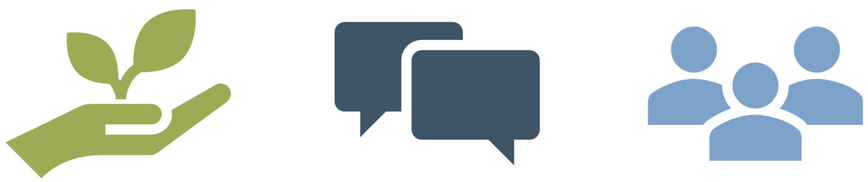
- This is your opportunity to comment on the study.
- All comments received will be considered and incorporated where possible.

What should I be doing?

- Reviewing the PIC presentation boards.
- Share comments with one of the team members in attendance or via e-mail during the comment period.

Objectives of PIC 1:

1. Introduce the Study
2. Outline the work progress to date.
3. Share the alternative solutions being considered and evaluation methods.
4. Discuss next steps and obtain your input.



HATCH

Region of Peel
working with you

Schedule ‘C’ Class EA Process

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5
EA Process				
Problem or opportunity	Alternative Solutions	Alternative Design Concepts for Preferred Solution	Environmental Study Report (ESR)	Implementation
Technical Work				
Document Existing Conditions Develop Problem and Opportunity Statement	Inventory Natural, Cultural, Social, Economic Environment Identify and Evaluate Alternative Solutions Select Preferred Solution	Identify and Evaluate Design Concepts for Preferred Solution Identify Impacts and Mitigation Measures Select and Develop Preferred Design	Document EA process and findings in ESR Place ESR on Public Record for Review and Comment	Complete Contract Drawings and Tender Documents (mitigation measures and commitments) Construction and Operation Environmental monitoring
Public Consultation				
Notice of Study Commencement	Public Information Centre 1	Public Information Centre 2	Notice of Study Completion	

WE ARE HERE

Project Background

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

- The Region is serviced by Arthur P. Kennedy WTP and Lorne Park WTP. These WTPs, with trunk water systems and pumping stations, combine as the “Lake Based Water System”.
- Arthur P. Kennedy WTP is one of the world’s largest water treatment facilities with a capacity to produce 1,200 ML of clean water every day
- Serves residents in the eastern part of Mississauga, Brampton, York Region and the community of Bolton.
- Built in 1952, with multiple expansions and upgrades, with the latest capacity expansion in 2014.
- The Region of Peel’s Water and Wastewater Master Plan (2020) and updated 2051 population forecast identifies the current treated water storage as insufficient at Arthur P. Kennedy WTP .

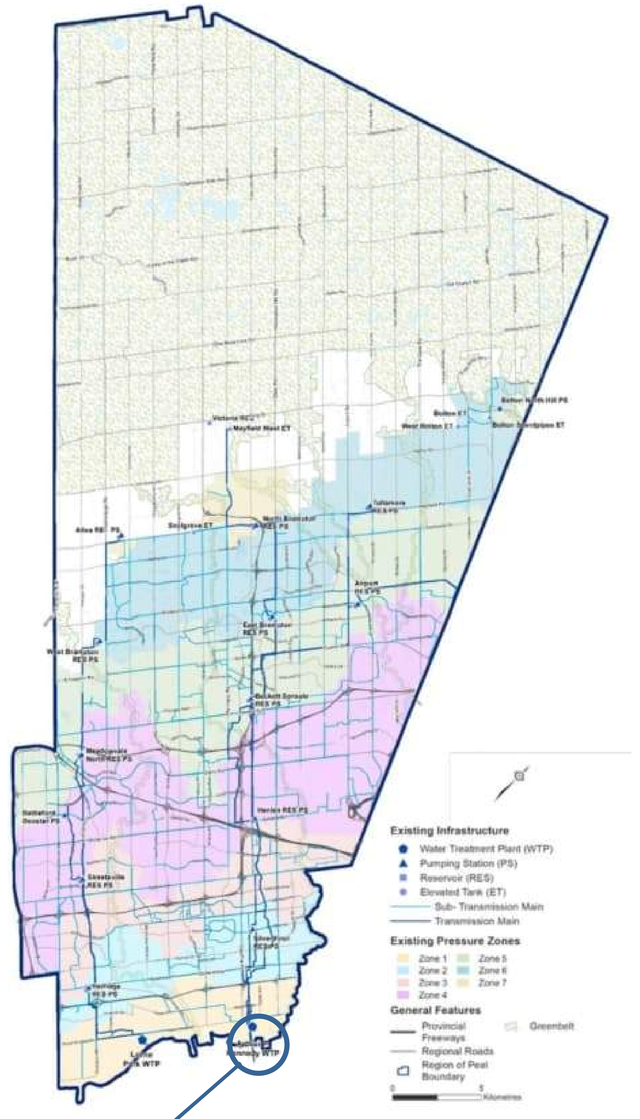
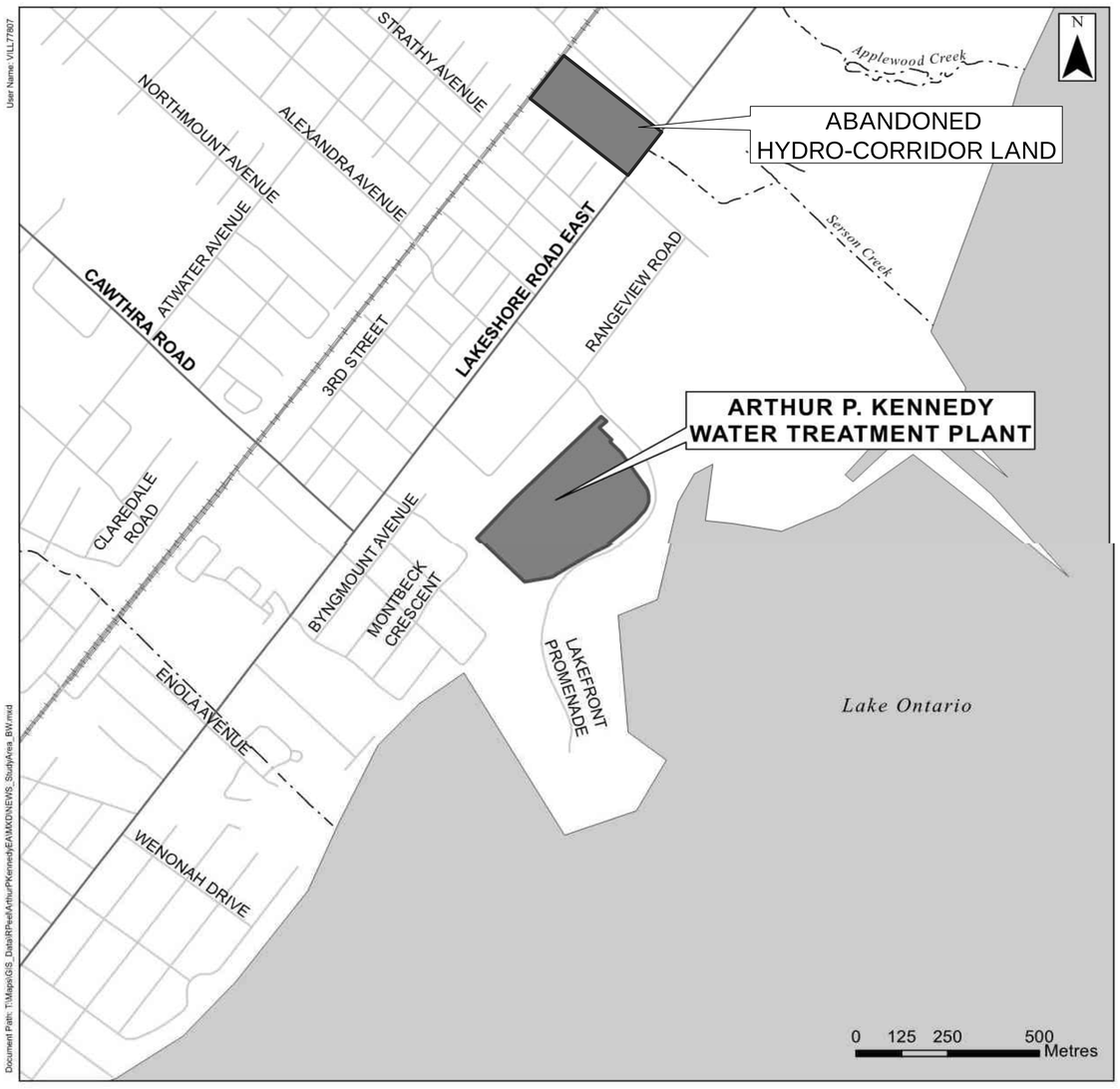


Image Source: South Peel Water Quality Report, Brampton, Mississauga and South Caledon, 2020

Study Area

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



Study Area

- The approximate limits of the Study Area extend from:
  - Lakeshore Road East southerly to Lake Ontario
  - Just east of Montbeck Crescent to East Avenue extending to the western limits of the Douglas Kennedy Park
- For the purpose of alternative solutions, the Study Area also considers other sites within the Region.

1. Identify the Problem or Opportunity

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

1. 2. 3. 4. 5.

Problem Statement:

- The Region's major servicing policies and guiding principles require system reliability, security for its residents and businesses, and maintaining the same level of service from every facility.
- The Water and Wastewater Master Plan (2020) identified the water storage facility at the Arthur P. Kennedy WTP requires expansion to support the Region's water servicing requirement.
- The population forecast for the 2051 planning horizon will increase the water demand at Arthur P. Kennedy WTP; and the plant facilities must align with the increased requirements.

Image Source: Liber360° INC., 2018. RETRIEVED FROM : Arthur P. Kennedy Water Treatment Plant — Liberty360° Inc. (liberty360inc.com)

2. Project Objectives

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Technical (System Reliability, Security and Level of Service)	Planning	Environmental Protection	Community Acceptability	Fiscal Responsibility
• The plant requires increased redundancy for water storage. • Keeping consistency with the level of service with the other WTP and other similar sized plants in Ontario, the plant requires a total reservoir storage volume to provide a minimum of 1.3 to 2 hours of water supply at the rated plant capacity. • Integration of a new reservoir to the existing WTP operation to improve security of operation.	• Design that aligns with the 2020 Master Plan and latest Official Plan. • New reservoir should have the ability to support future capacity expansions in alignment with the 2051 and post-2051 growth. • Considering the limitation of the current site, the space allocated for the reservoir should not prevent opportunities for future capacity expansions.	• Evaluate alternative solutions with consideration for the natural, social, and cultural environments. • Mitigate risks to natural, social, cultural environments.	• Effective consultation with the stakeholders and approval agencies. • Develop visually appealing design and landscaping that integrates into the existing community.	• Balance project costs while protecting the natural, social and cultural environments.

2. Alternative Solutions and Evaluation Approach

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Step 1

- Project objectives that align with the problem statement were developed.

Step 2

- Alternative Solutions have been identified.

Step 3

- Alternative Solutions will be evaluated based on compliance with the project objectives.

Step 4

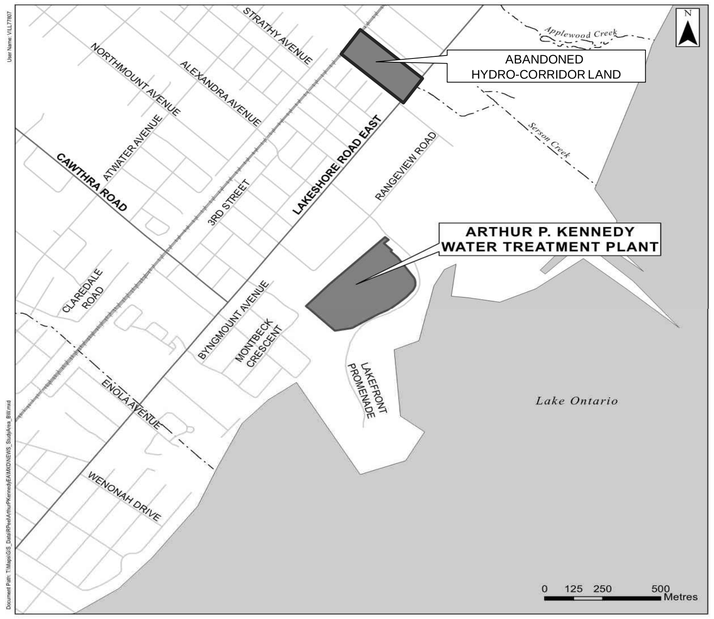
- Alternatives that least comply with the project objectives will be eliminated.

2. Available Properties for Alternatives

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

On-site Properties: Northwest and Southeast

Off-site Property – Abandoned Hydro-corridor

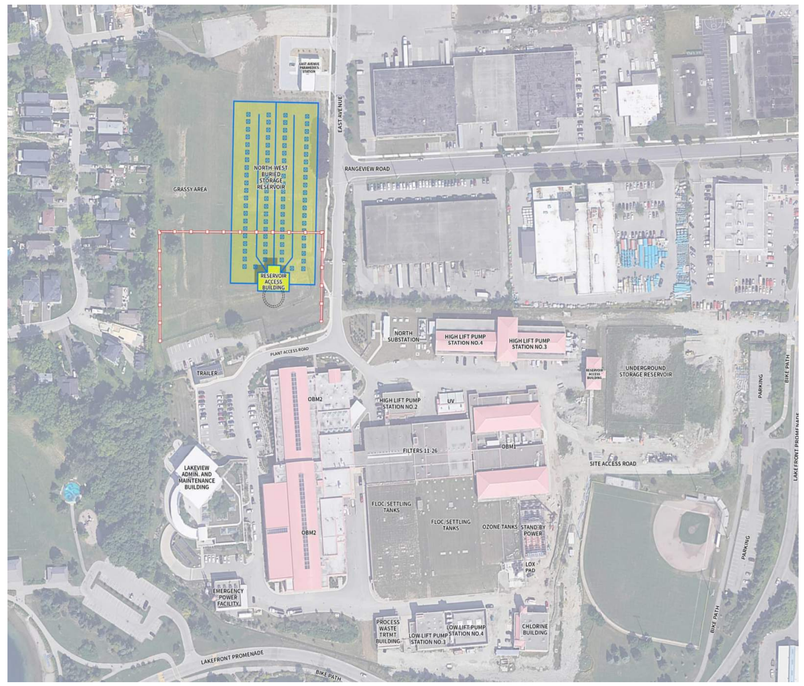


Key Plan Map

2. Long List of Alternative Solutions

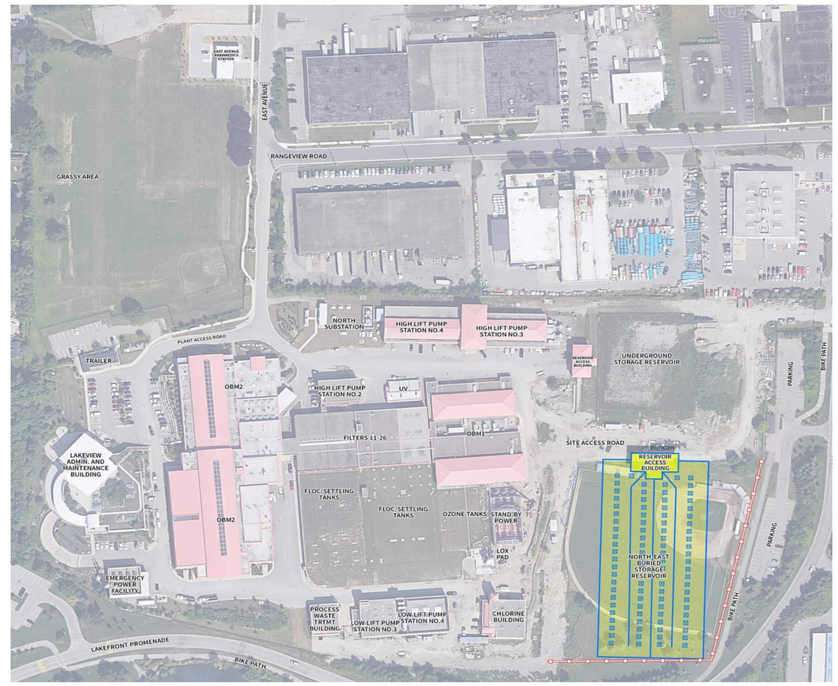
Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Two On-site Alternatives are considered for the properties within the Arthur P. Kennedy WTP site.



Alternative Solution 1: Northwest Reservoir

- New reservoir would be on the northwest property, where the filtered water is conveyed from the treatment train on the west and drained to the High Lift pumping station through a tunnel.
- Future treatment capacity expansions could be on the southeast property, the Conventional Treatment Plant area and off-site property (abandoned hydro-corridor).



Alternative Solution 2: Southeast Reservoir

- New reservoir would be on the southeast property, where the filtered water is conveyed from the treatment train on the east and drained to the High Lift pumping station through the existing reservoir and pipes.
- Future treatment capacity expansions could be on the northwest property, the Conventional Treatment Plant area and off-site property.

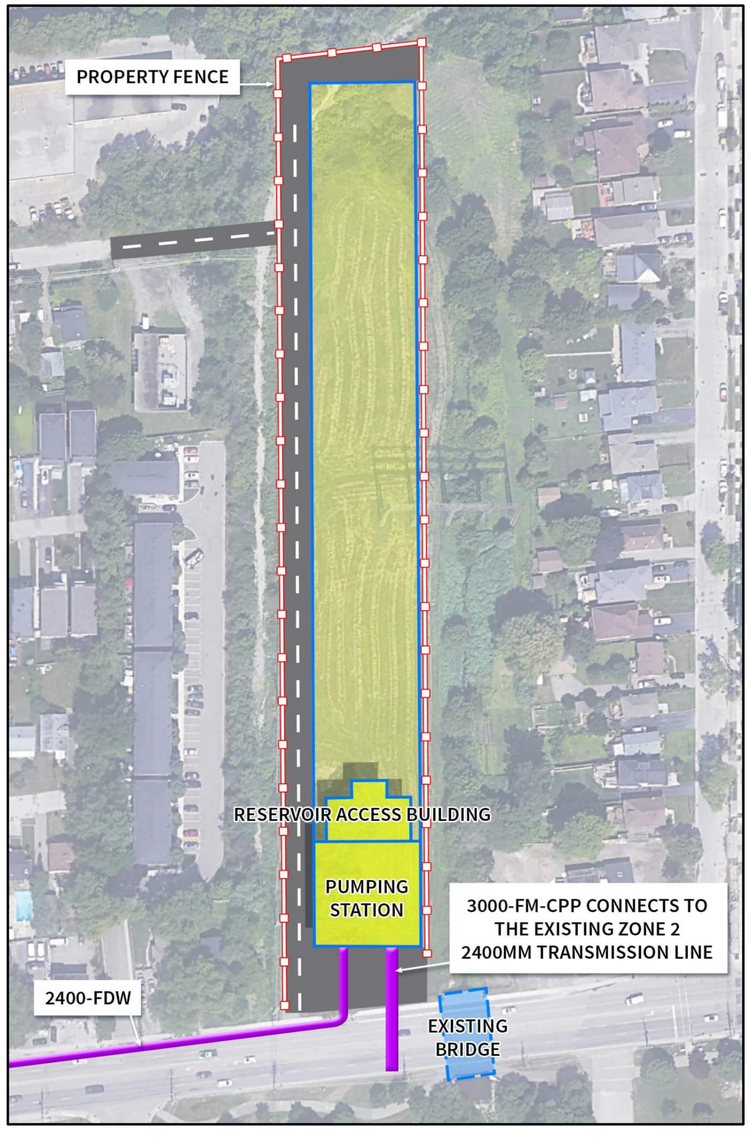
2. Long List of Alternative Solutions

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Off-site Alternative

Alternative Solution 3: Off-Site Reservoir

- New reservoir would be within the abandoned Hydro-Corridor Land (approximately 1.2 km east of the plant site, and on the north side of Lakeshore Road East).
- Future treatment capacity expansions could be in the available properties within the Arthur P. Kennedy WTP site.

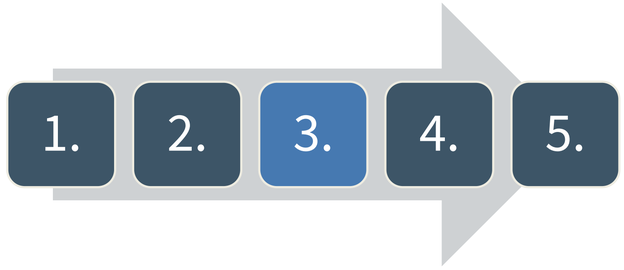


Off-Site Reservoir Site Layout

- The Reservoir Access and Pumping Building would be positioned on the south side of the site with entrance from the Lakeshore Road East.

3. Next Steps….

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



After the first Public Information Centre (PIC), the project team will;

- Review and consider input received during the meeting.
- Complete a detailed evaluation of the alternative solutions.
- Initiate investigative studies to advance the evaluation of the alternative solutions such as Archaeological Assessment, Natural Features Assessment, Geotechnical Study, Hydrogeology Study, and Phase 1 Environmental Site Assessment.
- Continue to engage with review and approval agencies and other key stakeholders and rightsholders.
- Complete detailed evaluation of the alternatives for the preliminary preferred solution.
- Prepare for PIC No. 2.

Project Schedule and Next Steps

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Study Commencement
November 2022

Public Information Centre 1
October 2023

WE ARE HERE

Following the receipt of comments and input, the Preferred Solution will be confirmed and technical studies will be completed.

Public Information Centre 2
January-March 2024

Potential impacts and mitigation measures will be identified.

Class EA Study Completion
July-September 2024

Proposed Start of Construction*
2026

**The construction timing window is dependent upon approval of the construction budget by Region Council.*

HATCH

Region of Peel
working with you

Thank you!
Comments or Questions?

Your questions and comments are greatly appreciated!
Please email them by November 18th, 2023, to:

Janice Hatton
Project Manager, Engineering (Water Treatment and Facilities)
Engineering Services Division
Public Works
Region of Peel
Janice.Hatton@peelregion.ca

Appendix D

Public Information Centre 2 Presentation Boards



Public Information Centre 2

Arthur P. Kennedy

Water Treatment Plant (WTP)

Reservoir Expansion

Class Environmental Assessment (EA) Study

Peel Region

April 17, 2024

HATCH

Peel Region
working with you

Land Acknowledgements

We would like to begin by acknowledging the land on which we gather, and which the Region of Peel operates, is part of the Treaty Lands and Territory of the Mississaugas of the Credit. For thousands of years, Indigenous peoples inhabited and cared for this land, and continue to do so today.

In particular we acknowledge the territory of the Anishinabek, Huron-Wendat, Haudenosaunee and Ojibway/Chippewa peoples; the land that is home to the Metis; and most recently, the territory of the Mississaugas of the Credit First Nation who are direct descendants of the Mississaugas of the Credit.

Public Information Centre 2

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Purpose of the Study:

- Provide a design concept for additional water storage for the WTP to ensure long-term reliable water treatment and supply.

Help us help you!

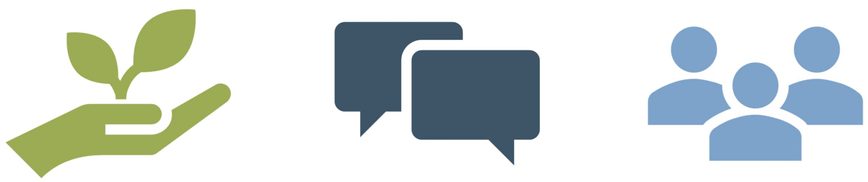
- This is your opportunity to comment on the study.
- All comments received will be considered and incorporated where possible.

What should I be doing?

- Reviewing the PIC presentation boards.
- Share comments with one of the team members in attendance or via e-mail during the comment period.

Objectives of PIC 2:

1. Provide an overview of the Class Environmental Assessment Study Process and the progress to date;
2. Provide the background study information;
3. Present the preliminary preferred design concept;
4. Present the benefits, impacts and proposed mitigation of impacts;
5. Outline next steps and obtain your input.



HATCH

Peel Region
working with you

Schedule ‘C’ Class EA Process

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

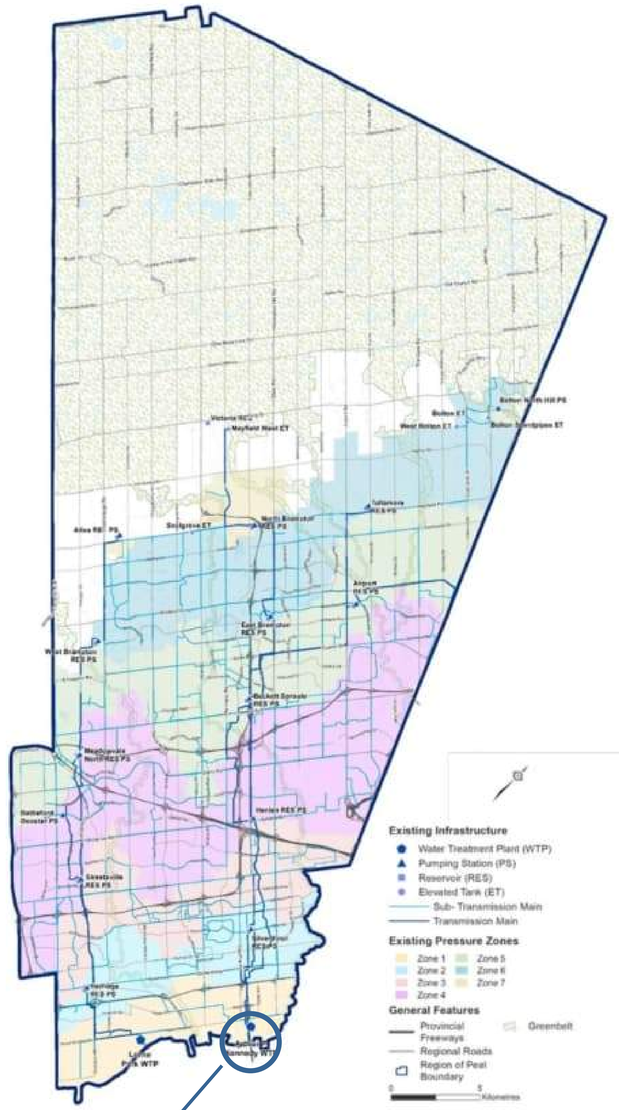
PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5
EA Process				
Problem or opportunity	Alternative Solutions	Alternative Design Concepts for Preferred Solution	Environmental Study Report (ESR)	Implementation
Technical Work				
Document Existing Conditions Develop Problem and Opportunity Statement	Inventory Natural, Cultural, Social, Economic Environment Identify and Evaluate Alternative Solutions Select Preferred Solution	Identify and Evaluate Design Concepts for Preferred Solution Identify Impacts and Mitigation Measures Select and Develop Preferred Design	Document EA process and findings in ESR Place ESR on Public Record for Review and Comment	Complete Contract Drawings and Tender Documents (mitigation measures and commitments) Construction and Operation Environmental monitoring
Public Consultation				
Notice of Study Commencement	Public Information Centre 1	Public Information Centre 2	Notice of Study Completion	

WE ARE HERE!

Project Background

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

- The Region is serviced by Arthur P. Kennedy WTP and Lorne Park WTP. These WTPs, with trunk water systems and pumping stations, combine as the “Lake Based Water System”.
- Arthur P. Kennedy WTP is one of the world’s largest water treatment facilities with a capacity to produce 1,200 ML of clean water every day
- Serves residents in the eastern part of Mississauga, Brampton, York Region and the community of Bolton.
- Built in 1952, with multiple expansions and upgrades, with the latest capacity expansion in 2014.
- The Region of Peel’s Water and Wastewater Master Plan (2020) and updated 2051 population forecast identifies the current treated water storage as insufficient at Arthur P. Kennedy WTP.



Arthur P. Kennedy Water Treatment Plant

Image Source: South Peel Water Quality Report, Brampton, Mississauga and South Caledon, 2020

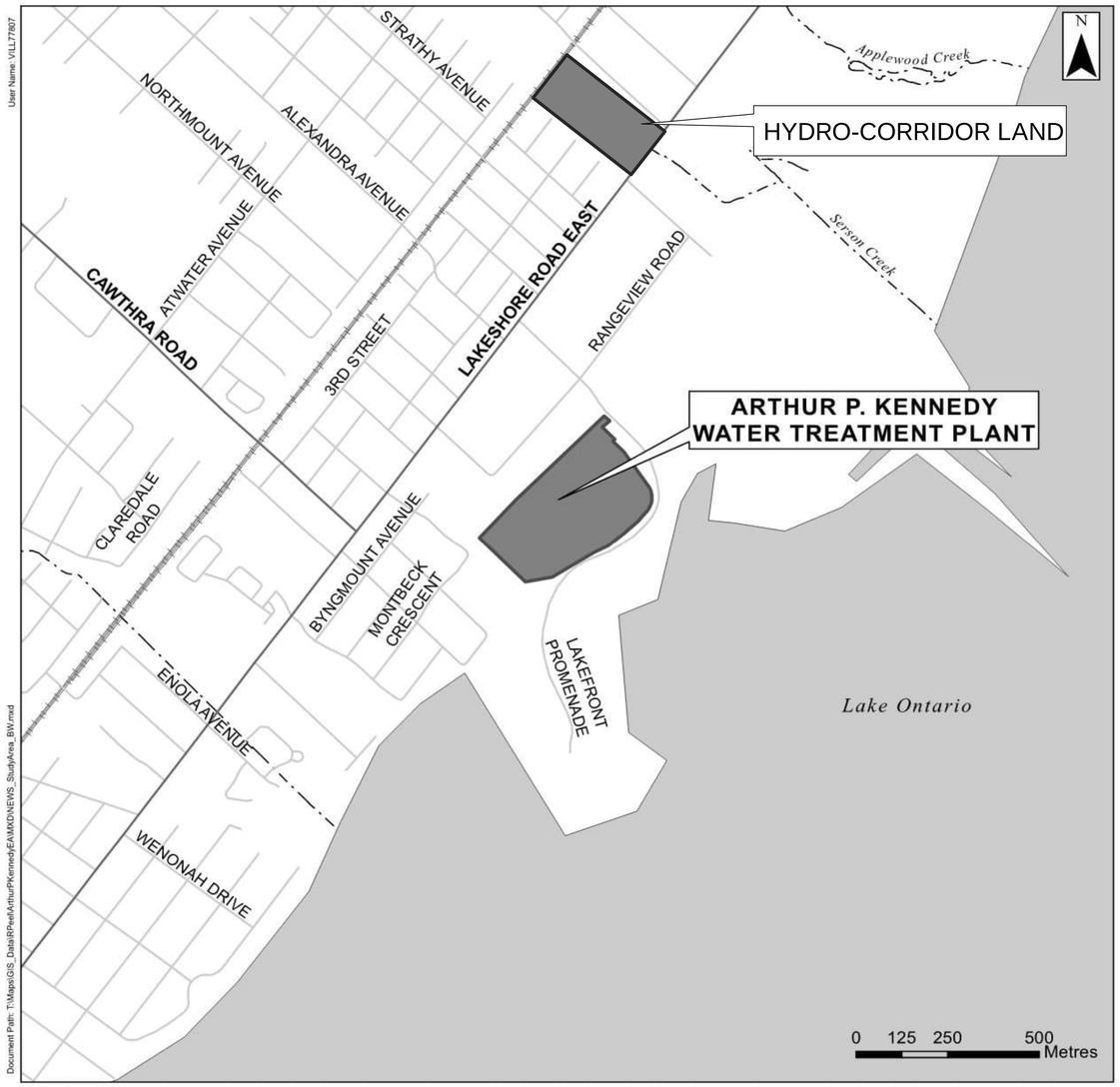
Existing Arthur P. Kennedy Water Treatment Plant

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

1. High Lift Pumping Station 4
2. High Lift Pumping Station 3
3. Reservoir Access Building
4. Existing East Reservoir
5. Advanced Treatment Plant OBM 2 (Ozone / Biologically Active Carbon Contactors / Ultraviolet Reactors / Membrane Filtration)
6. Conventional Treatment Plant
7. Advanced Treatment Plant OBM 1 (Ozone / Biologically Active Carbon Contactors / Membrane Filtration)
8. Standby Power
9. Administration and Maintenance Building **(You are Here)**
10. Emergency Power Facility
11. Process Waste Treatment Facility
12. Low Lift Pumping Station 3
13. Low Lift Pumping Station 4
14. Chlorine Building

Study Area

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



Study Area

- The approximate limits of the Study Area extend from:
  - Lakeshore Road East southerly to Lake Ontario
  - Just east of Montbeck Crescent to East Avenue extending to the western limits of the Douglas Kennedy Park
- For the purpose of alternative solutions, the Study Area also considers other sites within the Region.

Identify the Problem or Opportunity

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Problem Statement:

- The Region's major servicing policies and guiding principles require system reliability, security for its residents and businesses, and maintaining the same level of service from every facility.
- The Water and Wastewater Master Plan (2020) identified the water storage facility at the Arthur P. Kennedy WTP requires expansion to support the Region's water servicing requirement.
- The population forecast for the 2051 planning horizon will increase the water demand at Arthur P. Kennedy WTP; plant facilities must align with the increased demand.

Image Source: Liber360° INC., 2018. RETRIEVED FROM : Arthur P. Kennedy Water Treatment Plant — Liberty360° Inc. (liberty360inc.com)

Project Objectives

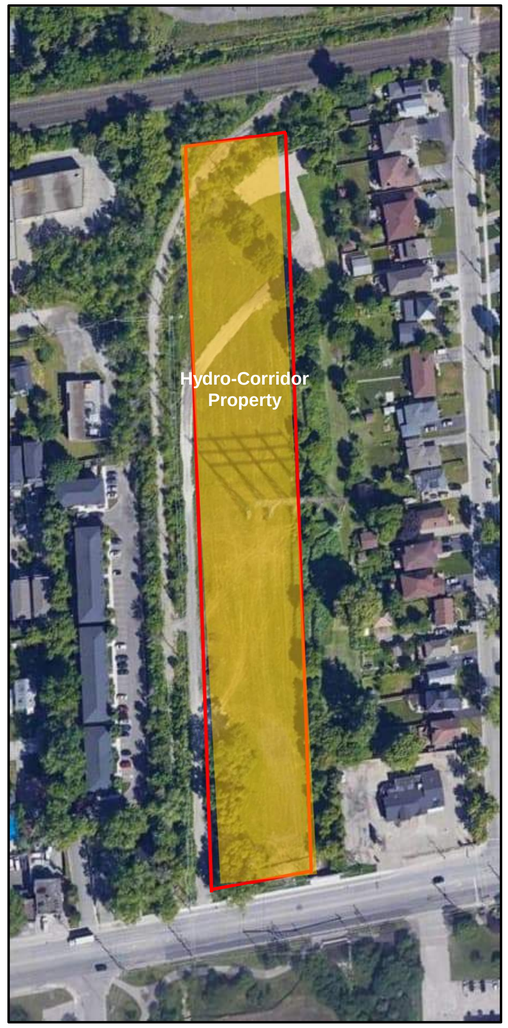
Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Technical (System Reliability, Security and Level of Service)	Planning	Environmental Protection	Community Acceptability	Fiscal Responsibility
• The plant requires increased redundancy for water storage. • Keeping consistency with the level of service with the other WTP and other similar sized plants in Ontario, the plant requires a total reservoir storage volume to provide a minimum of 1.3 to 2 hours of water supply at the rated plant capacity. • Integration of a new reservoir to the existing WTP operation to improve security of operation.	• Design that aligns with the 2020 Master Plan and latest Official Plan. • New reservoir should have the ability to support future capacity expansions in alignment with the 2051 and post-2051 growth. • Considering the limitation of the current site, the space allocated for the reservoir should not prevent opportunities for future capacity expansions.	• Evaluate alternative solutions with consideration for the natural, social, and cultural environments. • Mitigate risks to natural, social, cultural environments.	• Effective consultation with the stakeholders and approval agencies. • Develop visually appealing design and landscaping that integrates into the existing community.	• Balance project costs while protecting the natural, social and cultural environments.

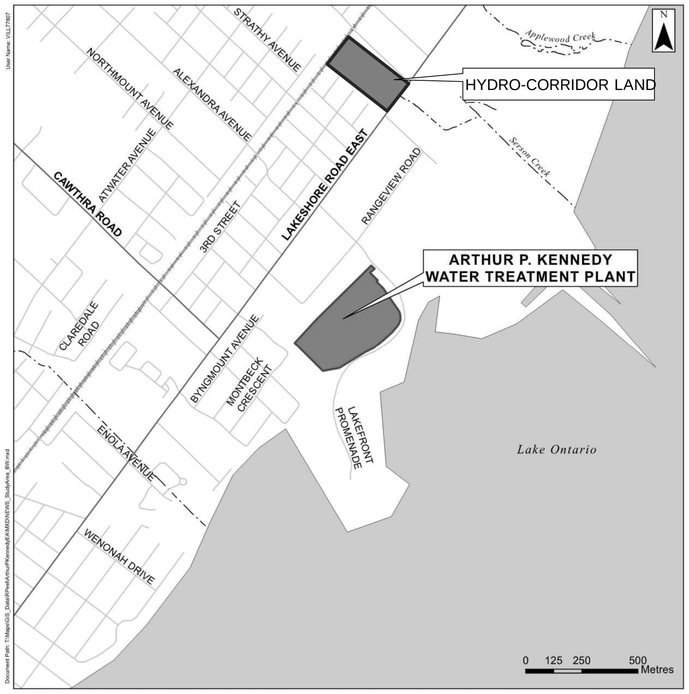
Available Properties for Alternatives

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

On-site Properties: Northwest and Southeast



Off-site Property:
Hydro-Corridor Land



Key Plan Map

HATCH

Peel Region
working with you

Alternative Solution and Evaluation Approach

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Step 1

Project objectives that align with the problem statement were developed.

Step 2

Alternative Solutions were identified.

Step 3

Alternative Solutions were screened based on compliance with the project objectives.

Step 4

Alternatives that least comply with the project objectives were eliminated.

→ **PIC No.1**

Step 5

Alternative Design Concepts were developed.

Step 6

Detailed Evaluation of Alternative Design Concepts were completed.

Step 7

Preliminary Preferred Alternative Design Concept were identified.

→ **PIC No.2**

Screening of Long-List of Alternative Solutions

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Screening Criteria	Alternative 1 Do Nothing	Alternative 2 Northwest Reservoir	Alternative 3 Southeast Reservoir	Alternative 4 Reservoir at the Hydro-Corridor Land
Alignment with Problem Statement	✗	✓	✓	✓
Technical and Planning				
Planning Horizon	✗	✓	✓	✓
Level of Service	✗	✓	✓	✓
System Reliability and Security	✗	✓	✓	✓
Public and Agency Consultation Feedback	✗	✓	✓	✗
Environmental Protection	✓	✓	✓	✓
	Screened Out			**Screened Out**

Short Listed Alternative Solution – Northwest Reservoir

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Alternative 2 : Northwest Reservoir

The new reservoir would be situated on the vacant land, north of the existing treatment plant and west of East Avenue.

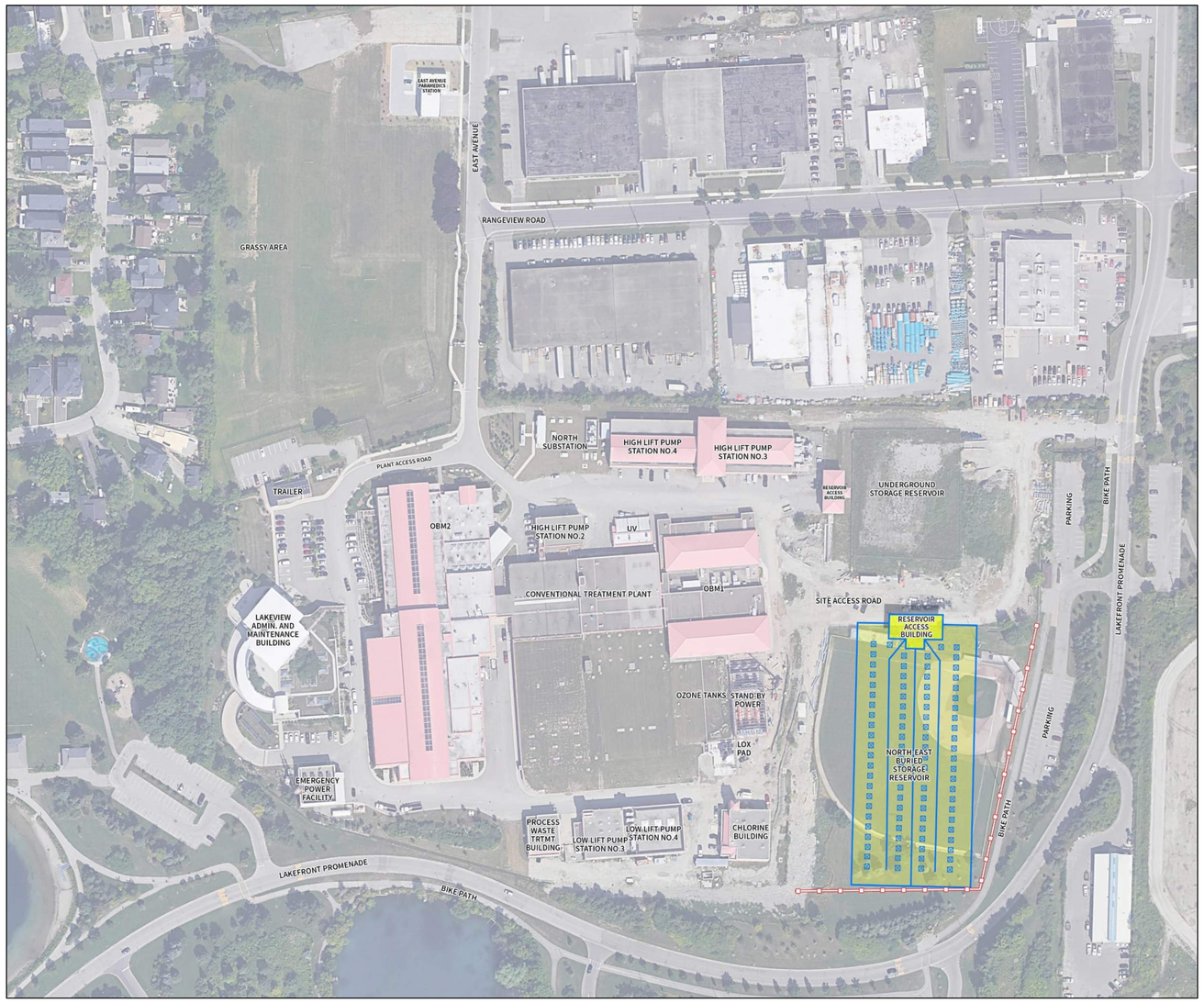
Considerations:

- Closer location to residential area.
- Open green space will be reduced.
- A deep tunnel connection from reservoir to the pumping station requires longer construction with some heavy truck traffic for soil disposal.
- Provides full redundancy and security to the plant operation.
- Additional interconnection chambers would be needed to direct flows from all treatment trains to the new reservoir.

Short Listed Alternative Solution – Southeast Reservoir

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Alternative 3 : Southeast Reservoir



The new reservoir would be situated at the baseball diamond location, south of existing reservoir and east of advanced treatment plants.

Considerations:

- The baseball diamond will be permanently removed.
- Requires extensive piping connection to the existing reservoir.
- Allows favourable integration with existing plant operation under normal operation.
- Less redundancy would be provided to the existing reservoir.

AM2.

Detailed Evaluation of Short-listed Alternatives

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

MW0

Evaluation Criteria	Alternative 2 Northwest Reservoir		Alternative 3 Southeast Reservoir	
	Description	Impact	Description	Impact
Environmental Protection - Natural				
Natural Features	• No natural vegetation communities exist within the area. • Limited wildlife habitat exists within the footprint. • A small part of the southwest corner of the land within the CVC regulated lands. However, the surrounding areas are heavily developed and likely pose no flooding risk after implementing stormwater management policies.	**Moderate Impact**	• No natural vegetation communities exist within the area. • Limited wildlife habitat exist within the footprint of the diamond.	**Moderate Impact**
Social Cultural/Socio-Economic Environment				
Land Use and Recreational Use	• Currently vacant land that provides little aesthetic value, some public use recreationally. • New reservoir will reduce publicly available green area.	**Moderate Impact**	• Closure of the current baseball diamond for recreational activities.	**Highest Impact**
Archaeological, Built and Cultural Heritage Resources	• Stage 1 Archaeological Assessment (2017) was completed and noted most of the site disturbed. Stage 2 Archaeological Assessment is being conducted for the site.	**Moderate Impact**	• Stage 1 Archaeological Assessments (2008) was completed and found the baseball field might have archaeological significance. Stage 2 Archaeological Assessment is being conducted for the site.	**Moderate Impact**
	• No direct impacts are anticipated to the Lakefront Promenade Park Cultural Heritage Landscape (C.H.L).	**No Impact**	• The passive recreation areas are considered as heritage attributes of the C.H.L. Removal of the baseball diamonds of Douglas Kennedy Park would be direct adverse impact to C.H.L.	**Highest Impact**
Indigenous Interest	• No Indigenous comprehensive land claims within study area.	**No Impact**	• No Indigenous comprehensive land claims within study area.	**No Impact**
Net Impacts to Communities	• Some buffers from the residential area to Northwest Reservoir; Minimum impact after construction both visual and public use of the land. • Closer to the residential area • No future structured facility for public use would be allowed.	**Moderate Impact**	• Southeast property is within the plant site, with less residential communities' impacts. • The existing baseball diamond will be permanently removed.	**Highest Impact**

Slide 15

MW0

Added by Mark Stirrup
"My main contribution has been to add a new option to the current Slide 19 – Detailed Evaluation of Short-Listed Alternatives, which looks more like the previous table included in the Phase 2 EA Report, which I have split into two slides, which are now numbered as Slides 20 and 21. If you're okay with these revised slides, the current slide can be removed. I have also made some minor grammatical revisions to some of the info in these two tables, mainly to simply things a bit for the public. Of course, please feel free to edit/reformat these two slides as you see fit."
Mu, Wenjuan, 2024-03-15T18:48:29.907

MW1

Archaeological, Built and Cultural Heritage Resources to be updated later by ASI
Mu, Wenjuan, 2024-03-18T01:28:53.867

AM2

Please fix so that the text and bulleta are not on the box borders (helps with readibility)
Armstrong, Mark, 2024-03-22T19:36:04.190

Detailed Evaluation of Short-listed Alternatives Continued

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Evaluation Criteria	Alternative 2 Northwest Reservoir		Alternative 3 Southeast Reservoir	
	Description	**Impact**	**Description**	**Impact**
Planning and Technical Consideration				
Reservoir Capacity	• Provides 43,300 cubic metre storage volume.	**Moderate Benefit**	• Provides 47,000 cubic metre storage volume.	**Highest Benefit**

Level of Service	• Maintains water supply without treatment plant running;
	  • 1.46 hours at 2051 water demand numbers.
	  • 0.94 hours at ultimate plant capacity.
		Moderate Benefit	• Maintains water supply without treatment plant running;
			  • 1.54 hours at 2051 water demand numbers.
			  • 1.04 hours at ultimate plant capacity.
				Highest Benefit

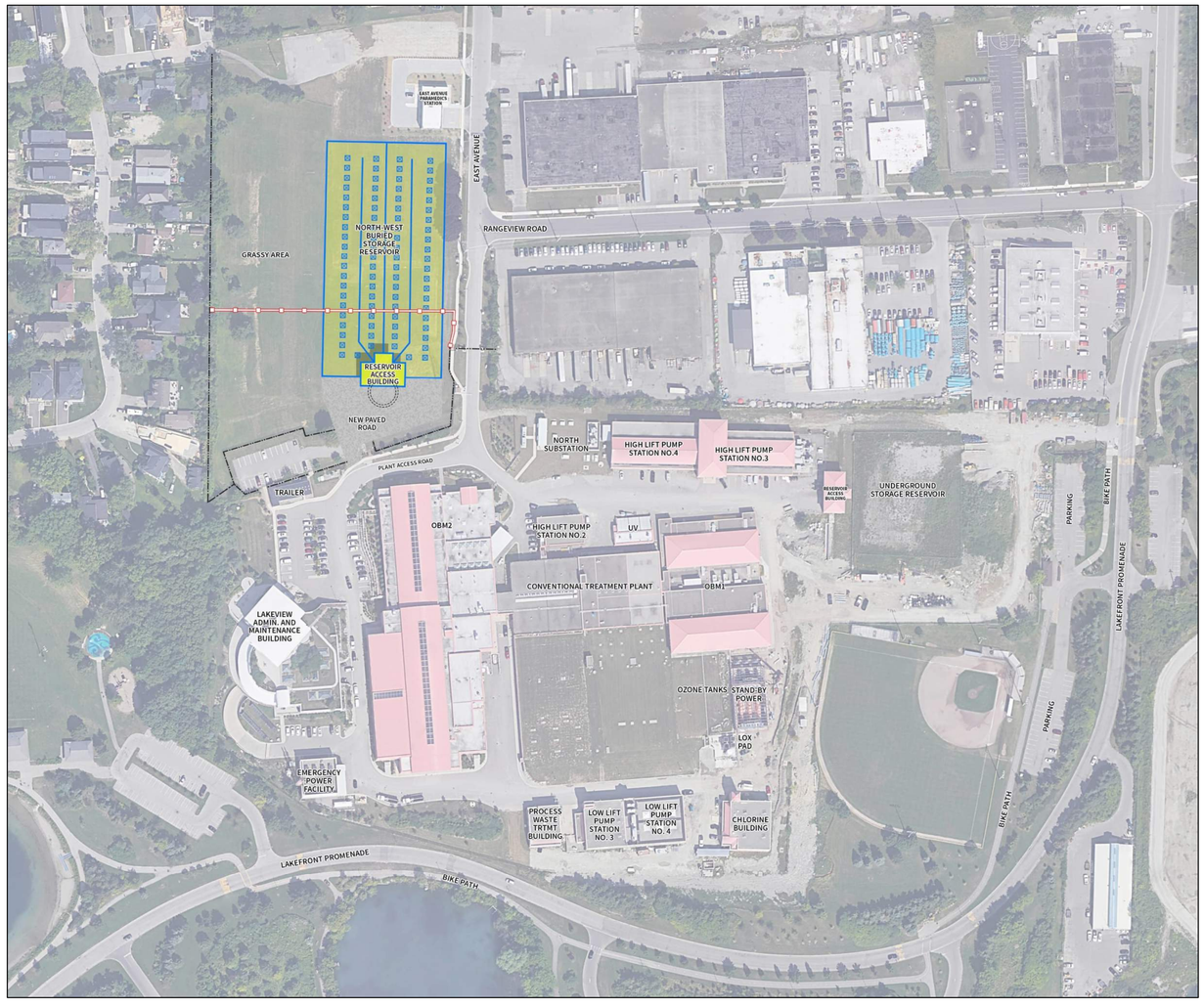
Ultimate Plant Rated Capacity	• ~ 1,940 ML/d with expansion on the other available sites.	**Highest Benefit**	• ~ 1,847 ML/d with expansion on the other sites.	**Moderate Benefit**
Integration with Existing Plant Operation & Redundancy	• More complex integration to the existing plant operation and achieving compliance. • Provides full redundancy for the reservoir and security of plant operation.	**Moderate Benefit** **Highest Benefit**	• Easier integration to the existing plant operation and compliance. • New reservoir provides limited level of redundancy to the reservoir.	**Highest Benefit** **Minimal Benefit**
Constructability	• A tunnel construction for reservoir drain to high lift pumping station increases the complexity and duration of construction.	**Moderate Benefit**	• New reservoir construction will be connected to the existing reservoir which requires shutdown and creates potential risk on the existing reservoir.	**Minimal Benefit**
Operation & Maintenance	• Provides easy access and maintenance for new reservoir.	**Moderate Benefit**	• Provides easy access and maintenance for new reservoir.	**Moderate Benefit**
Fiscal Responsibility				
Capital Cost	• Higher capital cost mainly attributed to tunneled connection from reservoir to the pumping station.	**Moderate Benefit**	• Lower capital cost, with no extra major infrastructures except on-site piping connection.	**Highest Benefit**
Operation & Maintenance Cost	• No major increase.	**Moderate Benefit**	• No major increase.	**Moderate Benefit**

Preliminary Preferred Alternative Solution and Concept

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

The preliminary preferred alternative design concept is Alternative 2, Northwest Reservoir, which offers specific advantages:

- Northwest vacant land, has limited wildlife habitat and natural vegetation, minimizing environmental impact.
- The new reservoir will connect to the existing East Reservoir and will have the capability to operate independently.
- This design not only offers increased redundancy but also strengthens the security of the water supply.
- This location does not impact recreational use of the land.
- The location allows for easier access and maintenance.
- Post-construction, the impact on both the visual landscape and the public's use of the remaining land would be minimal.

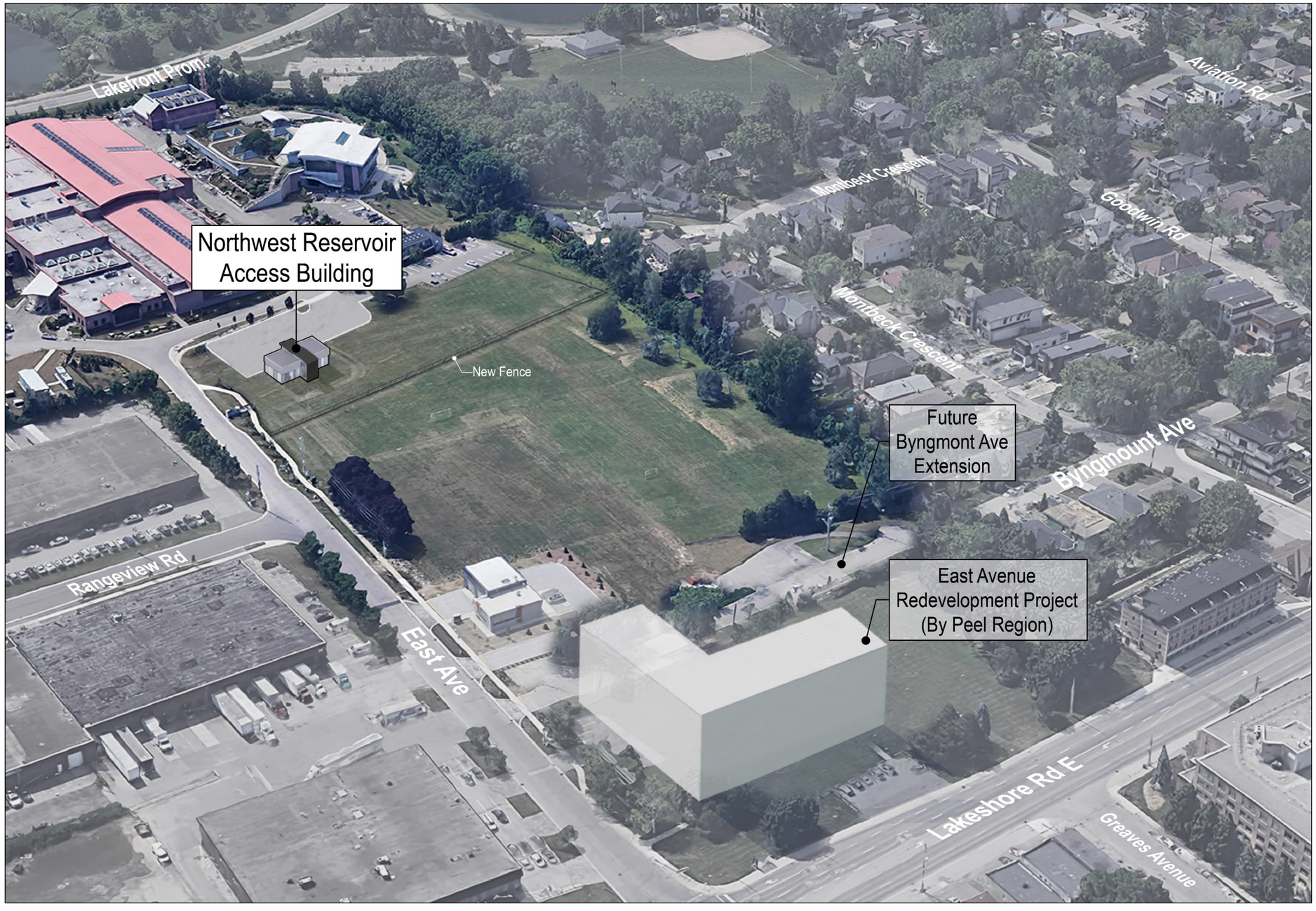


HATCH

Peel Region
working with you

Proposed Site Plan - Rendering 3D Model

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



Northwest Reservoir - Rendering 3D Model

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

HATCH

Peel Region
working with you

Overview of Mitigation Measures

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Short-term Construction Impacts

Noise, dust, traffic, vibration, safety

- Fencing will be temporarily installed around the construction site of the new Reservoir to ensure safety.
- Construction activities will comply with local noise-by-laws.
- Health and safety is a priority to the Region. All construction will adhere to strict safety guidelines.
- Traffic management and access on East Avenue will be maintained, with potential coordination with other projects on site if necessary.

Aesthetic of the Site

Visual Appearance to neighbors

- The design of Northwest Reservoir will have a modern and aesthetically pleasing new look, especially considering the new residential developments that are planned adjacent to the site.

Consultation

During EA Study, Design and Construction

- Ongoing communication with the community and stakeholders will be maintained through regular construction status updates (e.g. newsletter including contact person).

Project Schedule and Next Steps

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Study Commencement
November 2022

Public Information Centre 1
October 2023

Following the receipt of comments and input, the Preferred Solution will be confirmed, and technical studies will be completed.

WE ARE HERE !

Public Information Centre 2
April 2024

Potential impacts and mitigation measures will be identified.

Class EA Study Completion
July-September 2024

Proposed Start of Construction*
2026

**The construction timing window is dependent upon approval of the construction budget by Region Council.*

HATCH

Peel Region
working with you



Thank you!
Comments or Questions?

Your questions and comments are greatly appreciated!
Please email them by May 1st, 2024, to:

Janice Hatton
Project Manager, Engineering (Water Treatment and Facilities)
Engineering Services Division
Public Works
Peel Region
Janice.Hatton@peelregion.ca

Appendix E

Stage 2 Archeological Assessment

Stage 2 Archaeological Assessment
Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment
Part of Lots 9 and 10, Concession 3, South of Dundas (Geographical Township of Toronto, County of Peel), City of Mississauga, Regional Municipality of Peel)

Original Report

Prepared for:

Hatch
2265 Upper Middle Road East, 5th Floor
Oakville, Ontario L5K 2R7

Archaeological Licence: P1066 (Lytle)

PIF P1066-0411-2024

Archaeological Services Inc. File: 22EA-111

21 October 2024

Executive Summary

Archaeological Services Inc. (ASI) was contracted by Hatch Ltd., on behalf of the Regional Municipality of Peel (Region of Peel), to conduct a Stage 2 Archaeological Assessment as part of the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Schedule 'C' Municipal Class Environmental Assessment. This project involves the assessment of 2.26 hectares of land north of the existing water treatment plant and west of East Avenue.

A Stage 1 assessment that overlaps a portion of the current Study Area was previously completed (WSP Canada Inc., 2017). The background research determined that portions of the Study Area retained archaeological potential and Stage 2 test pit survey was recommended. One previously registered archaeological site is located within one kilometre of the Study Area.

The Stage 2 property survey was conducted from May 27-29, June 17, 2024, under the field direction of Brandon Reimer (R1297) and July 8, 2024, under the field direction of Marc Dibenedetto (R1374), in accordance with the *Ontario Heritage Act* and the S & G by test pit survey. Approximately 21.9 percent of the Study Area (0.49 hectares) was determined to have been previously assessed (WSP Canada Inc., 2017) and did not require Stage 2 survey as per S & G Section 2.1, Standard 2.c.

Approximately 12.8 percent of the Study Area (0.29 hectares), comprising manicured lawn, was subject to test pit survey at five metre intervals. An additional 18 percent of the Study Area (0.40 hectares) was subject to judgmental test pit survey at 5 to 10 metre intervals to confirm previous disturbance.

The remaining 47.7 percent of the Study Area (1.08 hectares), retains archaeological potential and should be subject to Stage 2 test pit survey to confirm the extent of the impacts from the Yard Piping project. As shown in Appendix A, there is an ongoing construction project on the Northwest Property, specifically Arthur P.Kennedy Water Treatment Plant and Hanlan Feedermain Yard Piping Upgrades project (2024). It involves installation of two valve chambers and one meter chamber, which will be located on the western

portion of the Northwest Property. The construction is expected to be completed by 2025.

As a result of this assessment three non-diagnostic precontact Indigenous secondary deposits were identified. As secondary deposits P1, P2 and P3 do not represent primary archaeological deposits, they do not have continued cultural heritage value or interest, and therefore do not require further assessment.

The Study Area has been requested by the Indigenous communities to be subject to additional work in the form of construction monitoring to ensure that there is no buried topsoil present.

Project Personnel

- **Senior Project Manager**: Lisa Merritt, MSc (P094) Partner, Director, Environmental Assessment Division
- **Project Manager**: Caitlin Lacy, BA (R303), Lead Archaeologist, Project Manager, Environmental Assessment Division
- **Project Director**: Jessica Lytle, MSc (P1066), Lead Archaeologist, Technical Writer and Fieldwork Coordinator, Environmental Assessment Division
- **Division Coordinator**: Katrina Thach, BA Hons (R1225), Associate Archaeologist, Assistant Manager, Environmental Assessment Division
- **Project Administrator**: Catherine Kitchen, BA (R1364), Archaeologist, Project Administrator, Environmental Assessment Division
- **Field Director**: Marc DiBenedetto, BA Hons (R1374), Archaeologist, Field Director, Environmental Assessment Division; Brandon Reimer, BA (R1297), Archaeologist, Field Director, Environmental Assessment Division
- **Field Archaeologists**: Elizabeth Anderson, Zach Boswell, Skyler Dawson, Corinne Harillal, Morgan Lesko, Jessica Lytle, Melissa Merchant, Abdur Rahman
- **Artifact Processing**: Natasha Zdjelar, MSc, Lab Technician – Laboratory and Fieldwork Services, Operations Division
- **Artifact Analysis and Photography**: Douglas Todd (R055), Associate Archaeologist, Analyst – Laboratory and Fieldwork Services, Operations Division
- **Report Preparation**: Megan Edwards, BA (R1343), Field Director, Environmental Assessment Division; Caitlin Lacy
- **Graphics**: Peter Bikoulis, PhD, Archaeologist, GIS Technician, Operation Division
- **Report Review**: Lisa Merritt; Blake Williams, MLitt (P383), Lead Archaeologist, Project Manager, Environmental Assessment Division

Table of Contents

List of Tables

List of Images

List of Figures

1.0 Project Context

Archaeological Services Inc. (ASI) was contracted by Hatch Ltd., on behalf of the Regional Municipality of Peel (Region of Peel) to conduct a Stage 2 Archaeological Assessment as part of the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Schedule 'C' Municipal Class Environmental Assessment (Figure 1). This project involves the assessment of 2.26 hectares north of the existing water treatment plant and west of East Avenue.

The existing Arthur P. Kennedy Water Treatment Plant has insufficient treated water storage for the projected population increase by 2051. The purpose of this project is to provide a solution to this issue.

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (1990, as amended in 2023) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), currently administered by the Ministry of Citizenship and Multiculturalism (MCM), formerly the Ministry of Tourism and Culture (MTC 2011).

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act, RSO* (Environmental Assessment Act, R.S.O. c. E.18, 1990 as amended 2022) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the *Municipal Class Environmental Assessment* process (Municipal Engineers Association, 2023).

In addition, this Stage 2 assessment has been commissioned to satisfy the recommendations of a previous Stage 1 assessment that overlaps with the current Study Area (WSP Canada Inc., 2017). The Stage 1 assessment by WSP (2017) was conducted as part of a proposed paramedic satellite station.

ASI has been actively engaging with Indigenous communities who have expressed an interest in the archaeological work within the Study Area for this project on behalf of the Region of Peel. Representatives from Mississaugas of the Credit

First Nation and Six Nations of the Grand River Elected Council were present on site and participated during the Stage 2 property survey. A detailed account of all First Nations engagement can be found in the *Supplementary Documentation: Indigenous Engagement* document associated with this report.

Authorization to access and carry out all activities necessary for the completion of this Stage 2 assessment was granted by Hatch on March 4, 2024.

1.1.1 Treaties and Traditional Territories

They Study Area is within Treaty 14, the Head of the Lake Purchase. On September 5, 1806, the signing of Treaty 14 confirmed the Head of the Lake Purchase between the Mississaugas of the Credit and the Crown for lands along the north shore of Lake Ontario southwest of the Toronto Purchase to what is now Oakville (Mississauga of the New Credit First Nation, 2001; Mississaugas of the Credit First Nation, 2017).

1.2 Historical Context

A comprehensive review of the precontact Indigenous and Euro-Canadian occupations of the Study Area is presented in the Stage 1 report (WSP Canada Inc., 2017). To summarize, background research indicates that the general vicinity of the Study Area has been attractive to human settlement for thousands of years, primarily by Indigenous people and more recently by Euro-Canadian settlers. Historically, the Study Area corridor is within Lot 9 and 10, Concession 3 in the Geographical Township of Toronto, County of Peel, Ontario. Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MCM through *Ontario's Past Portal*; published and unpublished documentary sources; and the files of ASI.

1.2.1 Indigenous Land Use and Settlement

Current archaeological evidence indicates humans were present in southern Ontario approximately 13,000 years before present (B.P.) (Ferris, 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 B.P., the environment had progressively warmed (Edwards & Fritz, 1988) and populations now occupied less extensive territories (Ellis & Deller, 1990).

Between approximately 10,000-5,500 B.P., the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 B.P.; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest archaeological evidence for cemeteries dates to approximately 4,500-3,000 B.P. and is interpreted by archaeologists to be indicative of increased social organization and the investment of labour into social infrastructure (Brown, 1995, p. 13; Ellis et al., 1990, 2009).

Between 3,000-2,500 B.P., populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2,500 B.P. and exchange and interaction networks broaden at this time (Spence et al., 1990, pp. 136, 138) and by approximately 2,000 B.P., evidence exists for small community camps, focusing on the seasonal harvesting of resources (Spence et al., 1990, pp. 155, 164). By 1,500 B.P. there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolithic evidence for maize in central New York State by 2,300 B.P. – it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch & Williamson, 2013, pp. 13–15). As is evident in detailed Anishinaabek ethnographies, winter was a period during

which some families would depart from the larger group as it was easier to sustain smaller populations (Rogers, 1962). It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 B.P., lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (C.E.), larger settlement sites focused on horticulture begin to dominate the archaeological record. Seasonal dispersal of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson, 1990, p. 317). By 1300-1450 C.E., archaeological research focusing on these horticultural societies note that this episodic community dispersal was no longer practised and these populations now occupied sites throughout the year (Dodd et al., 1990, p. 343). By the mid-sixteenth century these small villages had coalesced into larger communities (Birch et al., 2021). Through this process, the socio-political organization of these First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. Other First Nation communities continued to practice residential mobility and to harvest available resources across landscapes they returned to seasonally/annually.

By 1600 C.E., the Confederation of Nations were encountered by the first European explorers and missionaries in Simcoe County. By the 1640s, devastating epidemics and the traditional enmity between the Haudenosaunee[1] and the Attawandaron and the Huron-Wendat (and their Algonquian allies such as the Nippissing and Odawa) led to their dispersal from southern Ontario. Shortly afterwards, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario.

[1] The Haudenosaunee are also known as the New York Iroquois or Five Nations Iroquois and after 1722 Six Nations Iroquois. They were a confederation of five distinct but related Iroquoian–speaking nations - the Seneca, Onondaga, Cayuga, Oneida, and Mohawk. Each lived in individual territories in what is now known as the Finger Lakes district of Upper New York. In 1722 the Tuscarora joined the confederacy.

Peace was achieved between the Haudenosaunee and the Anishinaabe Nations in August of 1701 when representatives of more than twenty Anishinaabe Nations assembled in Montreal to participate in peace negotiations. Peace was confirmed again at council held at Lake Superior when the Haudenosaunee delivered a wampum belt to the Anishinaabe Nations. This agreement between the Haudenosaunee and Anishinaabe nations is referred to as the Dish with One Spoon.

In 1763, following the fall of Quebec, New France was transferred to British control at the Treaty of Paris. The British government began to pursue major land purchases to the north of Lake Ontario in the early nineteenth century. The Crown acknowledged the Mississaugas of the Credit as the owners of the lands between Georgian Bay and Lake Simcoe and entered into negotiations for additional tracts of land as the need arose to facilitate European settlement.

1.2.2 Post-Contact Settlement

Historically, the study area is located in the former Township of Toronto, County of Peel in part of Lots 9 and 10, Concession 3 South of Dundas Street.

The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 metres of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006). Early European settlements occupied similar locations as Indigenous settlements as they were generally accessible by trail or water routes and would have been in locations with good soil and suitable topography to ensure adequate drainage.

Throughout the period of initial European settlement, Indigenous groups continued to inhabit southern Ontario, and continued to fish, gather, and hunt within their traditional and treaty territories, albeit often with legal and informal restrictions imposed by colonial authorities and settlers. In many cases, Indigenous peoples acted as guides and teachers, passing on their traditional knowledge to Euro-Canadian settlers, allowing them to sustain themselves in their new homes. Indigenous peoples entered into economic arrangements and partnerships, and often inter-married with settlers. However, pervasive and systemic oppression and marginalization of Indigenous peoples also characterized Euro-Canadian colonization, with thousands being displaced from their lands, denied access to traditional and treaty hunting, fishing, and collecting grounds, and forced to assimilate with Euro-Canadian culture through mandatory attendance at Day and Residential Schools (Ray, 2005; Rogers & Smith, 1994).

Toronto Township

The Township of Toronto was originally surveyed in 1806 by Mr. Wilmot, Deputy Surveyor. The first settler in this Township, and also the County of Peel, was Colonel Thomas Ingersoll. The whole population of the Township in 1808 consisted of seven families, scattered along Dundas Street. The number of inhabitants gradually increased until the war broke out in 1812, which gave considerable check to its progress. When the war was over, the Township's growth revived and the rear part of the Township was surveyed and called the

"New Survey". The greater part of the New Survey was granted to a colony of Irish settlers from New York City, who suffered persecution during the war.

The Credit River runs through the western portion of the Township and proved to be a great source of wealth to its inhabitants, as it was not only a good watering stream, but there were endless mill privileges along the entire length of the river.

In 1855, the Hamilton and Toronto Railway completed its lakeshore line. In 1871, the railway was amalgamated with the Great Western Railway, which in turn, was amalgamated in 1882, with the Grand Trunk Railway, and then in 1923, with Canadian National Railway (Andreae, 1997). Several villages of varying sizes had developed by the end of the nineteenth century, including Streetsville, Meadowvale, Churchville, and Malton. A number of crossroad communities also began to grow by the end of the nineteenth century. These included Britannia, Derry, Frasers Corners, Palestine, Mount Charles, and Grahamsville.

1.2.3 Map Review

The 1859 *Tremaine's Map of the County of Peel* and 1877 Illustrated Historical Atlas of the County of Peel (Pope, 1877; Tremaine, 1859) were examined to determine the presence of historic features within the Study Area during the nineteenth and twentieth centuries.

The 1859 Tremaine's map illustrates William Cawthra as the owner of both Lots 9 and 10, Concession 3 South of Dundas Street. No structures are located within the Study Area. The 1877 atlas shows that Henry Cawthra now owned both Lots 9 and 10. Again, no structures are located within the Study Area.

1.2.4 Aerial and Orthoimagery Review

Aerial photography from 1954 to 2022 was examined to determine the extent and nature of development and land uses within the Study Area (City of Mississauga, n.d.) (Figure 2 to Figure 4).

A review of the available imagery shows:

- 1954: The Study Area is largely open and undeveloped. A road bisects the property from southeast-northwest on the west side (Figure 2);
- 1966: Grading for East Ave and Rangeview Road visible, grading and land altering activities are visible over much of the east half of the Study Area. The road previous visible on the west side has been widened (Figure 2);
- 1975: Construction of East Ave is complete. Byngmount Beach Public School is shown in the north corner of the Study Area. The school opened in 1967 and closed in 2010 Grading in the approximate location of the present baseball diamond has occurred (Figure 2);
- 1980: Construction of the structure in the north corner is complete (Figure 2);
- 1985-2010: Little change is observed during this period across the Study Area (Figure 3-Figure 4);
- 2015: The structure in the north corner has been demolished (Figure 4);
- 2020-2022: The Study Area remains open park land (Figure 4).

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MCM through *Ontario's Past Portal*; published and unpublished documentary sources; and the files of ASI.

1.3.1 Current Land Use and Field Conditions

The Study Area is located adjacent to Arthur P. Kennedy Water Treatment Plant in Waterworks Park. The Study Area is a grass field with minimal landscaping

trees along the edge. The area directly to the west of the Study Area is residential and industrial to the east. Directly south is the water treatment plant itself.

The Stage 2 survey for the Arthur P. Kennedy Water Treatment Plant Project was conducted from May 27-29, June 17, 2024, under the field direction of Brandon Reimer (R1297) and July 8, 2024, under the field direction of Marc Dibenedetto (R1374).

1.3.2 Geography

A comprehensive summary of the geology and physiography of the Study Area is presented in the previous Stage 1 report (WSP Canada Inc., 2017). To summarize, the Study Area is situated within the Bevelled Till Plains of the Iroquois Plain physiographic region of southern Ontario (Chapman & Putnam, 1984). The Iroquois Plain is a lowland region bordering Lake Ontario. This region is characteristically flat and formed by lacustrine deposits laid down by the inundation of Lake Iroquois, a body of water that existed during the late Pleistocene. This region extends from the Trent River, around the western part of Lake Ontario, to the Niagara River, spanning a distance of 300 kilometres (Chapman and Putnam, 1984). The old shorelines of Lake Iroquois include cliffs, bars, beaches, and boulder pavements. The old sandbars in this region are good aquifers that supply water to farms and villages. The gravel bars are quarried for road and building material, while the clays of the old lake bed have been used for the manufacture of bricks (Chapman and Putnam, 1984).

The Study Area is located within the Credit River watershed. The Credit River Watershed drains an area of approximately 860 square kilometres from its headwaters in Orangeville, Erin, and Mono, passing through part of the Niagara Escarpment and the Oak Ridges Moraine, and draining into Lake Ontario at the town of Port Credit(Credit Valley Conservation, 2009). The river was named “Mis.sin.ni.he” or “Mazinigae-zeebi” by the Mississaugas, and surveyor Augustus Jones believed this signified “the trusting creek” or could also be translated as “to write or give and make credit”, while the French name used when the river was first mapped in 1757 was “Riviere au Credit”. These names refer to the fur trading period, when French, British, and Indigenous traders would meet along this river (Gibson, 2002; Jameson, 1838; Rayburn, 1997; Robb et al., 2003; Scott,

1997; Smith, 1987). The Credit River was historically considered to be one of the best potential power sources for milling in all of southern Ontario, which led to the development of early saw and grist mill industries, and later textile mills, distilleries, bottling plants, and hydro-electric plants spawned communities throughout the river valley, typically close to the Niagara Escarpment (Town of Caledon, 2009: Figure 7.1).

Cooksville Creek is located 620 m to the southwest of the Study Area. Cooksville Creek originates in the City of Mississauga near Hurontario Street and Britannia Road and flows south to meet its confluence with Lake Ontario in the Lake Iroquois Plain physiographic region west of Cawthra Road (Aquafor Beech Ltd., 2012).

1.3.3 Previously Registered Archaeological Sites

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database maintained by the MCM. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 kilometres east to west, and approximately 18.5 kilometres north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block *AjGv.*

According to the Ontario Archaeological Sites Database, one previously registered archaeological site is located within one kilometre of the Study Area, and it is not located within 50 metres (MCM 2024). A summary of the sites is provided below.

Table 1: Registered Sites within One Kilometre of the Study Area

Borden Number	Site Name	Temporal/ Cultural Affiliation	Site Type	Researcher
AjGv-039	Adamson Estate	Historic	Homestead	ASI 1991

1.3.4 Previous Archaeological Assessments

ASI reviewed previous archaeological assessments that detail fieldwork within 50 metres of the Study Area. Only those specific archaeological assessments of direct relevance to the present undertaking have been included here.

Reports within the Study Area

(WSP Canada Inc., 2017) Stage 1 Archaeological Assessment of 930 East Avenue, Parts of Lot 10 and 9, Concession 3 SDS, City of Mississauga, Township of Toronto, Regional Municipality of Peel, Historic County of Peel, Province of Ontario.P365-0109-2017.

This assessment was undertaken in advance of the construction of a paramedic satellite station. It was determined that there is high archaeological potential in this area for both pre-contact and post-contact periods. It is recommended that a Stage 2 test pit survey take place in all areas determined to be undisturbed.

Additional Reports within 50 metres of the Study Area

(ASI, 2023) Stage 1 Archaeological Assessment of the Rangeview Estates Development Area, Part of Lots 7-9, Concession 3 South of Dundas Street, Geographical Township of Toronto, County of Peel, Now in the City of Mississauga, Regional Municipality of Peel, Ontario. P449-0722-2023. ASI file 23PL-123.

The purpose of this assessment was to determine the archaeological potential within a 25.67 hectare are for purposes of development. This assessment confirmed that the development activities that took place in the 1960s-1980s completely destroyed any archaeological material that may have remained in situ. There is no further assessment necessary for this property.

2.0 Field Methods

The Stage 2 Study Area comprises the land beside Arthur P. Kennedy Water Treatment Plant in Waterworks Park (Figure 1). It measures approximately 235 metres by 180 metres in size and covers an area of 2.26 hectares (Figure 5).

The Stage 2 property survey was conducted from May 27-29, June 17, 2024, under the field direction of Brandon Reimer (R1297) and July 8, 2024, under the field direction of Marc Dibenedetto (R1374), in accordance with the *Ontario Heritage Act* and the S & G, Section 2. During the field assessments, weather and lighting conditions permitted good visibility and were in accordance with the S & G, Section 2.1, Standard 3. During the time of survey, conditions were seasonal with partly sunny skies and temperatures of 20-32 degrees Celsius. Photographs of all field conditions were taken (Image 1-Image 8), and the location and direction of each photograph is mapped in Figure 5.

As per Section 2.1 of the S & G, all lands were within areas where ploughing was not possible or viable and therefore subject to test pit survey. According to Section 2.1.2, Standard 2 of the S & G, any undisturbed areas requiring test pit survey within 300 metres of any feature of archaeological potential must be subject to systematic assessment at five metre intervals Test pits were placed at five metre intervals until disturbance was encountered, and then judgmentally increased to 10 metre intervals as per S & G Section 2.1.8. All test pits were excavated following the S & G Section 2.1.2 Standards 5-9. All test pits were excavated by hand to a minimum of 30 centimetres in diameter and into the first five centimetres of subsoil. Each test pit was examined for stratigraphy, cultural features, and evidence of fill. Test pit fill was screened through six-millimetre mesh to facilitate artifact recovery. Afterwards, all test pits were backfilled, and their locations were recorded on field maps. Any factors that precluded the excavation of test pits (e.g., excessive slope, drainage, exposed bedrock, previous disturbance) were noted, and the areas were mapped and photographed.

Fieldwork was conducted using a Samsung Galaxy S4 tablet running Esri Collector software equipped with a sub-metre Trimble Catalyst Global Navigation Satellite System in conjunction with project mapping provided by Hatch Ltd. to ensure the assessment remained within the Study Area limits.

2.1 Areas of Low Archaeological Potential

Approximately 21.68 percent of the Study Area (0.49 hectares) was previously assessed without further recommendations and not subject to Stage 2 assessment as per S & G Section 2.1, Standard 2.c (WSP Canada Inc., 2017).

2.2 Test Pit Survey

Approximately 12.83 percent of the Study Area (0.29 hectares) was found to contain natural topsoil (A-horizon) and was subject to test pit survey at five metre intervals following S & G Section 2.1.2, Standards 1-9. The areas subject to test pit survey at five metre intervals include past of the manicured lawn area in the western corner of the property (Figure 5; Image 1).

Undisturbed stratigraphy in the Study Area is characterized by approximately 20 centimetres of very dark grayish brown (10YR 3/2) loamy clay topsoil (A-horizon) overlying a dark yellowish brown (10YR 4/6) sandy subsoil (B-horizon) (Image 2).

Approximately 17.70 percent of the Study Area (0.4 hectares) did not contain natural topsoil (A-horizon) and was subject to judgmental test pit survey at five to ten metre intervals to confirm previous disturbance following S & G Section 2.1.8, Standards 1-2. The areas subject to judgmental test pit survey include a narrow-treed strip between the active construction zone and the west limit of the Study Area, and manicured lawn area northwest of the construction zone (Figure 5; Image 3, Image 5). During the course of the judgemental test pit survey three Indigenous lithic findspots were encountered from disturbed fill layers (Supplementary Documentation: Figure 1).

Disturbed stratigraphy in the Study Area is characterized by 30 to 120 centimetres of various layers of fill containing gravel, plastic and other modern inclusions, atop a dark yellowish brown (10YR 4/6) sandy subsoil (B-horizon) (Image 4, Image 6).

2.3 Areas with Remaining Archaeological Potential

Upon arrival to the Study Area an active construction site related to the Region of Peel's Arthur P.Kennedy Water Treatment Plant and Hanlan Feedermain Yard Piping Upgrades project (2024). As shown in Appendix A, the project involves installation of two valve chambers and one meter chamber, which will be located on the western portion of the Northwest Property. The construction is expected to be completed by 2025.

As this is an active construction site, the Region of Peel did not grant access for ASI to conduct any Stage 2 test pit survey within the fenced area for the project. Excavations for the Yard Piping project have removed much of topsoil present in the area (Image 7-Image 8). These areas (approximately 47.79 percent of the Study Area or 1.08 hectares) retain archaeological potential until a Stage 2 test pit survey is carried out to confirm the extent of the impacts from the Yard Piping project.

2.4 Stage 2 Assessment Results Summary

A summary of the Stage 2 assessment results for the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Project can be found in Table 2 below.

Table 2: Stage 2 Survey Results Summary

Survey Method	Area	Description	Images
Not assessed due to previous assessment; no further work recommended	0.49 hectares (21.68 percent)	(WSP Canada Inc., 2017)	Not applicable
Test pit survey; five metre intervals	0.29 hectares (12.83 percent)	Manicured lawn	Image 1
Judgmental test pit survey; 5-10 metre intervals	0.4 hectares (17.70 percent)	Treed area, manicured lawn	Image 3 Image 5
Areas with Remaining Archaeological Potential	1.08 hectares (47.79 percent)	Fenced construction site	Image 7-Image 8

3.0 Record of Finds

During the course of the test pit survey three Indigenous lithic findspots were encountered from disturbed fill layers (Supplementary Documentation: Figure 1). Representatives from Mississaugas of the Credit First Nation and Six Nations of the Grand River Elected Council requested the artifacts be collected and analyzed. The Indigenous findspots represent isolated, non-diagnostic finds from disturbed context without further cultural heritage value or interest (CHVI).

3.1 Unregistered Findspots

3.1.1 Secondary Deposit P1

General site location: Secondary Deposit P1 is located in Lot 10, Concession 3, South of Dundas, Geographical Township of Toronto, County of Peel, within Universal Transverse Mercator grid zone 17T using the North American Datum 1983. For detailed site location information including GPS coordinates and detailed mapping, see Figure 1 of the accompanying *Supplementary Documentation: Detailed Site Location Information* report.

Topography and geography: Level terrain within the Iroquois Plain physiographic region.

Soil type: Approximately 30 centimetres of brown (10YR 4/3) loamy-clay fill containing gravel and one lithic artifact, atop 10 centimetres of compact (10YR 4/4) clay fill containing gravel. Due to the compact and disturbed nature of the soil, subsoil was not reached.

Features of archaeological potential: Proximity to watercourse (Lake Ontario).

Site type: Secondary deposit of an Indigenous artifact.

Field conditions: Previously graded and leveled parkland.

Site size and density: One artifact in an area measuring one metre (north-south) by one metre (east-west).

Assessment method: One positive test pit from test pit survey at five and 2.5 metre intervals following S & G Section 2.1.3, Standard 2, Option A. A test unit was not excavated as the artifact was recovered from previously displaced fill soils. Test pit survey was conducted June 17, 2024.

Assemblage summary: One flake fragment manufactured from Onondaga chert (Cat. L2) recovered from fill (Appendix B).

Site interpretation: Secondary deposit of a non-diagnostic Indigenous lithic artifact.

Recommendations: As Secondary Deposit P1 does not represent a primary archaeological deposit, it does not have continued cultural heritage value or interest, and therefore does not require Bordenization, entry into the Ontario Archaeological Sites Database, or Stage 3 assessment. **No further work is recommended at Secondary Deposit P1.**

3.1.2 Secondary Deposit P2

General site location: Secondary Deposit P2 is located in Lot 10, Concession 3, South of Dundas, Geographical Township of Toronto, County of Peel, within Universal Transverse Mercator grid zone 17T using the North American Datum 1983. For detailed site location information including GPS coordinates and detailed mapping, see Figure 1 of the accompanying *Supplementary Documentation: Detailed Site Location Information* report.

Topography and geography: Level terrain covered in dense brush within the Iroquois Plain physiographic region.

Soil type: Approximately 20 centimetres of very dark greyish brown (10YR 3/2) sandy loam fill containing modern inclusions and one lithic artifact, atop 12 centimetres of yellowish brown (10YR 5/6) sandy fill containing modern inclusions. Subsoil was reached at a depth of approximately 32 centimetres and consists of yellowish brown (10YR 5/6) sand.

Features of archaeological potential: Proximity to watercourse (Lake Ontario).

Site type: Secondary deposit of an Indigenous artifact.

Field conditions: Overgrown dense brush.

Site size and density: One artifact in an area measuring one metre (north-south) by one metre (east-west).

Assessment method: One positive test pit from test pit survey at five and 2.5 metre intervals following S & G Section 2.1.3, Standard 2, Option A. A test unit was not excavated as the artifact was recovered from previously displaced fill soils. Test pit survey was conducted July 8, 2024.

Assemblage summary: One biface manufactured from Onondaga chert (Cat. L1) recovered from fill (Appendix B). The biface measures 29.14 mm in length, 18.6 mm in width and 6.46 mm in thickness. It has a refined triangular tip and upper blade section with transverse fracture; possible projectile point fragment.

Site interpretation: Secondary deposit of a non-diagnostic Indigenous lithic artifact.

Recommendations: As Secondary Deposit P2 does not represent a primary archaeological deposit, it does not have continued cultural heritage value or interest, and therefore does not require Bordenization, entry into the Ontario Archaeological Sites Database, or Stage 3 assessment. **No further work is recommended at Secondary Deposit P2.**

3.1.3 Secondary Deposit P3

General site location: Secondary Deposit P2 is located in Lot 10, Concession 3, South of Dundas, Geographical Township of Toronto, County of Peel, within Universal Transverse Mercator grid zone 17T using the North American Datum 1983. For detailed site location information including GPS coordinates and detailed mapping, see Figure 1 of the accompanying *Supplementary Documentation: Detailed Site Location Information* report.

Topography and geography: Level terrain with dense brush within the Iroquois Plain physiographic region.

Soil type: Approximately 20 centimetres of very dark greyish brown (10YR 3/2) sandy loam fill containing modern inclusions and one lithic artifact, atop 12 centimetres of yellowish brown (10YR 5/6) sandy fill containing modern inclusions. Subsoil was reached at a depth of approximately 32 centimetres and consists of yellowish brown (10YR 5/6) sand.

Features of archaeological potential: Proximity to watercourse (Lake Ontario).

Site type: Secondary deposit of an Indigenous artifact.

Field conditions: Overgrown dense brush.

Site size and density: One artifact in an area measuring one metre (north-south) by one metre (east-west).

Assessment method: One positive test pit from test pit survey at five and 2.5 metre intervals following S & G Section 2.1.3, Standard 2, Option A. A test unit was not excavated as the artifact was recovered from previously displaced fill soils. Test pit survey was conducted July 8, 2024.

Assemblage summary: One Secondary Knapping Flake manufactured from Onondaga chert (Cat. L3) recovered from fill (Appendix B).

Site interpretation: Secondary deposit of a non-diagnostic Indigenous lithic artifact.

Recommendations: As Secondary Deposit P3 does not represent a primary archaeological deposit, it does not have continued cultural heritage value or interest, and therefore does not require Bordenization, entry into the Ontario Archaeological Sites Database, or Stage 3 assessment. **No further work is recommended at Secondary Deposit P2.**

3.2 Inventory of Documentary and Material Record

The documentation related to this archaeological assessment will be curated by ASI until such a time that arrangements for their ultimate transfer to His Majesty the King in right of Ontario, or other public institution, can be made to

the satisfaction of the project owner(s), the MCM, and any other legitimate interest groups.

Table 3 provides an inventory and location of the documentary and material record for the project in accordance with the S & G, Sections 6.7 and 7.8.2.3.

Table 3: Inventory of Documentary and Material Record

Material	Location	Comments
Digital field notes, field maps, GPS logs, etc.	Archaeological Services Inc., 528 Bathurst Street, Toronto, Ontario, M5S 2P9	Stored in ASI project folder 22EA-111; GPS and digital information stored on ASI network servers
Digital field photography	Same as above	Files stored on ASI network servers
Digital research, analysis, and reporting materials	Same as above	Files stored on ASI network servers
Artifacts	Same as above	Artifacts grouped by provenience and sealed in individual plastic bags measuring 13 centimetres by 21 centimetres, and stored within one labelled bankers' box.

4.0 Analysis and Conclusions

ASI was contracted by Hatch Ltd., on behalf of the Region of Peel to conduct a Stage 2 Archaeological Assessment as part of the Arthur P. Kennedy Water

Treatment Plant Reservoir Expansion Schedule 'C' Municipal Class Environmental Assessment (Figure 1). This project involves the 2.26 hectares of land north of the existing water treatment plant and west of East Avenue.

A Stage 1 assessment that overlaps a portion of the current Study Area was previously completed (WSP Canada Inc., 2017). The background research determined that portions of the Study Area retained archaeological potential and Stage 2 test pit survey was recommended.

The Stage 2 property survey was conducted from May 27-29, June 17, 2024, under the field direction of Brandon Reimer (R1297) and July 8, 2024, under the field direction of Marc Dibenedetto (R1374), in accordance with the *Ontario Heritage Act* and the S & G by test pit survey. Approximately 21.9 percent of the Study Area (0.49 hectares) was determined to have been previously assessed (WSP Canada Inc., 2017) and did not require Stage 2 survey (Figure 5).

Approximately 12.8 percent of the Study Area (0.29 hectares), comprising manicured lawn, was subject to test pit survey at five metre intervals (Figure 5; Image 1). An additional 18 percent of the Study Area (0.40 hectares) was subject to judgmental test pit survey at 5 to 10 metre intervals to confirm previous disturbance (Figure 5; Image 3, Image 5).

During the course of the judgmental test pit survey three Indigenous lithic findspots were encountered from disturbed fill layers (Supplementary Documentation: Figure 1). The three Indigenous lithic findspots include a Flake Fragment (P1), Biface (P2), and Secondary Knapping Flake (P3). All three findspots are secondary deposit and do not represent primary archaeological deposits. They do not have continued cultural heritage value or interest, and therefore do not require Bordenization, entry into the Ontario Archaeological Sites Database, or Stage 3 assessment. No further work is recommended at Secondary Deposit P1, P2 and P3.

The remaining 47.7 percent of the Study Area (1.08 hectares), retains archaeological potential and should be subject to Stage 2 test pit survey to confirm the extent of the impacts from the Yard Piping project.

5.0 Recommendations

In light of these results, the following recommendations are made:

1. Areas not yet subject to a property survey as part of this current assessment will require a Stage 2 test pit survey to confirm the extent of the impacts from the Yard Piping project.

2. Indigenous communities have requested archaeological monitoring during future ground disturbing activities to ensure there is no buried topsoil present. Indigenous communities with an interest in the project should be notified before the start of the construction works, so that the communities can assign a representative to be present to observe ground disturbing activities.

3. Secondary Deposits P1, P2 and P3 do not represent primary archaeological deposits. As such, they do not have continued cultural heritage value or interest, and do not require further archaeological assessment.

4. Should the proposed work extend beyond the current Study Area, or should changes to the project design or temporary workspace requirements result in the inclusion of previously un-surveyed lands, these lands should be subject to a Stage 2 archaeological assessment.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Archaeology Programs Unit of the MCM should be immediately notified.

The above recommendations are subject to Ministry approval, and it is an offence to alter any archaeological site without MCM concurrence. No grading or other

activities that may result in the destruction or disturbance of any archaeological sites are permitted until notice of MCM approval has been received.

6.0 Legislation Compliance Advice

ASI advises compliance with the following legislation:

- This report is submitted to the Ministry of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 2005, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological field work and report recommendations ensure the conservation, preservation, and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological field work on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the *Ontario Heritage Act*.

- The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site

shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.

7.0 Bibliography and Sources

Andreae, C. (1997). *Lines of Country: An Atlas of Railway and Waterway History in Canada*. Boston Mills Press.

Aquafor Beech Ltd. (2012). *Cooksville Creek Flood Evaluation Master Plan EA* [Final Report]. https://www.mississauga.ca/file/COM/Cooksville_Creek_Flood_Evaluation_Study_Report_Part_1.pdf

Archaeological Services Inc. (2006). *Historical Overview and Assessment of Archaeological Potential Don River Watershed, City of Toronto*.

Archaeological Services Inc. (2023). *Stage 1 Archaeological Assessment of the Rangeview Estates Development Area, Part of Lots 7-9, Concession 3 South of Dundas Street,Geographic Township of Toronto, County of Peel, Now in the City of Mississauga, Regional Municipality of Peel. P449-0722-2023.*

Birch, J., Manning, S. W., Sanft, S., & Conger, M. A. (2021). Refined Radiocarbon Chronologies for Northern Iroquoian Site Sequences: Implications for Coalescence, Conflict, and the Reception of European Goods. *American Antiquity*, *86*(1), 61–89.

Birch, J., & Williamson, R. F. (2013). *The Mantle Site: An Archaeological History of an Ancestral Wendat Community*. Rowman & Littlefield Publishers, Inc.

Brown, J. (1995). On Mortuary Analysis – with Special Reference to the Saxe-Binford Research Program. In L. A. Beck (Ed.), *Regional Approaches to Mortuary Analysis* (pp. 3–23). Plenum Press.

Chapman, L. J., & Putnam, F. (1984). *The Physiography of Southern Ontario* (3rd ed., Vol. 2). Ontario Ministry of Natural Resources.

City of Mississauga. (n.d.). *Mississauga Maps—Interactive Online Mapping Service* [Map]. City of Mississauga. https://www.mississauga.ca/portal/services/maps

Credit Valley Conservation. (2009). *Rising to the Challenge: A Handbook for Understanding and Protecting the Credit River Watershed*.

Dodd, C. F., Poulton, D. R., Lennox, P. A., Smith, D. G., & Warrick, G. A. (1990). The Middle Ontario Iroquoian Stage. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650* (pp. 321–360). Ontario Archaeological Society Inc.

Edwards, T. W. D., & Fritz, P. (1988). Stable-Isotope Paleoclimate Records from Southern Ontario, Canada: Comparison of Results from Marl and Wood. *Canadian Journal of Earth Sciences*, *25*, 1397–1406.

Ellis, C. J., & Deller, D. B. (1990). Paleo-Indians. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650* (pp. 37–64). Ontario Archaeological Society Inc.

Ellis, C. J., Kenyon, I. T., & Spence, M. W. (1990). The Archaic. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650* (pp. 65–124). Ontario Archaeological Society Inc.

Ellis, C. J., Timmins, P. A., & Martelle, H. (2009). At the Crossroads and Periphery: The Archaic Archaeological Record of Southern Ontario. In T. D. Emerson, D. L. McElrath, & A. C. Fortier (Eds.), *Archaic Societies: Diversity and Complexity across the Midcontinent.* (pp. 787–837). State University of New York Press.

Environmental Assessment Act, R.S.O. c. E.18 (1990).

Ferris, N. (2013). Place, Space, and Dwelling in the Late Woodland. In M. K. Munson & S. M. Jamieson (Eds.), *Before Ontario: The Archaeology of a Province* (pp. 99–111). McGill-Queen's University Press. http://www.jstor.org/stable/j.ctt32b7n5.15

Gibson, M. M. (2002). Changes at the River's Mouth: The Port Credit Community. In *Mississauga: The First Ten Thousand Years* (F.A. Dieterman). Eastend Books.

Jameson. (1838). *Winter Studies and Summer Rambles in Canada*.

Ministry of Citizenship and Multiculturalism. (1990). *Ontario Heritage Act, R.S.O. c. O.18*.

Ministry of Citizenship and Multiculturalism. (2024). *Ontario's Past Portal*. PastPortal. https://www.pastport.mtc.gov.on.ca

Ministry of Tourism and Culture. (2011). *Standards and Guidelines for Consultant Archaeologists*. Archaeology Programs Branch, Ontario Ministry of Tourism, Culture and Sport.

Mississauga of the New Credit First Nation. (2001). *Toronto Purchase Specific Claim: Arriving at an Agreement*.

Mississaugas of the Credit First Nation. (2017). *Treaty Lands and Territory*. http://mncfn.ca/category/treaty-lands-and-territory/

Municipal Engineers Association. (2023). *Municipal Class Environmental Assessment*.

Pope, J. H. (1877). *Illustrated Historical Atlas of the County of Peel, Ont.* [Map]. Walker and Miles.

Ray, A. J. (2005). *I Have Lived Here Since the World Began: An Illustrated history of Canada's Native People*. Key Porter Books.

Rayburn, A. (1997). *Place Names of Ontario*. University of Toronto Press.

Robb, G., Dilse, P., Henderson, H., Hermsen, B., Shearer, W., & Stewart, P. (2003). *Heritage Conservation Feasibility Study of Old Port Credit Village Stage 1 Report*.

Rogers, E. S. (1962). *The Round Lake Ojibwa*. Royal Ontario Museum.

Rogers, E. S., & Smith, D. B. (Eds.). (1994). *Aboriginal Ontario: Historical Perspectives on the First Nations*. Dundurn Press.

Scott, D. E. (1997). *Ontario Place Names. The Historical, Offbeat or Humorous Origins of More Than 1,000 Communities.* (Lone Pine Publishing).

Smith, D. B. (1987). *Sacred Feathers: The Reverend Peter Jones (Kahkewaquonaby) & the Mississauga Indians*. University of Toronto Press.

Spence, M. W., Pihl, R. H., & Murphy, C. (1990). Cultural Complexes of the Early and Middle Woodland Periods. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650*. Ontario Archaeological Society Inc.

Town of Caledon. (2009). *Cultural Heritage Landscape Inventory Report*.

Tremaine, G. C. (1859). *Tremaine's Map of the County of Peel* [Map]. George C. Tremaine.

Williamson, R. F. (1990). The Early Iroquoian Period of Southern Ontario. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650* (pp. 291–320). Ontario Archaeological Society Inc.

WSP Canada Inc. (2017). *Stage 1 Archaeological Assessment 930 East Avenue, Parts of Lots 10 and 9, Concession 3 SDS, City of Mississauga, Township of Toronto, Regional Municipality of Peel, Former Historic County of Peel,*

Provnice of Ontairo. P365-0109-2017. [Original Report]. Report of File with the Ministry of Citizenship and Multiculturalism.

8.0 Images

Image 1: Test pit survey at five metre intervals

Image 2: Representative test pit demonstrating natural test pit profile with sandy loam topsoil over clay subsoil

Image 3: Test pit survey at five metre intervals

Image 4: Example of disturbed soil profile with various layers of fill overlying subsoil

Image 5: Judgemental test pit survey at ten metre intervals

Image 6: Example of disturbed soil profile with various layers of fill overlying subsoil

Image 7: Construction of Yard Piping Upgrades project underway; further work required

Image 8: Construction of Yard Piping Upgrades project underway; further work required

9.0 Maps

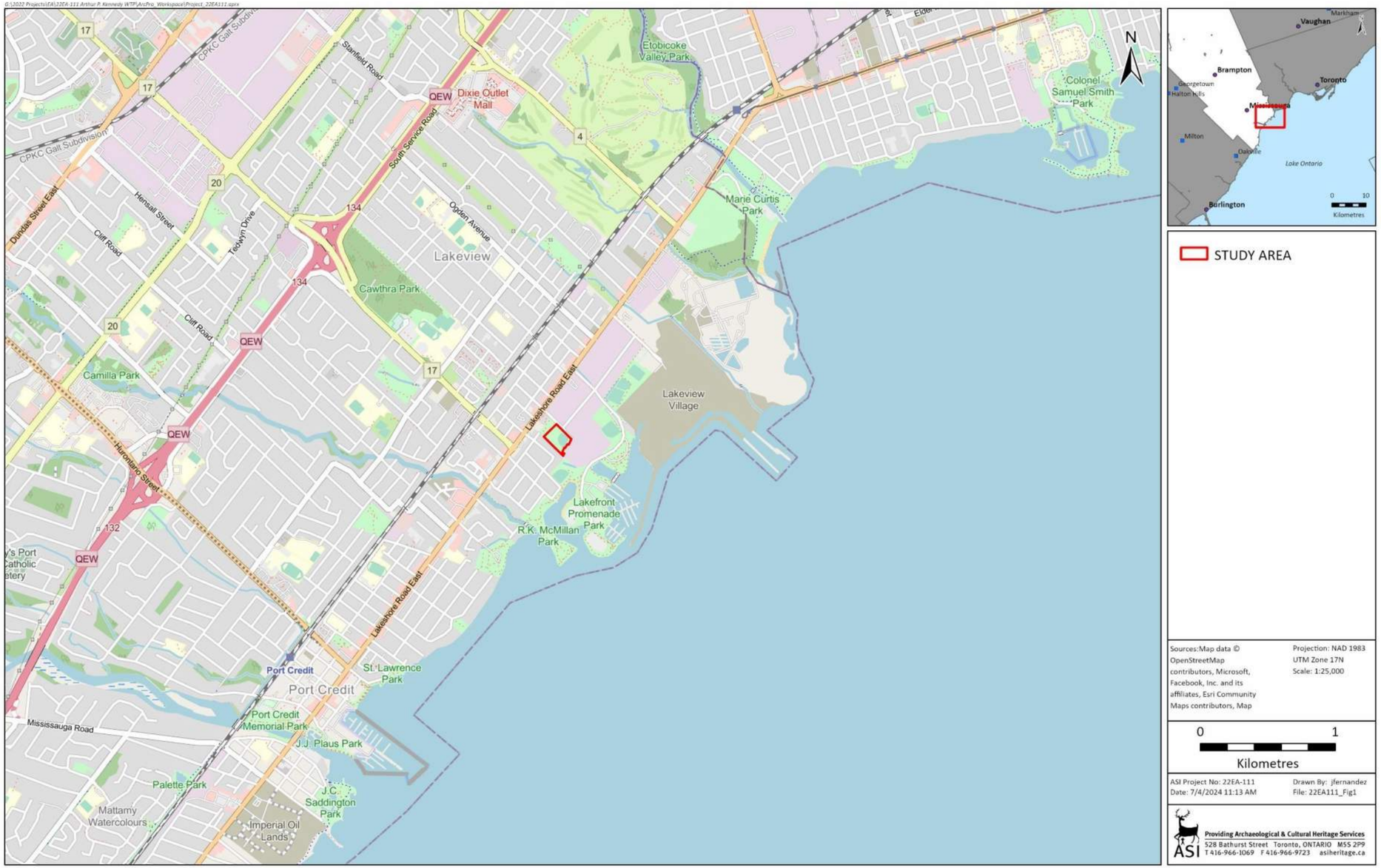


Figure 1: Location of the Study Area

Figure 2: Study Area overlaid on historical aerial imagery from 1954, 9166, 1975 and 1980

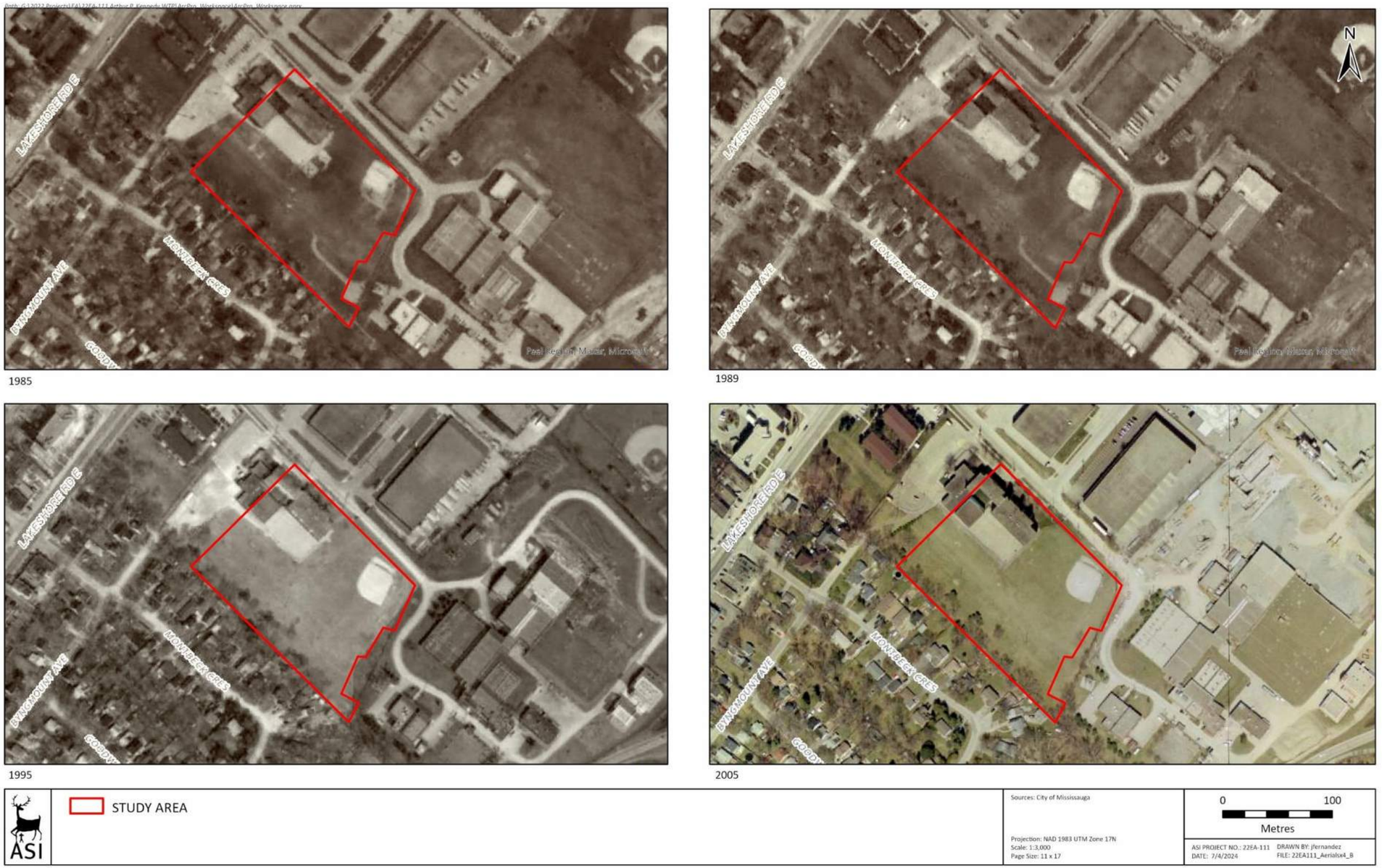


Figure 3: Study Area overlaid on historical aerial imagery from 1985, 1989, 1995 and 2005

Figure 4: Study Area overlaid on historical aerial imagery from 2010, 2015, 2020 and 2022

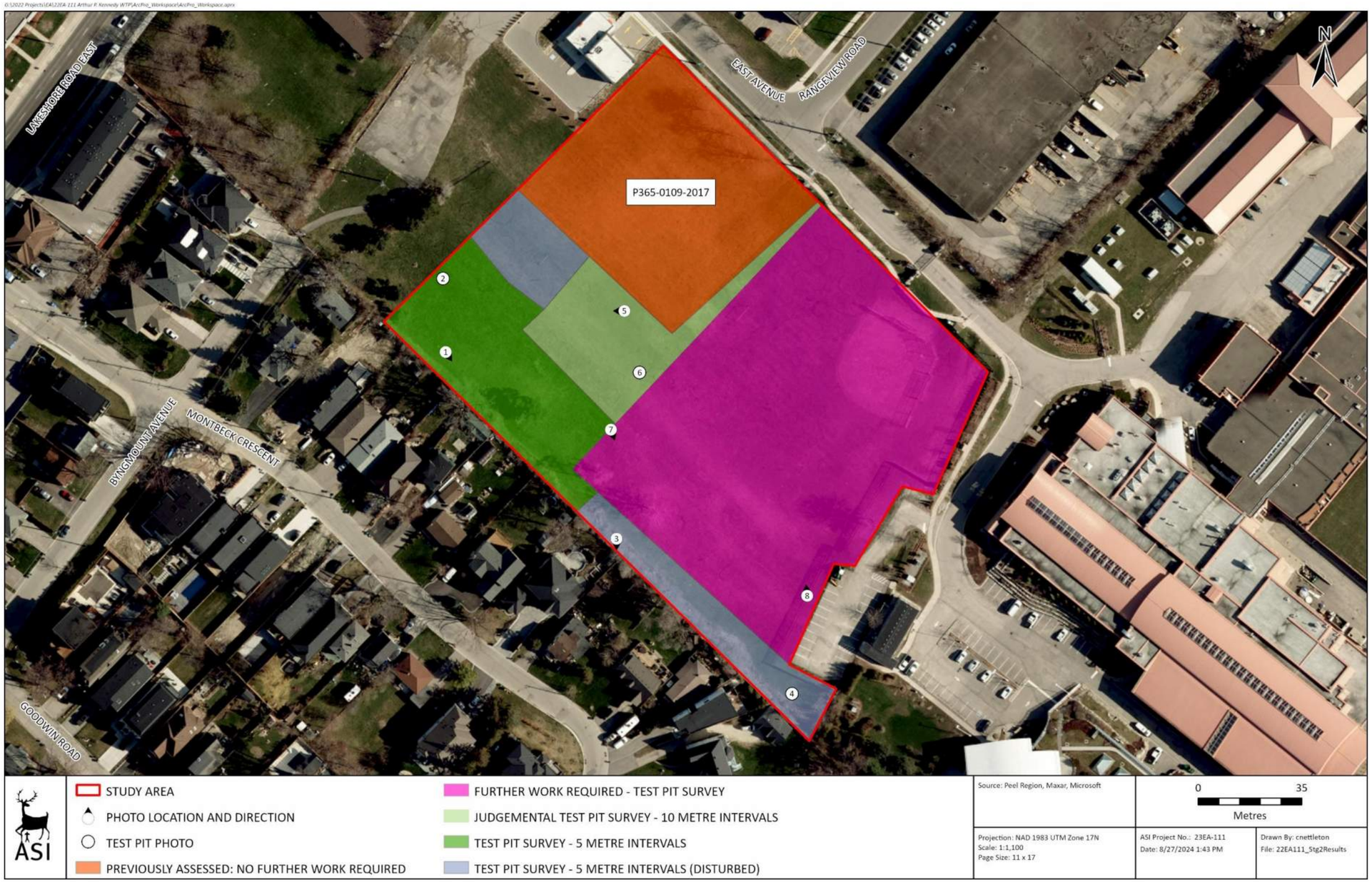
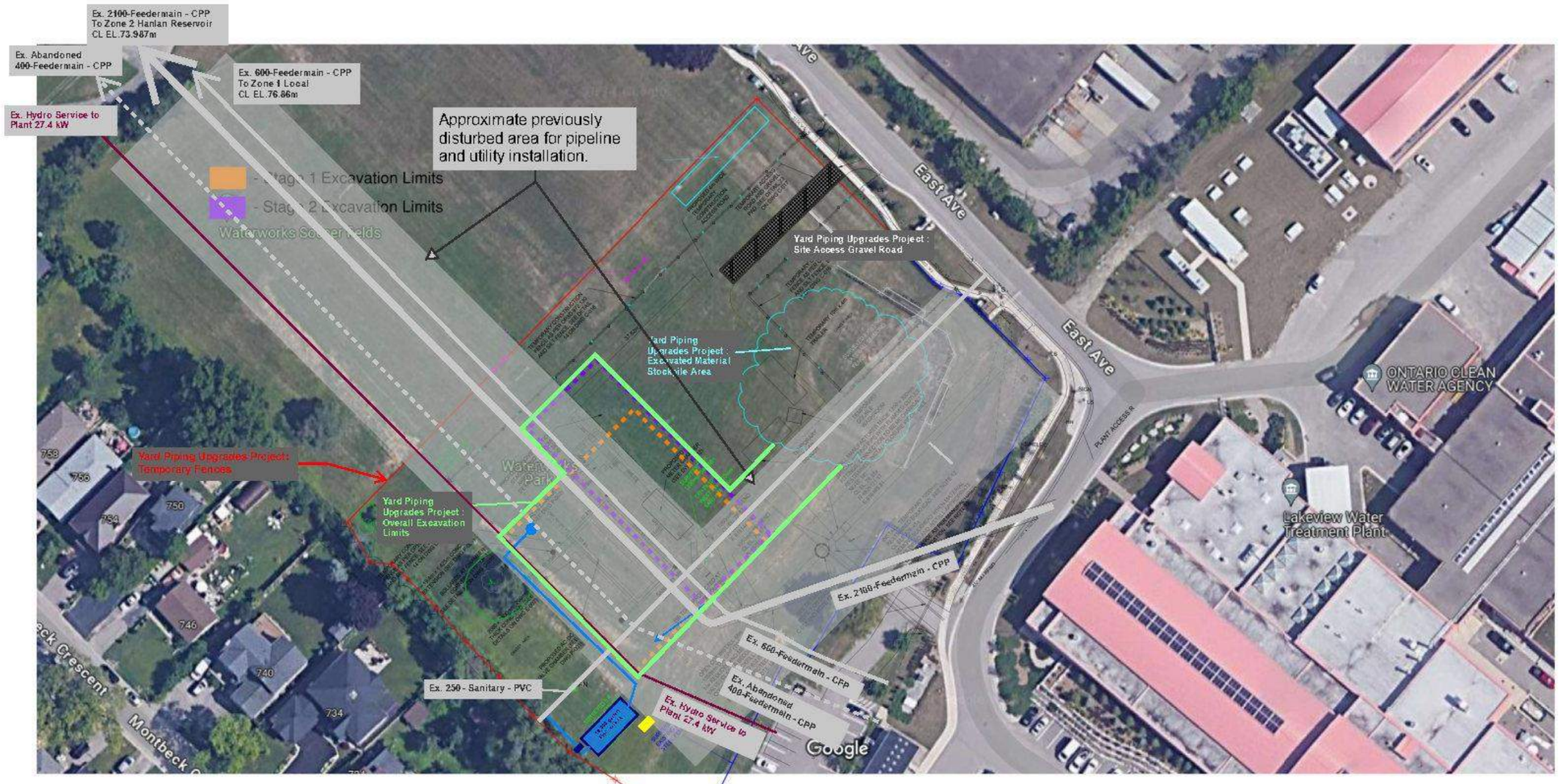


Figure 5: Stage 2 Archaeological Assessment Results for the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion

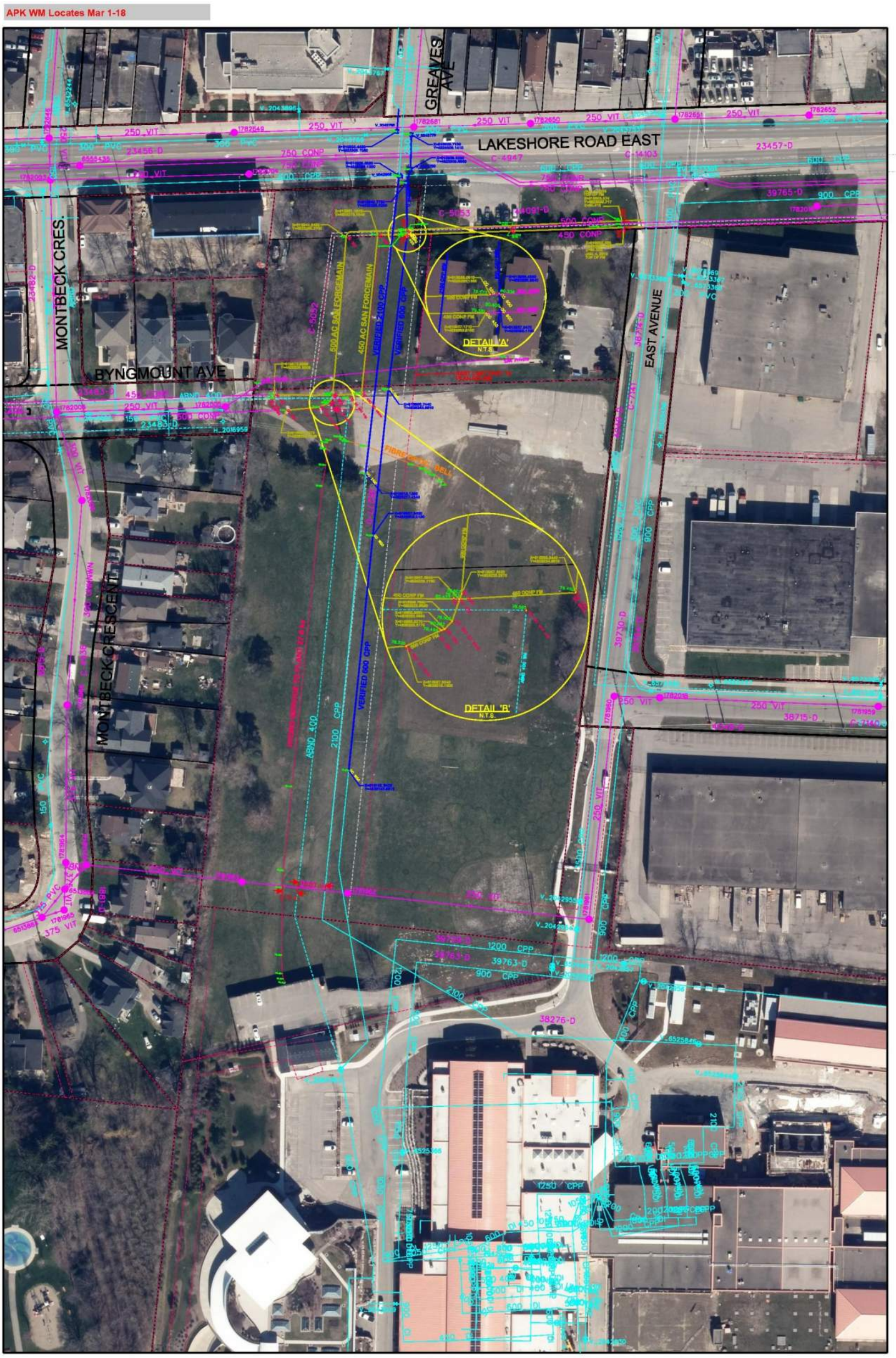
Appendix A: Arthur P. Kennedy Water Treatment Plant and Hanlan Feedermain Yard Piping Upgrades

June 20, 2024, marked up file prepared by Hatch for "Environmental Assessment for the APK WTP - Reservoir Expansion" Project



This base Drawing is prepared by DrainStar Contracting Ltd., as a Dewatering Plan for
Project No. 18-1923, 20-1922, And 10-1025
Arthur P. Kennedy Water Treatment Plant and Hanlan Feedermain Yard Piping Upgrades

DRAINSTAR CONTRACTING LTD.


APK WM Locates Mar 1-18
GREAVES AVE
LAKESHORE ROAD EAST
MONTBECK CRES.
BYNGMOUNT AVE
EAST AVENUE
DETAIL 'A'
N.T.S.
DETAIL 'B'
N.T.S.
MONTBECK CRESCENT
450 AC SAN FORCEMAIN
VERIFIED 2100 CPP
VERIFIED 600 CPP
ABND 400
2100 CPP

Appendix B: Lithic Artifact Catalogue

Stage 2 Lithic Catalogue
22EA-111

Cat #	Qty	Provenience	Stratum	Type	Material	Comments
L1	1	Secondary Deposit P2 (Test Pit 1)	Disturbed Fill	Biface	Onondaga Chert	L:29.14 mm W:18.6 mm T:6.46 mm; refined triangular tip and upper blade section with transverse fracture; possible projectile point fragment
L2	1	Secondary Deposit P1 (Test Pit 1)	Disturbed Fill	Flake Fragment	Onondaga Chert	
L3	1	Secondary Deposit P3 (Test Pit 1)	Disturbed Fill	Secondary Knapping Flake	Onondaga Chert	
Grand Total: 3 artifacts						

Stage 2 Archaeological Assessment
Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment
Part of Lots 9 and 10, Concession 3, South of Dundas (Geographical Township of Toronto, County of Peel), City of Mississauga, Regional Municipality of Peel)

Supplementary Documentation: Detailed Site Location Information

Prepared for:

Hatch
2265 Upper Middle Road East, 5th Floor
Oakville, Ontario L5K 2R7

Archaeological Licence: P1066 (Lytle)

PIF P1066-0411-2024

Archaeological Services Inc. File: 22EA-111

21 October 2024

Table of Contents

List of Figures

1.0 Detailed Site Location

According to Section 7.6 of the *Standards and Guidelines for Consultant Archaeologists* (S & G) administered by the Ministry of Citizenship and Multiculturalism (MCM), previously the Ministry of Tourism and Culture (MTC 2011), any information that pinpoints the location of an archaeological site (e.g., detailed assessment results mapping, tables of Global Positioning System (GPS) coordinates for site locations) must not be included in the project report and should only be provided in the *Supplementary Documentation* document. This allows the MCM to exclude it from the Ontario Public Register of Archaeological Reports, if necessary. Archaeological site location information is considered by MCM to be confidential and/or sensitive information that cannot be made public.

Site descriptions and other relevant information relating to all archaeological work conducted for the project are contained in our accompanying Stage 2assessment report for the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Schedule 'C' Municipal Class Environmental Assessment (Archaeological Services Inc., 2024).

1.1 Unregistered Findspots

As a result of the Stage 2 assessment for the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion (Archaeological Services Inc., 2024) three precontact Indigenous findspots (Secondary Deposit P1, Secondary Deposit P2, and Secondary Deposit P3) (Figure 1). All three findspots are secondary deposit and do not represent primary archaeological deposits. They do not have continued cultural heritage value or interest, and therefore do not require Bordenization, entry into the Ontario Archaeological Sites Database, or Stage 3 assessment. No further work is recommended at Secondary Deposit P1, P2 and P3.

The location of all finds was recorded using a Samsung Galaxy S4 tablet running Esri Collector equipped with a sub-metre Trimble Catalyst GPS (Table 1). All GPS points taken were referenced to the North American Datum 1983 and projected on the Universe Transverse Mercator grid in zone 17 north.

Environmental conditions were optimal at the time of recording the GPS coordinates, with an accuracy of less than one metre of error.

Table 1: GPS Coordinates

Designation	Easting	Northing	Coordinate Description
Secondary Deposit P1	616083	4825160	Test Pit 1
Secondary Deposit P2	616084	4825093	Test Pit 1
Secondary Deposit P3	616107	4825078	Test Pit 1

2.0 Bibliography and Sources

Archaeological Services Inc. (2024). Stage 2 Archaeological Assessment Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment Part of Lots 9 and 10, Concession 3, South of Dundas (Geographical Township of Toronto, County of Peel), City of Mississauga, Regional Municipality of Peel); PIF P1066-0411-2022 [Original Report].

Ministry of Tourism and Culture. (2011). Standards and Guidelines for Consultant Archaeologists. Archaeology Programs Branch, Ontario Ministry of Tourism, Culture and Sport.

3.0 Maps

The following map shows the detailed location Secondary Deposit P1, Secondary Deposit P2, and Secondary Deposit P3 in Lot 10, Concession 3, South of Dundas, (Geographical Township of Toronto, County of Peel), City of Mississauga, Regional Municipality of Peel, Ontario (Figure 1). Findspot descriptions, and other relevant information relating to all archaeological work conducted for the project are contained in our accompanying Stage 2 assessment report submitted to the MCM (Archaeological Services Inc., 2024).

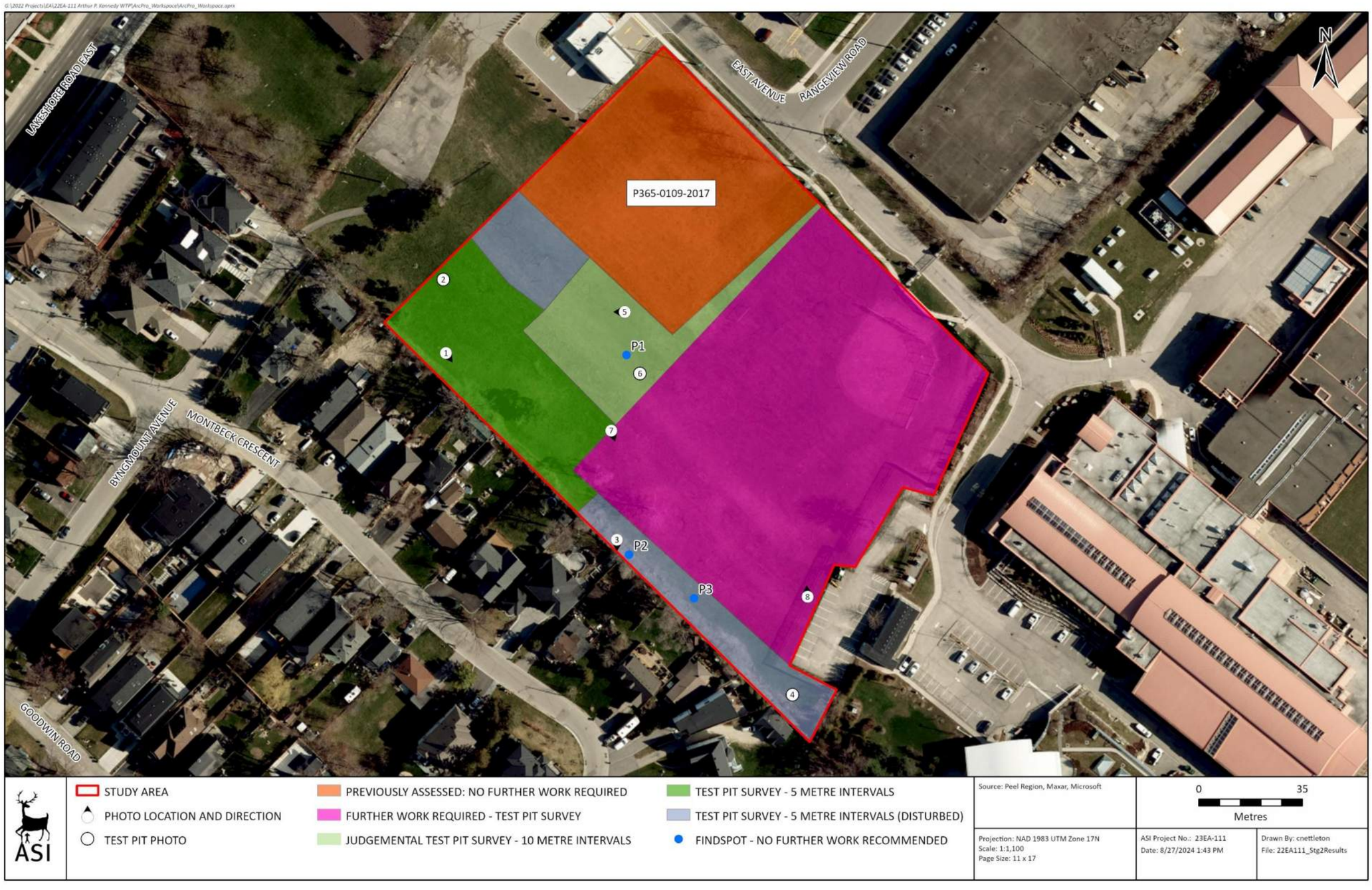


Figure 1: Detailed Location of Secondary Deposit P1, Secondary Deposit P2, and Secondary Deposit P3

Stage 2 Archaeological Assessment
Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment
Part of Lots 9 and 10, Concession 3, South of Dundas (Geographical Township of Toronto, County of Peel), City of Mississauga, Regional Municipality of Peel)

Supplementary Documentation: Indigenous Engagement

Prepared for:

Hatch
2265 Upper Middle Road East, 5th Floor
Oakville, Ontario L5K 2R7

Archaeological Licence: P1066 (Lytle)

PIF P1066-0411-2022

Archaeological Services Inc. File: 22EA-111

21 October 2024

1.0 Project Context

Indigenous community engagement was initiated by Archaeological Services Inc. (ASI) on behalf of] the Regional Municipality of Peel prior to the start of the Stage 2 assessment for the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion project in the City of Mississauga, Ontario (Archaeological Services Inc., 2024: P1066-0411-2022) Communities were informed that ASI would be undertaking the Stage 2 assessment and would handle the logistical coordination of fieldwork scheduled to begin Spring 2024. Upon completion of fieldwork, the draft report was circulated for review. The contacted parties are listed below:

Haudenosaunee Development Institute (HDI):

- Todd Williams: Williams.todde@gmail.com
- Sharann Martin: Sharann.martin@gmail.com
- Owen Greene: Olgreene@hotmail.com
- Tracey General: info@hdi.land
- Aaron Detlor: aarondetlor@gmail.com

Mississaugas of the Credit First Nation (MCFN):

- Adam LaForme: Adam.laforme@mncfn.ca
- Joelle Williams: Field.coordinator@mncfn.ca

Six Nations of the Grand River Elected Council (SNGREC):

- Tanya Hill-Montour: Tanyahill-montour@sixnation.ca
- Dawn LaForme: Dlaforme@sixnations.ca
- Tierra Henhawk: acmaa@sixnations.ca

2.0 Record of Engagement

ASI received responses from all contacted parties indicating their interest in participation during Stage 2 fieldwork.

ASI coordinated fieldwork dates with HDI, MCFN and SNGREC.

The Stage 2 survey for the Arthur P. Kenedy Water Treatment Plant Project was conducted from May 27-29, June 17, 2024 under the field direction of Brandon Reimer (R1297) and July 8, 2024 under the field direction of Marc Dibenedetto (R1374), in accordance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists*, Section 2 (MTC, 2011). During the execution of the test pit survey, field liaison representatives MCFN and SNGREC were on-site monitoring and providing input on the assessment.

Specific dates of fieldwork, field directors, and field liaison representatives are listed below in Table 1.

Table 1: List of On-site Indigenous Community Field Liaisons

Date	Field Director	Field Liaisons
May 29, 2024	Brandon Reimer (R1297)	Rebecca Sault (MCFN)
June 17, 2024	Brandon Reimer (R1297)	Olivia Sardine (MCFN), Cole Thistle (SNGREC)
July 8, 2024	Marc Dibenedetto (R1374)	Kris Jonathan (MCFN)

On June 17, 2024 Cole Thistle asked if the construction activities for the Yard Piping project could be paused to allow test pits survey be completed before further ground disturbing activities occurred. The Region indicated that the Yard Piping Project is separate and was designed/tendered ahead of the current scope.

The results of this assessment and a copy of the final report were shared with the communities to keep all parties updated and informed (Archaeological Services Inc., 2024).

Table 2 below provides a record of all communications and comments received from Indigenous communities throughout the draft report review process.

Table 2: Record of Communications

Date	Method of Communication	Community	Summary
September 4, 2024	Email	HDI, MCFN, SNGREC	Draft report circulated for review and comment. Requested all comments be provided by October 3, 2024.
September 26, 2024	Email	HDI, MCFN, SNGREC	Follow-up email to see if reviews will be completed by October 3, 2024.
September 26, 2024	Email	MCFN	Adam LaForme confirmed MCFN would respond with comments by October 3, 2024.
October 2, 2024	Email	MCFN	Adrian Blake responded that MCFN did not have any questions or concerns for you at this time regarding this particular report.

Date	Method of Communication	Community	Summary
October 7, 2024	Email	HDI, SNGREC	Follow-up email to see if comments would be forthcoming.
October 7, 2024	Email	SNGREC	Tanya Hill-Montour responded they had not had an opportunity to review the report and would provide comments by the end of the week.

ASI did not receive any response from HDI.

3.0 Bibliography and Sources

Archaeological Services Inc. (2024). Stage 2 Archaeological Assessment Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment Part of Lots 9 and 10, Concession 3, South of Dundas (Geographical Township of Toronto, County of Peel), City of Mississauga, Regional Municipality of Peel); PIF P1066-0411-2022 [Original Report].

MTC, (Ministry of Tourism and Culture). (2011). Standards and Guidelines for Consultant Archaeologists. Cultural Programs Branch, Ontario Ministry of Tourism and Culture.

Appendix F

Cultural Heritage Report

Cultural Heritage Report:
Existing Conditions and Preliminary Impact Assessment

Arthur P. Kennedy Water Treatment Plant Reservoir Expansion
Municipal Class Environmental Assessment

City of Mississauga
Region of Peel, Ontario

Interim Draft Report

Prepared for:

Hatch
2265 Upper Middle Road East, 5th Floor
Oakville, ON L6H 0G5

Archaeological Services Inc. File: 22CH-075

May 2024

Executive Summary

Archaeological Services Inc. was contracted by Hatch, on behalf of the Regional Municipality of Peel, to conduct a Cultural Heritage Report as part of the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment (M.C.E.A.). The Environmental Assessment involves the expansion of the reservoir at the Arthur P. Kennedy Water Treatment Plant (W.T.P.), in the City of Mississauga. The project study area consists of an approximately 300 by 230 metre area of land north of the western portion of the W.T.P. and an approximately 230 by 200 metre area of land east of the W.T.P. The study area is generally bounded by industrial properties to the north and east, residential properties to the west, and park lands and Lake Ontario to the south.

The purpose of this report is to present an inventory of known and potential built heritage resources (B.H.R.s) and cultural heritage landscapes (C.H.L.s), identify existing conditions of the project study area, provide a preliminary impact assessment, and propose appropriate mitigation measures.

The results of background historical research and a review of secondary source material, including historical mapping, indicate a study area with a rural land use history dating back to the early-nineteenth century that developed into a suburban context in the twentieth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed that there is one known C.H.L. in the Arthur P. Kennedy W.T.P. Reservoir Expansion M.C.E.A. study area. No additional potential B.H.R.s or C.H.L.s were identified during the background information review and fieldwork.

Direct impacts are anticipated to the Lakefront Promenade Park C.H.L. (C.H.L. 1) as a result of the Southeast Reservoir alternative. Limited and temporary indirect impacts are anticipated to C.H.L. 1 as a result of the Northwest Reservoir alternative. Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to the identified C.H.L. Avoidance measures may include, but are not limited to: erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified features, etc. Suitable mitigation measures including post construction rehabilitation with sympathetic plantings can also be implemented.

2. Where the proposed limits of disturbance cannot be revised to avoid impacts, the depth and extent of construction activities should be limited to reduce impacts to C.H.L. 1 to the extent practical. Removal of trees should also be limited to the extent feasible. Where tree removals are required, post-construction rehabilitation should be implemented.

3. The Lakefront Promenade Park C.H.L. is recognized as a C.H.L. by the City of Mississauga. As there are direct impacts anticipated due to construction, a resource-specific heritage impact assessment (H.I.A.) may be required as per the *City of Mississauga Official Plan* clauses 7.5.1.10 and 7.5.1.12 (City of Mississauga, 2022), if the Southeast Reservoir is the alterative selected for this project. However, given that no structures, apparent landscape features, or any other heritage attributes of significant cultural heritage value or interest within the C.H.L. are anticipated to be impacted, it is recommended that the City of Mississauga consider waiving the requirement for an H.I.A. in this case if suitable mitigation measures including post-construction rehabilitation with sympathetic plantings can be implemented.

4. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.

5. This report should be submitted to the City of Mississauga, Heritage Mississauga, and the Ministry of Citizenship and Multiculturalism for review and comment, and any other local heritage stakeholders that may have an interest in this project. The final report should be submitted to the City of Mississauga for their records.

6. All subsequent recommended technical cultural heritage studies (e.g., H.I.A.) should be completed by a qualified heritage professional with recent and relevant experience as early in detailed design as possible prior to any construction activities and submitted for review and comment to the City of Mississauga and any other local heritage stakeholders that may have an interest in this project.

Report Accessibility Features

This report has been formatted to meet the Information and Communications Standards under the *Accessibility for Ontarians with Disabilities Act*, 2005 (A.O.D.A.). Features of this report which enhance accessibility include: headings, font size and colour, alternative text provided for images, and the use of periods within acronyms. Given this is a technical report, there may be instances where additional accommodation is required in order for readers to access the report's information. If additional accommodation is required, please contact Annie Veilleux, Manager of the Cultural Heritage Division at Archaeological Services Inc., by email at aveilleux@asiheritage.ca or by phone 416-966-1069 ext. 255.

Project Personnel

- **Senior Project Manager**: Lindsay Graves, M.A., C.A.H.P., Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division
- **Project Coordinator:** Jessica Bisson, B.F.A. (Hon.), Cultural Heritage Technician, Division Coordinator – Cultural Heritage Division
- **Project Manager**: Kirstyn Allam, B.A. (Hon.), Advanced Dipl. Applied Museum Studies, Cultural Heritage Analyst, Project Manager - Cultural Heritage Division
- **Field Review**: Lindsay Graves
- **Report Production**: Leora Bebko, M.M.St., Cultural Heritage Technician, Technical Writer and Researcher – Cultural Heritage Division
- Kirstyn Allam
- **Graphics Production**: Carolyn Nettleton, B.A., Archaeologist, Geomatics Technician – Operations Division
- **Report Reviewer(s)**: Lindsay Graves, Kirstyn Allam, Leora Bebko

Qualified Persons Involved in the Project

Lindsay Graves, M.A., C.A.H.P.
Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division

The Senior Project Manager for this Cultural Heritage Report is **Lindsay Graves** (M.A., Heritage Conservation), Senior Cultural Heritage Specialist and Assistant Manager for the Cultural Heritage Division. She was responsible for: overall project scoping and approach; development and confirmation of technical findings and study recommendations; application of relevant standards, guidelines and regulations; and implementation of quality control procedures. Lindsay is academically trained in the fields of heritage conservation, cultural anthropology, archaeology, and collections management and has over 15 years of experience in the field of cultural heritage resource management. This work has focused on the assessment, evaluation, and protection of built heritage resources and cultural heritage landscapes. Lindsay has extensive experience undertaking archival research, heritage survey work, heritage evaluation and heritage impact assessment. She has also contributed to cultural heritage landscape studies and heritage conservation plans, led heritage commemoration and interpretive programs, and worked collaboratively with multidisciplinary teams to sensitively plan interventions at historic sites/places. In addition, she is a leader in the completion of heritage studies required to fulfill Class Environmental Assessment processes and has served as Project Manager for over 100 heritage assessments during her time at Archaeological Services Inc. Lindsay is a member of the Canadian Association of Heritage Professionals.

Kirstyn Allam, B.A. (Hon.), Advanced Dipl. in Applied Museum Studies
Cultural Heritage Analyst, Project Manager - Cultural Heritage Division

The Project Manager for this Cultural Heritage Report is **Kirstyn Allam** (B.A. (Hon.), Advanced Diploma in Applied Museum Studies), who is a Cultural Heritage Analyst and Project Manager within the Cultural Heritage Division. She was responsible for the day-to-day management activities, including scoping of

research activities and site surveys and drafting of study findings and recommendations. Kirstyn Allam's education and experience in cultural heritage, historical research, archaeology, and collections management has provided her with a deep knowledge and strong understanding of the issues facing the cultural heritage industry and best practices in the field. Kirstyn has experience in heritage conservation principles and practices in cultural resource management, including three years' experience as a member of the Heritage Whitby Advisory Committee. Kirstyn also has experience being involved with Stage 1-4 archaeological excavations in the Province of Ontario. Kirstyn is an intern member of C.A.H.P.

Leora Bebko, M.M.St.
Cultural Heritage Technician, Technical Writer and Researcher - Cultural Heritage Division

One of the Cultural Heritage Technicians for this project is **Leora Bebko** (M.M.St.), who is a Cultural Heritage Technician and Technical Writer and Researcher within the Cultural Heritage Division. She was responsible for preparing and contributing research and technical reporting. In Leora's career as a cultural heritage and museum professional she has worked extensively in public programming and education within built heritage spaces. Leora is particularly interested in the ways in which our heritage landscapes can be used to facilitate public engagement and interest in our region's diverse histories. While completing her Master of Museum Studies she was able to combine her interest in heritage architecture and museums by focusing on the historic house museum and the accessibility challenges they face. As a thesis project, Leora co-curated the award-winning exhibit *Lost & Found: Rediscovering Fragments of Old Toronto* on the grounds of Campbell House Museum. Since completing her degree she has worked as a historical interpreter in a variety of heritage spaces, learning a range of traditional trades and has spent considerable time researching heritage foodways and baking in historic kitchens. In 2022, she joined ASI's Cultural Heritage team as a Cultural Heritage Technician.

Glossary

Built Heritage Resource (B.H.R.)
Definition: "…a building, structure, monument, installation or any manufactured remnant that contributes to a property's cultural heritage value or interest as identified by a community, including an Indigenous community. Built heritage resources are located on property that may be designated under Parts IV or V of the *Ontario Heritage Act*, or that may be included on local, provincial, federal and/or international registers" (Ministry of Municipal Affairs and Housing, 2020, p. 41).

Cultural Heritage Landscape (C.H.L.)
Definition: "…a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the *Ontario Heritage Act*, or have been included on federal and/or international registers, and/or protected through official plan, zoning by-law, or other land use planning mechanisms" (Ministry of Municipal Affairs and Housing, 2020, p. 42).

Known Built Heritage Resource or Cultural Heritage Landscape
Definition: A known built heritage resource or cultural heritage landscape is a property that has recognized cultural heritage value or interest. This can include a property listed on a Municipal Heritage Register, designated under Part IV or V of the *Ontario Heritage Act*, or protected by a heritage agreement, covenant or easement, protected by the *Heritage Railway Stations Protection Act or the Heritage Lighthouse Protection Act*, identified as a Federal Heritage Building, or located within a U.N.E.S.C.O. World Heritage Site (Ministry of Tourism, Culture and Sport, 2016).

Impact
Definition: Includes negative and positive, direct and indirect effects to an identified built heritage resource and cultural heritage landscape. Direct impacts include destruction of any, or part of any, significant heritage attributes or features and/or unsympathetic or incompatible alterations to an identified resource. Indirect impacts include, but are not limited to, creation of shadows, isolation of heritage attributes, direct or indirect obstruction of significant views, change in land use, land disturbances (Ministry of Tourism Culture and Sport, 2006b). Indirect impacts also include potential vibration impacts (See Section 2.5 for complete definition and discussion of potential impacts).

Mitigation
Definition: Mitigation is the process of lessening or negating anticipated adverse impacts to built heritage resources or cultural heritage landscapes and may include, but are not limited to, such actions as avoidance, monitoring, protection, relocation, remedial landscaping, and documentation of the cultural heritage landscape and/or built heritage resource if to be demolished or relocated (Ministry of Tourism Culture and Sport, 2006a).

Potential Built Heritage Resource or Cultural Heritage Landscape
Definition: A potential built heritage resource or cultural heritage landscape is a property that has the potential for cultural heritage value or interest. This can include properties/project area that contain a parcel of land that is the subject of a commemorative or interpretive plaque, is adjacent to a known burial site and/or cemetery, is in a Canadian Heritage River Watershed, or contains buildings or structures that are 40 or more years old (Ministry of Tourism, Culture and Sport, 2016).

Significant
Definition: With regard to cultural heritage and archaeology resources, significant means “resources that have been determined to have cultural heritage value or interest. Processes and criteria for determining cultural heritage value or interest are established by the Province under the authority of the *Ontario Heritage Act.*

While some significant resources may already be identified and inventoried by official sources, the significance of others can only be determined after evaluation" (Ministry of Municipal Affairs and Housing, 2020, p. 51).

Vibration Zone of Influence

Definition: Area within a 50-metre buffer of construction-related activities in which there is potential to affect an identified built heritage resource or cultural heritage landscape. A 50-metre buffer is applied in the absence of a project-specific defined vibration zone of influence based on existing secondary source literature (Carman et al., 2012; Crispino & D'Apuzzo, 2001; P. Ellis, 1987; Rainer, 1982; Wiss, 1981). This buffer accommodates the additional threat from collisions with heavy machinery or subsidence (Randl, 2001).

Table of Contents

List of Tables

List of Figures

List of Plates

1.0 Introduction

Archaeological Services Inc. was contracted by Hatch, on behalf of the Regional Municipality of Peel, to conduct a Cultural Heritage Report as part of the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment. The purpose of this report is to present an inventory of known and potential built heritage resources (B.H.R.s) and cultural heritage landscapes (C.H.L.s), identify existing conditions of the project study area, provide a preliminary impact assessment, and propose appropriate mitigation measures.

1.1 Project Overview

The Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment involves the expansion of the reservoir at the Arthur P. Kennedy Water Treatment Plant (W.T.P.), in the City of Mississauga. The project study area consists of an approximately 300 by 230 metre area of land north of the western portion of the W.T.P. and an approximately 230 by 200 metre area of land east of the W.T.P. The study area is generally bounded by industrial properties to the north and east, residential properties to the west, and park lands and Lake Ontario to the south.

1.2 Description of Study Area

This Cultural Heritage Report will focus on the project study area with an additional 50 metre buffer (Figure 1). This project study area has been defined as inclusive of those lands that may contain B.H.R.s or C.H.L.s that may be subject to direct or indirect impacts as a result of the proposed undertaking. Properties within the study area are located in the City of Mississauga.

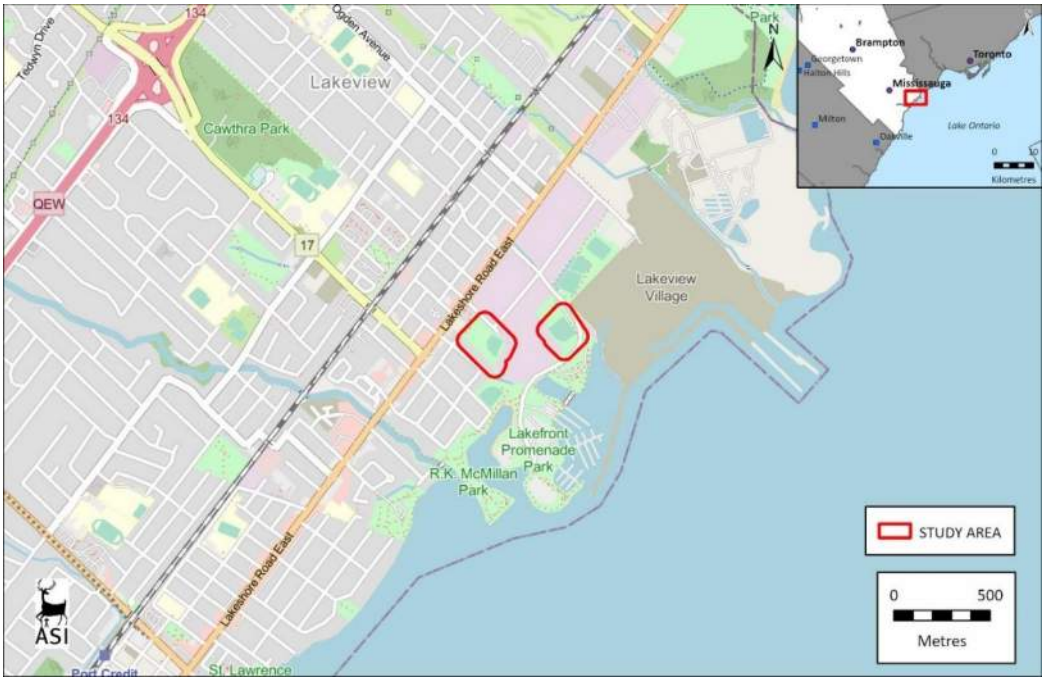


Figure 1: Location of the study area (©OpenStreetMap and contributors, Creative Commons-Share Alike License (C.C.-By-S.A.))

2.0 Methodology

The following sections provide a summary of regulatory requirements and municipal and regional heritage policies that guide this cultural heritage assessment. In addition, an overview of the process undertaken to identify known and potential built heritage resources (B.H.R.s) and cultural heritage landscapes (C.H.L.s) is provided, along with a description of how the preliminary impact assessment will be undertaken.

2.1 Regulatory Requirements

The *Ontario Heritage Act* (O.H.A.) (Ontario Heritage Act, R.S.O. c. O.18, [as Amended in 2023], 1990) is the primary piece of legislation that determines policies, priorities and programs for the conservation of Ontario's heritage. There are many other provincial acts, regulations and policies governing land use planning and resource development that support heritage conservation, including:

- The *Planning Act* (Planning Act, R.S.O. 1990, c. P.13, 1990), which states that "conservation of features of significant architectural, cultural, historical, archaeological or scientific interest" is a "matter of provincial interest". The *Provincial Policy Statement* (Ministry of Municipal Affairs and Housing, 2020), issued under the *Planning Act*, links heritage conservation to long-term economic prosperity and requires municipalities and the Crown to conserve significant B.H.R.s and C.H.L.s.
- The *Environmental Assessment Act* (Environmental Assessment Act, R.S.O. c. E.18, 1990), which defines "environment" to include cultural conditions that influence the life of humans or a community. Cultural heritage resources, which includes archaeological resources, built heritage resources and cultural heritage landscapes, are important components of those cultural conditions.

The Ministry of Citizenship and Multiculturalism (hereafter "The Ministry") is charged under Section 2.0 of the O.H.A. with the responsibility to determine policies, priorities, and programs for the conservation, protection, and preservation of the heritage of Ontario. The *Standards and Guidelines for Conservation of Provincial Heritage Properties* (Ministry of Tourism Culture and Sport, 2010) (hereinafter "*Standards and Guidelines")* apply to properties the Government of Ontario owns or controls that have "cultural heritage value or interest" (C.H.V.I.). The *Standards and Guidelines* provide a series of guidelines that apply to provincial heritage properties in the areas of identification and evaluation; protection; maintenance; use; and disposal. For the purpose of this

report, the *Standards and Guidelines* provide points of reference to aid in determining potential heritage significance in the identification of B.H.R.s and C.H.L.s. While not directly applicable for use in properties not under provincial ownership, the *Standards and Guidelines* are regarded as best practice for guiding heritage assessments and ensure that additional identification and mitigation measures are considered.

Similarly, the *Ontario Heritage Tool Kit* (Ministry of Culture, 2006) provides a guide to evaluate heritage properties. To conserve a B.H.R. or C.H.L., the *Ontario Heritage Tool Kit* states that a municipality or approval authority may require a heritage impact assessment and/or a conservation plan to guide the approval, modification, or denial of a proposed development.

2.2 Municipal/Regional Heritage Policies

The study area is located within the City of Mississauga, in the Regional Municipality of Peel. Policies relating to B.H.R.s and C.H.L.s were reviewed from the following sources:

- *City of Mississauga Official Plan* (City of Mississauga, 2022)
- *Region of Peel Official Plan* (Peel Region, 2022)
- *Lakeview Local Area Plan* (City of Mississauga, 2018)
- *2019 Culture Master Plan* (City of Mississauga, 2019a)
- *City of Mississauga Heritage Management Strategy* (City of Mississauga, 2016)
- *Mississauga Waterfront Parks Strategy Refresh* (City of Mississauga, 2019b)
- *Place to Grow: Growth Plan for the Greater Golden Horseshoe* (Government of Ontario, 2020)

2.3 Identification of Built Heritage Resources and Cultural Heritage Landscapes

This Cultural Heritage Report follows guidelines presented in the *Ontario Heritage Tool Kit* (Ministry of Culture, 2006) and *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (Ministry of Tourism, Culture and Sport, 2016). The objective of this report is to present an inventory of known and potential B.H.R.s and C.H.L.s, and to provide a preliminary understanding of known and potential B.H.R.s and C.H.L.s located within areas anticipated to be directly or indirectly impacted by the proposed project.

In the course of the cultural heritage assessment process, all potentially affected B.H.R.s and C.H.L.s are subject to identification and inventory. Generally, when conducting an identification of B.H.R.s and C.H.L.s within a study area, three stages of research and data collection are undertaken to appropriately establish the potential for and existence of B.H.R.s and C.H.L.s in a geographic area: background research and desktop data collection; field review; and identification.

Background historical research, which includes consultation of primary and secondary source research and historical mapping, is undertaken to identify early settlement patterns and broad agents or themes of change in a study area. This stage in the data collection process enables the researcher to determine the presence of sensitive heritage areas that correspond to nineteenth- and twentieth-century settlement and development patterns. To augment data collected during this stage of the research process, federal, provincial, and municipal databases and/or agencies are consulted to obtain information about specific properties that have been previously identified and/or designated as having cultural heritage value. Typically, resources identified during these stages of the research process are reflective of particular architectural styles or construction methods, associated with an important person, place, or event, and contribute to the contextual facets of a particular place, neighbourhood, or intersection.

A field review is then undertaken to confirm the location and condition of previously identified B.H.R.s and C.H.L.s. The field review is also used to identify potential B.H.R.s and C.H.L.s that have not been previously identified on federal, provincial, or municipal databases or through other appropriate agency data sources.

During the cultural heritage assessment process, a property is identified as a potential B.H.R. or C.H.L based on research, the Ministry screening tool, and professional expertise and best practice. In addition, use of a 40-year-old benchmark is a guiding principle when conducting a preliminary identification of B.H.R.s and C.H.L.s. While identification of a resource that is 40 years old or older does not confer outright heritage significance, this benchmark provides a means to collect information about resources that may retain heritage value. Similarly, if a resource is slightly younger than 40 years old, this does not preclude the resource from having C.H.V.I.

2.4 Background Information Review

To make an identification of previously identified known or potential B.H.R.s and C.H.L.s within the study area, the following sections present the resources that were consulted as part of this Cultural Heritage Report.

2.4.1 Review of Existing Heritage Inventories

A number of resources were consulted in order to identify previously identified B.H.R.s and C.H.L.s within the study area. These resources, reviewed on 14 March, 2024, include:

- The City of Mississauga Heritage Register (City of Mississauga, 2020);
- 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);
- 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.).

2.4.2 Review of Previous Heritage Reporting

Additional cultural heritage studies undertaken within parts of the study area were also reviewed. These include:

- *Rangeview Development Master Plan Heritage Impact Assessment* (ERA, 2023)
- *Conserving Heritage Landscapes Cultural Heritage Landscape Project – Volume 1* (Archaeological Services Inc., 2022a)
- *Conserving Heritage Landscapes Cultural Heritage Landscape Project – Volume 2* (Archaeological Services Inc., 2022b)

- *Conserving Heritage Landscapes Cultural Heritage Landscape Project – Volume 3* (Archaeological Services Inc., 2022c)
- *Cultural Landscape Inventory* (The Landplan Collaborative Ltd. et al., 2005)

2.4.3 Community Information Gathering

The following individuals, groups, and/or organizations were contacted to gather information on known and potential B.H.R.s and C.H.L.s, active and inactive cemeteries, and areas of identified Indigenous interest within the study area:

- Paula Wubbenhorst, Senior Heritage Coordinator, City of Mississauga (email communication 20 and 21 March 2024). Email correspondence confirmed that 95 Lakefront Promenade, which is listed by the City, and the Lakefront Promenade Park C.H.L., which is identified in the Conserving Heritage Landscapes *Cultural Heritage Landscape Project – Volume 3* (Archaeological Services Inc., 2022c), were located within the study area. A listing report for 95 Lakefront Promenade was requested and staff advised that only the information contained in *Cultural Landscape Inventory* (The Landplan Collaborative Ltd. et al., 2005) was available. However, following review, it was confirmed that the property at 95 Lakefront Promenade was outside the limits of the study area and as such is not identified in this Cultural Heritage Report.
- Heritage Mississauga (email communication 28 March, 1, 3 April 2024). Email correspondence with the organization highlighted the property at 938 East Avenue as being the former site of the Byngmount Public School and the nearby A.E. Crookes Memorial Park, as one of the City's oldest continually operating public parks. Heritage Mississauga also provided a history of the park and advised that they will be looking at commemorating the park in the near future. Discussion with Heritage Mississauga also included the house at 750 Montbeck Crescent which the organization advised was constructed circa 2001 to 2002.
- The Ministry (email communication 20 and 25 March 2024). Email correspondence confirmed that there are no properties designated by the

Minister and no known Provincial Heritage Properties within the study area.

- The Ontario Heritage Trust (email communication 20 and 21 March 2024). A response indicated that there are no conservation easements or Trust-owned properties, nor any Trust plaques within the study area.

2.5 Community Engagement

The report should be submitted to the heritage staff at the City of Mississauga and Heritage Mississauga for review and comment.

Indigenous Nations Engagement for this project is being completed by Hatch to Indigenous Nations that have an interest in this study area. Hatch distributed the Notice of Study Commencement to the following communities:

- Mississaugas of the Credit First Nation,
- Six Nations of the Grand River,
- Huron-Wendat Nation,
- Métis Nation of Ontario, and
- Toronto & York Region Métis Council.

No feedback has been received by Hatch regarding the Cultural Heritage Report for this project at the time of report submission (April 2024). Any feedback received will be considered and incorporated into the final report.

2.6 Preliminary Impact Assessment Methodology

To assess the potential impacts of the undertaking, identified B.H.R.s and C.H.L.s are considered against a range of possible negative impacts, based on the *Ontario Heritage Tool Kit InfoSheet #5: Heritage Impact Assessments and Conservation Plans* (Ministry of Tourism Culture and Sport, 2006b). These include:

Direct impacts:

- Destruction of any, or part of any, significant heritage attributes or features; and
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance.

Indirect impacts:

- Shadows created that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings, such as a garden;
- Isolation of a heritage attribute from its surrounding environment, context or a significant relationship;
- Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features;
- A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces; and
- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource.

Indirect impacts from construction-related vibration have the potential to negatively affect B.H.R.s and C.H.L.s depending on the type of construction methods and machinery selected for the project and proximity and composition of the identified resources. Potential vibration impacts are defined as having potential to affect an identified B.H.R.s and C.H.L.s where work is taking place

within 50 metres of features on the property. A 50-metre buffer is applied in the absence of a project-specific defined vibration zone of influence based on existing secondary source literature (Carman et al., 2012; Crispino & D'Apuzzo, 2001; P. Ellis, 1987; Rainer, 1982; Wiss, 1981). This buffer accommodates any additional or potential threat from collisions with heavy machinery or subsidence (Randl, 2001).

Several additional factors are also considered when evaluating potential impacts on identified B.H.R.s and C.H.L.s. These are outlined in a document set out by the Ministry of Culture and Communications (now Ministry of Citizenship and Multiculturalism) and the Ministry of the Environment entitled *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (1992). While this document has largely been superseded in some respects by more current policies and legislation, the guidance provided that continues to be of relevance to this specific project includes the following definitions:

- Magnitude: the amount of physical alteration or destruction which can be expected;
- Severity: the irreversibility or reversibility of an impact;
- Duration: the length of time an adverse impact persists;
- Frequency: the number of times an impact can be expected;
- Range: the spatial distribution, widespread or site specific, of an adverse impact; and
- Diversity: the number of different kinds of activities to affect a heritage resource.

The proposed undertaking should endeavor to avoid adversely affecting known and potential B.H.R.s and C.H.L.s and interventions should be managed in such a way that identified features are conserved. When the nature of the undertaking is such that adverse impacts are unavoidable, it may be necessary to implement alternative approaches or mitigation strategies that alleviate the negative effects on identified B.H.R.s and C.H.L.s. Mitigation is the process of lessening or negating

anticipated adverse impacts and may include, but are not limited to, such actions as avoidance, monitoring, protection, relocation, remedial landscaping, and documentation of the B.H.R. or C.H.L. if to be demolished or relocated.

Various works associated with infrastructure improvements have the potential to affect B.H.R.s and C.H.L.s in a variety of ways, and as such, appropriate mitigation measures for the undertaking need to be considered.

3.0 Summary of Historical Development Within the Study Area

This section provides a brief summary of historical research. A review of available primary and secondary source material was undertaken to produce a contextual overview of the study area, including a general description of physiography, Indigenous land use, and Euro-Canadian settlement.

3.1 Physiography

The study area is situated within the Iroquois Plain physiographic region of southern Ontario which is a lowland region bordering Lake Ontario. This region is characteristically flat and formed by lacustrine deposits laid down by the inundation of Lake Iroquois, a body of water that existed during the late Pleistocene. This region extends from the Trent River, around the western part of Lake Ontario, to the Niagara River, spanning 300 kilometres. The old shorelines of Lake Iroquois include cliffs, bars, beaches, and boulder pavements. The old sandbars in this region are good aquifers that supply water to farms and villages. The gravel bars are quarried for road and building material, while the clays of the old lake bed have been used for the manufacture of bricks (Chapman & Putnam, 1984).

Between Hamilton and Toronto, along the north edge of the Iroquois plain physiographic region, the ancient Lake Iroquois shoreline creates a distinct bluff of varying rocks and shales commonly known as the escarpment. The land

between the ancient shoreline and the modern shoreline, which was the former bed of Lake Iroquois, is comprised of sandy soil in the Clarkson area as well as neighbouring communities from Aldershot to Humber Bay. These sandy soils were preferred by Euro-Canadian settlers over the adjoining areas which have clay and, combined with being protected from frost because of the proximity to Lake Ontario and having good road and railway facilities, this two-mile width of land became important for horticulture. The season was shorter in this area than on the south side of Lake Ontario which distinguished the crops grown which included apples, pears, bush fruits, strawberries and vegetables (Chapman and Putnam 1984).

After almost 100 years of farming, the physiography of this area supported its impressive and quick change to residential, commercial, and industrial uses. More than 15,000 acres of farms that existed in 1941 were gradually replaced over the following four decades and by the 1980s the whole of the Iroquois plain between Hamilton and Toronto was built up. The gravels were used for construction, the sand plains are excellent housing sites and the flat lake plain with bedrock is good for industrial uses (Chapman and Putnam 1984).

3.2 Indigenous Land Use and Settlement

Current archaeological evidence indicates humans were present in southern Ontario approximately 13,000 years before present (B.P.) (Ferris, 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 B.P., the environment had progressively warmed (Edwards & Fritz, 1988) and populations now occupied less extensive territories (C. J. Ellis & Deller, 1990).

Between approximately 10,000-5,500 B.P., the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest

prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 B.P.; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest archaeological evidence for cemeteries dates to approximately 4,500-3,000 B.P. and is interpreted by archaeologists to be indicative of increased social organization and the investment of labour into social infrastructure (Brown, 1995, p. 13; C. J. Ellis et al., 1990, 2009).

Between 3,000-2,500 B.P., populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2,500 B.P. and exchange and interaction networks broaden at this time (Spence et al., 1990, pp. 136, 138) and by approximately 2,000 B.P., evidence exists for small community camps, focusing on the seasonal harvesting of resources (Spence et al., 1990, pp. 155, 164). By 1,500 B.P. there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolithic evidence for maize in central New York State by 2,300 B.P. – it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch & Williamson, 2013, pp. 13–15). As is evident in detailed Anishinaabek ethnographies, winter was a period during which some families would depart from the larger group as it was easier to sustain smaller populations (Rogers, 1962). It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 B.P., lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (C.E.), larger settlement sites focused on horticulture begin to dominate the archaeological record. Seasonal dispersal of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson, 1990, p. 317). By 1300-1450 C.E., archaeological research focusing on these horticultural societies note that this episodic community dispersal was no longer practised and these populations

now occupied sites throughout the year (Dodd et al., 1990, p. 343). By the mid-sixteenth century these small villages had coalesced into larger communities (Birch et al., 2021). Through this process, the socio-political organization of these First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. Other First Nation communities continued to practice residential mobility and to harvest available resources across landscapes they returned to seasonally/annually.

By 1600 C.E., the Confederation of Nations were encountered by the first European explorers and missionaries in Simcoe County. In the 1640s, devastating epidemics and the traditional enmity between the Haudenosaunee and the Huron-Wendat (and their Algonquian allies such as the Nippissing and Odawa) led to their dispersal from southern Ontario. Shortly afterwards, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. By the 1690s however, the Anishinaabeg were the only communities with a permanent presence in southern Ontario. From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there was no interruption to Anishinaabeg control and use of southern Ontario.

The study area is within the scope of the Treaty of Fort Albany (Nanfan), signed by the British Crown and the Haudenosaunee Confederacy in 1701 (Six Nations of the Grand River, 2008). The Haudenosaunee entered into this agreement with the British Crown to place their beaver hunting grounds under the protection of the King of Britain and to reject the French from building forts on their lands, which included most of Southern Ontario.

In the following years, the Haudenosaunee called upon the King to honour this Treaty. To confirm the Kings' commitment to the Five Nations and to allow their castles (forts) in the Five Nations lands as protection against the French, an affirming agreement was entered into on September 14, 1726. The protection of the Five Nations interests throughout their beaver hunting grounds is again affirmed in Article 15 of the Treaty of Utrecht between the British and the French,

wherein the Five Nations specifically would not be molested between (Lakes) Ontario, Erie, and Huron (Six Nations of the Grand River, 2008).

The study area is also within the lands of Treaty 13a. Treaty 13a was signed on August 2, 1805 between the Mississaugas and the British Crown in Port Credit at the Government Inn. A provisional agreement was reached in which the Mississaugas ceded 70,784 acres of land bounded by the Toronto Purchase of 1787 in the east, the Brant Tract in the west, and a northern boundary that ran six miles back from the shoreline of Lake Ontario. The Mississaugas also reserved the sole right of fishing at the Credit River and were to retain a one-mile strip of land on each of its banks, which became the Credit Indian Reserve.

On September 5, 1806, the signing of Treaty 14 confirmed the Head of the Lake Purchase between the Mississaugas of the Credit and the Crown for lands along the north shore of Lake Ontario southwest of the Toronto Purchase to what is now Oakville (Mississauga of the New Credit First Nation, 2001; Mississaugas of the Credit First Nation, 2017).

3.3 Historical Euro-Canadian Township Survey and Settlement

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes continued the use of existing Indigenous trails that typically followed the highlands adjacent to various creeks and rivers (Archaeological Services Inc., 2006). Early European settlements occupied similar locations as Indigenous settlements as they were generally accessible by trail or water routes and would have been in locations with good soil and suitable topography to ensure adequate drainage.

Historically, the study area is located in the former Township of Toronto, County of Peel in part of Lots 9 and 10, Concession 3 South of Dundas Street.

3.3.1 Toronto Township and the City of Mississauga

The City of Mississauga is comprised of the historical communities of Clarkson, Cooksville, Dixie, Erindale, Lakeview, Lorne Park, Malton, Meadowvale Village, Port Credit and Streetsville, which formed part of the Township of Toronto.

The Township of Toronto was originally surveyed in 1806 and 1807 by Samuel Wilmot, the Deputy Surveyor of Upper Canada. The first settler in this Township was Colonel Thomas Ingersoll. Philip Cody was an early settler who opened an inn in Sydenham (later known as Fonthill and then as Dixie). The whole population of the Township in 1808 consisted of seven families, scattered along Dundas Street. The number of inhabitants gradually increased until the War of 1812 broke out, which slowed its progress considerably. When the war was over, the Township's growth revived. The Credit River and numerous creeks provided for the establishment of saw and grist mills. Communities began to emerge, usually along the river or at crossroads along Dundas Street. Some of the villages that arose included: Clarkson, Cooksville, Dixie, Erindale, Malton, Meadowvale Village, Port Credit and Streetsville, as well as the hamlet of Lakeview and numerous other settlements which later disappeared. In 1821 the township's population was 803. By 1851 over 7,500 people lived in the township and more than 36,000 acres were being farmed to produce barley, wheat, oats, vegetables, and fruit. Small industries were located throughout the township, manufacturing products ranging from hosiery to ploughshares (Archaeological Services Inc., 2020).

During the second half of the nineteenth century, railways were built and the markets shifted. Water-powered industries in the rural areas could no longer compete with those in larger centres which were run by electricity. By 1901 the township's population had dropped considerably to 4,690. The economy did not recover until the 1950s, when new industries moved into the township and spurred massive growth. When the Township of Toronto (excluding Port Credit

and Streetsville) became the Town of Mississauga in 1968, it had a population of 107,000 and covered 70,598 acres. It grew very quickly, and the rural township transformed into an urban area, with over 1,200 industries located in Mississauga by the 1970s. In 1974, the towns of Port Credit, Streetsville and Mississauga were amalgamated to become the City of Mississauga (Mika & Mika, 1981).

3.3.2 Lakeshore Road

The roadway is a continuation of an Indigenous route which followed the shore of Lake Ontario from Toronto to Niagara. Euro-Canadian development of the roadway began in 1804 after a council decision to construct a road between the Humber and the Credit Rivers in 1798. When the road opened it was originally known as “Lake Shore Road” The road was later extended to Burlington Bay prior to 1820. In 1820, the route was improved with new bridges across the rivers and creeks and the roadway was corduroyed. During the 1850s, the “Lake Road” was purchased by the Toronto Road Company which collected tolls and was responsible for its maintenance. Over the following years, the upkeep and maintenance of Lakeshore Road went between private and government control.

With the introduction of the automobile, there was a greater need for better roadways. The Ontario Department of Highways was created in 1913 and an Act passed to establish better roads and highways throughout Ontario. The following year, Lakeshore Road became the first in Canada to be designated a cement highway. In 1944, the road became known as Lakeshore Road, referred to as east and west from Hurontario Street. Over time the road has been widened and repaved (Hicks, 2005).

3.4 Review of Historical Mapping

The 1859 *Tremaine’s Map of the County of Peel* (Tremaine, 1859) and the 1877 *Illustrated Historical Atlas of the County of Peel* (Pope, 1877), were examined to determine the presence of historical features within the study area during the nineteenth century (Figure 2 and Figure 3). Historically, the study area is located

the former Township of Toronto, County of Peel in parts of Lots 9 and 10, Concession 3 South of Dundas Street.

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases. For instance, they were often financed by subscription limiting the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases. The use of historical map sources to reconstruct or predict the location of former features within the modern landscape generally begins by using common reference points between the various sources. The historical maps are geo-referenced to provide the most accurate determination of the location of any property on a modern map. The results of this exercise can often be imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including differences of scale and resolution, and distortions introduced by reproduction of the sources.

Mapping from 1859 (Figure 2) shows the study area to be within a rural agricultural context on the lakeshore with no structures depicted within the study area. Northeast of the study area, Lakeshore Road is a historically surveyed road with some buildings, including a church along the north side. A small waterway crosses the Lot in a northwest-southeast alignment, emptying into the lake south of the western portion of the study area. The listed owner of both lots within which the study area is located is Wm (William) Cawthra. The 1877 map (Figure 3) shows one structure and an orchard within the western portion of the study area. The listed owner of both lots is now “Henry Cawthra N.R.” (N.R. signifying “non-resident”) indicating the property was likely rented to a tenant farmer or possibly used as a lakefront cottage or vacation property. The shore of the lake is closer to the southeastern portion of the study area than in previous mapping, nearly abutting the southern corner.

In addition to nineteenth-century mapping, historical topographic mapping and aerial photographs from the twentieth century were examined. This report

presents maps and aerial photographs from 1909, 1929, 1954, and 1994 (Figure 4 to Figure 7).

The topographic map from 1909 (Figure 4) shows little development within and around the study area. The land in which the study area is located is labeled in this mapping as “Rifle Ranges”. The structure in the northwestern portion of the study area is extant in this mapping. The small waterway appears to have been rerouted and now passes through the southern corner of the northwestern portion of the study area and empties into the lake at a point approximately halfway between the two portions of the study area. The shore of the lake appears to have retreated further and is now within the southeastern border of the southeastern portion of the study area. The 1929 map (Figure 5) shows little change other than a long rectangular structure at the western corner of the southeastern portion of the study area, likely related to the rifle range. The areas to the north and west of the study area show considerable suburban residential development with streets laid out in a regular block pattern.

The aerial photograph from 1954 (Figure 6) shows that residential development has continued in the area and now encroaches on the southwestern side of the northwestern portion of the study area. A roadway passes through this portion of the study area connecting the residential development to a small water treatment plant (unlabeled) on the shoreline. The southeastern portion of the study area appears to still be within a rifle range.

The 1994 map (Figure 7) shows considerable development and topographic changes to the study area and surrounding area. The water treatment plant (W.T.P.) has expanded considerably including into infilled areas along the lakeshore, which follows very different contours to previous mapping. The infill peninsula containing Lakefront Promenade Park has also been added south of the study area. There is a large industrial complex with access roads to the northeast of the W.T.P. and within the northeast corner of the northwestern portion of the study area. Both portions of the study area contain large open fields or green space.

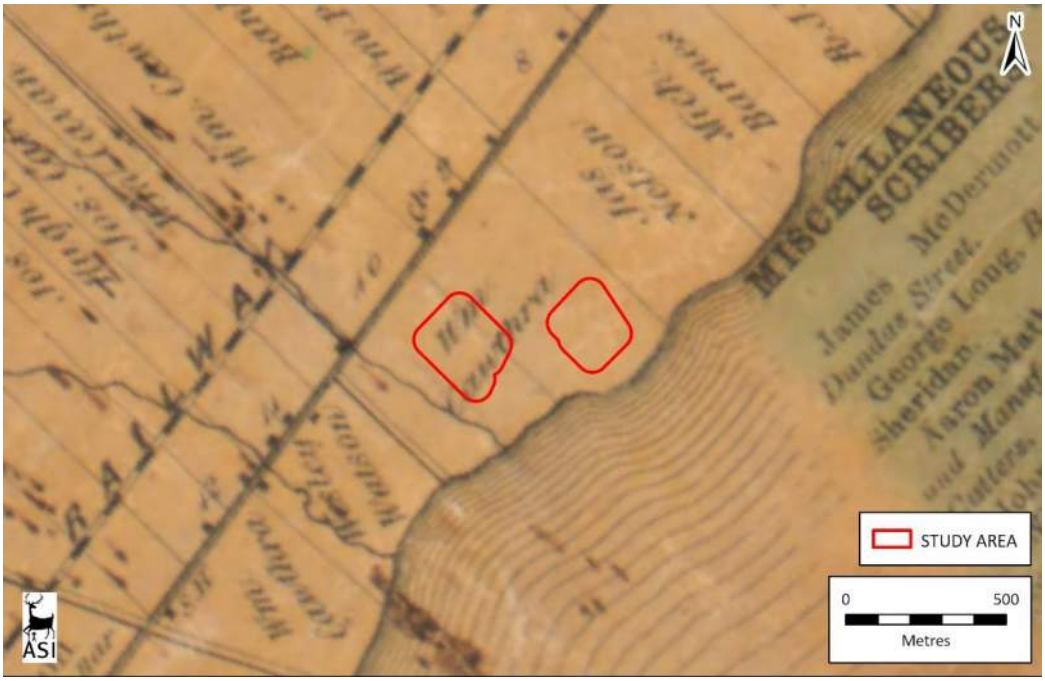


Figure 2: The study area overlaid on the 1859 *Map of the County of Peel* (Tremaine, 1859).

Figure 3: The study area overlaid on the 1877 *Illustrated Historical Atlas of the County of Peel* (Pope, 1877).

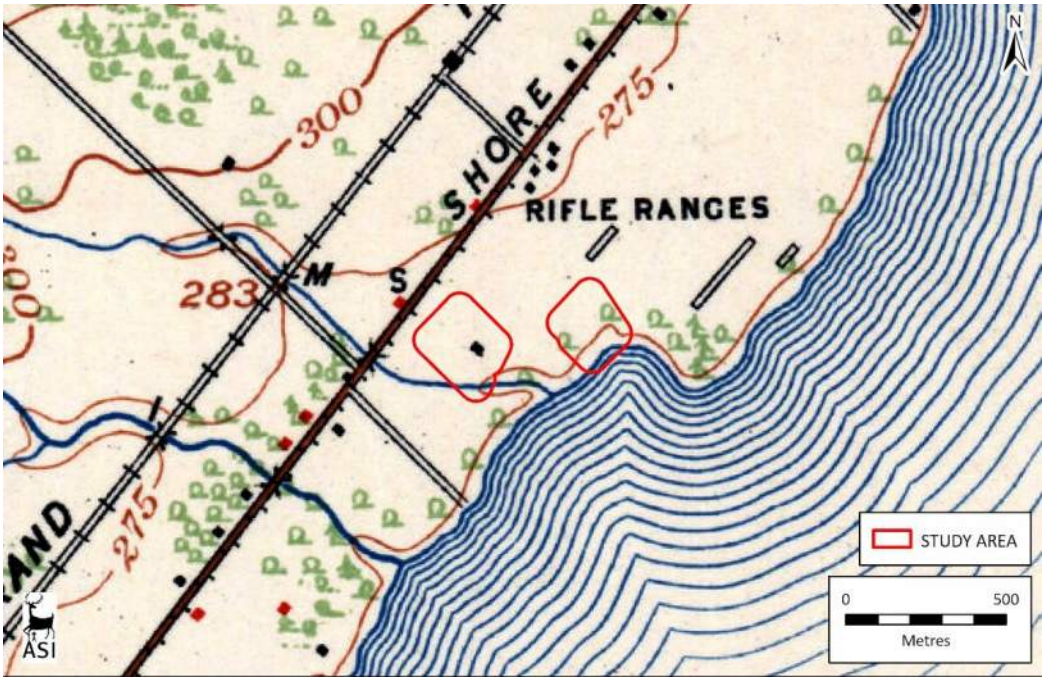


Figure 4: The study area overlaid on the 1909 topographic map of Brampton (Department of Militia and Defence, 1909).

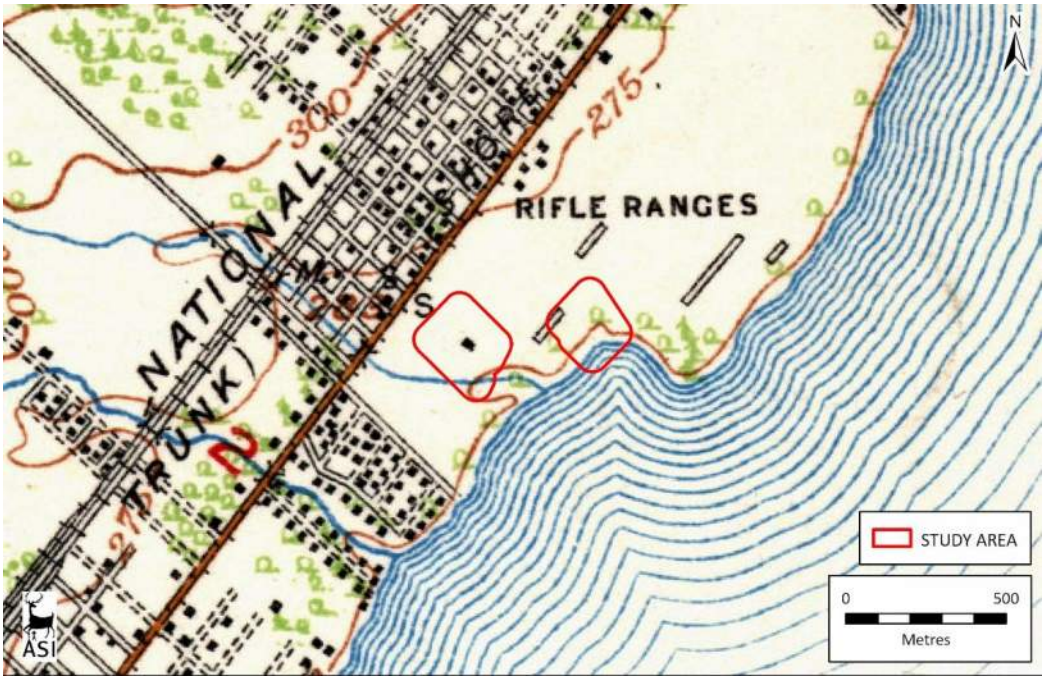


Figure 5: The study area overlaid on the 1929 topographic map of Brampton (Department of National Defence, 1929).

Figure 6: The study area overlaid on the 1954 aerial photograph (Hunting Survey Corporation Limited, 1954).

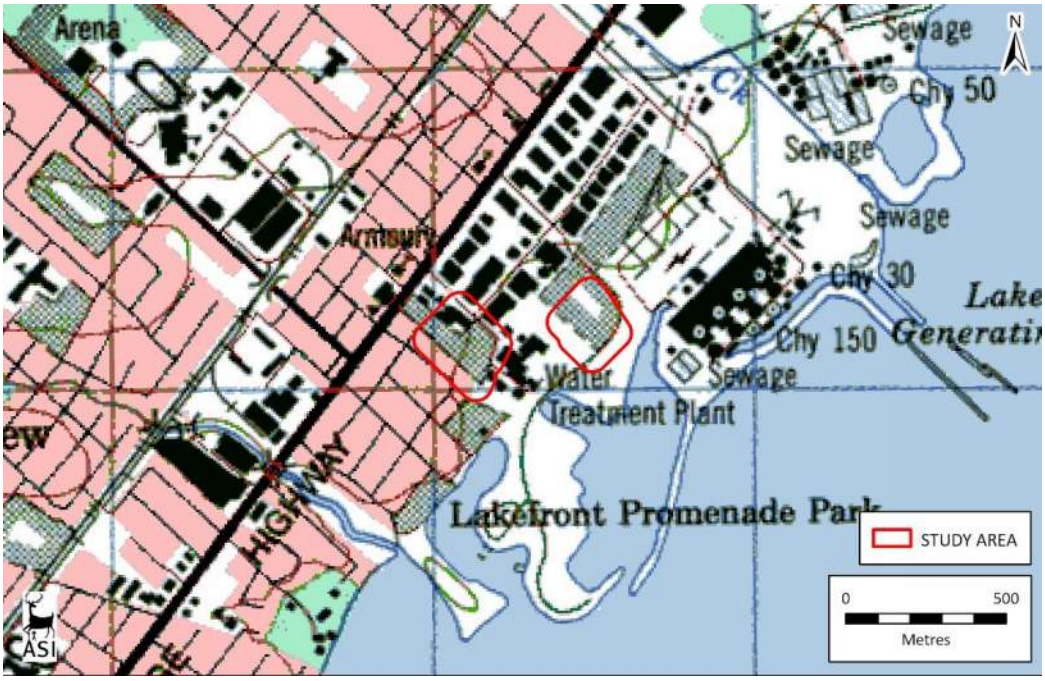


Figure 7: The study area overlaid on the 1994 topographic map of Brampton (Department of Energy, Mines and Resources, 1994).

4.0 Existing Conditions

A field review of the study area was undertaken by Lindsay Graves of Archaeological Services Inc., on 27 March 2024 to document the existing conditions of the study area from existing rights-of-way. The existing conditions of the study area are described below and captured in Plate 1 to Plate 10.

4.1 Description of Field Review

The project study area consists of two areas, referred to as the northwest property and the southeast property, around the Arthur P. Kennedy Water Treatment Plant (W.T.P.), also known as the Lakeview W.T.P.

The northwest property is located at 938 East Avenue is an approximately 300 by 230 metre area of land north of the western portion of the plant. The property had formerly been the location of the Byngmount Public School from 1967 to 2010 (communications with Heritage Missisauga). A review of aerial imagery and Google Streetview, confirm the school was demolished between 2014 and 2015. A Peel Region Paramedic Services building is presently located on the property as well as Waterworks Park. The park consists of a sports field, grassed lawn, trees along the borders, and sidewalks. Residential properties along Montbeck Crescent the west side of the property and residential properties along Lakeshore Road East border the north side of the property, industrial and commercial properties on Rangeview Road and East Avenue border the eastern side of the property, and the W.T.P. is along the south end. A.E. Crookes Park is also located at the south end of the northwest property.

The southeast property is located within the property parcel for the W.T.P. and is an approximate 230 by 200 metre area of land to the east of the plant. This area is comprised of the Douglas Kennedy Park which features a baseball diamond, trees, greenspace, and the Waterfront Trail. The former Lakeview Generation Plant is to the east of the property, the Lakefront Promenade Park is to the south,

the W.T.P. is to the east, and a vacant lot is to the north. Lakefront Promenade borders the east side of the property as well as the south.

Plate 1: East Avenue, looking north from Rangeview Road (A.S.I., 2024). The Peel Region Paramedic Services building on the northwest property is on the left.

Plate 2: Looking west to the northwest property in the Waterworks Park from East Avenue (A.S.I., 2024).

Plate 3: Looking south from within the park to the W.T.P. (A.S.I., 2024).

Plate 4: East Avenue, looking south to the W.T.P. (A.S.I., 2024).

Plate 5: Residences along Montbeck Crescent, looking north (A.S.I., 2024).

Plate 6: Industrial and commercial properties along Rangeview Road, looking east from East Avenue (A.S.I., 2024).

Plate 7: The location of the southeast property with the Waterfront Trail and baseball diamond within Douglas Kennedy Park (A.S.I., 2024).

Plate 8: View northwest to the W.T.P. from the baseball diamond in Douglas Kennedy Park (A.S.I., 2024).

Plate 9: View of the vacant lot north of the park, looking west to the W.T.P. (A.S.I., 2024).

Plate 10: Waterfront Trail south of the southeast property (A.S.I., 2024).

4.2 Identification of Known and Potential Built Heritage Resources and Cultural Heritage Landscapes

Based on the results of the background research and field review, one known cultural heritage landscape (C.H.L.) was identified within the study area. The known C.H.L. was identified in *Conserving Heritage Landscapes Cultural Heritage Landscape Project – Volume 3* (Archaeological Services Inc., 2022c). A description of the known C.H.L. within the study area is presented below in Table 1. See Figure 8 for mapping showing the location of the identified C.H.L.

Table 1: Inventory of the Known Cultural Heritage Landscape within the Study Area

Feature I.D.	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential C.H.V.I.	Photographs/ Digital Image
C.H.L. 1	Park	800 Lakefront Promenade	Known C.H.L. – Identified in *Conserving Heritage Landscapes Cultural Heritage Landscape Project – Volume 3* (Archaeological Services Inc., 2022c)	The Lakefront Promenade Park C.H.L. is located on the Lake Ontario shoreline at 800 Lakefront Promenade. The park was designed by Hough Stansbury Woodland and is a unique example of a park constructed of fill on the shoreline of Lake Ontario (Archaeological Services Inc., 2022c).. Within the C.H.L., A.E. Crookes Memorial Park is one of the City's oldest continually operating public parks (communication with Heritage Mississauga). The 1954 aerial photograph (Figure 6) captures the A.E. Crookes Park at the northern corner of the intersection of Lakefront Promenade and Goodwin Road within the present-day boundaries of the Lakefront Promenade Park C.H.L. The 1994 topographic map (Figure 7) depicts the Lakefront Promenade Park as extant. The known heritage attributes of the C.H.L. include: the three peninsulas created by landfill, protected beaches, small craft harbours, boat launches, passive recreation areas, Mississauga Waterfront Trail, Port Credit Yacht Club, A.E. Crookes Headland, and shoreline access to Lake Ontario (Archaeological Services Inc., 2022c). For additional information, please see the full list of heritage attributes listed via this link. Within the C.H.L. but outside of the study area for the Cultural Heritage Report, the Port Credit Yacht Club at 95 Lakefront Promenade is also listed by the City of Mississauga.	 Plate 11: View towards Lakefront Promenade Park south of the southeast property (A.S.I., 2024).

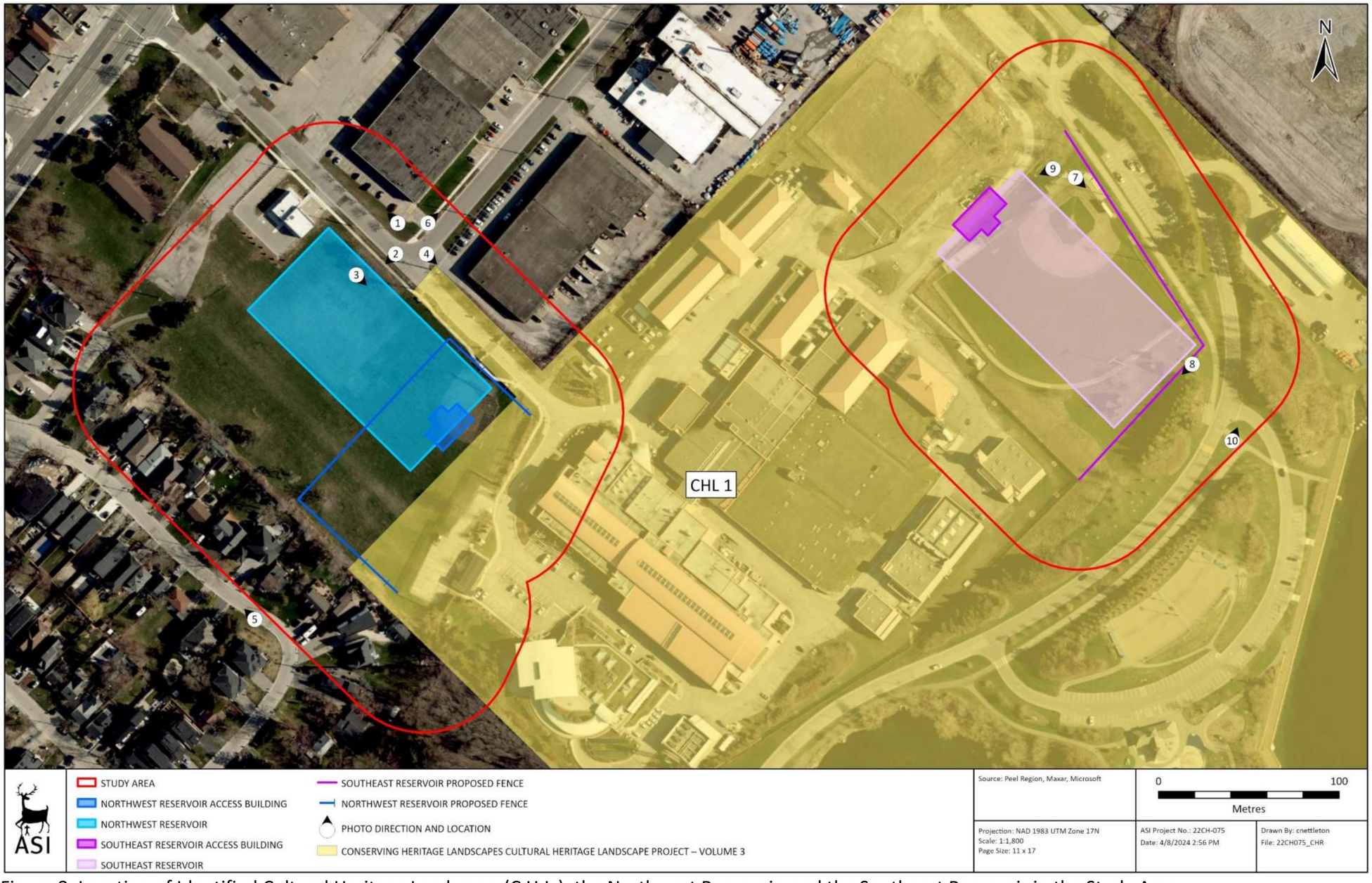


Figure 8: Location of Identified Cultural Heritage Landscape (C.H.L.), the Northwest Reservoir, and the Southeast Reservoir in the Study Area

5.0 Preliminary Impact Assessment

The following sections provide more detailed information regarding the proposed project undertaking and analysis of the potential impacts on the identified cultural heritage landscape (C.H.L.).

5.1 Description of Proposed Undertaking

The proposed undertaking for the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment (M.C.E.A.) involves the expansion of the reservoir at the Arthur P. Kennedy Water Treatment Plant (W.T.P.) in the City of Mississauga. As per the Public Information Centre 1 for the M.C.E.A., two alternative solutions are being considered for the reservoir expansion (Hatch, 2023).

Alternative Solution 1: Northwest Reservoir, the new reservoir would be located on the northwest property, and the filtered water would be conveyed from the treatment train on the west and drained to the High Lift pumping station through a tunnel (Hatch, 2023). The reservoir itself would be buried, an access building would be situated at the southern end of the property, and a fence would be installed around the southern portion of the property enclosing the access building (Figure 9). Trees along the eastern side of the property would be removed and replanted on the site.

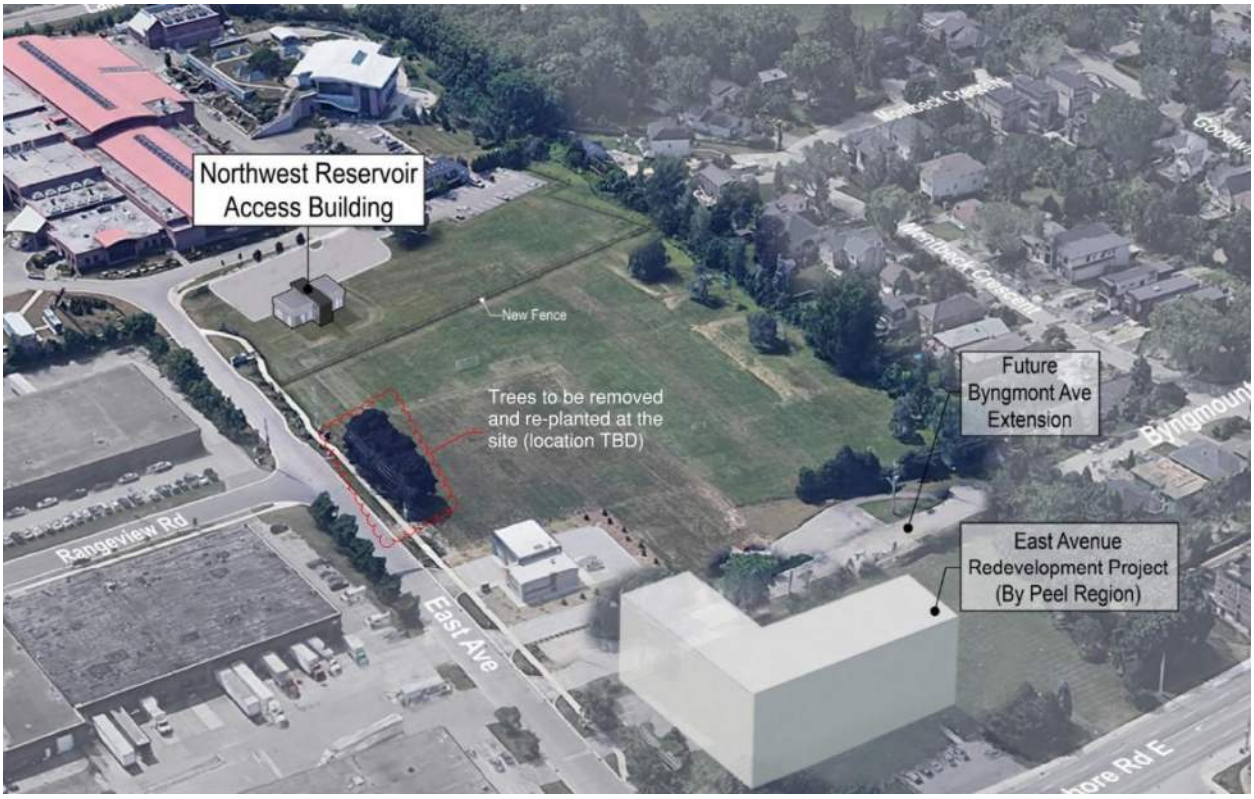


Figure 9: Proposed site plan for the Northwest Reservoir, provided by Hatch.

Alternative Solution 2: Southeast Reservoir, the new reservoir would be located on the southeast property, and the filtered water would be conveyed from the treatment train on the east and drained to the High Lift pumping station through the existing reservoir and pipes (Hatch, 2023). The reservoir itself would be buried, an access building would be situated at the northern end of the property, and a fence would be installed along the southern and eastern sides of the property (Figure 10).

The proposed works associated with the Northwest Reservoir and the Southeast Reservoir are mapped in Figure 8.

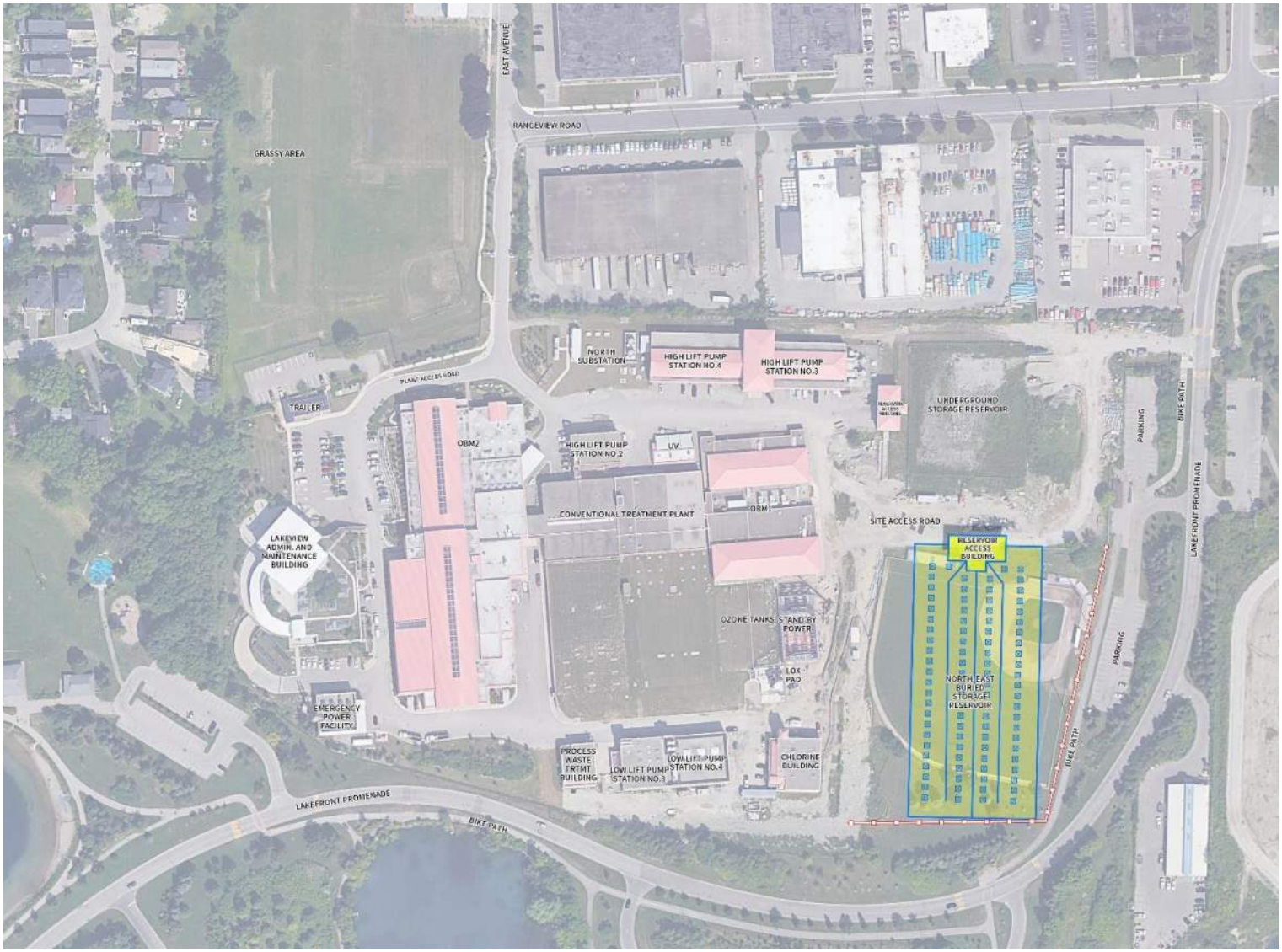


Figure 10: Proposed designs for the Southeast Reservoir, provided by Hatch.

5.2 Analysis of Potential Impacts

Table 2 outlines the potential impacts on the identified C.H.L. within the study area.

Table 2: Preliminary Impact Assessment and Recommended Mitigation Measures

Feature I.D.	Address or Location	Heritage Status and Recognition	Northwest Reservoir: Type and Description of Potential/Anticipated Impact	Northwest Reservoir: Mitigation Strategies	Southeast Reservoir: Type and Description of Potential/Anticipated Impact	Southeast Reservoir: Mitigation Strategies
C.H.L. 1	800 Lakefront Promenade	Known C.H.L. – Identified in *Conserving Heritage Landscapes Cultural Heritage Landscape Project – Volume 3* (Archaeological Services Inc., 2022c)	Indirect impacts to C.H.L. 1 as a result of the Northwest Reservoir are anticipated to include the construction of a buried storage reservoir, an access building, and the installation of a fence within the property at 938 East Avenue around the access building. These are considered to be a limited and temporary impacts as the greenspace that is not enclosed by the new fence will continue to be available for public, casual recreational use following construction. No additional indirect impacts, such as isolation of a heritage attribute, or obstruction of significant views to or from the property are anticipated.	Recommended Mitigation: Where feasible, the proposed construction activities should be designed in a manner that avoids all impacts to C.H.L. 1. Where the proposed limits of disturbance cannot be revised to avoid impacts, the depth and extent of the construction activities should be limited to reduce impacts to C.H.L. 1 to the extent practical. Removal of trees and vegetation within the park setting should also be limited to the extent feasible. Where tree removals are required, post-construction rehabilitation should be implemented.	Direct impacts to C.H.L. 1 as a result of the Southeast Reservoir are anticipated to include the construction of a buried storage reservoir, an access building, and the installation of a fence along the southern and eastern borders of the property. The construction of the reservoir would result in the removal of the baseball diamond within Douglas Kennedy Park. However, the removal of the baseball diamond would not be a direct adverse impact as it is not a heritage attribute of the C.H.L., nor would the resulting change in land use impact the overall heritage value of the C.H.L. No additional indirect impacts, such as isolation of a heritage attribute, or obstruction of significant views to or from the property are anticipated.	Recommended Mitigation: Where feasible, the proposed construction activities should be designed in a manner that avoids all impacts to C.H.L. 1. Where the proposed limits of disturbance cannot be revised to avoid impacts, the depth and extent of the construction activities should be limited to reduce impacts to C.H.L. 1 to the extent practical. Removal of trees and vegetation within the park setting should also be limited to the extent feasible. Where tree removals are required, post-construction rehabilitation should be implemented. As the Lakefront Promenade Park C.H.L. is a recognized C.H.L. by the City of Mississauga and there are

Feature I.D.	Address or Location	Heritage Status and Recognition	Northwest Reservoir: Type and Description of Potential/Anticipated Impact	Northwest Reservoir: Mitigation Strategies	Southeast Reservoir: Type and Description of Potential/Anticipated Impact	Southeast Reservoir: Mitigation Strategies
						direct impacts anticipated, a resource-specific heritage impact assessment (H.I.A.) may be required as per the *City of Mississauga Official Plan* clauses 7.5.1.10 and 7.5.1.12 (City of Mississauga, 2022). Given that no structures, apparent landscape features, or any other heritage attributes of significant cultural heritage value or interest within the C.H.L. are anticipated to be impacted, it is recommended that the City of Mississauga consider waiving the requirement for an H.I.A. in this case if suitable mitigation measures including post-construction rehabilitation with sympathetic plantings can be implemented.

5.3 Summary of Potential Impacts

No direct impacts are anticipated to the Lakefront Promenade Park C.H.L. as a result of the Northwest Reservoir alternative as it is understood that the impacts related to construction are considered to be limited and temporary as the greenspace that is not enclosed by the new fence will be available for public, casual recreational use following construction.

The construction of the Southeast Reservoir is anticipated to result in direct impacts to the Lakefront Promenade Park C.H.L. as the baseball diamond of Douglas Kennedy Park will be removed. However, the removal of the baseball diamond would not be a direct adverse impact as it is not a heritage attribute of the C.H.L., nor would the resulting change in land use impact the overall heritage value of the C.H.L.

Regardless of the option chosen, where feasible, the proposed construction activities should be designed in a manner that avoids all impacts to C.H.L. 1. Where the proposed limits of disturbance cannot be revised to avoid impacts, the depth and extent of the construction activities should be limited to reduce impacts to C.H.L. 1 to the extent practical.

Removal of trees and vegetation within the park setting should also be limited to the extent feasible. Where tree removals are required, post-construction rehabilitation should be implemented.

If the Southeast Reservoir is chosen, a resource-specific H.I.A. may be required for the Lakefront Promenade Park C.H.L. (C.H.L. 1) as per the *City of Mississauga Official Plan* clauses 7.5.1.10 and 7.5.1.12 (City of Mississauga, 2022). Given that no structures, apparent landscape features, or any other heritage attributes of significant cultural heritage value or interest within the C.H.L. are anticipated to be impacted, it is recommended that the City of Mississauga consider waiving the requirement for an H.I.A. in this case if suitable mitigation measures including post-construction rehabilitation with sympathetic plantings can be implemented.

6.0 Results and Mitigation Recommendations

The results of background historical research and a review of secondary source material, including historical mapping, indicate a study area with a rural land use history dating back to the early-nineteenth century that developed into a suburban context in the twentieth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed that there is one known cultural heritage landscape (C.H.L.) in the Arthur P. Kennedy Water Treatment Plant Reservoir Expansion Municipal Class Environmental Assessment study area. No additional potential built heritage resources or C.H.L.s were identified during the background information review and fieldwork.

6.1 Key Findings

One C.H.L. was identified within the study area:

- The C.H.L. is identified in *Conserving Heritage Landscapes Cultural Heritage Landscape Project – Volume 3* (Archaeological Services Inc., 2022c) and is historically, architecturally, and contextually associated with land use patterns in the City of Mississauga.
- Direct impacts are anticipated to C.H.L 1 as a result of the Southeast Reservoir alternative.
- Limited and temporary indirect impacts are anticipated to C.H.L. 1 as a result of the Northwest Reservoir alternative.

6.2 Recommendations

Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to the identified C.H.L. Avoidance measures may include, but are not limited to: erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified features, etc. Suitable mitigation

measures including post construction rehabilitation with sympathetic plantings can also be implemented.

2. Where the proposed limits of disturbance cannot be revised to avoid impacts, the depth and extent of construction activities should be limited to reduce impacts to C.H.L. 1 to the extent practical. Removal of trees should also be limited to the extent feasible. Where tree removals are required, post-construction rehabilitation should be implemented.

3. The Lakefront Promenade Park C.H.L. is recognized as a C.H.L. by the City of Mississauga. As there are direct impacts anticipated due to construction, a resource-specific heritage impact assessment (H.I.A.) may be require as per the *City of Mississauga Official Plan* clauses 7.5.1.10 and 7.5.1.12 (City of Mississauga, 2022), if the Southeast Reservoir is the alterative selected for this project. However, given that no structures, apparent landscape features, or any other heritage attributes of significant cultural heritage value or interest within the C.H.L. are anticipated to be impacted, it is recommended that the City of Mississauga consider waiving the requirement for an H.I.A. in this case if suitable mitigation measures including post-construction rehabilitation with sympathetic plantings can be implemented.

4. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.

5. The report should be submitted to the City of Mississauga, Heritage Mississauga, and the Ministry of Citizenship and Multiculturalism for review and comment, and any other local heritage stakeholders that may have an interest in this project. The final report should be submitted to the City of Mississauga for their records.

6. All subsequent recommended technical cultural heritage studies (e.g., H.I.A.) should be completed by a qualified heritage professional with recent and relevant experience as early in detailed design as possible prior to any construction activities and submitted for review and

comment to the City of Mississauga and any other local heritage stakeholders that may have an interest in this project.

7.0 References

Archaeological Services Inc. (2006). *Historical Overview and Assessment of Archaeological Potential Don River Watershed, City of Toronto*. Report on file with the Ontario Ministry of Tourism, Culture and Sport.

Archaeological Services Inc. (2020). *Cultural Heritage Evaluation Report: Applewood Creek Culvert (Mile 10.3), Cooksville Creek Bridge (Mile 11.8), Mississauga Road Bridge (Mile 13.39) Lakeshore West Rail Corridor, Oakville Subdivision City of Mississauga, Ontario*.

Archaeological Services Inc. (2022a). *Conserving Heritage Landscapes: Cultural Heritage Landscape Project—Volume 1*.

Archaeological Services Inc. (2022b). *Conserving Heritage Landscapes: Cultural Heritage Landscape Project—Volume 2*.

Archaeological Services Inc. (2022c). *Conserving Heritage Landscapes: Cultural Heritage Landscape Project—Volume 3* (CHL Inventory 18CH-022).

Birch, J., Manning, S. W., Sanft, S., & Conger, M. A. (2021). Refined Radiocarbon Chronologies for Northern Iroquoian Site Sequences: Implications for Coalescence, Conflict, and the Reception of European Goods. *American Antiquity*, *86*(1), 61–89.

Birch, J., & Williamson, R. F. (2013). *The Mantle Site: An Archaeological History of an Ancestral Wendat Community*. Rowman & Littlefield Publishers, Inc.

Brown, J. (1995). On Mortuary Analysis – with Special Reference to the Saxe-Binford Research Program. In L. A. Beck (Ed.), *Regional Approaches to Mortuary Analysis* (pp. 3–23). Plenum Press.

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/

Carman, R. A., Buehler, D., Mikesell, S., & Searls, C. L. (2012). *Current Practices to Address Construction Vibration and Potential Effects to Historic Buildings Adjacent to Transportation Projects*. Wilson, Ihrig and Associates, ICF International, and Simpson, Gumpertz and Heger, Incorporated for the American Association of State Highway and Transportation Officials (AASHTO).

Chapman, L. J., & Putnam, F. (1984). *The Physiography of Southern Ontario* (3rd ed., Vol. 2). Ontario Ministry of Natural Resources.

City of Mississauga. (2016). *Heritage Management Strategy Final Report*. https://www7.mississauga.ca/documents/culture/heritage/MississaugaHeritageManagementStrategy_May2016.pdf

City of Mississauga. (2018, August 1). *Lakeview Local Area Plan* [City Website]. City of Mississauga. https://www.mississauga.ca/wp-content/uploads/2023/09/Mississauga-Official-Plan_Lakeview-LAP-July27-2023.pdf

City of Mississauga. (2019a). *Culture Master Plan*. http://www7.mississauga.ca/Departments/Rec/future-directions/pdf/2019-plans/2019%20Culture%20Master%20Plan_FINAL.pdf

City of Mississauga. (2019b, June). *Mississauga Waterfront Parks Strategy Refresh* [City Website]. City of Mississauga. https://www.mississauga.ca/wp-content/uploads/2020/09/20104609/Waterfront-Parks-Strategy-2019-refresh.pdf

City of Mississauga. (2020). *Heritage Register for Mississauga*. https://www.mississauga.ca/wp-content/uploads/2020/06/10135918/2018-07-01_Mississauga_Heritage_Register_Web.pdf

City of Mississauga. (2022). *Mississauga Official Plan*. http://www.mississauga.ca/portal/residents/mississaugaofficialplan

Crispino, M., & D'Apuzzo, M. (2001). Measurement and Prediction of Traffic-induced Vibrations in a Heritage Building. *Journal of Sound and Vibration*, *246*(2), 319–335.

Department of Energy, Mines and Resources. (1994). *Brampton Sheet 30M/12* [Map].

Department of Militia and Defence. (1909). *Brampton Sheet No. 35* [Map].

Department of National Defence. (1929). *Brampton Sheet No. 35* [Map].

Dodd, C. F., Poulton, D. R., Lennox, P. A., Smith, D. G., & Warrick, G. A. (1990). The Middle Ontario Iroquoian Stage. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650* (pp. 321–360). Ontario Archaeological Society Inc.

Edwards, T. W. D., & Fritz, P. (1988). Stable-Isotope Paleoclimate Records from Southern Ontario, Canada: Comparison of Results from Marl and Wood. *Canadian Journal of Earth Sciences*, *25*, 1397–1406.

Ellis, C. J., & Deller, D. B. (1990). Paleo-Indians. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650* (pp. 37–64). Ontario Archaeological Society Inc.

Ellis, C. J., Kenyon, I. T., & Spence, M. W. (1990). The Archaic. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650* (pp. 65–124). Ontario Archaeological Society Inc.

Ellis, C. J., Timmins, P. A., & Martelle, H. (2009). At the Crossroads and Periphery: The Archaic Archaeological Record of Southern Ontario. In T. D. Emerson, D. L. McElrath, & A. C. Fortier (Eds.), *Archaic Societies: Diversity and Complexity across the Midcontinent.* (pp. 787–837). State University of New York Press.

Ellis, P. (1987). Effects of Traffic Vibration on Historic Buildings. *The Science of the Total Environment*, *59*, 37–45.

Environmental Assessment Act, R.S.O. c. E.18 (1990).

ERA. (2023). *Rangeview Development Master Plan Heritage Impact Assessment*.

Ferris, N. (2013). Place, Space, and Dwelling in the Late Woodland. In M. K. Munson & S. M. Jamieson (Eds.), *Before Ontario: The Archaeology of a Province* (pp. 99–111). McGill-Queen's University Press. http://www.jstor.org/stable/j.ctt32b7n5.15

Government of Ontario. (2020). *A Place to Grow: Growth Plan for the Greater Golden Horseshoe*. https://files.ontario.ca/mmah-greater-golden-horseshoe-place-to-grow-english-15may2019.pdf

Hatch. (2023). *Public Information Centre 1 Arthur P. Kennedy Water Treatment Plant (WTP) Reservoir Expansion Class Environmental Assessment (EA) Study*.

Hicks, K. (2005). *Lakeview: Journey from Yesterday*. The Friends of the Mississauga Library System.

Hunting Survey Corporation Limited. (1954). *1954 Air Photos of Southern Ontario*. https://mdl.library.utoronto.ca/collections/air-photos/1954-air-photos-southern-ontario/index

Mika, N., & Mika, H. (1981). *Places In Ontario: Their Name Origins and History, Part II, F-M* (https://archive.org/details/placesinontariot0002mika; Vol. 2). Mika Publishing Company; Internet Archive.

Ministry of Culture. (2006). *Ontario Heritage Tool Kit*.

Ministry of Culture and Communications, & Ministry of the Environment. (1992). *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments*.

Ministry of Municipal Affairs and Housing. (2020). *Provincial Policy Statement, 2020, Under the Planning Act*. Queen's Printer for Ontario.

Ministry of Tourism, Culture and Sport. (2016). *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, A Checklist for the Non-Specialist*. http://www.mtc.gov.on.ca/en/heritage/tools.shtml

Ministry of Tourism Culture and Sport, M. T. C. S. (2006a). *Heritage Resources in the Land Use Planning Process: Info Sheet #5, Heritage Impact Assessments and Conservation Plans*. http://www.mtc.gov.on.ca/en/publications/Heritage_Tool_Kit_Heritage_PPS_infoSheet.pdf

Ministry of Tourism Culture and Sport, M. T. C. S. (2006b). *InfoSheet #5: Heritage Impact Assessments and Conservation Plans*.

Ministry of Tourism Culture and Sport, M. T. C. S. (2010). *Standards and Guidelines for Conservation of Provincial Heritage Properties: Standards & Guidelines*.

Mississauga of the New Credit First Nation. (2001). *Toronto Purchase Specific Claim: Arriving at an Agreement*.

Mississaugas of the Credit First Nation. (2017). *Treaty Lands and Territory*. http://mncfn.ca/category/treaty-lands-and-territory/

Ontario Heritage Act, R.S.O. c. O.18, [as Amended in 2023] (1990).

Ontario Heritage Trust. (2019). *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

Peel Region. (2022). *Region of Peel Official Plan*. https://www.peelregion.ca/officialplan/download/_media/region-of-peel-official-plan-april2022.pdf

Planning Act, R.S.O. 1990, c. P.13 (1990).

Pope, J. H. (1877). *Illustrated Historical Atlas of the County of Peel, Ont.* [Map]. Walker and Miles.

Rainer, J. H. (1982). Effect of Vibrations on Historic Buildings. *The Association for Preservation Technology Bulletin*, *XIV*(1), 2–10.

Randl, C. (2001). *Preservation Tech Notes: Protecting a Historic Structure during Adjacent Construction*. U.S. Department of the Interior National Park Service. https://www.nps.gov/tps/how-to-preserve/tech-notes/Tech-Notes-Protection03.pdf

Rogers, E. S. (1962). *The Round Lake Ojibwa*. Royal Ontario Museum.

Spence, M. W., Pihl, R. H., & Murphy, C. (1990). Cultural Complexes of the Early and Middle Woodland Periods. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650*. Ontario Archaeological Society Inc.

The Landplan Collaborative Ltd., Goldsmith Borgal & Company Ltd., Architects Ltd., North South Environmental Inc., & Geodata Resources Inc. (2005). *Cultural Landscape Inventory: City of Mississauga*. City of Mississauga. http://www5.mississauga.ca/pdfs/Cultural_Landscape_Inventory_Jan05.pdf

Tremaine, G. C. (1859). *Tremaine's Map of the County of Peel* [Map]. George C. Tremaine.

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/

Williamson, R. F. (1990). The Early Iroquoian Period of Southern Ontario. In C. J. Ellis & N. Ferris (Eds.), *The Archaeology of Southern Ontario to A.D. 1650* (pp. 291–320). Ontario Archaeological Society Inc.

Wiss, J. F. (1981). Construction Vibrations; State-of-the-Art. *Journal of Geotechnical Engineering*, *107*, 167–181.

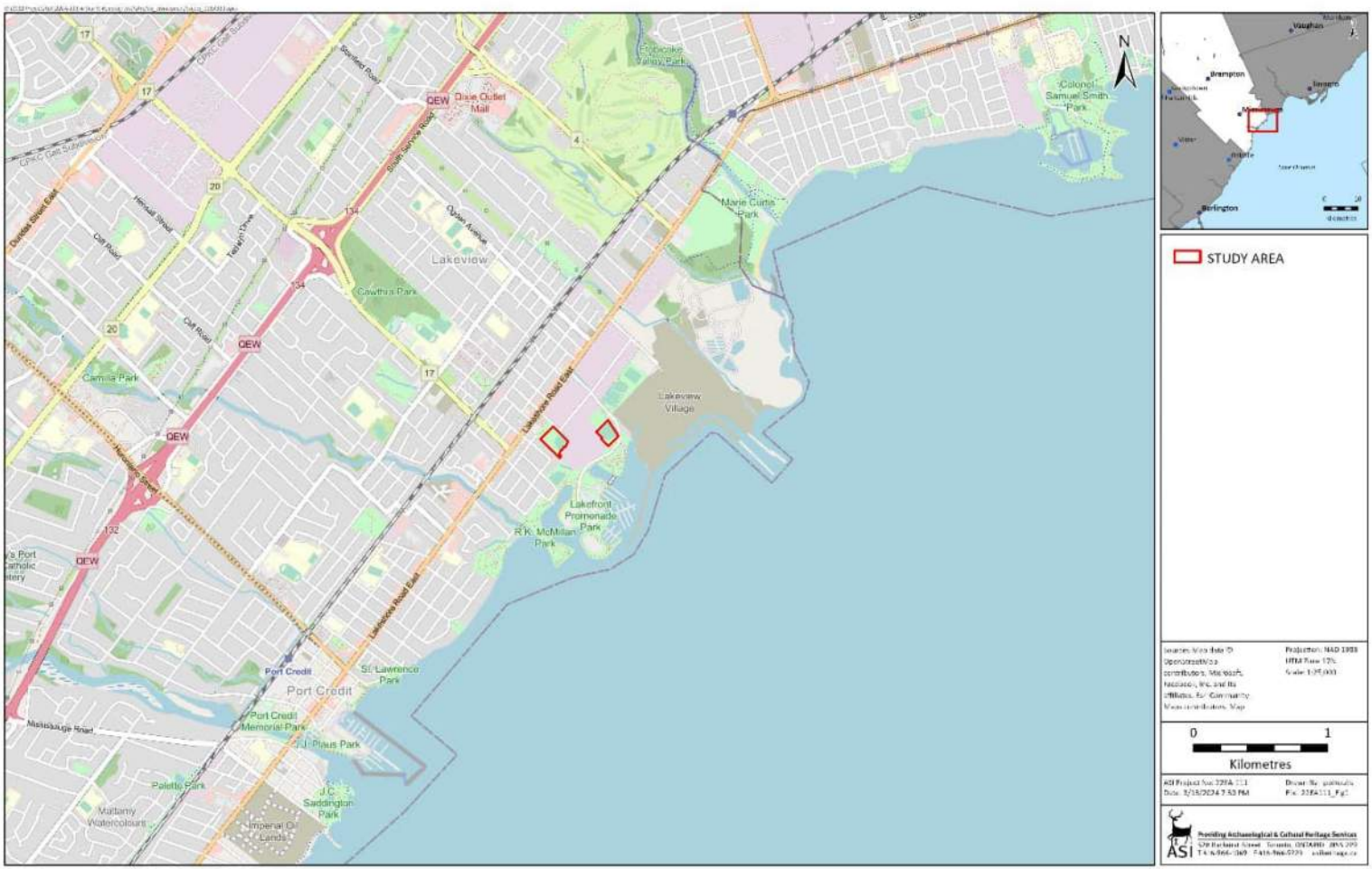
Appendix G

Correspondence with Indigenous Communities

From: Caitlin Lacy <clacy@asiheritage.ca>
Sent: Thursday, April 11, 2024 9:56 AM
To: Adam LaForme <Adam.LaForme@mncfn.ca>
Subject: Arthur P Kennedy Water Treatment Plant - Stage 2 AA

Good Morning Adam

ASI has been contracted by Hatch on behalf of the Region of Peel, to undertake a Stage 2 archaeological assessment for the Arthur P. Kennedy Water Treatment Plant (WTP) project, in the City of Mississauga. Two separate locations require assessment: the northwest property and the southeast property, as outlined below.



Two previous Stage 1 Archaeological Assessments have been completed for these two areas (Archeoworks 2007: PIF P029-452-2007 and WSP 2017: PIF P365-0109-2017) and Stage 2 test pit survey was recommended for parts of the study area. Based on the Stage 1 results, we assume five days of test pit survey will be required with a field crew 4 people.

Fieldwork is tentatively scheduled for April 29, 2024. Please let me know if you are interested in participating in the fieldwork and I will pass along contact information for the Region, who will hold the agreements. Additional project details, such as meeting location and

field director contact information will be provided when the fieldwork schedule has been finalized.

We kindly ask that all liaisons provide their own transportation, equipment and PPE to adhere to our safety guidelines.

Regards,

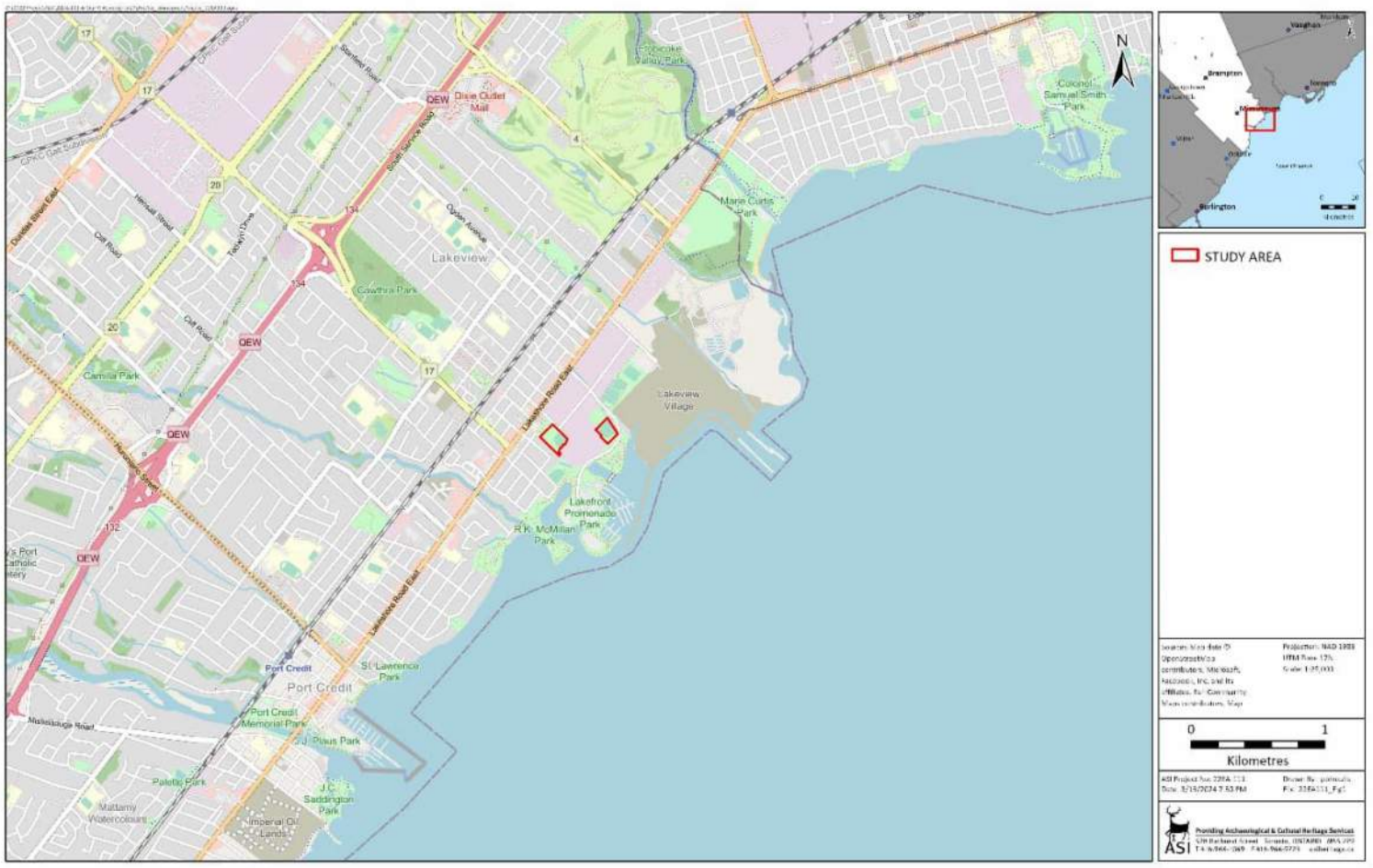
Caitlin Lacy, BA (Hon)
Lead Archaeologist | Project Manager • Environmental Assessment Division

AS I • Providing Archaeological & Cultural Heritage Services
CLacy@asiheritage.ca • 416 966 1069 x 260 • Fax: 416 966 9723
528 Bathurst Street, Toronto, Ontario, M5S 2P9 • asiheritage.ca

On Thu, Apr 11, 2024 at 9:58 AM Caitlin Lacy <clacy@asiheritage.ca> wrote:

Good Morning Todd and Sharann,

ASI has been contracted by Hatch on behalf of the Region of Peel, to undertake a Stage 2 archaeological assessment for the Arthur P. Kennedy Water Treatment Plant (WTP) project, in the City of Mississauga. Two separate locations require assessment: the northwest property and the southeast property, as outlined below.



Two previous Stage 1 Archaeological Assessments have been completed for these two areas (Archeoworks 2007: PIF P029-452-2007 and WSP 2017: PIF P365-0109-2017) and Stage 2 test pit survey was recommended for parts of the study area. Based on the Stage 1 results, we assume five days of test pit survey will be required with a field crew 4 people.

Fieldwork is tentatively scheduled for April 29, 2024. Please let me know if you are interested in participating in the fieldwork and I will pass along contact information for the Region, who will hold the agreements. Additional project details, such as meeting location and field director contact information will be provided when the fieldwork schedule has been finalized.

We kindly ask that all liaisons provide their own transportation, equipment and PPE to adhere to our safety guidelines.

Regards,

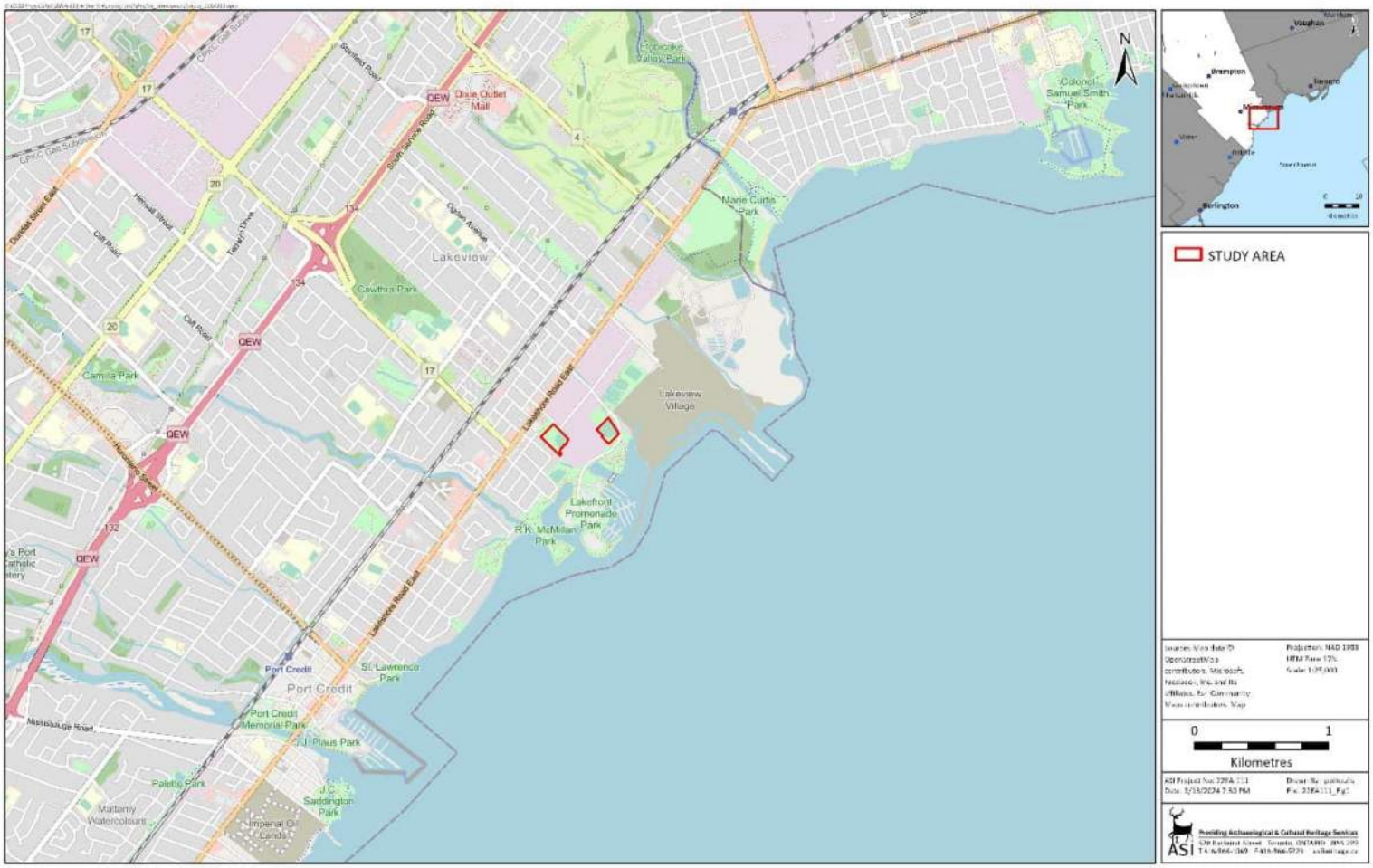
Caitlin Lacy, BA (Hon)
Lead Archaeologist | Project Manager • Environmental Assessment Division

AS I • Providing Archaeological & Cultural Heritage Services
CLacy@asiheritage.ca • 416 966 1069 x 260 • Fax: 416 966 9723
528 Bathurst Street, Toronto, Ontario, M5S 2P9 • asiheritage.ca

From: Caitlin Lacy <clacy@asiheritage.ca>
Sent: Thursday, April 11, 2024 9:57 AM
To: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Dawn LaForme <dlaforme@sixnations.ca>; Tierra Henhawk <acmaa@sixnations.ca>
Subject: [External] Arthur P Kennedy Water Treatment Plant - Stage 2 AA

Good Morning Tanya,

ASI has been contracted by Hatch on behalf of the Region of Peel, to undertake a Stage 2 archaeological assessment for the Arthur P. Kennedy Water Treatment Plant (WTP) project, in the City of Mississauga. Two separate locations require assessment: the northwest property and the southeast property, as outlined below.



Two previous Stage 1 Archaeological Assessments have been completed for these two areas (Archeoworks 2007: PIF P029-452-2007 and WSP 2017: PIF P365-0109-2017) and Stage 2 test pit survey was recommended for parts of the study area. Based on the Stage 1 results, we assume five days of test pit survey will be required with a field crew 4 people.

Fieldwork is tentatively scheduled for April 29, 2024. Please let me know if you are interested in participating in the fieldwork and I will pass along contact information for the Region, who will hold the agreements. Additional project details, such as meeting location and field director contact information will be provided when the fieldwork schedule has been finalized.

We kindly ask that all liaisons provide their own transportation, equipment and PPE to adhere to our safety guidelines.

Regards,

Caitlin Lacy, BA (Hon)
Lead Archaeologist | Project Manager • Environmental Assessment Division

AS I • Providing Archaeological & Cultural Heritage Services
CLacy@asiheritage.ca • 416 966 1069 x 260 • Fax: 416 966 9723
528 Bathurst Street, Toronto, Ontario, M5S 2P9 • asiheritage.ca