

Class Environmental Assessment Project File Report

Schedule 'B' Class EA for Diversion Sanitary Sewer on Kirwin Avenue, City of Mississauga

PROJECT 23-2129

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1 Introduction

1.1 Background

To accommodate growth along the Hurontario Street and Kirwin Avenue corridor, the Region of Peel (Region) intends to increase wastewater (sanitary sewer) servicing capacity. Therefore, to enable proposed and future developments, the Region retained Arcadis Professional Services (Canada) Inc. to undertake a Schedule B Municipal Class Environmental Assessment (Class EA) to evaluate all potential alternatives for sanitary sewer development and identify the best solution for this infrastructure need.

2 Planning and Policy Context

2.1 Region of Peel Official Plan

The Regional Official Plan (April 2022)¹ sets the Regional context for detailed planning and provides Regional Council with a long-term policy framework for decision making. Section 6.5 of the Regional Official Plan outlines the Region's responsibility to supply and distribute water and collect and dispose of sanitary sewage. Additionally, the Region, in cooperation with the Province are to provide water and wastewater services through the South Peel Servicing Agreement.

As noted in Section 6.5.1 of the Official Plan, it is the Region's objective "to provide water supply and sanitary sewer services to appropriate areas of the Region in an adequate, efficient, planned and cost-effective manner consistent with public needs and financial realities." Section 6.5.2 states that it is the policy of Regional Council to "require and provide full municipal sewage and water services to accommodate growth in the Urban System to the horizon of this Plan...".

The proposed municipal servicing improvements support the development objectives of the Regional Official Plan.

The study area is identified under Schedule E-1 of the Regional Official Plan, to be within the 'Urban Growth Centre', with the surrounding areas of the study area included in the "Urban System". Additionally, as identified under Schedule E-2, the study area is included in "Primary or Secondary Major Transit Station Area" boundaries.

The Plan identifies Cooksville Creek and its associated valleylands as part of the 'Greenlands System Overlay' on Schedule C-2. Additionally, under Schedule A-2, a portion of the study area is located within a highly vulnerable aquifer.

2.1.1 Growth Management Strategy

The Region has adopted an integrated approach to planning, managing, and financing growth; this incorporates Peel 2041 and the Regional Official Plan. This integrated approach provides a comprehensive framework that includes Official Plan Updates (Growth Management and Transportation), water and wastewater planning and servicing, and financial and policy inputs to

¹ As per Ontario Bill 23 (More Homes Built Faster Act, 2022) and Bill 185 (Cutting Red Tape to Build More Homes Act, 2024), the Region of Peel Official Plan (RPOP), as of July 1, 2024, will be deemed to constitute an official plan of Peel's lower-tier municipalities of Brampton, Caledon, and Mississauga.

the development charge by-law. The Sanitary Sewer - Kirwin Avenue/Little John Lane enhances wastewater servicing capacity to facilitate proposed future developments in the vicinity of the intersection of Hurontario Street and Kirwin Avenue. The growth management looks at servicing development needs to 2041.

2.2 Greenbelt Plan

Consideration was given as to whether parts of the study area were subject to the Oak Ridges Moraine Conservation Plan (2017), Niagara Escarpment Plan (Office Consolidation April 2021), Greenbelt Plan (2017) and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (Office Consolidation 2020). If these plans are applicable to the study area, then the relevant policies within these plans would need to be referenced.

Schedule 1 of the Greenbelt Plan shows the study area is within the 'settlement area outside' of the Niagara Escarpment Plan and Oak Ridges Moraine Conservation Plan (including the Protected Countryside).

2.3 Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) (2020) provides direction to municipalities on matters related to land use planning and development. Policy 1.6 of the PPS provides direction to municipalities regarding infrastructure and public service facilities. Key policies state that infrastructure "shall be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs." Policies 1.6.3 and 1.6.4 state that the use of existing infrastructure should be optimized before consideration is given to developing new infrastructure and infrastructure should be strategically located to support effective and efficient delivery of emergency management services. With respect to wastewater, key sections of Policy 1.6.6 state that planning for sewage services shall:

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

The PPS also provides direction to regional and local municipalities on infrastructure and public service facilities, specifically sewage, water, and stormwater. Section 1.6.6.2 indicates that municipal sewage services are the preferred form of servicing for settlement areas to support protection of the environment and minimize potential risks to human health and safety. Within settlement areas with existing municipal sewage services intensification and redevelopment shall be promoted wherever feasible to optimize the use of the services.

3 Class EA Process and Public Consultation

3.1 Municipal Engineers Association's Municipal Class EA Planning Process

This Class EA planning process, which follows the Municipal Engineers Association's (MEA) Municipal Class Environmental Assessment document (February 2024), takes into consideration the protection of all aspects of the natural, social, and economic environment as well as long-term planning for the mitigation of any adverse effects during both construction and commissioning. The Class EA process also includes consultation with the Public, Indigenous Communities, Government Agencies, local interest groups and review bodies to obtain input and feedback and to ultimately attain general acceptance for the preferred alternative.

There are five (5) phases depicted in the Municipal Class EA Planning and Design Process, which include:

- **Phase 1 - Identify the problem(s) or opportunity:** Identify the problem or opportunity that the Class EA is intended to address.
- **Phase 2 - Identification of alternative solutions and selection of a preferred solution:** This is based on a thorough evaluation of the options against a set of criteria. Phase 2 includes a detailed inventory of the natural, social, and economic environment as well as the identification of any adverse impacts/effects and associated mitigating measures. Public consultation is held to review the problem/opportunity as well as all alternative solutions in an attempt to gain feedback leading to the selection of the preferred solution.
- **Phase 3 - Identification and assessment of alternative design concepts for the preferred solution:** The preferred solution selected in Phase 2 is expanded on in Phase 3 to include detailed design concepts. A second public consultation event is held to review the alternative design concepts to gain further feedback leading to the selection of the preferred design.
- **Phase 4 - Preparation of an Environmental Study Report (ESR):** An ESR is developed documenting all phases and components of the Class EA process. The ESR is placed on public record and a notice of completion is filed.
- **Phase 5 - Implementation:** Implementation of the project works, including complete contract drawings and tender documents followed by construction and commissioning.

The complete Municipal Class EA Planning and Design Process is shown in **Figure 3-1**.

EXHIBIT A.2. MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the MCEA

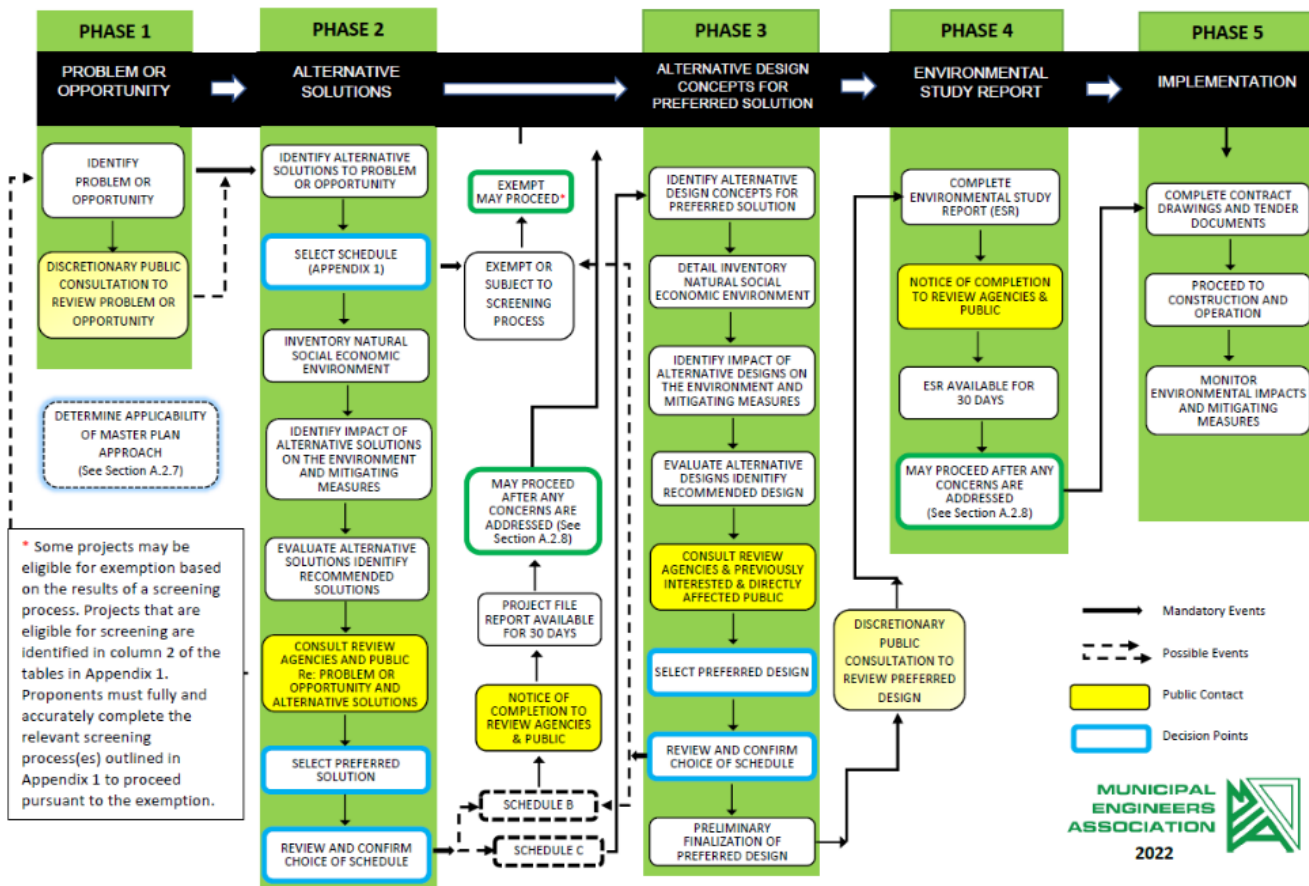


Figure 3-1 Municipal Class EA Planning and Design Process

3.2 Municipal Class EA Schedules

The Class EA document categorizes projects into one of four (4) possible schedules depending on the project’s complexity and the nature and significance of potential adverse effects on the environment. The schedule under which a particular project falls determines the specific planning and design phases that must be adhered to. The four (4) schedules are:

- **Exempt Projects (formerly classified as Schedule A and A+ projects)** are generally limited in scale and usually consist of minor operational/upgrade works. These projects usually have minimal adverse impacts on the environment and may proceed to implementation without further assessment since they are no longer required to meet the requirements of the EA Act.
- **Schedule B** projects have the potential for some adverse environment effects and must accordingly proceed through Phase 1 and Phase 2 of the planning and design process. Alternative solutions to the problem must be identified, all impacts to the natural, social-cultural and/or economic environment must be inventoried, and a preferred solution selected through consultation with the Public and government review agencies. The project

file must be completed and put on public record for a minimum 30-day public comment period.

- **Schedule C** projects are the most complex and require a more detailed study, public and agency consultation, and documentation. These projects have the potential for significant environment effects. A Schedule C project must complete all five (5) Phases of the planning and design process. An ESR must be completed and put on public record for a minimum 30-day public comment period.

It is important to note that the Schedule assigned to a particular project is proponent-driven. For example, even if a project can be categorized as Schedule B, the proponent can decide to comply with the requirements of a Schedule C of the MEA process based on the magnitude of anticipated impacts or the special public and agency consultation requirements specific to that particular project.

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

The Class EA process provides an appeal mechanism to change the project status. Under the provisions of Section 16 of the amended EA Act, there is an opportunity under the Class EA planning process for the Minister to review the status of a project. Members of the public, interest groups, and review agencies may request the Minister to require a Proponent to comply with Section 16 of the EA Act before proceeding with a proposed undertaking. For Schedule B and C projects the public can request additional investigations by filing a Section 16 Order Request to the Ministry of the Environment, Conservation and Parks. The Minister determines whether this is necessary, with the Minister's decision being final. The procedure for dealing with concerns, which may result in the Minister, by order, requiring the Proponent to comply with Section 16 of the Act is outlined in the MEA document (MEA 2024). Revisions to the Act found in the *More Homes, More Choice Act, 2019* resulted in a change to Section 16 Order requests. This change removed the opportunity for anyone to request a Section 16 Order (formerly a Part II Order) for any project unless the order may prevent, mitigate or remedy adverse impacts on existing Aboriginal and treaty rights.

Section 5.1 outlines the preferred Schedule for this project.

4 Existing Site Conditions

4.1 Site Description

The study area lies within the G.E. Booth Wastewater Treatment Plant Catchment Area that terminates near Lake Ontario at the G.E. Booth Wastewater Treatment Facility (WWTF). The approximate divide between the east and west trunk sanitary sewer systems is the watershed boundary between the Etobicoke Creek and the Credit River.

The study area is within the City of Mississauga, Ontario along Kirwin Avenue, east of Hurontario Street, along Jaguar Valley Drive, and along Little John Lane between Kirwin Avenue and John Street. The study area is predominantly zoned residential, with open space (community park) and greenlands adjacent to Cooksville Creek. There is a small portion of utility abutting Jaguar Valley Drive, and mainstreet commercial along Hurontario Street. The Zoning Map can be found in **Appendix A**.

4.2 Natural Environment

4.2.1 Topography and Drainage

The study area is located within the Lake Ontario West Lake Ontario Shoreline Subwatershed and falls within the jurisdiction of the Credit Valley Conservation (CVC). Cooksville Creek flows through the study area in a southwesterly direction and is managed as a warmwater system.

The study area ranges in topographic elevation from approximately 120 metres above sea level (masl) to approximately 114 masl. The topography is considered to be relatively flat, with a gentle slope in the southern direction towards Cooksville Creek. Local drainage patterns tend to follow the topography and are directed towards catch basins located along Kirwin Avenue, which outlet at Cooksville Creek.

4.2.2 Designated Natural Areas

The Cooksville Creek and its associated valleylands crosses through the study area. A Natural Science Screening was undertaken by LGL Limited (February 2024) and can be found in **Appendix B**. Designated natural areas include areas that have been identified for protection by the Ministry of Natural Resources and Forestry (MNR), the Region, CVC and the City of Mississauga.

The Natural Science report identified that there are no provincially significant wetlands, Areas of Natural and Scientific Interest (ANSI), or Environmentally Significant Areas located within 120m of the study area. Additionally, no Significant Valleylands were identified within the study area as shown in **Figure 4-1**.



Figure 4-1 Natural Existing Conditions

4.2.3 Aquatic Habitat Communities

Cooksville Creek is an urban creek that flows through the study area in a southwesterly direction. It is managed as a warmwater system. The Natural Sciences Report did not identify any aquatic species at risk within Cooksville Creek and concluded implementation of the proposed works will not result in permanent impacts to fish or fish habitat.

4.2.4 Vegetation and Vegetation Communities

The study area is located within a portion of the City of Mississauga's Natural Areas Survey (2020) site CV12. According to the Natural Areas Survey, the main Ecological Land Classification (ELC) vegetation community in the study area is a Fresh-Moist Willow Lowland

Deciduous Forest (FOD7-3) type. The site is identified in fair to poor condition and has a high (47.97%) percentage of introduced species.

A field investigation of the vegetation and vegetation within the study area was undertaken in July 2023. Naturalized vegetation within the study area was restricted to the valleylands associated with Cooksville Creek. The Mississauga Natural Areas Survey identified the vegetation within the study area as a Fresh-Moist Willow Lowland Deciduous Forest (FOD7-3), however, the portions of this community within the study area display the characteristics of cultural woodland /cultural thicket habitat based on the percent of canopy cover and as such, have been classified as such by LGL. Any vegetation disrupted during construction will be restored in accordance with the CVC guidelines.

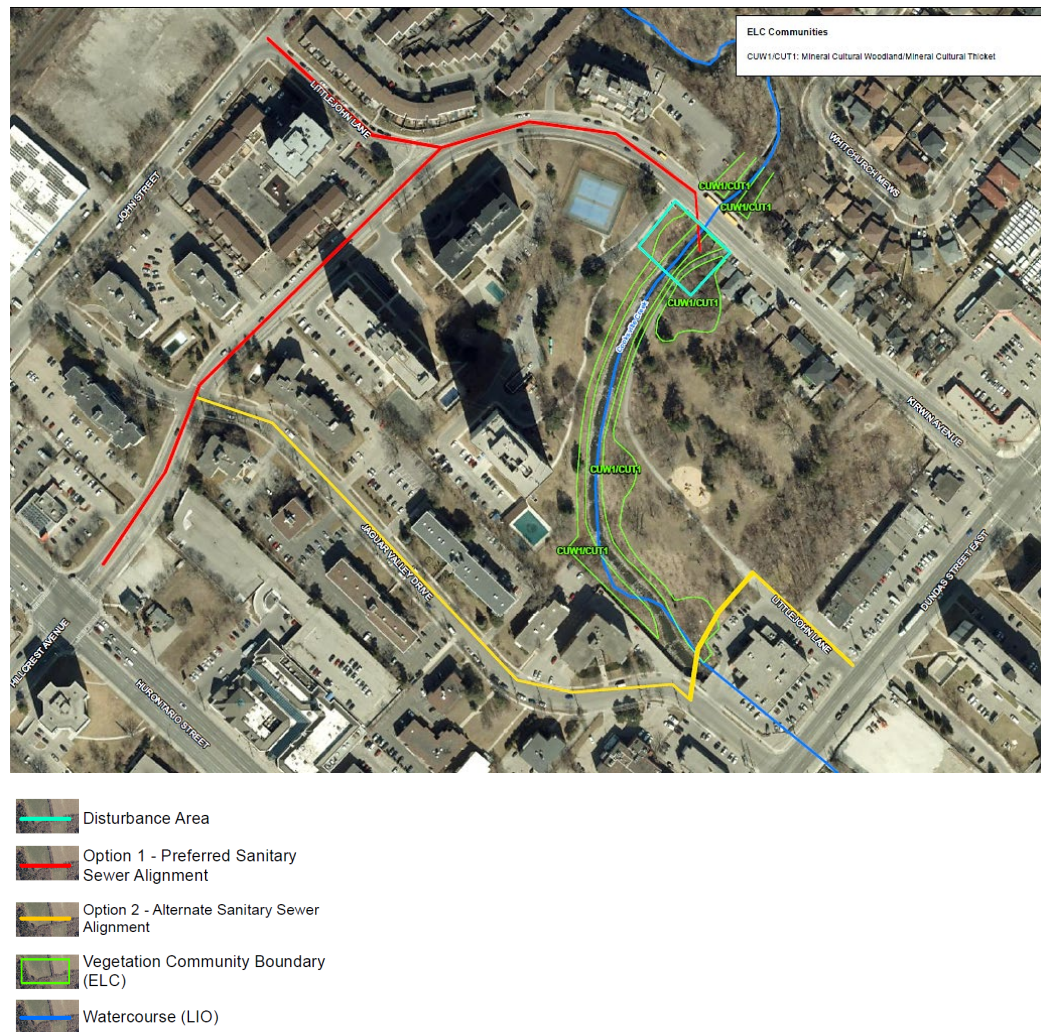


Figure 4-2 ELC Communities

4.2.4.1 Species at Risk and Locally Rare Species

One plant species listed under the ESA was identified within the study area. Kentucky coffee trees were encountered within the study area; however, based on Ontario Regulation 230/08, these trees are not regulated within the City of Mississauga. All of the vegetation communities identified within the study area are considered widespread and common in Ontario, and secure

globally. The limits of the vegetation within the study area are delineated and are described in **Appendix B**.

To mitigate impacts to birds present in the natural areas, tree and vegetation clearing shall comply with the Migratory Bird Convention Act, with the timing restriction of April 1 – August 31. Also, tree clearing must also occur outside the bat roosting period of May 1 – November 15.

4.2.5 Wildlife and Wildlife Habitat

The study area lies in a predominantly residential and commercial setting. Natural areas associated with Cooksville Creek are a main habitat for wildlife in the area. The Cooksville Creek valley provides a variety of habitat types including deciduous woodlands and open riparian habitats. No wetlands are present in the study area.

Wildlife observations were undertaken in July 2023. A total of eight (8) species were documented during the field investigation by LGL and are listed in the Natural Science report (**Appendix B**).

To mitigate any impacts, the construction area will be securely isolated to ensure wildlife cannot enter the construction area (e.g. such as through perimeter silt fencing). In the event that wildlife are encountered, actions and potential wildlife handling should be undertaken by a qualified environmental inspector.

4.3 Socio-Cultural Environment

4.3.1 Archaeological Assessment

A Stage 1 Archaeological Assessment was completed by Archaeological Services Inc. (ASI) for the area that will be impacted by the proposed construction works, including a portion of John C. Price Park. This report can be found in **Appendix C**. Results of the Stage 1 background study identified one previously registered archaeological site within one kilometre of the Study Area, but not within 50m of the Study Area. Field property inspection determined that a portion of John C. Price Park within the Study Area has archaeological potential and will require a Stage 2 archaeological assessment by test pit. The remainder of the Study Area is defined as disturbed due to the construction and widening of Kirwin Avenue, development of residential buildings, installation of utilities, channelization of Cooksville Creek, reconstruction of Kirwin Avenue bridge, demolition of residential houses along Hurontario St and replacement with Kirwin Ave and commercial buildings and parking lots. As a result, the remainder of the Study Area, outside of John C. Price Park, does not require any further archaeological assessment.

4.3.2 Cultural Heritage

ASI completed a Cultural Heritage Report (**Appendix D**) for the study area, including a portion of John C. Price Park. As part of the background review, no known Built Heritage Resources (B.H.R.s) or Cultural Heritage Landscapes (C.H.L.s) were identified in the Study Area. However, one potential C.H.L. was discerned during background review and fieldwork. This C.H.L. is a Post-War-Streetscape located on the east side of Kirwin Avenue, from 3061 Kirwin Avenue to 3081 Kirwin Avenue. The potential heritage attributes include the variety of residences which are indicative of post-war residential design.

No direct adverse effects to the identified C.H.L. are anticipated as a result of the proposed construction works. However, indirect impacts may be possible as a result of potential vibration. To avoid negative impacts to the C.H.L., the following recommendations have been made:

- Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to the identified C.H.L.
- As the potential for indirect impacts from vibration has been identified, a baseline vibration assessment should be undertaken during detailed design. If deemed necessary, a vibration monitoring plan should be prepared and implemented.

4.4 Local Geology and Hydrogeology

Generally, the underlying surficial geology of the study area, based on the Physiography of Southern Ontario (1984), consists of coarse-textured glaciolacustrine deposits of sand and gravel, with minor silt and clay. The river valley along Cooksville Creek is expected to be composed of surficial deposits of alluvial gravel, sand, silt, clay and organics overlying the till or bedrock. Georgian Bay Formation shale is mapped to occur approximately 4m to 11m below existing ground surface.

4.4.1 Geotechnical Investigation

The Region retained Englobe Corp. to undertake the geotechnical investigation for the proposed alignments on Kirwin Avenue, John Street, Little John Lane, and Jaguar Valley Drive.

The geotechnical investigation aimed to determine the subsurface conditions and included the advancement of 15 boreholes to approximate depths of 4.1 mbgs to 9.5 mbgs. Shale bedrock was encountered in three (3) of the boreholes, at depths between 3.0 mbgs and 3.8 mbgs.

Six (6) of the boreholes were completed with monitoring well installation. Groundwater measurements were conducted during and upon completion of boreholes drilling as well as in the installed monitoring well.

Soil samples recovered during this investigation were preserved and transported for laboratory analyses. Completed testing included the following:

- Moisture Content on all collected soil samples
- Grain Size Analyses on 13 samples
- Atterberg Limits Test on 13 samples
- Corrosivity Parameters on 15 samples (ie. pH, Redox Potential and Sulphide concentration)
- Standard Penetration Resistance Test (SPT N)

4.4.1.1 Pavement Structure and Fill

All of the boreholes were advanced within flexible pavement areas. The thickness of asphaltic concrete encountered ranged between 100mm and 300mm, while the granular base/subbase was found to range in thickness from 250mm to 300mm.

Generally, the boreholes encountered cohesionless fill materials consisting of silty clay to silty sand underlain by further cohesionless deposits of primarily sand and gravel.

4.4.1.2 Overburden Soils

Underneath the fill, the soil has varying depths of sand and gravel deposits. This material was underlain by a sandy clay to clayey sand till material in boreholes BH04 and BH06, along Kirwin Avenue.

4.4.1.3 Bedrock

The bedrock underlying the study area was identified as Georgian Bay Formation typically consisting of fresh to moderately weathered, grey, fine to very fine-grained shale with occasional to frequent, fresh, light grey fine grained limestone and siltstone layers. The assumed top of bedrock elevation ranged from Elev. 115 masl to 117.4 masl with an accuracy of ±0.5m.

4.4.1.4 Groundwater Monitoring

Six (6) groundwater monitoring wells were installed in the geotechnical / hydrogeological investigation. The monitoring wells were installed within the overburden materials and groundwater levels in the monitoring wells were measured upon borehole completion and again on December 20, 2023. The observed groundwater level in shallow wells across the site ranged between 3.15m (Elev. 114.59masl) and 4.88m (Elev. 109.09masl).

Additional groundwater monitoring is being completed as part of an on-going hydrogeological investigation to observe seasonal fluctuations.

4.5 Traffic

Traffic considerations within the study area encompass Kirwin Ave, Jaguar Valley Dr, Little John Lane, John St, Hurontario St, and Dundas St E, as well as several nearby side streets in the City of Mississauga.

The project area contains major arterial, significant collector, and local roads, which adopt urban cross section. The surrounding area primarily consists of residential neighbourhoods and parks, complemented by some commercial establishments at the intersections.

Kirwin Ave is a significant collector road under the jurisdiction of the City of Mississauga, featuring a two-lane cross-section and exclusive left-turning lanes at major intersections. The roadway adopts an urban cross-section, with a posted speed limit of 40 km/h and intermittent dedicated bicycle lanes and parking areas. Parking and idling are prohibited for westbound traffic, and a sidewalk is present on both sides.

The surrounding area primarily consists of residential neighbourhoods and parks, complemented by some commercial establishments at the intersections.

4.5.1 Roadways

The key roadways within the study area are Kirwin Ave, Jaguar Valley Dr, Little John Ln, John St, Hurontario St, and Dundas St E. A brief description of each road is provided in **Table 4-1**.

Table 4-1 Key Roads within the Study Area

Road	Description
Kirwin Avenue	Kirwin Ave is a significant collector road under the jurisdiction of the City of Mississauga, featuring a two (2) lane cross-section and exclusive left-turning lanes at major intersections. The roadway adopts an urban cross-section, with a posted speed limit of 40 km/h and intermittent dedicated bicycle lanes and parking areas. Parking and idling are prohibited for westbound traffic, and a sidewalk is present on both sides.
Jaguar Valley Drive	Jaguar Valley Dr is a two (2) lane local street within the study area, under the jurisdiction of the City of Mississauga. The roadway adopts an urban cross-section, with a posted speed limit of 40 km/h and dedicated southbound parking areas. Parking and idling are prohibited for northbound traffic, and a sidewalk is present on both sides of the road.

Hurontario Street	Hurontario St is a north-south major arterial road with an urban cross section under the jurisdiction of the City of Mississauga, featuring a four (4) lane cross-section with exclusive left and right turning lanes at major intersections. Parking and idling are prohibited on either side of the roadway and a sidewalk is present on both sides of the road. There is no dedicated bike lane on Hurontario St; bikes and cars share the roadway. There is currently ongoing construction and lane closures on Hurontario St near the vicinity of the study area.
Dundas Street East	Dundas St E is a west-east major arterial road with an urban cross section under the jurisdiction of the City of Mississauga, featuring a four (4) lane cross-section with exclusive left and right turning lanes at major intersections. Parking and idling are prohibited on either side of the roadway and a sidewalk is present on both sides of the road. There is no dedicated bike lane on Dundas St E; bikes and cars share the roadway.
Little John Lane	Little John Ln is a two (2) lane local street within the study area, under the jurisdiction of the City of Mississauga. The roadway adopts an urban cross-section, with no posted speed limit and dedicated northbound parking areas. Parking and idling are prohibited for south bound traffic, and a sidewalk is present on both sides.
John Street	John St is a two (2) lane local street within the study area, under the jurisdiction of the City of Mississauga. The roadway adopts an urban cross-section, with no posted speed limit and dedicated eastbound parking areas. Parking and idling are prohibited for west bound traffic, and a sidewalk is present on both sides.

4.5.2 Transit Routes

Transit services in the study area are operated through “MiWay” Mississauga and are listed in **Table 4-2**.

Table 4-2 Existing Transit Service

Road	Section
Dundas Street East	Route 1/1 ^C and 101/101 ^A
Hurontario Street	Route 2, 103 and 53

4.6 Existing Utilities

SUE Quality Level D was completed at the onset of the project in June 2023, to obtain utility records of the existing infrastructure within the project limits. Alectra, Bell, and Rogers were contacted through Ontario One Call’s Planning and Development request and Enbridge was contacted directly via email. Based on the responses received from these utility companies, it was determined that the following infrastructure exists within the study area:

Kirwin Avenue

- Alectra underground conductors – from Little John Lane to north of the watercourse crossing.
- Alectra aboveground wire – from south of the watercourse crossing to Dundas St E.
- Bell underground conduit – from Hurontario St to south of the watercourse crossing.
- Enbridge gasmain (intermediate pressure) – from Little John Lane to north of the watercourse crossing.

- Enbridge gasmain (intermediate pressure) – from south of the watercourse crossing to Dundas St E.
- Rogers underground fibre optic cable – from Hurontario St to north of the watercourse crossing.
- Rogers underground coaxial cable – from Jaguar Valley Dr to Little John Lane.
- Rogers aerial coaxial cable – south of the watercourse crossing.

Jaguar Valley Drive

- Alectra aboveground wire – from Kirwin Ave to Dundas St E.
- Bell underground conduit – from Kirwin Ave to approximately 47 Jaguar Valley Dr.
- Bell underground conduit – second conduit from 3131 Jaguar Valley Dr to 47 Jaguar Valley Dr.
- Bell buried cable – from 47 Jaguar Valley Dr to Dundas St E.
- Enbridge gasmain (intermediate pressure) – from Kirwin Ave to Dundas St E.
- Rogers underground fibre optic cable from Kirwin Ave to 3094 Jaguar Valley Dr.
- Rogers aerial coaxial and fibre optic cables from Kirwin Ave to Dundas St E.

5 Problem/ Opportunity Statement

Phase 1 of the Municipal Class EA process defines the starting point for any Class EA as the “Problem/Opportunity Statement.” The Problem/Opportunity Statement for the Kirwin Ave/Little John Lane (Cooksville) Sanitary Sewer Diversion Municipal Class EA is defined as follows:

To enhance wastewater servicing capacity to facilitate proposed and future developments in the vicinity of Hurontario Street and Kirwin Avenue intersection.

There is an opportunity to accomplish this by installing a new sanitary sewer to divert flows from the existing 300-mm sewer and accommodate flows from proposed developments at Hurontario Street and Kirwin Avenue, to the Cooksville Creek trunk sewer.

In accordance with the requirements of the Municipal Class EA planning process, the Region of Peel initiated this Municipal Class EA to identify and evaluate alternative solutions to address this Problem/Opportunity Statement.

5.1 Schedule B Class EA

These upgrades would be necessary to enhance wastewater servicing capacity and operational flexibility to facilitate future growth and development in the vicinity of Hurontario Street and Kirwin Avenue intersection.

As a result, a Schedule ‘B’ Class Environmental Assessment (EA) was undertaken to identify a preferred solution for this infrastructure need. The map shows the area that could be directly impacted by the proposed construction. The project falls under Schedule B, Class EA project as per the MEA’s Municipal Class Environmental Assessment document. Per Appendix 1 – Project Schedules of the document, this is characterized as:

- **22c Establish, extend or enlarge a sewage collection system and all works necessary to connect the system to an existing sewage outlet where such facilities are not located in an existing road allowance, or existing utility corridor**

While the majority of the proposed sanitary sewer is expected to be constructed within an existing road allowance or an existing utility corridor, it is necessary to construct some segments of the proposed sanitary sewer outside of these areas.

As such, this study is being conducted in accordance with the approved requirements for a Schedule B Municipal Class EA, which requires the completion of Phase 1 and Phase 2 of the planning and design process.

Consultation between the proponent and affected or interested stakeholders, members of the public or Indigenous communities early on and throughout the process is a key feature of EA planning, as it provides opportunities for the exchange of information by which decision-making may be influenced. In addition, one of the primary goals in effectively consulting with stakeholders, the public, and Indigenous communities, is to resolve issues proactively to avoid controversy.

In a Schedule B Class EA there exists two mandatory points of contact with the public and review agencies. The first point of contact follows the proponent's identification of the recommended alternative solution. It is at this point, through invitation for public comment and input that an opportunity for stakeholders, the public and Indigenous communities to assist in the selection of a preferred solution exists. The second point of contact consists of the Notice of Completion of the planning process, with issuance of the final Project File Report and made available for the mandatory 30-day public comment period by affected or interested stakeholders, the public, Indigenous communities, and agency groups.

6 Alternative Solutions

6.1 Identification of Alternatives

Three alternative solutions have been developed to address the problem statement, taking into consideration design considerations, technical feasibility, and storage capacity. These alternatives have been evaluated to determine a preferred solution. The following alternative solutions are available:

- **Alternative 1:** Construct a new sanitary sewer from Hurontario St and travelling northeast along Kirwin Ave. The proposed sewer will follow the bend in Kirwin Ave and connect to the 825mm Cooksville Creek Trunk Sewer at an existing maintenance hole on the south side of the creek bank.
- **Alternative 2:** Construct a new sanitary sewer from Hurontario St and travelling northeast along Kirwin Ave, however, at the Kirwin Ave and Jaguar Valley Dr intersection, the proposed sewer will continue southeast along Jaguar Valley Dr replacing the existing 250mm sewer. The sewer will then travel southeast on Little John Ln and finally connect to an existing maintenance hole on the 825mm Cooksville Creek Trunk Sewer at the intersection of Little John Ln and Dundas St E.
- **Alternative 3:** Maintain the current sanitary system without any proposed infrastructure upgrades. This option is equivalent to the "Do Nothing" approach.

6.1.1 Alternative 1 (Preferred Option) – Kirwin Ave

Alternative 1 proposes approximately 580m of a 525mm sanitary diversion sewer starting from Hurontario St and travelling northeast along Kirwin Ave. The proposed sewer will follow the bend in Kirwin Ave and connect to the existing 825mm Cooksville Creek Trunk Sewer at an existing maintenance hole on the south side of the creek bank.

This option includes crossing the Cooksville Creek, just south of Lynwood Ln before connecting to the trunk sewer. Trenchless technologies were reviewed for the watercourse crossing, however due to limited cover (~1m), existing connection elevations, and lack of available space for shafts, it was determined that trenchless technology cannot be utilized. Therefore, the proposed sewer will be constructed via open cut for the entire length. Utilizing a flume/cofferdam with a scour pad will allow for the crossing to be constructed by open cut methodology.

Figure 6-1 presents a schematic drawing of the proposed upgrades for Alternative 1.

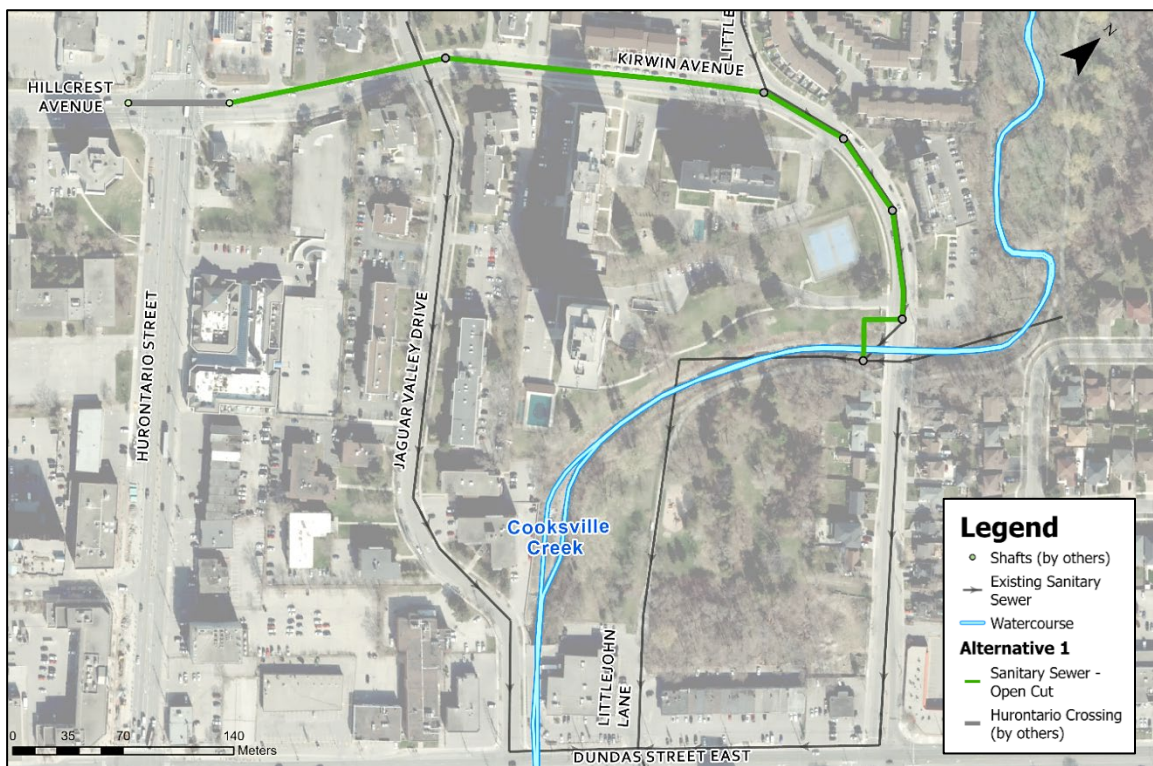


Figure 6-1 Alternative 1

6.1.2 Alternative 2 – Jaguar Valley Dr

Alternative 2 is a proposed 525mm sanitary diversion sewer also starting from Hurontario St and travelling northeast along Kirwin Ave, however, at the Kirwin Ave and Jaguar Valley Dr intersection, the proposed sewer will continue southeast along Jaguar Valley Dr replacing the existing 250mm sewer. Following the bend in the road, the proposed sewer will then cross through the south end of John C. Price Park to Little John Ln. The sewer will travel southeast on Little John Ln and finally connect to an existing maintenance hole on the 825mm Cooksville Creek Trunk Sewer at the intersection of Little John Ln and Dundas St E.

Alternative 2 crosses the Cooksville Creek in John C. Price Park before meeting Little John Ln. Due to major grade separation, this crossing cannot be accommodated by open cut methodology. Trenchless technologies have been reviewed, however due to limited cover (~1m) to bottom of the creek and proximity to footing structures, frac out is expected. The remainder of the proposed sewer will be constructed via open cut.

Figure 6-2 presents a schematic drawing of the proposed upgrades for Alternative 2.

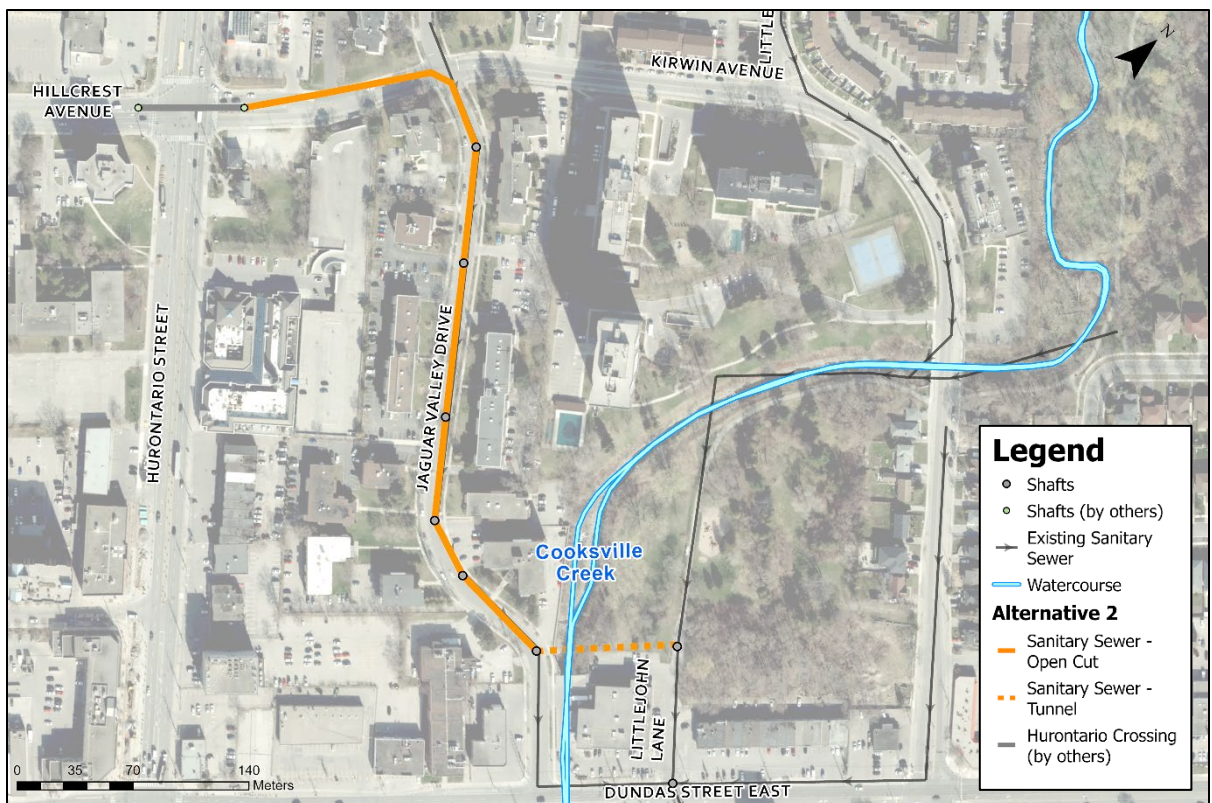


Figure 6-2 Alternative 2

6.1.3 Alternative 3 – “Do Nothing”

The “Do Nothing” Alternative suggests maintaining the current sanitary system without any proposed infrastructure upgrades. This option contrasts with the other alternatives, as it does not involve any diversion of flows. This alternative will increase the risk of sewer system surcharging and overland flooding due to capacity issues currently present within the existing network.

7 Evaluation of Alternative Solutions

This section presents the evaluation of alternatives presented in **Section 6**. Taking the existing environment into consideration, the alternative solutions were comparatively evaluated using a descriptive or qualitative assessment based on criteria developed within the following categories (representing the broad definition of the environment as described in the *EA Act*):

- **Natural Environment** – having regard for protecting the natural and physical components of the environment (e.g., air, land, water and biota) including natural and/or ESAs.
- **Social-Cultural Environment** – having regard for residents, neighbourhoods, businesses, community character, social cohesion, community features, historical/archaeological remains, and heritage features.
- **Technical Environment** – having regard for the technical suitability/longevity and other engineering aspects associated with the alternative solutions.
- **Financial Environment** – having regard for the cost implicating items associated with the alternative solutions.

7.1 Evaluation Criteria

Evaluation criteria were developed to comparatively assess the alternatives, to identify the potential environmental effects and distinguish the advantages and disadvantages between alternatives. The criteria reflect all components of the environment in the study area, the alternative solutions being considered, the problem/opportunity being addressed, and the Class EA requirements. The criteria include the social, cultural, and natural environments, and technical and financial considerations and are described below in **Table 7-1**.

Table 7-1 Evaluation Criteria

CRITERIA	MEASURES
Natural Environment	
Surface Water Impacts	Potential for impacts (e.g., erosion) during construction to surface water (Cooksville Creek) and proximity to regulated areas.
Natural Heritage Area Impacts	Provincially, regionally, or locally significant natural areas (e.g., wetlands, areas of natural and scientific interest, environmentally significant areas) located adjacent to or directly intersected by the route.
Groundwater / Subsurface Impacts	Potential for water taking during construction.
Vegetation / Greenspace Impacts	Loss of vegetation (including impacts to trees and tree canopy).

Social and Cultural Environment	
Traffic Disruption/Impacts to Private Property/Existing Land Uses (e.g., Businesses)	Potential for temporary disruption to traffic as well as nearby public and private properties (e.g., businesses) including access considerations.
Nuisance Impacts	Potential for vibration, dust and noise issues stemming from construction activities within close proximity to nearby residences, businesses and schools.
Cultural /Heritage /Known Archaeological Resource Impacts	Potential impact to cultural / built heritage areas and known archaeological resources (including First Nations).
Technical Considerations	
Ease of Construction (e.g., Construction Constraints)	Potential for encountering problems during construction (e.g., soil stability, geotechnical considerations, ease of excavation).
Operational Flexibility	Potential for operational flexibility and amount of additional capacity provided.
Impacts on Region's Hydraulic Level of Service	Ability to accommodate growth along the Hurontario Street and Kirwin Avenue corridor to meet future servicing capacity requirements.
Locations/Impacts on Other Existing Utilities	Number of and complexity of utilities present on the property (e.g., gas, hydro, telephone, cable, municipal services).
Economic Considerations	
Capital Costs	Estimate of total capital costs based on preliminary costing.
Operating and Maintenance Costs	Estimate of level of operating and maintenance costs.
Land Acquisition / Easement Requirements	Potential for land acquisition or the need for temporary and permanent easements for access.

7.2 Evaluation Methodology

Evaluation criteria were developed to evaluate the alternatives based on the natural, social and cultural environment and technical and financial considerations. This allows for the alternatives to be comparatively assessed in a qualitative manner. A numerical or weighted ranking system was not used; instead, the evaluation focused on the strengths and weaknesses of each alternative to identify the best possible solution.

Although set weightings of criteria were not specifically assigned, all evaluation criteria are not necessarily created equal and professional judgement and knowledge of the area and issues was used to understand preferences. The process requires considering trade-offs to select the preferred alternative which needs to take into consideration whether potential impacts can be mitigated or not. Reasonable mitigation measures were then identified to avoid or minimize any potential negative effects. The selection of the preferred alternative is based on the relative advantages and disadvantages of each alternative within the natural environment, social environment, technical and economic evaluation criteria and include consideration of mitigation measures.

The ranking of each alternative solution relative to the specific evaluation criterion was conducted (refer to **Table 7-2**) using a colour coded system comprised of green, yellow, and red and designed to be indicative of most (green) to least (red) preferred. The comparison of each criterion was made horizontally (within a category such as natural environment) between the

alternatives and then vertically (between categories such as natural, technical environments) to derive the recommended solution. A summary row (**Table 7-2**) is provided where the alternatives are compared against each other within the four categories of natural, social-cultural, technical, and financial environments. The summary rows are then compared to determine the preferred alternative solution based on all aspects of the environment. The alternative solution which demonstrated the greatest number of “most” preferred boxes and/or the fewest “least” preferred boxes relative to their potential environmental effects would likely be the preferred alternative. However, this was dependent on the extent of potential effects and whether they could be mitigated. The comparative evaluations for each set of alternatives are provided in **Table 7-2**.

Table 7-2 Evaluation Criteria

Criteria		Alternative 1	Alternative 2	Alternative 3 "Do Nothing Option"
Natural Environment	Surface Water Impacts	<ul style="list-style-type: none"> Involves excavation within CVC regulated area, crossing the Cooksville Creek which requires a CVC permit and implementing sediment/erosion controls for open cut construction. Open-cut crossing of Cooksville Creek. 	<ul style="list-style-type: none"> Involves excavation within CVC regulated area, crossing the Cooksville Creek which needs CVC permit and implementing sediment/erosion controls for trenchless construction. Trenchless crossing of Cooksville Creek has potential for frac-out due to limited cover (~1m). 	<ul style="list-style-type: none"> Increase possibility of surcharging and surface flooding due to future population growth.
	Natural Heritage Area Impacts	<ul style="list-style-type: none"> Potential impacts to existing trees, tree canopy and vegetation along Cooksville Creek. Restoration of the channel and riparian vegetation should be undertaken to mitigate impacts to aquatic and terrestrial habitat in the study area. 	<ul style="list-style-type: none"> Potential impacts to existing trees, tree canopy and vegetation along Cooksville Creek. 	<ul style="list-style-type: none"> None
	Groundwater / Subsurface Impacts	<ul style="list-style-type: none"> Water taking anticipated during construction. 	<ul style="list-style-type: none"> Water taking anticipated during construction. 	<ul style="list-style-type: none"> None
	Vegetation / Greenspace Impacts	<ul style="list-style-type: none"> Impacts to vegetation as a result of the proposed sanitary sewer placement will result in the removal of a small portion of the cultural woodland/thicket community along Cooksville Creek adjacent to Kirwin Avenue. 	<ul style="list-style-type: none"> Potential impacts to existing woodland area along Cooksville Creek. 	<ul style="list-style-type: none"> None
Social and Cultural Environment	Disruption/Impacts to Private Property / Existing Land Uses (e.g., Traffic impact)	<ul style="list-style-type: none"> Access to residents and businesses will be minimally impacted due to increased road traffic along Kirwin Ave and Little John Ln construction. Possible sidewalk closures. 	<ul style="list-style-type: none"> Access to residents and businesses will be minimally impacted due to increased road traffic along Kirwin Ave, Jaguar Valley Dr and Little John Ln construction. Temporary pedestrian pathways will be constructed around shafts to accommodate pedestrian flow in long duration. Possible sidewalk closures. 	<ul style="list-style-type: none"> None
	Nuisance Impacts	<ul style="list-style-type: none"> Noise, dust, and other nuisance impacts during construction. 	<ul style="list-style-type: none"> Noise, dust, and other nuisance impacts during construction. 	<ul style="list-style-type: none"> None
	Cultural Heritage / Archaeological Impacts	<ul style="list-style-type: none"> No direct impacts to the Potential Cultural Heritage Landscape (identified from 3061 Kirwin Ave to 3081 Kirwin Ave). Potential temporary vibratory impacts will be considered during construction. Area within alternative 1 does not retain any archaeological potential on account of deep and extensive land disturbance. 	<ul style="list-style-type: none"> No direct impacts to the Potential Cultural Heritage Landscape (identified from 3061 Kirwin Ave to 3081 Kirwin Ave). Potential temporary vibratory impacts will be considered during construction. A park within the alternative 2 study area (John C. Price Park), exhibits archaeological potential. A Stage 2 archaeological assessment prior to any proposed construction activities on these lands is required. 	<ul style="list-style-type: none"> No cultural heritage areas or known archaeological resources will be impacted.

Criteria		Alternative 1	Alternative 2	Alternative 3 "Do Nothing Option"
Technical Considerations	Ease of Construction (e.g., Construction Constraints)	<ul style="list-style-type: none"> Implementation of Erosion and Sediment Control measures/plan to mitigate the potential for silt and sediment entry into surface water features and adjacent natural lands. Applying appropriate Timing Window for vegetation/tree removal/clearing (avoid tree removal/pruning between May 1 to November 15 and avoid vegetation removal between April 1 and August 31) within the regulated area. Applying appropriate Timing Window for in-water work is required (as this is a warmwater watercourse, construction crossing the creek should occur between July 1 and March 3). Less construction risks associated with soil conditions and location. 	<ul style="list-style-type: none"> Implementation of Erosion and Sediment Control measures/plan to mitigate the potential for silt and sediment entry into surface water features and adjacent natural lands. Applying appropriate Timing Window for vegetation/tree removal/clearing (avoid clearing May 1 to November 15 and avoid vegetation removal between April 1 and August 31) within the regulated area. Greater Construction risks associated with potential for frac-out due to limited cover (~1m). Possible complications due to crossing a retaining wall for tunnel sections. 	<ul style="list-style-type: none"> No construction required.
	Operational Flexibility	<ul style="list-style-type: none"> Ensures the Region has sufficient servicing capacity to accommodate future population growth. 	<ul style="list-style-type: none"> Ensures the Region has sufficient servicing capacity to accommodate future population growth. 	<ul style="list-style-type: none"> Alternative will not increase operational flexibility.
	Impacts on Region's Hydraulic Level of Service	<ul style="list-style-type: none"> Increases wastewater (sanitary sewer) servicing capacity to accommodate future growth and new developments. Prevents future surcharges and flooding. 	<ul style="list-style-type: none"> Increases wastewater (sanitary sewer) servicing capacity to accommodate future growth and new developments. Prevents future surcharges and flooding. 	<ul style="list-style-type: none"> No improvement on ability of the system to meet Region's hydraulic level of service. Possible surcharging and basement flooding.
	Locations / Impacts on Other Existing Utilities	<ul style="list-style-type: none"> Nearby gas, hydro, and telecommunication utilities along Kirwin Ave will have to be considered and mitigated during construction. 	<ul style="list-style-type: none"> Nearby gas, hydro, and telecommunication utilities along Kirwin Ave and Jaguar Valley Dr will have to be considered and mitigated during construction. 	<ul style="list-style-type: none"> None
Economic Considerations	Capital Costs	<ul style="list-style-type: none"> Typical Open Cut Construction Costs. 	<ul style="list-style-type: none"> Higher Construction Costs due to tunnelling and possible complications near tunnelling location (retaining wall). 	<ul style="list-style-type: none"> None
	Operating and Maintenance Costs	<ul style="list-style-type: none"> Typical operating and maintenance requirements. 	<ul style="list-style-type: none"> Typical operating and maintenance requirements. 	<ul style="list-style-type: none"> Potential costs related to basement and surface flooding.
	Land Acquisition / Easement Requirements	<ul style="list-style-type: none"> Easement(s)/ Permit to Enter(s) will be potentially required from City of Mississauga, CVC and private lands. 	<ul style="list-style-type: none"> Easement(s)/ Permit to Enter(s) will be potentially required from City of Mississauga, CVC and private lands. Potential permit to enter John C. Price Park. 	<ul style="list-style-type: none"> None

Criteria	Alternative 1	Alternative 2	Alternative 3 "Do Nothing Option"
SUMMARY			
Natural Environment	<ul style="list-style-type: none"> Potential impacts to existing trees, tree canopy and vegetation along Cooksville Creek including identified SAR bat habitat and Kentucky coffee trees. 	<ul style="list-style-type: none"> Potential impacts to existing trees, tree canopy and vegetation along Cooksville Creek including identified SAR bat habitat and Kentucky coffee trees. Five trees will be planted to replace the 17 trees removed during construction, in adherence to Mississauga's tree replacement policy. 	<ul style="list-style-type: none"> Increased possibility of surcharging and flooding due to future population growth.
Social and Cultural Environment	<ul style="list-style-type: none"> Temporary disruptions to traffic and access to local businesses and residents during construction. Potential noise and vibratory impacts to cultural heritage area. Area near alternative 1 does not retain any archaeological potential on account of deep and extensive land disturbance. 	<ul style="list-style-type: none"> Temporary disruptions to traffic and access to local businesses and residents during construction. Potential noise and vibratory impacts to cultural heritage area. A park within the study area (John C. Price Park), exhibits archaeological potential. A Stage 2 archaeological assessment prior to any proposed construction activities on these lands is required. 	<ul style="list-style-type: none"> None
Technical Considerations	<ul style="list-style-type: none"> Provides additional volume which will reduce peak flow and prevent future surcharges and flooding. Enhances wastewater (sanitary sewer) servicing capacity to accommodate future growth in the area. Less construction risks associated with soil conditions and location. 	<ul style="list-style-type: none"> Provides additional volume which will reduce peak flow and prevent future surcharges and flooding. Enhances wastewater (sanitary sewer) servicing capacity to accommodate future growth in the area. Greater construction risks associated with soil conditions and location. Possible complications near retaining walls for tunnel sections. 	<ul style="list-style-type: none"> No improvement on ability of the system to meet the Region's hydraulic level of service for future growth.
Economic Considerations	<ul style="list-style-type: none"> Lower Costs than Alternative 2 (Open Cut Only). Easement(s)/ Permit to Enter(s) will be potentially required from City of Mississauga, CVC and private lands. 	<ul style="list-style-type: none"> Higher Construction Costs due to tunnelling and possible complications near tunnelling location (retaining wall). Easement(s)/ Permit to Enter(s) will be potentially required from City of Mississauga, CVC and private lands. 	<ul style="list-style-type: none"> Does not provide any additional serving capacity for future growth of the area.
OVERALL RANKING	<p>RECOMMENDED</p> <ul style="list-style-type: none"> Lowest cost of construction. Increases wastewater (sanitary sewer) servicing capacity to accommodate future growth and new developments. Prevents future surcharges and possible flooding. Area near alternative 1 does not retain any archaeological potential on account of deep and extensive land disturbance. 	<p>LESS RECOMMENDED</p> <ul style="list-style-type: none"> Higher construction costs and possible complications due to tunnelling. Trenchless crossing of Cooksville Creek has potential for frac-out due to limited cover (~1m). Increases wastewater (sanitary sewer) servicing capacity to accommodate future growth and new developments. Prevents future surcharges and possible flooding. A park within the study area (John C. Price Park), exhibits archaeological potential. A Stage 2 archaeological assessment prior to any proposed construction activities on these lands is required. 	<p>NOT RECOMMENDED</p> <ul style="list-style-type: none"> Does not meet the problem statement. Increased possibility of surcharging and flooding due to future population growth. Does not increase operational flexibility. Does not increase wastewater (sanitary sewer) servicing capacity to accommodate future growth and new developments. Does not meet the sanitary service demands from a growing population.

8 Preferred Alternative

Section 7 provides a summary of potential impacts associated with each alternative. Alternative 1 has been identified as the preferred solution due to it having less construction complications and associated risks, and lower construction costs, which are attributed to its exclusive use of the open-cut construction method. This alternative minimizes complications during construction by avoiding trenchless tunneling methods and associated risks such as frac-out.

The preferred alignment will be constructed within a CVC regulated area for Cooksville Creek, necessitating permits and sediment/erosion controls for open-cut construction to minimize the impacts. Construction-related risks related to ground geology, soil conditions and the creek crossing have been assessed through the Geotechnical Investigation Report and will be further refined during design phase. A Natural Science Report (**Appendix B**) was completed for the study area, establishing an inventory of natural environmental features, assessing potential construction disturbance impacts, and identifying mitigation measures. The impacts on the natural environment will be short-term during construction.

Socio-cultural impacts, including noise, dust, and other nuisances, are minimal, with limited effects on access to residents and businesses due to increased road traffic along Kirwin Ave and Little John Ln. The impacts identified are short-term and confined to the construction period, ensuring no lasting effects on the socio-cultural environment. The design phase will further assess construction-related factors such as dust, noise, and vibration, determining the need for monitoring and mitigation.

The proposed sanitary sewer will be constructed within the existing road right-of-way (ROW), with exceptions for the connection to the existing trunk sewer along Cooksville Creek. Several reports were completed to assess existing conditions, potential impacts, and mitigation measures. These measures are summarized in **Section 11** of this report.

8.1 Construction Method

Due to the existing ground conditions and the nature of the proposed works, the preferred construction method for this alternative will solely employ the open-cut approach. The open-cut construction methodology is a well-documented and reliable construction method with established design and construction specifications involving the installation of new pipes through continuous trenching.

One potential impact of employing the open-cut methodology in the current ground conditions is the potential for significant water intake during construction. This consideration should be addressed during the detailed design phase. It is advisable to conduct geotechnical and hydrogeological investigations, formulate a dewatering plan, and establish mitigation measures as part of the detailed design process.

9 Permits and Approvals

The following permits and approvals have been identified as required or potentially required to be obtained over the design stage, for the construction works:

- A permit for Development, Interference, with Wetlands and Alterations to Shorelines and Watercourses from the CVC (Ontario Regulation 160/06);

- Fisheries and Ocean Canada “Letter of Advice”;
- Ontario Water Resources Act R.S.O. 1990 –, Environmental Compliance Approval (“ECA”) - Regional Municipality of Peel Wastewater Collection System, ECA Number: 009-W601;
- Public Utilities Coordinating Committee (“PUCC”);
- City of Mississauga tree removal and/or protection permit/requirements; and,
- Permit to Take Water (“PTTW”) from the MECP, or registration as an Environmental Activity and Sector Registry (“EASR”).

9.1 Approvals – Conservation Authority

9.1.1 O. Reg. 160/06: Credit Valley Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

The study area is located within a CVC regulated area in accordance with Ontario Regulation 160/06 of the Conservation Authorities Act.

A portion of the preferred alignment will be constructed within a CVC regulated area at the Cooksville Creek crossing, necessitating permits and sediment/erosion controls for open-cut construction to minimize impacts. Due to this, a permit under Ontario Regulation 160/06 will be required from CVC.

9.1.2 Source Water Protection – Clean Water Act (2006)

An assessment of source water protection in the study area identified portions of the study area lying within a highly vulnerable aquifer (HVA). Per Schedule A-6 of Regional Official Plan, a portion of the study area also lies within a mapped Intake Protection Zone 2 (IPZ-2). Policies regarding an HVA and IPZ-2 under the Credit Valley, Toronto and Region, and Central Lake Ontario (CTC) Source Protection Plan were reviewed for applicability to the project.

During construction within an IPZ-2, a spill prevent plan should be in place to ensure that petroleum-related spills do not adversely affect nearby watercourses.

9.2 Approvals – Provincial

9.2.1 Ontario’s Endangered Species Act, 2007

Due to the proximity of the work to Cooksville Creek, Arcadis completed a review of secondary sources of information including MNR’s Make a Map: Natural Heritage Information Centre database, Land Information Ontario (LIO) database, and Aquatic Species at Risk maps (DFO website). No species at risk appear to be found within the study area.

9.2.2 Permit to Take Water / Environmental Activity and Sector Registry

For construction dewatering, water takings of more than 50,000 L/day but less than 400,000 L/day do not require a PTTW but may be registered on the Environmental Activity and Sector Registry (“EASR”). Water takings of more than 400,000 L/day require a PTTW issued by the MECP. These permits often require supporting hydrogeology studies for their approval by the MECP.

Based on the coarse-grained sediments that were encountered in several boreholes, it is anticipated that a water taking permit will be required for the project. A hydrogeological investigation is being conducted and the dewatering rate will be estimated to inform the level of permit that is required.

9.2.3 Ontario Water Resources Act R.S.O. 1990 – Environmental Compliance Approval (“ECA”)

MECP recently issued the Consolidated Linear Infrastructure Environmental Compliance Approval (CLI ECA) to the Region. This is a pre-authorized system allowing Municipal Sewage Collection System projects to proceed under their respective CLI ECA (009-W601).

“Pursuant to the Environmental Protection Act, R.S.O 1990, c. E. 19 (EPA), and the regulations made thereunder and subject to the limitations thereof, this environmental compliance approval is issued under section 20.3 of Part II.1 of the EPA to the **Regional Municipality of Peel.**”

Arcadis will discuss with the Region’s Compliance Department to assess and fulfill the necessary requirements to proceed under the respective CLI ECA.

9.2.4 Excess Soil Management (O.Reg. 406/19)

Excess soil will need to be managed during construction; registration of the project on the Resource Productivity and Recovery Authority (RPRA) Excess Soil Registry will be required. This will include the draft registration with the excess soil planning documents completed during design, as well as the final registration upon the completion of soil movement during construction.

9.3 Approvals – Municipal

9.3.1 Public Utilities Coordinating Committee (“PUCC”) - City of Mississauga

The City of Mississauga has a coordination and planning process that reviews infrastructure projects to minimize any conflicts with existing and proposed utilities and reduce the impact of construction. A PUCC approval is required for this project.

9.3.2 Tree Protection By-law and Tree Removal Permit - City of Mississauga

A tree permit is required where any individual tree with a diameter of 15cm (6in) or greater, is to be injured or removed (destroyed) on a private (Private Tree Protection By-law 0021-2022) or public (Public Tree Protection By-law 0020-2022) property/lot.

An arborist report is required to be completed in accordance with the New Special Provision for the City of Mississauga Public Tree Protection Bylaw, to support the design and selection of mitigation measures and to determine whether or not the conditions for requiring this permit are met.

One replacement tree is required for every 15cm (6in) of diameter of the tree removed. For example, when a tree with a diameter of 45cm (18in) is removed, three (3) replacement trees are required. Replacement trees (no matter the size) cannot be injured or removed without a permit.

9.4 Approvals – Federal

9.4.1 Fisheries Act Authorization

To ensure compliance under the Fisheries Act and the Species at Risk Act, the Fish and Fish Habitat Protection Program provided by the Fisheries and Oceans Canada (DFO) should be followed. As outlined by the DFO, any project that can potentially cause the death of fish and the harmful alteration, disruption or destruction of fish habitat requires a project review.

Where works are required within the CVC regulated area, the completion of a Fisheries Act screening is recommended as Conservation Authorities no longer have an agreement to screen projects on behalf of the DFO. As in-water work is anticipated for this project, Authorization or Letter of Advice, will be required.

10 Land Acquisition Requirements

To facilitate construction for a portion of the preferred alternative, it has been identified that Permission to Enters (PTEs)/ Easements will be required. The PTEs/ Easements are required to access the working area during the construction of the sewer. In addition, permanent easements might be needed for operation and maintenance of the sewer.

Potential Property Impact Plans are provided in **Appendix F**. The following properties might be impacted:

- PIN 131570081
- PIN 131570082
- PIN 191150000

The remainder of the proposed sewer is located within the road right-of-way, and therefore will be constructed with a road occupancy permit.

11 Identification of Mitigation Measures

11.1 Utilities

The exact number and locations requiring utility re-location and/or support will be determined during detailed design with continuous communication and cooperation with utilities' owner.

11.2 Social-Cultural Environment Impacts

11.2.1 Traffic

To facilitate the construction of the sanitary sewer, traffic management plans and detour plans will be prepared during the detailed design stage. All traffic control plans and measures will be provided in accordance with the Ontario Traffic Manual, Book 7. Planned and ongoing projects within the vicinity of the study area will be considered while developing traffic management plans.

11.2.2 Speed Limits

There are no recommended speed limit reductions on Kirwin Avenue for the duration of construction; the current 40km/h speed limit will be maintained.

11.2.3 Traffic Control – Working Hours

To facilitate the construction of the sanitary sewer, a traffic management plan will be prepared to maintain traffic along Kirwin Avenue to the full extent possible. Further details will be provided in the Traffic Management Plan.

11.2.4 Traffic Control – Non-Working Hours

During non-working hours (and overnight), the designated construction corridor will be, where possible, reopened back to the existing lane configurations. Open excavations will need to be appropriately protected and backfilled at the end of each working day.

It will be ensured that there will be no open excavation areas adjacent to a live traffic lane overnight and on non-working days. Excavation within 5.0 meters of a live lane shall be either backfilled with specified material up to profile grade or covered with steel plates, prior to terminating operations for the day.

11.2.5 Protection to Hydro Poles

Where construction works are close to existing Hydro Poles (HP), temporary concrete barriers, as required for roadside safety, will be provided for protection.

11.2.6 Pedestrian Traffic

Sidewalks are present on both sides of Kirwin Avenue. Alterations to the existing sidewalks are not anticipated to accommodate the construction of the sanitary sewer, with the exception of the south sidewalk crossing that occurs just before the watercourse crossing. At this location, the sidewalk will be impacted by the open cut installation of the proposed sewer. As a result, a pedestrian detour and signage plan will be prepared, and advance notice of the closure will be provided. Signage will be installed at the closest intersections indicating that the sidewalk is closed and the alternative detour. Further details will be provided on the Traffic Management Plans.

11.2.7 Public Notification

Public notification shall occur in advance of construction to ensure that businesses are kept informed. Commercial business and community services should be notified directly of impending works.

11.2.8 Noise and Vibration Control

A Construction Vibration and Noise Monitoring Plan has been developed by RWDI (**Appendix G**) for the preferred alternative. This report provides estimated zones of influence for both noise and vibration. Baseline monitoring shall be completed immediately prior to the beginning of construction such that baseline measurements can be referred to as needed. Noise and vibration monitoring shall also occur for the entire duration of construction to limit the adverse effects on the adjacent communities by flagging exceedances before they occur.

When noise levels exceed the limits, steps will be taken to reduce the levels, if possible, by either altering the construction methodology, reducing the sound at the source (e.g. contractor shall provide efficient intake and exhaust mufflers on internal combustion engines), or by

intercepting the sound between the source and receiver (e.g. temporary noise barrier or enclosure).

Similarly, if vibration limits are exceeded, steps shall be taken to reduce the levels. However, if the building damage vibration limit is exceeded, then work must be stopped until a solution is implemented to reduce the vibration. Most often, the best approach to reducing the vibration is through alternative construction methodology.

11.2.9 Dust Control

A Dust Best Management Practices Plan (**Appendix H**) has been developed by RWDI, for the preferred alternative, which identifies the potential sources of air quality emissions and the recommended mitigation measures. The report defined two types of air quality emissions, dust (consisting of calcium carbonate, magnesium carbonate, iron, magnesium, aluminum, and silicon) and gaseous contaminants (consisting of emissions found from vehicle and heavy equipment exhaust). Control measures are recommended for the various construction activities including excavation/demolition, bulk material handling, fabrication, and vehicle movement. These control measures include but are not limited to covering disturbed services with vegetation, stones, or geotextiles as soon as possible, application of water to disturbed surfaces or stockpiles, secure loads on haul trucks, restricting deliveries and handling under dry, windy conditions, use of prefabricated concrete structures where possible, use of fume extraction systems, establish truck-staging zones, and limit the number of vehicles and heavy equipment operating on-site.

Over the course of construction, inspection and monitoring of dust shall be conducted. Public roadways near the site will be inspected at least three times a day to ensure silt is not tracked out to public roads. A visual inspection of the site shall be undertaken twice each day to document dust conditions. Records of all dust control measures are to be kept, and any complaints received need to be recorded and addressed within reason (taking into account site activities and weather conditions).

11.2.10 Generation of Excess Materials

The preferred alternative will require excavation and filling operations. Various types of materials, including soil, may be generated during these activities which will require appropriate management. An Excess Materials Management Strategy shall be developed to establish a suitable characterization, handling, and disposal protocol. All excess and unsuitable materials generated during construction shall be managed in accordance with this plan.

Any contaminated wastes should be taken to an appropriate disposal site, while beneficial reuse of other generated excess materials should be explored. Receiving sites should be defined through an Excess Soil Destination Assessment.

11.2.11 Archaeological Resource

The results of the Stage 1 archaeological assessment (**Appendix C**) indicated that the Study Area of the preferred route does not retain archaeological potential on account of deep and extensive land disturbance.

The only area that is recommended for a Stage 2 Archaeological Assessment is within John C. Price Park. However, as the alignment of the preferred alternative does not pass through this park, no further assessments are required.

In the unlikely event that unknown archaeological remains are encountered during construction, the MHSTCI and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services shall be contacted immediately.

11.3 Natural Environment Impacts

11.3.1 Erosion and Sediment Control

Erosion and Sediment Controls (ESC) shall be implemented for the duration of construction to mitigate the risk for sediment transport into the nearby surface water features and vegetation communities. An Erosion and Sediment Control plan will be developed which will include methods of isolating the construction area from the natural features, identifying stockpiling and staging areas, and a plan to dispose of any water accumulated onsite from dewatering or stormwater. During construction, an Environmental Consultant will be dedicated to inspect erosion and sediment control measures regularly.

In addition, to mitigate disturbance to the bank and creek, a fluvial geomorphology assessment has been completed by GEO Morphix Ltd (**Appendix I**) which takes into account the existing conditions of the creek including key watercourse characteristics. Per the appended report, the existing creek has been identified as relatively stable and heavily modified to accommodate urban development. An assessment of erosion risk was completed and determined that large boulders and/or armourstone are required to withstand potential erosive flows and therefore prevent channel scouring. A proposed bank restoration preliminary design is provided with the report which outlines the required design to ensure the bank remains stable following the construction works. As well, follow-up monitoring of the site to confirm stabilization is advised.

11.3.2 Spill Prevention and Contingency

A Spill Prevention and Contingency Plan provides on-site personnel with procedures, including notification to the relevant authorities, to reduce the risk of spills of pollutants and prevent, eliminate, or improve any adverse effects that occur or may result from spills of pollutants. Prompt responses from qualified trained personnel would reduce the adverse impacts from such an event.

The plan can be incorporated into the contractor's health, safety and environmental manual specific to the project. The Spill Prevention and Contingency Plans will at minimum include:

Spill Prevention

- Established location and methods for material storage and use during project-related activities such as proper containment, inspections and personnel training on the storage and use of materials and prevention of spills;
- Requirement for all containers to be identified using the WHIMS standards with appropriate spill response materials (shovels, absorbents, etc.) in a designated area on-site; and
- A monitoring program to document condition of materials and compliance with use and storage standards.

Spill Response

- Provision for the appropriate delegation of responsibility to specific on-site staff;
- Spill response procedures for each material that may be spilled with appropriate responses for the potential risk associated with that release;
- Contact information for emergency services;

- Requirements for internal and external agencies reporting, and assessment, including time stamped photographs of the spill incident and follow-up reporting after the response; and
- Requirements for the documentation of remediation of the spill area and disposal of spill clean-up materials in accordance with Ontario Regulation 347 under the EPA.

During construction, an Environmental Consultant will be dedicated to ensure spill prevention and response measures are in place by the Contractor and will inspect all spill prevention controls regularly.

11.3.3 Tree Protection

An Arborist Report, which includes a tree inventory was completed by LGL Limited (**Appendix J**) for the preferred alternative, to identify trees within the study area and summarize the impacts from the proposed construction works and mitigation measures. A total of 272 trees were identified under the tree inventory, ranging in size from 1cm to 76cm DBH. Of these trees, 159 are regulated under the Mississauga Preservation By-laws. Based on the proposed works, eighteen trees are identified for removal, seventeen within public property and one within private property. The City of Mississauga defines that one replacement tree is required for every tree on public or private property that is over 15cm. As a result, LGL identified that five replacement trees will be required. Any tree removals, pruning, or root cutting are to be conducted by a qualified arborist.

For trees that are not identified for removal, LGL proposes the following mitigation measures to limit impacts:

- Installation of tree protection barriers (complying with the City of Mississauga's specifications) around each tree designated for protection prior to any construction works.
- Within the Tree Protection Zones:
 - No fill, machinery, chemicals, fuel, or materials to be placed/stored.
 - No heavy machinery to be operated.
 - No re-grading, filling, or excavation unless permitted by the City.
- Soil compaction mitigation including the application of wood chips and overlaying steel or plywood to dissipate the weight of machinery driven overtop.
- Prune any exposed roots with a diameter of less than 5cm to promote regeneration and prevent infection.
- No signs or objects shall be affixed to any trees identified as to be protected.
- Backfilling should occur as soon as possible and should use clear native uncontaminated topsoil.

11.3.4 Dewatering

As part of the geotechnical investigation completed by Englobe (**Appendix E**), 15 boreholes were drilled within the study area. Of these boreholes, all except one were found to be dry upon completion of the drilling. Measurements from the installed monitoring wells found the depth of groundwater to be between 3.2 to 4.9m. The most common soils encountered were fill material, cohesionless deposits, clayey sand till, and silty clay. Shale bedrock was also encountered within three of the boreholes at depths of 3.0 to 3.8m. Based on this investigation, significant

dewatering is not anticipated due to the low groundwater and nearly impervious soils. This will be confirmed upon completion of the hydrogeological investigation.

11.3.5 Restoration

In addition to the efforts made to reduce impacts to natural heritage features, where impacts are unavoidable, restoration is required. A Restoration Plan will be developed to implement vegetation replacement, facilitate the restoration, remediation, and enhancements to existing natural features. Restoration plans will take into consideration space requirements for future and ongoing maintenance access to the proposed infrastructure.

11.3.5.1 Terrestrial Restoration

Restoration of the cultural woodland/thicket community should be undertaken post construction. At a minimum, the restoration should involve seeding and planting of native trees/shrubs within the area of the open cut crossing of Cooksville Creek.

11.3.5.2 Watercourse Restoration

This section focuses on restoration recommendations and provides a preliminary estimate of the area required for channel restoration within Cooksville Creek:

- Channel should be stabilized immediately following construction;
- Channel and banks should be restored to the same or better condition than prior to construction; and,
- Revegetation along stream banks should include appropriate native shrub and tree cover to provide shade and stabilize soils.

12 Public, Agency, and Indigenous Community Consultation

A key feature of the Class EA process is ensuring effective communication with the general public, Indigenous communities, agencies and other stakeholders throughout the project. To meet the Class EA consultation requirements for this Schedule B study, steps were taken to ensure effective communication throughout the project with the public, Indigenous communities, agencies, and other stakeholders. The overall strategy has been to provide various opportunities to communicate and receive input from the public, government, agencies, Indigenous communities, and other stakeholders and to review, consider, integrate (as appropriate), file, and respond in a reasonable timeframe. A table listing regulatory agencies, Indigenous communities and project stakeholders contacted is provided in **Appendix K**. Correspondence between the project team and stakeholders concerning the project is provided in **Appendix L**.

12.1 Notices and Online Public Engagement

12.1.1 Notices of Study Commencement and Online Public Engagement

Initial communication with stakeholders and the public started with issuance of the Notice of Study Commencement and Notice of Online Public Engagement, which provided information on the study background along with project contacts and also included a map showing the Study Area and the proposed alternative sewer routes. The Notice of Study Commencement and Notice of Online Public Engagement were first issued on August 18th, 2023, and May 1st, 2024 respectively.

Notices were physically circulated to the surrounding businesses and emailed out to Agencies, Ministries, Indigenous communities, and other stakeholders on the day of issuance (sample of the email sent out to the Project Contact List is included in **Appendix K**).

For general distribution of project information to the public, stakeholders and Indigenous communities, the Notices were also posted on the Region's website. The Notice also provided information on the project and included a "How to Get Involved" section which provided a link to the Online Public Engagement display boards.

12.1.2 Online Public Engagement

In lieu of an in-person Public Information Centre, an Online Public Engagement was created to communicate and receive comments on the details of the proposed project with the public, Indigenous communities, and stakeholders. The Online Public Engagement ran from May 1st, 2024 until May 22nd, 2024. The display boards were made available through a link provided in the Notice of Online Public Engagement. The boards identified the three alternatives along with an evaluation matrix which summarized the different potential impacts that the alternatives would have. The recommended alternative was displayed such that any comments on the alignment could be brought to the attention of Arcadis to consider and address. A copy of the display boards is provided in **Appendix M**.

12.1.3 Notice of Study Completion

The Notice of Study Completion will be sent out to stakeholders (include all agencies, ministries, Indigenous communities, and previously identified stakeholders), the residents that provided comments and businesses located within the Study Area. The Notice provides a minimum 30-

day comment period and outlines the MECP's revised Section 16 Order Request process. To also provide a more general distribution the Notice will be placed on two dates in the Mississauga News newspaper and posted on the Region's website.

12.2 Public and Agency Comments

Following the distribution of the Notice of Commencement and Notice of Online Public Engagement, comments were received from various agencies (City of Mississauga Heritage, City of Mississauga Realty services, Telus Canada, Hydro One Networks Services, Credit Valley Conservation Authority (CVC), Fisheries and Oceans Canada (DFO), Ministry of Citizenship and Multiculturalism (MCM), and Ministry of the Environment, Conservation and Parks (MECP)). These comments were reviewed, considered, and incorporated into the Project's Class EA process as appropriate. The feedback has been documented in the Project File Report.

A communications log, showing the all stakeholders, summary of comments, and responses, is included in **Appendix L**.

No comments were received from the public related to the Notice of Commencement nor on the Online Public Engagement presentation material. However, due to the land acquisition required to facilitate a portion of the preferred option (as elaborated in **Section 10**), early and proactive consultation was conducted with 3100 Kirwin Ave Property Representatives. A meeting was held in May 2024, during which all comments and concerns were discussed. These will be further considered and addressed throughout the Implementation Phase. The Region's Real Estate department will continue to lead the consultation moving forward.

The received comments did not result in any changes to the recommended alignment. As such, the alignment has been confirmed and carried forward as the preferred alternative.

12.3 Indigenous Communities Consultation

Indigenous community consultation was undertaken to ensure effective engagement and communication with those potentially interested in the study. All consultation activities, comments, and responses have been logged in a table, which includes the Indigenous communities' summary of comments and response provided and can be found in **Appendix L**.

The following initiatives were undertaken to notify Indigenous communities of this Class EA study:

- **Email Notifications:** Each potentially affected Indigenous community on the project contact list was emailed notices to keep them informed of the project's progress and methods for providing input.
- **Follow-up Contacts:** In addition to email notifications, communities were contacted through **follow-up emails** and **phone calls** to provide an opportunity for follow-up.

The following Indigenous communities were provided with a copy of all project notices and will also receive the Notice of Completion:

- Alderville First Nation
- Beausoleil First Nation
- Chippewas of Rama First Nation
- Haudenosaunee Confederacy Development Institute
- Huron Wendat

- Métis Nation of Ontario Head Office
- Mississaugas of the Credit First Nation
- Six Nations of the Grand River First Nation

A summary of correspondences with Indigenous communities is as follows:

- Huron-Wendat Nation (Gabrielle Beaudry) inquired about archaeological studies/fieldwork in the study area. Arcadis followed up with Gabrielle Beaudry on May 30, 2024, since she requested a copy of the archaeological study to review when the study was complete. Arcadis provided a copy of the Stage 1 Archaeological Assessment for review on July 26, 2024.
- Six Nations (Peter Graham) inquired about the replacement ratio for any trees removed during the project. Arcadis contacted/followed up with Six Nations (Peter Graham) via phone on May 30, 2024, and inquired if he had any other concerns with the study. After a brief phone discussion regarding the project, Six Nations (Peter Graham) asked for a personal copy of the Notice of Public Engagement and stated that they would follow up if they had any concerns. The Notice of Public Engagement has been forwarded to Peter Graham and Arcadis provided a courtesy copy of the Stage 1 Archaeological Assessment on August 1, 2024.
- Arcadis contacted Mississaugas of the Credit First Nation (Adam Laforme) via emails and phone call and inquired if they had any comments on the study. Adam requested a personal copy of the Notice of Public Engagement. The Notice of Public Engagement was forwarded to Adam Laforme. Abby (Laforme) Lee inquired about receiving a copy of the Project File Report once completed.
- In addition, MCFN requested Arcadis's assistance regarding a Class EA near McQueen Shaver Boulevard, Cambridge. Arcadis provided the contact information of the project manager for the McQueen Shaver Boulevard, Cambridge project.
- Alderville First Nation (Dr. Julie Kapyrka) responded to the Notice of Online Public Engagement and stated that Alderville would not be engaging in the project.

The Notice of Completion, with a link to the Project File Report, will be provided to the Indigenous communities by email.