



Appendix L: Hydrogeology Report

Regional Municipality of Halton

Hydrogeological Assessment

**Regional Road 25 Transportation Corridor Improvements
Municipal Class Environmental Assessment Study from Speers
Road to Derry Road**

Tuesday, June 16, 2026

CIMA+ Project No. B001514

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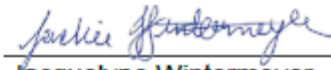
Regional Municipality of Halton

Hydrogeological Assessment

Regional Road 25 Transportation Corridor
Improvements
Municipal Class Environmental Assessment
Study from Speers Road to Derry Road

CIMA+ Project No. B001514

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1 Introduction

CIMA Canada Inc. (CIMA+) was retained by the Regional Municipality of Halton (the 'Municipality' or 'proponent'), to complete a Hydrogeological Assessment as part of a Schedule 'C' Municipal Class Environmental Assessment (MCEA) for Regional Road (RR) 25 Transportation Corridor Improvements from Speers Road to Derry Road, herein referred to as the 'Project'.

1.1 Project Location

The Project Site consists of the section of RR 25 between Speers Road and Derry Road extending through the Town of Oakville and the Town of Milton within the Regional Municipality of Halton, spanning approximately 15.6 km as illustrated in **Figure 1 (Appendix A)**. Within the Project limits, it is noted that the road name changes from Bronte Road in the Town of Oakville to RR 25 after intersecting Dundas Street West. The Project alignment is distributed across Lots 1-10 Concession 2 Trafalgar, Lots 1-10 Concession 3 Trafalgar, Lots 29-31 Concessions 1-2 North of Dundas Street Trafalgar, and Lots 30-31 Concessions 1-3 South of Dundas Street Trafalgar (centroid UTM 17T 596421E 4813223N or 43.4657079° latitude, 79.8079926° longitude).

The Study Area for the Hydrogeological Assessment has been established herein based on industry standard. Road practices to include the surrounding area within a 500-metre (m) radius of the Site boundaries to support baseline characterization of Site conditions and identification of potential receptors of any expected impacts where applicable. A 250 m Study Area is also identified for discussion purposes. The Study Area are delineated within **Figure 1 (Appendix A)**.

1.2 Project Description

Halton Region's Transportation Master Plan – The Road to Change (2011) identified the need for additional capacity in the Regional Road 25 corridor. The purpose of the RR 25 MCEA study (Speers Road to Derry Road) is to examine a wide range of multi-modal transportation improvements, including widening of the roadway, cross-sectional requirements, active transportation, intersection improvements, and overall traffic operations, while considering the impact of such improvements on the social, cultural, and natural environments.

This assessment utilizes the 47 m width of right-of-way, centred on the existing RR25 centreline, as the Project Site.

1.3 Scope of Work

The Hydrogeological Assessment provided herein has been completed as part of a Schedule 'C' MCEA for the Project to provide a preliminary characterization of baseline hydrogeological Site conditions and to evaluate the potential for adverse or unacceptable groundwater quantity and/or quality impacts that may be attributable to the proposed activities and which may affect the natural environment, including sustainable mitigation measures if such impacts are determined to be expected.

This Hydrogeological Assessment has been completed in general accordance with Conservation Halton's (CH) guidance document entitled 'Requirements for completion of hydrogeological studies to facilitate Conservation Halton's reviews' dated November 2014.

2 Methodology

The work plan for the Hydrogeological Assessment included the review and compilation of existing environmental, hydrological, geological, and hydrogeological site characterization information obtained from available sources as supplemented by the review of existing Project and Site information from previous investigations made available where applicable.

2.1 Reference Reports

Preliminary Geotechnical Investigation Report, Thurber Engineering LTD., October 3, 2025.

In support of the MCEA a preliminary geotechnical investigation was completed by Thurber Engineering LTD (Thurber). The preliminary investigation consisted of a review of existing geotechnical information along the corridor in addition to the completion of a borehole drilling program. The geotechnical drilling program was completed in December of 2023 to further explore the subsurface conditions within the Study Area and provide recommendations for future designs.

A total of 36 boreholes were drilled across the Project Site as part of the geotechnical investigation: 28 for pavement assessment and an additional eight (8) for culvert assessment. Boreholes were advanced via a truck mounted CME 55 drill equipped with solid stem augers and a split spoon sampler driven in conjunction with Standard Penetration Tests. A total of nine (9) monitoring wells were installed throughout the Project Site at select borehole locations. Monitoring wells consisted of 50 mm diameter PVC pipe with slotted screens and sealed at select depths. Monitoring wells were finished with flush mount lids at ground surface.

Regional Road 25 Transportation Corridor Improvements MCEA Drainage and Stormwater Management Report, CIMA Canada Inc., April 2026.

A Drainage and Stormwater Management Report was completed by CIMA+ in support of the overall MCEA. The report involved an assessment of existing drainage features, flow patterns, constraints, and design requirements, in addition to providing estimated flow rates for the existing and proposed system. The report provides an evaluation of the capacity of the existing storm sewer components and includes design of major and minor drainage systems including new storm sewers. The report was completed through a desktop review of available supporting documents and records in addition to a Site reconnaissance.

Findings and recommendations made in the Preliminary Geotechnical Investigation Report and the Drainage and Stormwater Management Report are included herein, where relevant, to support the Hydrogeological Assessment herein.

3 Project Site Characterization

3.1 Surrounding Land Uses and Servicing

3.1.1 Land Use Designations

According to the Halton Region Official Plan (Halton OP, 2021), the Project Site is situated on RR 25 which passes through three distinct land use designations. The Urban Area designation covers the Project Site from Derry Road to Britannia Road in the Town of Milton, with the exception of a small section southeast of Whitlock Avenue that intersects with a Regional Natural Heritage System corridor. The Project Site then goes through a designated Agricultural Area while crossing several corridors associated with the Regional Natural Heritage System until it reaches Johnson Way. After this point, the Project Site continues through a considerable part of the Regional Natural Heritage System until reaching Highway 407. From the intersection of Highway 407 and Regional Road 25 to its terminus at the intersection of Speers Road, the Project Site is situated within the Urban Area designation, while crossing several Regional Natural Heritage System corridors.

As described within the Halton Region Official Plan (Halton OP, 2021), the Regional Natural Heritage System is a systems approach to protecting and enhancing natural features on the basis of select key features including Escarpment Natural Area and Escarpment Protection Area as identified in the Niagara Escarpment Plan, regulated flood plains as determined and mapped by the Conservation Authority, and parts of the agricultural system being those areas of the Regional Natural Heritage System outside

of the Key Features where agriculture is supported and promoted. Land use designation throughout the Study Area is presented in **Figure 2 (Appendix A)**.

3.1.2 Zoning

The Project Site is located in two zoning jurisdictions: the Town of Milton from Derry Road to Britannia Road and the Town of Oakville from Highway 407 to Speers Road. According to the Town of Milton Zoning By-law 144-2003, the Project Site is located in areas consisting predominantly of Future Development Zones (FD), Medium Density Residential Zones (RMD), and Temporary Use Zones (T13-OS). Similarly, according to the Town of Oakville Zoning By-laws 2014-014 and 2009-189, the Project Site is located in several zoning areas, which includes Industrial Use, Parkway Belt Public Use, Greenbelt, and Low to Medium Residential Use zones.

3.1.3 Existing Services

Historically, parts of the Project Site between Derry Road and Speers Road were privately serviced, as evidenced by the historical water well records retrieved from the Ministry of the Environment, Conservation and Parks (MECP) Water Well Information System (WWIS) database corresponding with locations along Regional Road 25.

It is assumed that the residential areas adjoining the Project Site from Derry Road to Britannia Road were fully serviced when developed. Between Britannia Road and Dundas Street in the Town of Oakville, it is understood that developed properties are privately serviced with the exception of the Milton Civic Operations Centre at 5670 RR 25 which has municipal services. Developed properties between Dundas Street and Speers Road are understood to have been fully serviced at the time of their development.

3.2 Local Climate

The local climate of the Project Site and the region in which it resides can be described as continental and is influenced by the presence of the Great Lakes, most notably Lake Ontario. A review of the most recent available long term weather data set, from 1991 to 2020, obtained from Environment Canada (2024) shows that winter temperatures (December-February) in the region average around -2.1°C, however winter temperatures can be exaggerated by a wind chill factor. Spring temperatures (March-May) in the region average around 8 °C, while fall temperatures (September-November) for the region average at 11.4 °C. Summer temperatures (June-August) average at 21.4 °C, however the effect of humidity will often enhance summer temperatures in the region.

Regional precipitation data obtained from Environment Canada (2024) over the same 1991 to 2020 timeframe indicates that average precipitation totals are relatively consistent year-round, at around 69.1 mm in the spring, 76.7 mm in the summer, 69.8 mm in the fall and 58.8 mm in the winter.

3.3 Topography, Physiography, Surface Water and Drainage

3.3.1 Topography

Topography within the Project Site and surrounding Study Area is generally flat and slopes to the southeast towards Lake Ontario. Elevations are greatest in the northwestern portion of the Study Area in Milton at approximately 195 metres above seas level (m asl) and the lowest in the southeastern portion of the Study Area towards Oakville with an elevation of approximately 85 m asl. The lowest apparent elevation located within the 500 m Study Area is indicated as being part of the Bronte Creek which represents the primary drainage feature in the Study Area. Elevations throughout the Project Site and Study Area are presented on **Figure 3 (Appendix A)**.

3.3.2 Physiography

The Project Study Area is located within the Great Lakes - St. Lawrence Lowlands physiographic region of Ontario which encompasses the southern parts of the province in addition to the areas surrounding the St. Lawrence River, segmented into two separate areas by the Niagara Escarpment.

The Ontario Geological Survey (OGS) Earth database indicates that the physiographic make-up of the Project Site generally consists of four (4) distinct physiographic units. Approximately 45% of the Project Site (from Derry Road approximately to the intersection of Johnson Way) consists of bevelled till plains. From the approximate intersection of Johnson Way to just south of the Highway 407 intersection is a region of till moraines, followed by drumlinized till plains that covers a section of the Project Study Area for approximately 4 km until it meets the shale plains physiography that encompasses the remainder of the southern part of the Study Area. Physiographic feature mapping is provided in **Figure 4 (Appendix A)**.

3.3.3 Surface Water Features

The Study Area falls within the Sixteen Mile Creek, Fourteen Mile Creek, and Bronte Creek watersheds, all of which fall under the jurisdiction of Conservation Halton and

drain into Lake Ontario (Conservation Halton, 2024). Mapped surface water features within the Study Area and surrounding region are shown in **Figure 3 (Appendix A)**.

According to the Drainage and Stormwater Management Report (CIMA, 2025), in addition to storm sewers, three stormwater management (SWM) ponds that service the Study Area including the QEW SWM Pond, the Bronte Creek SE SWM Pond, and the Mattamy SWM Pond. Based on a review of available satellite imagery, additional surface water features can be seen as part of the Deerfield Golf Club located on the northeast side of the Project Site and north of The QEW, several subdivision SWM Ponds at the northern end of the Study Area, several small private ponds within rural properties near the centre of the Study Area, and several ponds at the Rattle Snake Point Golf Club to the south of Britannia Road.

3.3.4 Drainage

From northwest to southeast, the Study Area lies within the Sixteen Mile Creek watershed, the Fourteen Mile Creek watershed, and the Bronte Creek watershed, containing tributaries of each creek which flow southeast and ultimately drain into Lake Ontario. The Study Area falls within the jurisdiction of CH (Conservation Ontario, 2025), which regulates natural hazards including slope erosion, meander belt erosion, flood plain, and wetlands. There is a 15 m allowance that is applied to the greater of the hazard limits.

Drainage within the Study Area can be segmented into several areas with distinct drainage characteristics as summarized below from the Drainage and Stormwater Management Report (CIMA, 2025).

- RR 25 from Speers Road to 150 m north of Wyecroft Road: fully urbanized segment, with runoff directed to storm sewers along Bronte Road.
- 150 m north of Wyecroft Road to 200 m north of Charles Cornwall Road: drainage is to the QEW East SWM Pond.
- 200 m north of Charles Cornwall Road to Upper Middle Road West: runoff drainage is directed to storm sewers which lead to Fourteen Mile Creek.
- Upper Middle Road West to 250 m north of Upper Middle Road West: Storm sewers discharge into Fourteen Mile Creek.
- 250 m north of Upper Middle Road West to 150 m north of Westoak Trails Boulevard: runoff drainage is diverted to storm sewers and directed to the Bronte Creek SE SWM Pond.
- 150 m north of Westoak Trails Boulevard to William Halton Parkway: runoff drainage is conveyed to the Mattamy SWM Pond via storm sewer.

- William Halton Parkway to approximately 200 m south of Highway 407: runoff from the western half of the Parkway is conveyed via storm sewer while the eastern half is conveyed via roadside ditch, both to the Mattamy SWM Pond.
- 200 m south of Highway 407 to Britannia: rural area with drainage flowing as sheet flow into roadside ditches, eventually discharging to Sixteen Mile Creek and Fourteen Mile Creek.
- Britannia Road to Louis St. Laurent Avenue: partially urban, with runoff conveyed via roadside ditches on the western side and via storm sewer on the eastern side.
- Louis St. Laurent Avenue to Derry Road: includes storm sewer systems discharging to Sixteen Mile Creek.

Across the Study Area the above drainage patterns outlet to 32 separate outlet areas. Outlet areas are discussed in relation to specific Catchments intersecting the Project Site, and total drainage area, as part of the Drainage and Stormwater Management Report (CIMA, 2025).

3.3.5 Natural Heritage

A review of the Ontario Ministry of Natural Resources and Forestry interactive map of Natural Heritage Areas was conducted to determine if there are any Areas of Natural and Scientific Interest (ANSI) or Provincially Significant wetlands (PSWs) within the Study Area. The desktop review determined that there are four (4) ANSI within the Study Area. One of the ANSI, the Trafalgar Moraine, is located directly north of Highway 407. Spanning across RR 25, the Trafalgar Moraine is subcategorized as an Earth Science Provincially Significant Area.

Three additional ANSI are identified as part of the subcategory Life Science Provincially Significant Area: the Bronte Creek Provincial Park Nature Reserve Zone, the Oakville-Milton Wetlands and Uplands, and the Sixteen Mile Creek. The Bronte Creek Provincial Park Nature Reserve Zone is located within the Bronte Creek Provincial Park and represents the drainage area of Bronte Creek. The Bronte Creek Provincial Park Nature Reserve Zone is located just north of The QEW and remains on the west side of Regional Road 25. The Oakville-Milton Wetlands and Uplands is located south of Lower Baseline Road West and west of the Study Area, and the Sixteen Mile Creek ANSI is representative of the drainage area of Sixteen Mile Creek.

A review of the above mapping also revealed that there are some small PSWs within the Study Area between Lower Base Line West and Highway 407 on either side of the Project Road, near the 407, and at the southern end of the Study Area within Bronte Creek Provincial Park.

3.4 Geology

3.4.1 Surficial Geology

The Ontario Geological Survey (OGS) Earth database indicates that the surficial geology over the Project Site generally consists of five (5) distinct geological deposits. Approximately 40 % of the Project Site (from Derry Road to just south of Lower Base Line) consists of fine-textured material (silt and clay) of glaciolacustrine origin with fine sand deposits. Boreholes P-19 to P-28 and C-05 to C-08, which were completed during the geotechnical drilling program confirm this soil composition, with borehole logs generally consisting of silty clay with varying amounts of sand and gravel underlying the granular road base (Thurber, 2025).

Mapping of this section of the Project Site also indicates the presence of a narrow band of modern alluvium (clay, silt, sand, gravel) just south of Derry Road, traversing RR 25 for approximately 1km. This narrow band is buffered by silty to clayey till (silty clay to clayey silt) of glaciolacustrine origin that largely skirts the eastern boundary of the Project Site until Johnson Way. From here, it covers approximately 50% of the Project Site until it reaches Saw Whet Boulevard in the southeast of the Study Area. The glaciolacustrine silty clay identified in the OGS database mapping for this stretch of the Project Site is confirmed by observations made by geotechnical boreholes P-18 to P-06 and C-01 to C-04. Borehole logs for these locations generally indicate material below the granular road base typically consisting of silty clays with varying amounts of sand and gravel (Thurber, 2025).

Between Saw Whet Boulevard and The QEW there is a relatively small deposit of sand of lacustrine origin. This area is followed by a zone of shallow shale bedrock surrounding The QEW before resuming into an area of silty clay till for the remainder of the southern Limits of the Study Area. These soil compositions are confirmed with observations made during the geotechnical drilling program from boreholes P-05 to P-01. While P-05 is slightly northwest of the described area, it indicates the presence of a sand and gravel and similarly seen in borehole P-03 (Thurber, 2025). Boreholes P-02 and P-01 indicate the resuming of a silty clay till (Thurber, 2025).

A review of select available well records from the MECP WWIS corresponding with locations in and around the Study Area confirm consistent soil conditions to those described above from OGS mapping and the Geotechnical Investigation.

Surficial geology mapping is provided in **Figure 5 (Appendix A)**.

3.4.2 Bedrock Geology

The Ontario Geological Survey (OGS) Earth database indicates that the uppermost bedrock formation throughout the Study Area is Silurian in age and is primarily associated with the Queenston Formation. The unit is characterized by shale, limestone, dolostone and siltstone.

A review of select well records obtained from the MECP WWIS corresponding with locations in and around the Project Site indicate that the upper bedrock unit in the area is comprised of red shale of varying hardness. The shale unit described in the select well records was encountered at varying depths with the deepest being approximately 18.9 metres below ground surface (m bgs) and the shallowest encounter being approximately 1.2 m bgs. The deepest well record reviewed was for a well finished to a final depth of 36.6 m bgs; completed 25.9 m into shale.

Observations made by Thurber (2025) during the geotechnical drilling program indicated that shale bedrock was encountered at boreholes C-03 (approximately 650 m northwest of Old Bronte road) and C-04 (approximately 400 m northwest of Burnhamthorpe Road West) at depths of 6.93 m bgs and 6.90 m bgs, respectively. The maximum depth drilled at these locations was 7.67 m bgs; no additional bedrock types were encountered (Thurber, 2025).

Bedrock geology mapping is provided in **Figure 6 (Appendix A)**.

3.4.3 Karst Features

Review of the available regional mapping of karst features presented by the OGS (2010) identifies one karst cave, the MacKenzie Cave, in Bronte Creek Provincial Park near the southern portion of the study area. Aside from MacKenzie Cave, the mapping does not indicate the occurrence of potential, inferred, or known karst features on or within a 1 km radius of the Project Site.

3.4.4 Hydrogeology

According to the online Water Well Information System (WWIS) as searched January 2025, six-hundred and ninety-five (695) water well records were identified for locations within 500 metres of the Project Site, of these, three-hundred and sixty-one (361) were identified within 120 metres. In general the majority of well records correspond with monitoring wells, historical private water supply well records, or records of decommissioning. However active private water supply wells are understood to remain in use throughout rural segments of the Study Area, as evidenced by WWIS records, including along the Project Site between Britannia Road and Dundas Street and between Upper Middle Road and The QEW in the Town of Oakville.

Nine (9) groundwater monitoring wells were installed as part of the geotechnical investigation (Thurber, 2025). Groundwater levels were measured once following monitoring well installation; groundwater depths ranged from 2.5 m bgs at C-08 (on Regional Road 25 approximately 400 m southeast of the intersection of Regional Road 25 and Derry Road) to 7.2 m bgs at C-02 (on Regional Road 25 approximately 200 m southeast of the intersection of Regional Road 25 and Upper Middle Road West). The well installed on Regional Road 25, approximately 350 m north of Henderson Road (P-16) was dry, with a mid-screen depth of 2.2 m bgs. The average groundwater depth was 4.55 m bgs.

3.5 Source Water Protection

The Clean Water Act 2006 (CWA) is intended to protect existing and future sources of municipal drinking water as part of the Province's overall commitment to protecting human health and the environment. The CWA sets out a framework for source protection planning including the designation of Source Protection Areas and the establishment of Source Protection Committees, who are responsible for the development Source Protection Plans (SPP) in their respective areas. SPP contain policies to protect municipal drinking water sources from provincially prescribed activities that may negatively impact the quality and quantity of drinking water sources within the following Vulnerable Areas: Wellhead Protection Areas, Intake Protection Zones, Significant Groundwater Recharge Areas, and Highly Vulnerable Aquifers. Applicable SPPs illustrate the location of Vulnerable Areas.

The Regional Road 25 MCEA Study Area is located within the Halton-Hamilton Source Protection Region and therefore the applicable SPP in the study area is the Halton-Hamilton Source Protection Plan (www.protectingwater.ca). Review of the vulnerable areas mapping and related policies in the Halton-Hamilton SPP indicates that the Regional Road 25 MCEA Study Area is not located within a Highly Vulnerable Aquifer, but does cross Intake Protection Zone (IPZ) 2 in the southern portion of the Study Area and IPZ 3 in the central portion of the Study Area, north of Highway 407, and a small section in the southwestern portion. Source Protection mapping of Intake Protection Zones within the study area is presented in **Figure 7 (Appendix A)**.

3.6 Environmental Source Information

CIMA+ conducted a preliminary desktop review of land usage in the immediate vicinity of the Project Site for potential sources of interception of contaminated groundwater. The desktop review consisted of a visual assessment and "virtual" walkthrough from roadways using Google Maps data (accessed in March, 2026) and current aerial

photography to identify land use and potential sources of contamination and/or environmental concern.

Based upon the information gathered from the desktop review, the following potential sources of contamination and/or environmental concerns were identified as per **Table 1** as part of the preliminary desktop review.

Table 1: Potential Sources of Contamination and/or Environmental Concern

Potentially Contaminating Activity	Location of Potential Source relative to Project Site	Distance to Project Site
Dry Cleaner	Located north of the Derry Road and Regional Road 25 intersection. (575 Ontario Street S, Milton)	80 m
Dry Cleaner	Located north of the Westoak Trail Boulevard and Regional Road 25 intersection. (2983 Westoak Trails Boulevard, Oakville)	130 m
Gas Station	Located south of the Derry Road and Regional Road 25 intersection. (6788 Regional Road 25, Milton)	Adjacent
Gas Station	Located north of the Derry Road and Regional Road 25 intersection. (591 Ontario Street S, Milton)	Adjacent
Gas Station (historical)	Formerly located west of Regional Road 25 (Bronte Road) in the Town of Oakville. (754 Bronte Road, Oakville)	Adjacent
Gas Station (current)	Located along Regional Road 25 (Bronte Road) at the intersection with Speers Road	Adjacent
Waste Management Site	Located along Regional Road 25 (5400 Regional Road 25)	Adjacent
Milton Civic Operations Centre	Located along Regional Road 25 (5670 Regional Road 25)	Adjacent
Woodlands Operations Centre	Located along Regional Road 25 (Bronte Road) in the Town of Oakville. (1151 Bronte Road)	Adjacent
Golf Course	Located along Regional Road 25 (5407 Regional Road 25)	Adjacent
Golf Course	Located along Queen Elizabeth way (2363 North Service Road West)	400 m

4 Impact Assessment

An impact assessment was completed to evaluate the potential for adverse impact resulting from the planned Project construction activities based on the review of the Project Site Characterization included herein. The following considerations are noted with regards to the planned Project activities and their potential impacts:

- Active private water supply wells are understood to remain in use throughout rural segments of the Study Area, as evidenced by WWIS records, including along the Project Site between Britannia Road and Dundas Street and between Upper Middle Road and The QEW in the Town of Oakville. A comprehensive well survey should be completed throughout the Project Site as part of the detailed design phase to confirm the presence of private water supply wells and septic systems. The well survey should be considered as part of the updated impact assessment to be completed as part of the intrusive hydrogeological investigation during the design phase, in order to minimize potential impact of private well and septic systems during development. Monitoring and Mitigation Plans should be developed based on the updated impact assessment.
- Review of the available regional mapping of karst features presented by the OGS (2010) identifies one karst cave, the MacKenzie Cave, in Bronte Creek Provincial Park near the southern portion of the study area. The potential for the presence of Karst features in proximity to the Project Site should be considered during detailed design of the Project. Continuous subsurface investigations such as geophysical surveying should be considered in advance of installation of monitoring wells in karst susceptible sections of the Project Site.
- The Project Site is located partially within a mapped Intake Protection Zone (IPZ-2 towards the south and IPZ-3 in the south and central portions of the Project Site). Care should be taken during the planned development to minimize potential impact to groundwater and surface water drainage features in consideration of the designated IPZ-2 and IPZ-3 areas.
- Due to the increase of impermeable surfaces at the Project Site as a result of the proposed road widening, implementation of expanded stormwater management practices should be considered for peak flow control and quality control of runoff, including storage pipe systems and manufactured treatment devices such as oil/grit separator (OGS) units to provide quality treatment, and low-impact development (LID) measures for water balance. A hydrogeological assessment should be implemented at the detailed design phase of the Project to support LID design.

- The average groundwater depth was measured as 4.55 m bgs across the Project Site following installation of nine (9) groundwater monitoring wells as part of the geotechnical investigation (Thurber, 2025). A detailed intrusive hydrogeological investigation should be completed in support of the detailed design of the Project to inform potential construction dewatering requirements and evaluate potential environmental impacts anticipated to result from the construction dewatering. The hydrogeological investigation should include an assessment of seasonal groundwater level variation to support detailed design. The dewatering assessment should consider the need for a geotechnical assessment to evaluate any potential structural impacts of dewatering. The hydrogeological investigation should include an updated impact assessment, to be completed by a qualified person, including impacts to groundwater and surface water quality and quantity. Monitoring and Mitigation Plans should be developed based on the updated impact assessment.
- A preliminary desktop review of land usage in the immediate vicinity of the Project Site was completed for evaluation of potential sources of interception of contaminated groundwater. Based upon the information gathered from the desktop review, several potential sources of contamination and/or environmental concerns were identified in proximity to the Project Site, including dry cleaning services and gas stations. Potential sources of contamination within the Study Area should be considered and evaluated as part of the development of a groundwater management plan and a soil management plan in support of the Project. Further, the completion of a Phase One Environmental Site Assessment may be applicable to the project in order to further evaluate the presence of actual contamination or potentially contaminating activities in proximity to the Project Site, or the completion of an Assessment of Past Uses Report may be recommended in support of the management of excess soil if required.

5 Mitigation Measures

In consideration of the Project Site Characterization and Impact Assessment included herein, it is recommended that mitigation measures be established in order to limit environmental impact of the Project as part of detailed design and construction phases. Recommended mitigation measures may include the planning and implementation of:

- Water Taking and Water Discharge Plan, in accordance with Ontario Regulation 63/16 as required in support of registration on the Environmental Activity and Sector Registry (EASR) for construction site dewatering, if required. Plans should consider the presence of private water supply wells within the Study Area and implement monitoring as needed.

- The following management plans should be developed in advance of Project Construction:
 - Erosion and Sediment Control (ESC) Measures;
 - Spill Containment and Response Plan;
 - Monitoring and Mitigation Plans (Groundwater and Surface Water); and,
 - Temporary construction site stormwater management planning (efforts to direct surface water flow away from the excavation, silt fences, etc.).

The Halton-Hamilton Source Protection Committee should be consulted during the project design phase to obtain guidance in the development of management plans in consideration of the Project location within IPZ-2 and IPZ-3.
- Hydraulic isolation of watercourses, including the implementation of groundwater shoring in the vicinity of creeks intersecting the Project Site to minimize impacts to surface water quality and quantity;
- Soil management plan, in addition to excess soil management plan in consideration of the application of Ontario Regulation 406/19 On-Site and Excess Soil Management, if applicable. Soil management planning should consider of potential sources of contamination in proximity to the Project Site.

6 Limiting Conditions

CIMA+ completed diligent and reasonable research in the conduct of this evaluation, with respect to the recognized laws and standards of practice.

The facts presented in this report are strictly limited to the period of investigation. The conclusions presented in this report are based on the available information and documents, the observations made during the Site visit and the information obtained from communications with various contacts. The interpretation presented in this report is limited to this data.

CIMA+ is not responsible for erroneous conclusions due to voluntary abstention or the non-availability of pertinent information. Any opinion expressed in relation to legal or regulatory conformity is technical and should not be, in any case, considered as legal advice.

CIMA+ has prepared this report for the sole use of the client. Any use of this report by a third party, as any decision based on this report, is the singular responsibility of the third party. CIMA+ will not be held responsible for eventual damages towards a third party resulting from decisions taken, or based, on this report.

7 References

CIMA+, Regional Road 25 Transportation Corridor Improvements MCEA. Drainage and Stormwater Management Report. Prepared for The Regional Municipality of Halton, November 28, 2025.

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